

# **INTERNSHIP AT ESSENCE SOLUSOFT**

**AN INTERNSHIP REPORT**

*Submitted by*

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*In partial fulfilment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE  
SAFFRONY INSTITUTE OF TECHNOLOGY**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



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**S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at ESSENCE SOLUSOFT** has been carried out by **Vekariya Agnesh Rameshbhai** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign



**Prof. Akshay Kansara**  
Internal Guide

Sign



**Prof. Akshay Kansara**  
Head of Department

## Company Certificate



Date: 3rd May 2023

### Sub: 12-Weeks Internship Completion Certificate

This is to certify that Mr. Agnesh Vekariya has completed his 12-weeks internship/training as a Fullstack Software Intern in our company from 1st February 2023 to 30th April 2023. To the best of our knowledge, this is the original and bonafide work done by him.

During this working period, we found him sincere, honest, and hardworking in his work. We appreciate his enthusiasm and dedication toward the work assigned to him. He is amiable in nature and character as well.

Sincerely,

**FOR, ESSENCE SOLUSOFT**

A handwritten signature in black ink that reads "Sachin".

**PROPRIETOR**

Mr. Sachin Gevariya  
Founder & Technical Director  
Essence Solusoft

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## PMMS Certificate



### GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL  
B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 15 May 2023 (10:44:29)

This is to certify that, *Vekariya Agnesh Rameshbhai* ( Enrolment Number - 190390107066 ) working on project entitled with *Internship at Essence Solusoft* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
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Name of Student : *Vekariya Agnesh Rameshbhai*

Name of Guide : *Mr. Akshay Rameshchandra Kansari*

Signature of Student :

\*Signature of Guide :

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## DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Essence Solusoft** submitted in partial fulfilment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Nisha Makwana (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**1. Vekariya Agnesh Rameshbhai**

## Acknowledgement

I would like to express my sincere gratitude to the University and Institute for providing such a wonderful opportunity for students to enhance their skills in their respective fields. I am immensely grateful to **Mr. Sachin Gevariya** and **Mr. Arpit Zala** for placing their trust in me and offering me the chance to work with their esteemed organization. I wish to express our sincere gratitude to our External guide **Nisha Makwana** for continuously guiding me at the company and answering all my doubts with patience. I would also like to thank my Internal Guide **Prof. Akshay Kansara** for helping us through my internship by giving us the necessary suggestions and advices along with their valuable co-ordination in completing this internship.

I also thank my parents, friends and all the members of the family for their precious support and encouragement which they had provided in completion of my work. In addition to that, I would also like to mention the company personals who gave me the permission to use and experience the valuable resources required for the internship.

**Thank you**

Agnesh Vekariya

## Abstract

*This internship report presents the experience and knowledge gained during a 12-week Ruby on Rails (RoR) internship at Essence Solusoft. The internship involved developing a web application.*

*The report begins by providing an overview of RoR and its importance in web development. It then describes the internship project, including the tasks assigned to me, such as designing the database schema, creating models and controllers, implementing user authentication, and integrating with third-party APIs.*

*Throughout the internship, I faced various challenges, including debugging complex errors and optimizing the application for performance. The report details the various tools and technologies utilized, such as Git, Heroku, and PostgreSQL, and how they were incorporated into the development process.*

*In conclusion, the internship provided a valuable opportunity to gain practical experience in RoR web development. I developed skills in creating scalable web applications, collaborating with other developers, and utilizing various tools and technologies.*

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## Abbreviations

ROR	Ruby on Rails
HTML	Hypertext Markup Language
CSS	Cascading Style Sheets
TDD	Test-driven development
BDD	behaviour-driven development
AWS	Amazon Web Services
SEO	Search Engine Optimization
CSV	Comma-Separated Values
SEM	Search Engine Marketing
HTTP	Hypertext Transfer Protocol
RVM	Ruby Version Manager
NVM	Node Version Manager
ERB	Embedded Ruby
HAML	Abstraction Markup Language

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## Chapter 1. OVERVIEW OF THE COMPANY

### 1.1 ABOUT COMPANY:

Essence Solusoft was established in 2016 with an idea to build high performance, scalable and secure web, and mobile applications with a team of experts who can deliver best solutions ever to their clients within the decided timeframe.

Essence Solusoft is a software development company based in India that provides a wide range of IT solutions and services to clients across various industries. The company offers custom software development, mobile app development, web development, cloud computing, artificial intelligence, and blockchain development services to help businesses improve their operational efficiency and gain a competitive advantage.

Essence Solusoft is the most efficient and reliable web applications design and development company. And they help customer to reach their goal. They can help you to design beautiful and self-managed blog web application with very good support.

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Figure 1.1 Office

## 1.2 SERVICE PROVIDE BY COMPANY:

Essence Solusoft provides a wide range of services in the IT industry, including:

**Ruby on Rails Development:** Essence Solusoft offers Ruby on Rails (RoR) development services. Their team of RoR developers has extensive experience in building web applications for businesses of all sizes and across various industries.

**Custom Software Development:** The company provides end-to-end software development services, from requirement analysis to deployment and maintenance. They have expertise in various technologies such as Ruby on Rails, Python, .NET, Java, and many more.

**Shopify app Development:** Essence Solusoft provides Shopify Development Service which allows businesses to create custom apps that integrate with their store. This can be used to add new functionality or streamline existing processes, such as inventory management or order fulfilment.

**Web Application Development:** The company provides custom web application development services using various front-end and back-end technologies like HTML, CSS, JavaScript, Ruby on Rails, Angular, React, and more.

**UI/UX Design:** The company provides user interface (UI) and user experience (UX) design services for web and mobile applications. They use the latest design tools and techniques to create visually appealing and user-friendly designs.

**Digital Marketing:** The company provides digital marketing services such as SEO, SEM, PPC, and social media marketing to help businesses improve their online presence and generate leads.

**QA and Testing:** Essence Solusoft offers quality assurance (QA) and testing services to ensure that software and applications are reliable, secure, and bug-free. They have expertise in manual and automated testing techniques.

**E-commerce Development:** Essence Solusoft has expertise in building e-commerce websites and applications using platforms like Magento, Shopify, WooCommerce, and custom e-commerce solutions



## Chapter 2. INTRODUCTION OF INTERNSHIP

### 2.1 ABOUT INTERNSHIP:

As part of my 8th semester requirements at Gujarat Technology University, I completed a 12-week internship in the Computer Engineering field.

During this internship, I completed a task assigned by my mentor, which involved developing a web application using Ruby on Rails (RoR) framework. I learned various programming languages such as HTML, CSS, JavaScript, jQuery, Bootstrap, Ruby, and Rails.

I worked as a RoR intern at Essence Solusoft Company, which specialises in web development and software services. I was mentored by their industrial guide, **Ms. Nisha Makwana** and supported by my internal guide, **Prof. Akshay Kansara**. Through this internship, I gained practical experience in implementing databases, working collaboratively in an agile team, and completing the assigned task within the given timeline.

### 2.2 ROLES AND RESPONSIBILITIES:

As an intern at Essence Solusoft, I was given the opportunity to work on several projects related to web development under the supervision of my mentor, Ms. Nisha Makwana. My roles and responsibilities included:

- Learning RoR syntax, understanding RoR MVC architecture, and becoming familiar with RoR development tools.
- Developing and implementing database schema and models using PostgreSQL.
- Creating and implementing user interfaces using HTML, CSS, and JavaScript
- Collaborating with the development team to implement features and resolve issues
- Participating in agile methodology practices such as daily stand-up meetings and sprint planning

- Learning and applying best practices for software development and code management

Through these roles and responsibilities, I gained valuable experience in web development and working collaboratively in a team environment.

## Chapter 3. TECHNOLOGY

### 3.1 HTML:

HTML, or Hypertext Markup Language, is the standard markup language used for creating web pages. It provides the structure and formatting for web pages and allows developers to include various elements such as text, images, and links. An HTML document is made up of elements, which are represented by tags. Tags define the structure of the content and how it is displayed on the web page. HTML elements include headings, paragraphs, lists, links, images, tables, and forms. Semantic HTML refers to the use of HTML tags that convey the meaning of the content, rather than just its appearance. This allows search engines and other software to understand the content and its purpose. HTML5 is the latest version of HTML and includes new elements and attributes that improve the functionality and performance of web pages.

As a part of my internship, I gained a basic understanding of HTML, which was provided to me by my senior. I also learned about best practices for HTML from an attached document. During my internship, I worked extensively with forms, including input fields, radio buttons, checkboxes, and dropdown menus. I also learned how to incorporate images into web pages and how to create tables. Additionally, I gained experience working with iFrames and validating code with the W3C Validator. I also learned about the usage of header tags and how to load CSS and JavaScript on web pages. Finally, I gained experience in writing inline CSS on web pages. Overall, my experience with HTML during my internship has given me a strong foundation in web development and has prepared me for future projects in this field.

### 3.2 CSS:

CSS, or Cascading Style Sheets, is a language used for describing the look and formatting of web pages written in HTML. CSS provides a set of rules that web developers can use to define the styling and layout of HTML elements on a web page. These rules include font styles, colors, backgrounds, borders, and positioning of page elements. CSS is important because it separates the content and structure of a web page from its presentation, making it easier to maintain and update. CSS also enables web

developers to create responsive designs that adjust to different screen sizes and devices. In addition to inline CSS and internal CSS, CSS can also be loaded externally from a separate file, allowing for easy maintenance and consistency across multiple pages. Overall, a strong understanding of CSS is crucial for creating visually appealing and user-friendly websites.

As a part of my internship, I gained a basic understanding of CSS. I learned how to apply CSS inline, on-page, and through a CDN (Content Delivery Network). I also learned about the difference between classes and IDs, with classes being used to apply styles to multiple elements and IDs being used for a single element. In addition, I gained experience applying CSS styles using tag names. Hierarchy in CSS was also covered, with a focus on how it determines the order in which styles are applied to page elements. Furthermore, I learned how to create image enlarging effects using CSS. I also gained experience making web pages responsive across different devices such as mobile (iOS/Android), tablet/iPad, and desktop. Finally, I learned the importance of validating CSS code with the W3C Validator to ensure its quality. Overall, my experience with CSS during my internship has given me a strong foundation in web development and has prepared me for future projects in this field.

### **3.3 JAVASCRIPT:**

JavaScript is a programming language used primarily for creating dynamic and interactive web pages. It is a high-level language that is interpreted and executed in web browsers. JavaScript allows web developers to add functionality to web pages, such as user input validation, interactive animations, and dynamic content. It is also commonly used in web development frameworks such as React, Angular, and Vue.js. JavaScript is a versatile language that can be used for both client-side and server-side programming. In addition to its core functionality, JavaScript has a large ecosystem of libraries and frameworks that allow for rapid development and efficient code reuse. Overall, a strong understanding of JavaScript is essential for creating modern and interactive web applications.

### 3.4 JQUERY:

jQuery is a popular JavaScript library that is used to simplify the process of developing dynamic and interactive web pages. It provides a set of pre-built functions that make it easy to perform common tasks, such as selecting and manipulating HTML elements, handling events, and making AJAX requests. jQuery is designed to be lightweight and easy to use, making it a popular choice for web developers. In addition to its core functionality, jQuery has a large ecosystem of plugins and extensions that can be used to add additional features and functionality to web pages. jQuery is compatible with most modern web browsers and is commonly used in web development frameworks such as React, Angular, and Vue.js. Overall, a strong understanding of jQuery is beneficial for developing modern and interactive web applications in an efficient and effective manner.

During my internship, I gained a basic understanding of JavaScript and jQuery. I learned how to access and manipulate the Document Object Model (DOM) using JavaScript, which is essential for creating dynamic and interactive web pages. Additionally, I gained experience using jQuery, a popular JavaScript library that simplifies the process of developing web pages. I learned how to use jQuery inline, on-page, and through a CDN (Content Delivery Network). I also gained an understanding of the difference between classes and IDs in JavaScript and when to use each. Events in JavaScript, such as hover, click, onkeypress, onkeyup, and onkeydown were also covered. In addition, I learned when to use jQuery ID-based selectors versus class-based selectors. I gained experience using jQuery plugins such as Data Table, Bootstrap, Slider, Modal, and Date Picker, with a focus on practical examples and additional scenarios. Overall, my experience with JavaScript and jQuery during my internship has provided me with a strong foundation in web development and has prepared me for future projects in this field.

### 3.5 BOOTSTRAP:

Bootstrap is a widely used front-end framework that I had the opportunity to work with, gaining experience in building responsive and mobile-friendly web pages. It provides a set of pre-built HTML, CSS, and JavaScript components that can be easily

incorporated into web projects, making it easier for developers to create professional-looking and functional websites. Bootstrap's form elements are one of its most popular features, as they offer a range of user-friendly inputs, such as text fields, dropdown menus, checkboxes, radio buttons, and more. Additionally, Bootstrap includes support for form validation, which can help ensure that user input is accurate and complete.

In addition to its form elements, Bootstrap is known for its powerful responsive design capabilities. Bootstrap's grid system allows developers to easily create responsive layouts that can adapt to different screen sizes and device types. By using CSS media queries, Bootstrap adjusts the layout and styling of web pages based on the size of the viewport. This enables developers to create web pages that look great on a wide range of devices, from mobile phones to desktop computers. Overall, my experience with Bootstrap has given me a solid understanding of how to build responsive and mobile-friendly web pages that provide a consistent and user-friendly experience across different devices.

### **3.6 RUBY:**

Ruby is a dynamic, object-oriented programming language that I had the opportunity to learn during my internship. To gain a better understanding of the language, my senior provided me with a basic understanding of Ruby's syntax and programming concepts, such as variables, control structures, data types, and more. Additionally, I was introduced to Ruby's best practices, which helped me write more efficient and readable code. Overall, my experience with Ruby has given me a solid foundation for building applications using this powerful programming language.

One of the key features of Ruby is its support for object-oriented programming concepts. I gained a basic understanding of these concepts, such as classes, objects, methods, modules, inheritance, overriding, and more. These concepts form the basis of Ruby's programming model, which emphasises the use of objects to encapsulate data and behaviour. Additionally, I learned about some of the key Ruby data structures, such as strings, arrays, and hashes, and how to manipulate them using built-in methods.

During my internship, I also gained experience with some of the more advanced features of Ruby. For example, I learned about Ruby's support for regular expressions and how to use them to search and manipulate strings. I also gained experience with Ruby's built-in CSV library, which made it easy to read and write CSV files. Additionally, I learned about some of the key Ruby programming patterns, such as service objects, value objects, query objects, and observers. Overall, my experience with Ruby has given me a solid understanding of how to build applications using this powerful programming language.

Another important aspect of logical tasks in Ruby is working with arrays and hashes. Ruby provides several methods for manipulating arrays and hashes, such as `sort`, `filter`, and `map`. Using these methods, we can perform complex logical tasks such as filtering and sorting data based on certain criteria.

In conclusion, learning how to perform logical tasks in Ruby is a crucial skill for any Ruby developer. By understanding conditional statements, loops, and logical operators, as well as working with arrays and hashes, we can build robust and efficient programs that meet the needs of our users. During my internship, I was able to gain a good understanding of these concepts and apply them in real-world scenarios.

### 3.7 RAILS:

Rails is a web application framework written in the Ruby programming language. It is designed to make it easier to build web applications by providing a set of conventions and tools to help developers write clean and maintainable code.

One of the first things that I learned was the importance of having a basic understanding of the directory structure in Rails, which includes folders for controllers, models, views, and assets. In addition, Rails follows the Model-View-Controller (MVC) architecture, which separates the concerns of an application into three distinct layers.

Understanding the request-response paradigm is also essential when working with Rails. This refers to the way that web servers and applications communicate with each other to handle HTTP requests and responses.

Package managers such as Yarn, RVM, Bundler, and NPM are commonly used in Rails applications to manage dependencies and ensure that an application is using the correct versions of the required libraries.

Routing in Rails is another important aspect to consider. There are several key concepts to understand, such as single and multiple resources, nested resources, namespace routing, naming routes, and collection routes. These routing techniques can help developers create cleaner and more organised code.

Controllers are responsible for handling requests in Rails applications. It is important to understand the basic ROR-based controllers that are used in Rails applications, as well as how to create API-driven controllers to handle requests from external services. Tools like Postman can be used to test and debug these controllers.

The model layer in Rails is responsible for handling database interactions. It is important to understand the difference between models and tables, as well as how migrations work in Rails. Scopes can also be used to simplify database queries and make them more maintainable.

View components such as partials, presenters, and helpers can be used to organise and modularize code in Rails applications. There are also several template languages that can be used in Rails, such as ERB, HAML, and Slim.

Other important topics in Rails include managing environments such as development, test, and production; working with databases such as PostgreSQL, MySQL, and MongoDB; using Gems like Devise, Rubocop, and Sidekiq; and understanding how to test applications using TDD and BDD methodologies.

Overall, my internship experience with Ruby on Rails has provided me with a solid foundation in these topics, which can help me create cleaner, more efficient, and more maintainable code in future projects.



## Chapter 4. PROJECT

### 4.1 INTRODUCTION:

The Employee Portal Project is a web-based application that allows employees to manage their leave requests and view their leave balances. The portal provides a centralized platform where employees can submit their leave requests and track their application status. Additionally, it provides an easy-to-use interface for administrators to view and manage leave requests.

One of the key features of the employee portal is the ability for employees to apply for leave directly through the system. The portal provides a simple form that employees can use to request time off. They can select the type of leave they are applying for (e.g., sick leave, vacation leave, personal leave), the start and end dates of their absence, and provide any additional notes or attachments required for the request.

Once the leave request is submitted, the system automatically sends an email notification to the employee's supervisor or manager to review and approve the request. Administrators can log into the system to view pending leave requests and approve or reject them. They can also view an employee's leave history, including approved and denied requests, and manage their leave balances.

The employee portal project aims to simplify the leave application process and reduce the workload of administrators. By providing a central platform for leave management, the system helps to streamline the entire process, from submitting a request to its approval. With the employee portal, employees and administrators alike can enjoy a more efficient and effective leave management experience.

### 4.2 PROJECT SCOPE:

The scope of this project will be limited to the following:

- Employee profiles:

- Employees will have access to their personal profiles and will be able to edit their details.
- Recruitment Process:
  - The admin will add an employee and a default password and employee id will be generated. The admin will then can add an employee's information to the database.
- Employee report:
  - Employee report contains information of the all the employee. System admin can edit the information of employee and can delete the information of employee.
- Project report:
  - In the project report admin can add or remove the employee in the project and can see how many employees are making that report, also having the all-project details like description, employees, technologies, and all.

### 4.3 PROJECT OBJECTIVE

In this world of growing technologies everything has been computerized. With large number of works opportunities, the human workforce has increased. Thus, there is a need of a system which can handle the data of such many Employees. This project simplifies the task of maintaining records because of its user-friendly nature. The objective of this project is to provide a comprehensive approach towards the management of employee information. This will be done by designing and implementing an employee management system that will bring up a major paradigm shift in the way that employee information is handle.

The objectives of this system include:

Design of a web-based employee management system to fulfil requirements such as project management, add new employees, approve user, project team and project report.

Well-designed database to store employee information. A user friendly front-end for the user to interact with the system.

## 4.4 MODULES:

### 4.4.1 User module:

The user module of the project will enable employees to apply for leave from their account. The following features will be included in this module:

- **Login and Update:** Employees will be able to update an account and login to access the system.
- **Profile Management:** Employees will be able to manage their personal information, such as their contact details, address, and emergency contact information.
- **Apply for Leave:** Employees will be able to apply for leave through their account. This feature will include the ability to select a leave type, view leave balance, view leave history, and check the status of their leave applications.
- **Logout:** Employees will be able to log out of the system once they have completed their tasks.

### 4.4.2 Admin module:

The admin module of the project will provide the administrative staff with the ability to manage employee records and leave applications. The following features will be included in this module:

- **Login:** Admin users will be able to login to the system using their credentials.
- **Dashboard:** The dashboard will provide an overview of the system and the latest updates.
- **Employee Management:** Admin users will be able to add new employees to the system, edit employee details, delete employee records, and view employee information.
- **Leave Management:** Admin users will be able to view leave applications submitted by employees, approve, or reject leave applications, and view the leave calendar.
- **Logout:** Admin users will be able to log out of the system once they have completed their tasks.

### 4.4.3 Leave application module:

The leave application module of the project will provide employees with the ability to apply for leave, and the administrative staff with the ability to manage leave applications. The following features will be included in this module:

- **Leave Types:** The system will support different types of leave, such as annual leave, sick leave, and unpaid leave.

- **Leave Balance:** Employees will be able to view their current leave balance for each type of leave.
- **Leave History:** Employees will be able to view their previous leave applications and their status.
- **Leave Approval Status:** Employees will be able to view the status of their leave applications, such as approved, pending, or rejected.
- **Approve/Reject Leave Applications:** Admin users will be able to approve or reject leave applications submitted by employees.
- **Leave Application Interface Design:** The user interface design of the leave application module will be user-friendly and intuitive.
- **Leave Application Testing Results:** The module will be thoroughly tested to ensure that it is functional and error-free.

## **4.5 TECHNICAL DETAILS OF IMPLEMENTED SYSTEM:**

### **4.5.1 Model View Controller Architecture (MVC):**

MVC (Model-View-Controller) is a software architectural pattern commonly used in web development projects. It separates the application logic into three interconnected components:

**Model:** The model represents the data and business logic of the application. It encapsulates the data and provides methods to manipulate and retrieve it. The model is responsible for handling data validation, persistence, and implementing business rules.

**View:** The view is responsible for presenting the user interface to the user. It displays the data from the model and provides an interface for user interaction. In web development, views are typically implemented using HTML, CSS, and JavaScript.

**Controller:** The controller acts as an intermediary between the model and the view. It receives input from the user through the view and initiates appropriate actions on the model. It also updates the view with the updated data from the model. In web development, controllers are implemented using server-side programming languages (e.g., PHP, Java, Python) and handle user requests, process data, and coordinate the flow of the application.

In the implementation, as shown in figure 4.3.1, the whole application is broken down into a series of top-level components which may be referred to as tasks, actions, functions, operations, or transactions (that's user transactions, not database transactions), each of which may be related to a Use Case. Each transaction component references a single Controller, one or more models, and usually a single view. Some components do not have a view as they are called from other components in order to perform a service, and once this service has been completed, they return control to the calling component.

### MVC Architecture

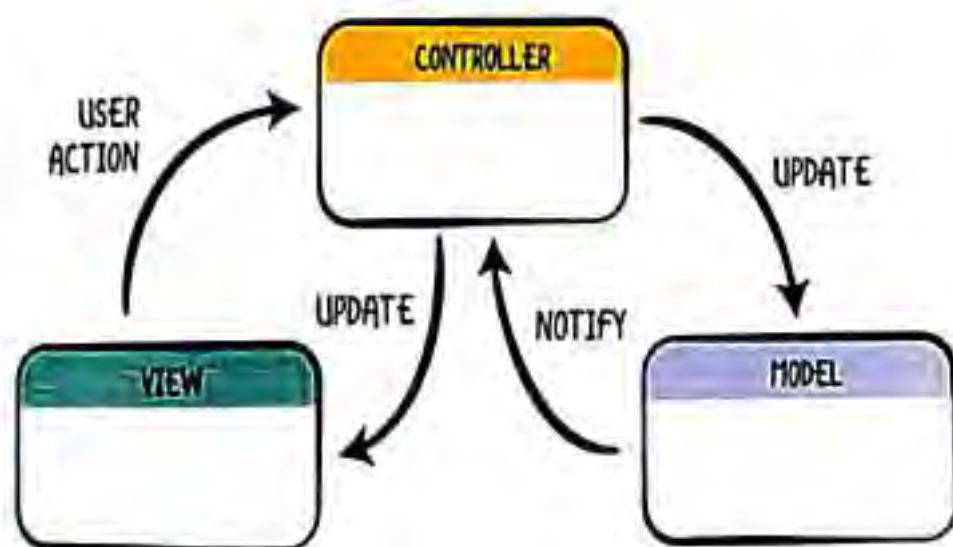


Figure 4.5.1 MVC Architecture.

### 4.6 IMPLEMENTATION AND RESULTS:

#### 4.6.1 Coding:

```
1 class UserController extends BaseController {
2     public function login() {
3         // ...
4     }
5     public function update() {
6         // ...
7     }
8     public function create() {
9         // ...
10        // ...
11    }
12    public function destroy() {
13        // ...
14    }
15}
```

Figure 4.6.1 User Controller Code

```

1 <!-- Admin Dashboard -->
2 <div class="container">
3 <div class="row">
4 <div class="col-md-12">
5 <div class="row">
6 <div class="col-md-12">
7 <div class="col-md-12">
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39 <div class="col-md-12">
40 </div>

```

Figure 4.6.1 Admin Dashboard View Code

```

1 <!-- Admin Dashboard -->
2 <div class="container">
3 <div class="row">
4 <div class="col-md-12">
5 <div class="row">
6 <div class="col-md-12">
7 <div class="col-md-12">
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37 <div class="col-md-12">
38 <div class="col-md-12">
39 <div class="col-md-12">
40 </div>

```

Figure 4.6.1 Routes Code

#### 4.6.2 Home Page



Figure 4.6.2 Home Page

#### 4.6.3 Admin Login

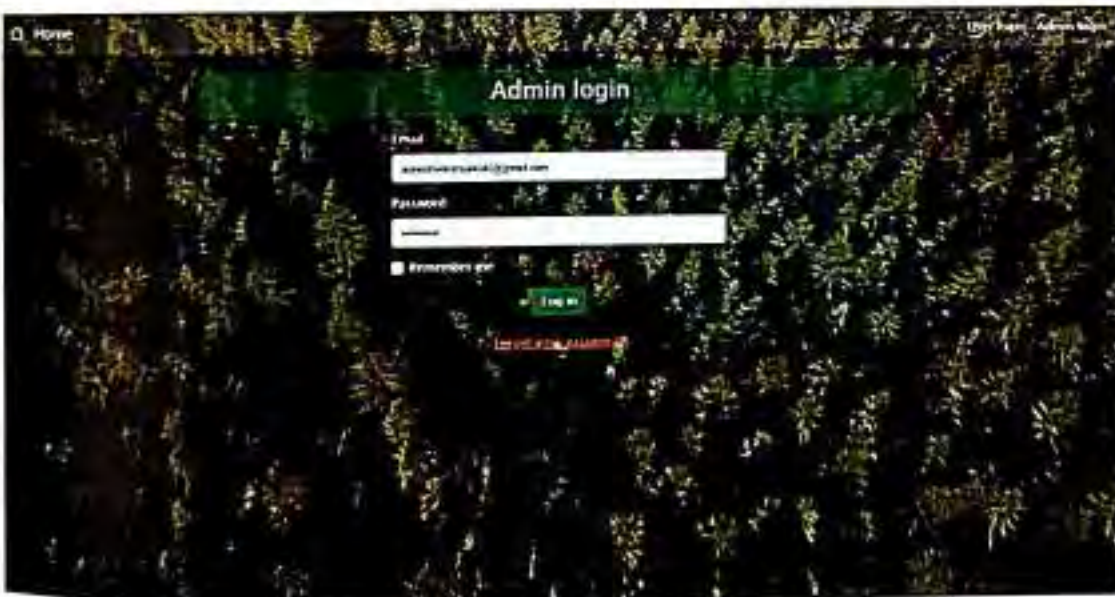


Figure 4.6.3 Admin Login Page



4.6.4 Admin Dashboard:



Figure 4.6.4 Admin Dashboard Page

4.6.5 Approve/Reject Leave

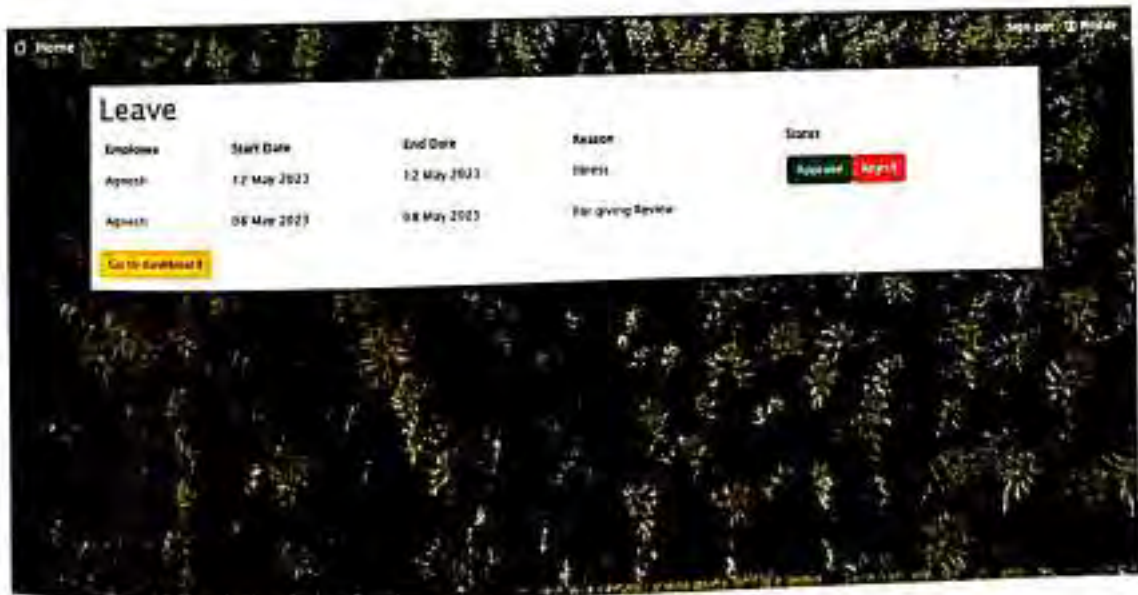


Figure 4.6.5 Leave Approve Page

#### 4.6.6 Create Employee



Home

### Create new Employee

Email

Full Name

Username

Role

Age

Password

Password confirmation

Create

Back

Figure 4.6.6 Create Employee Page

#### 4.6.7 Employee Login



Home

### Employee login

Email

ajayshubhendra12010@gmail.com

Password

\*\*\*\*\*

Remember me

Login

Invalid email or password

Figure 4.6.7 Employee Login Page

#### 4.6.8 Employee Details

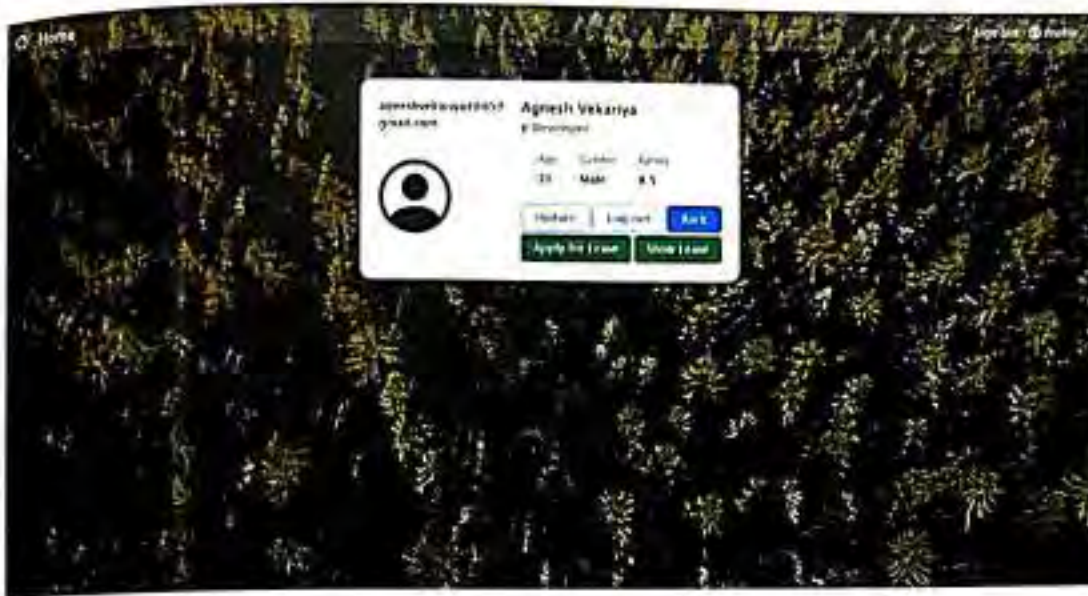


Figure 4.6.8 Employee Details view Page

#### 4.6.9 Apply for Leave



Figure 4.6.9 Leave application page

#### 4.6.10 Show Leave



Figure 4.6.10 Leave Status Page

#### 4.7 USED SOFTWARE:

Visual Studio Code (VS Code):

VS Code is a free and open-source source code editor developed by Microsoft for Windows, Linux, and macOS. It has a variety of features, including support for debugging, intelligent code completion, syntax highlighting, and code refactoring. It also has a wide range of extensions available to enhance its functionality, including support for many programming languages, frameworks, and libraries.

Ruby Mine:

Ruby Mine is an integrated development environment (IDE) specifically designed for Ruby programming language development. It is developed by JetBrains and is available on Windows, macOS, and Linux.

Ruby Mine provides a wide range of features for Ruby developers, including syntax highlighting, code completion, debugging, testing, refactoring, and version control integration. It also supports a range of frameworks and tools commonly used in Ruby development, including Rails, Sinatra, RSpec, and Capistrano.

Ubuntu:

Ubuntu is a popular Linux-based operating system that is free and open-source. It is widely used in web servers, cloud computing, and desktop computing. Ubuntu is known for its ease of use, stability, and security. It comes pre-installed with a range of software including LibreOffice, Firefox, and the GNOME desktop environment.

#### 4.8 ADVANTAGES:

This system is expected to be user friendly and will offer easy access to data as well as services such as online employee details adding, deleting and editing, also features like leave management, salary report, etc.

Other advantages are listed as follows: -

- Provides computerized system for maintaining records.
- It is more efficient & reliable.
- Less time consuming and easy to use.
- Avoid human errors and efforts for maintaining daily data.
- Avoid data manipulation.
- Avoid data inconsistency and redundancy.
- Less paper use and removal of redundancy.
- Less prone to errors.
- The whole system is interactive.

## Chapter 5. PROJECT DESIGN PHASE

### 5.1 PROJECT FLOW:

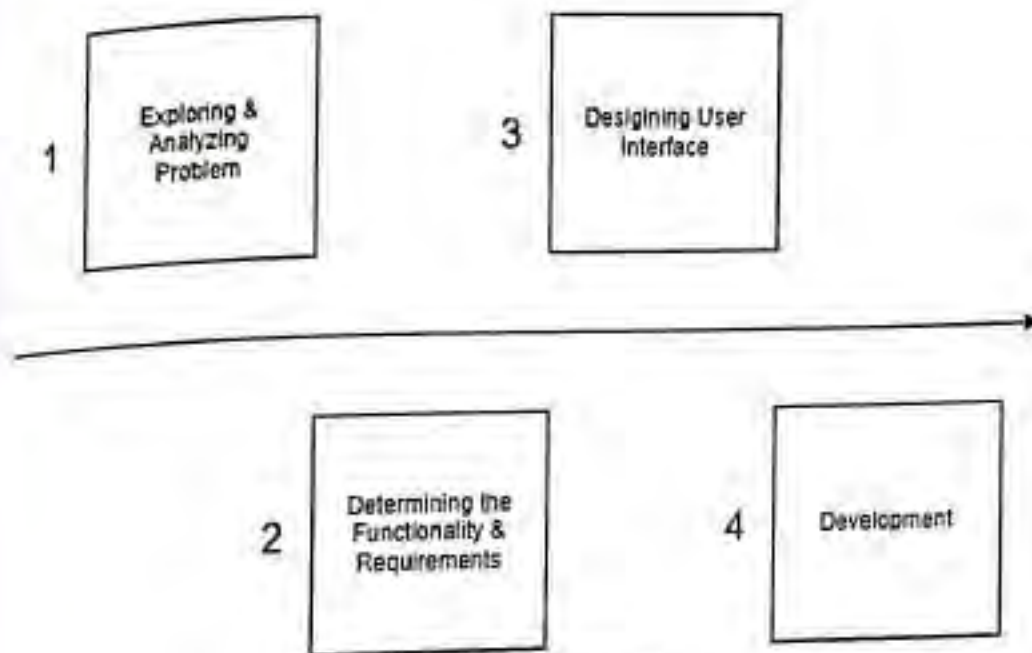


Figure 5.1 Project Flow

This is the process we've throughout the entire project. Firstly, exploring and analyzing the problem, how to overcome the ordinary management system. To get rid of ordinary management system.

Second step is to determine the functionality and requirements of the project. So, we have determined the functions for this project like employee personal information, department management, leave management, salary report etc.

Third step is to designing the UI. So, we've designed the entire interface using html, CSS, bootstrap and JavaScript.

Fourth step is the development of the project. We have developed project using Ruby and Rails.

## 5.2 SYSTEM DESIGN:

### 5.2.1 Input Design:

Input is any data or instructions entered the memory of a computer. Two types of input are data and instructions. Data is a collection of unorganized items that can include words, numbers, pictures, sounds, and video. A computer processes data into information, which is organized, meaningful, and useful. Instructions can be in the form of programs, commands, or user responses. A program is a series of instructions that tells a computer how to perform the tasks necessary to process data into information. A command is an instruction given to a computer program. A user response is an instruction you issue to the computer by responding to a question posed by a computer program. Any hardware component that allows entering data, programs, commands, and user responses into a computer is an input device.

### 5.2.2 Output Design:

Output design involves specifying how production of on-screen reports and paper-based reports will occur. Output may occur to database or file for storing information entered or also, for use by other systems. Output is data that has been processed into a useful form called information. Four types of output are text, graphics, audio, and video. Text consists of characters (letters, numbers, punctuation marks, or any other symbol requiring one byte of computer storage space) that are used to create words, sentences, and paragraphs. Graphics are digital representations of non-text information such as drawings, charts, photographs, and animation (a series of still images in rapid sequence that gives the illusion of motion). Audio is music, speech, or any other sound. Video consists of images played back at speeds to provide the appearance of full motion. An output device is any Computer component capable of conveying information to a user. Audio is music, speech, or any other sound. Video consists of images played back at speeds to provide the appearance of full motion.

### 5.2.3 Module Design:

To make this software handier and more feasible to the user we have divided it into few different modules and they are as follows:

- Login module
- Register module
- Admin module
- Employee module
- Add new employee module
- Update Employee Module
- Show employee module

#### Login Module:

It is used for logging in the employee details manager. It is used for verifying the user. Once the user is authenticated, they can access the system.

#### Registration Module:

New user can register in order to use the full features of this system.

#### User Module:

It is used for adding new user and for updating existing customers. It is used for storing new user as well as for updating the customer's details. The module is very useful to find the number of users who registered.

#### Add New Employee Module:

It is used for adding new employee and for viewing, editing, and deleting existing employees. It is used for searching items in this system. Here the admin has the privileges to search items in this system. Employee details are stored with their name. When a particular module is being liked by people, that module will be shown to user.



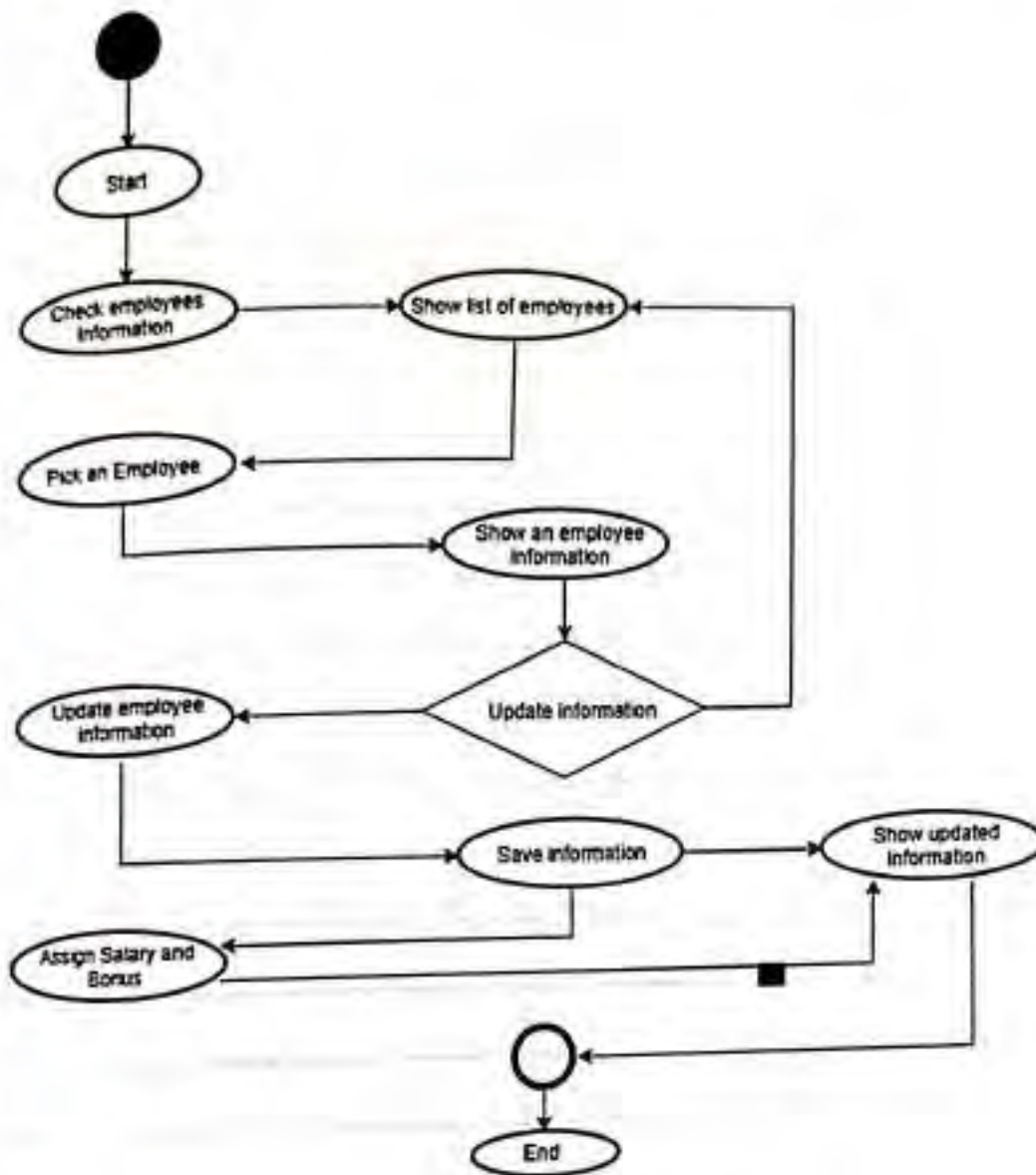


Figure 5.2.3 System Activity Diagram

### 5.3 INTERFACE DESIGN:

The web application was created with the following design considerations in mind:

- **Consistent.** The website should have a similar look and feel on every page. Every page should have the same header/logo, heading style, fonts, navigations etc.

- **Efficient and easy to maintain.** This refers to the fact that there is need to separate content from layout, so that you can easily change your page design without editing every page on the site.
- **Layout.** The layout of each page should have a good contrast between the text and background area. This helps considerably with visibility as it will be difficult to read the text if it is almost the same colour as the background. Monitor size should also be taken into consideration.
- **Easy to navigate and use.** Users should not have a hard time trying to navigate the site. Navigation links should be consistent and clearly labelled. All navigation links should also be working properly and should point to the intended page/site.
- **Browser compatible.** When designing the site consider different browser environments. Extensive testing should be done on each page in all the major browsers and the design changed appropriately to cater for all.
- **Visually appealing.** The use of colour, text, fonts and graphics should be carefully considered and used to ensure that the site is visually appealing to its visitors.
- **Speed.** The performance of a website is mostly rated by its up time and downtime. These terms refer to the amount of time it takes the site to respond to requests. Graphics should be kept to a minimum to allow the site to load faster. The pages on the site should load within an acceptable time e.g., under 10seconds.

## Chapter 6. TESTING

### 6.1 TESTING PLAN:

- Planning is the most important phase in software testing.
- The level of planning involved in a project determines the success level of the project.
- A project may fail without a complete Test Plan. Test planning is particularly important in large software system development.
- A Test Plan can be defined as a document describing the scope, approach, resources, and schedule of intended Testing activities.

### 6.2 TESTING STRATEGY:

- The testing strategy followed by the company is unique.
- The developer first takes signup the UNIT Testing.
- Then the Integration testing is conducted to check the over functionality of the system.
- Then the Validation Testing is performed once the whole project is done. Alpha and Beta testing are done once by the testing team and the clients respectively.
- Then the over System testing is done and after that Acceptance testing is done.



Figure 6.2 Level of Testing

### 6.3 TESTING METHODS:

#### Unit Testing:

- Unit testing involves the testing of each unit or an individual component of the software application.
- A unit is a single testable part of a software system and tested during the development phase of the application software.
- Software testing methods are divided into white and black-box testing.
- Black Box Testing - Whether the class meets the requirements mentioned in the specification.
- White Box Testing - The tester looks inside that class and checks if there is error in the code which is not found while testing the class as a black box.

#### Integration Testing:

- **Integration testing** tests integration or interfaces between components, interactions to different parts of the system such as an operating system, file system and hardware or interfaces between systems.
- Integration testing is done by a specific integration tester or test team.
- Integration testing follows two approaches known as 'Top Down' approach and 'Bottom Up' approach as shown in the image below:
- **User Interface Testing** - Testing is done by moving through each menuitem in the interface either in top-down manner or bottom-up manner.
- **Interaction Testing** - When the system performs data processing, Interaction between various classes is tested.



Figure 6.3.1 Integration Testing

### System Testing:

- System Testing is carried out on the whole system in the context of either system requirement specifications or functional requirement specifications or in the context of both.
- System testing tests the design and behaviour of the system and also the expectations of the customer.
- It is performed to test the system beyond the bounds mentioned in the software requirements specification (SRS).



Figure 6.3.2 System Testing

**Validation Testing:**

- For Validation Testing stage, we have performed functional test cases and the results are compared in the form of actual and expected outcomes.
- The testing proved that the Validation was compliant with the requirements as specified in the Use Case and SRS (Software Requirement Specification).
- Integration of forms Designing, Login, Admin Management & Rights were tested and found to be successful.

**Acceptance Testing:**

- Acceptance testing is formal testing based on user requirements and function processing. It determines whether the software is conforming specified requirements and user requirements or not.
- It is conducted as a kind of Black Box testing where the number of required users involved testing the acceptance level of the system. It is the fourth and last level of software testing.



Figure 6.3.3 Acceptance Testing

#### 6.4 TEST CASE:

- Exhaustive testing of almost any non-trivial system is impractical because domain of input values to most practical software systems is either extremely large or infinite.
- Therefore, we must design an optimal test suite that is of reasonable size and can uncover as many errors in system as possible.
- The test cases to consider in the project are:
- Easy to understand and anyone can execute it.
- Separate authentication for both the front end as well as back end.
- Testing individual module according to requirement.
- Privacy to the admin as well as the user who becomes the part of System.

## Chapter 7. CONCLUSION

### 7.1 CONCLUSION:

In conclusion, my internship experience has been extremely beneficial in enhancing my skills and knowledge in various web development technologies. Working on real projects has allowed me to gain hands-on experience and apply the concepts I learned in a practical setting. I have become proficient in Ruby on Rails, HTML, CSS, JavaScript, jQuery, and Bootstrap, and have gained a deep understanding of the Model-View-Controller (MVC) architecture, database migrations, and Active Record.

During the internship, I have successfully implemented features such as authentication, authorization, and CRUD operations in Rails, and used HTML, CSS, JavaScript, jQuery, and Bootstrap to create responsive and dynamic web pages. This experience has not only improved my technical skills but also enhanced my teamwork, communication, and problem-solving abilities.

In conclusion, the employee management system project was a success, achieving its goal of managing personal data, including leaves, active/inactive user status. The project followed the standard software development process, and the system's features were implemented successfully and met user requirements. The system's user interface was user-friendly, and the project was a valuable learning experience for us. The completed system is expected to help the company in maintaining accurate personnel data and improving overall efficiency.

Overall, this internship has been a valuable learning experience for me, and I am confident that the skills and knowledge I have gained will be instrumental in my future endeavours in the field of web development.



## REFERENCES

<https://www.tutorialspoint.com/html/index.html>

<https://www.tutorialspoint.com/css/index.html>

<https://getbootstrap.com/docs/5.0/getting-started/introduction/>

<https://www.tutorialspoint.com/jquery/index.html>

<https://www.tutorialspoint.com/ruby/index.htm>

<https://rubymonk.com/>

<https://guides.rubyonrails.org/>

<https://rubyonrails.org/>

Michael Hart, Ruby on Rails Tutorial: Learn Web Development with Rails, 7th Edition.

## APPENDIX

In below table I have written about my internship in weekly phases.

Weekly Task Table

Week 1	- Operating system (Ubuntu) and git - HTML
Week 2	- CSS - JavaScript basic
Week 3	- JavaScript practical - Basic jQuery
Week 4	- jQuery - Bootstrap
Week 5	- Demo on HTML, CSS, jQuery, JavaScript, and Bootstrap
Week 6	- Continue with demo project
Week 7	- Basic Ruby
Week 8	- Ruby logical task
Week 9	- Ruby advance task
Week 10	- Basic Rails
Week 11	- Rails gems and advance topic
Week 12	- Rails practical, TDD and BDD testing

Table 1 Weekly Task

## ANNEXURE - I



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Annexure I

Enrollment no: 7983 0016 2905


## STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Ajmeram Venkatesh  
 DIARY OF THE WEEK: Dt: 06/02/24 TO 20/02/24  
 DEPARTMENT: Computer Engineering SEM: 6  
 NAME OF THE ORGANISATION: Essence Software  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT/Full stack development  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Shilpa Prasad

## DESCRIPTION OF THE WORK DONE IN BRIEF

- Day-1 :- Introduction and orientation given by HR and system.
- Day-2 :- Understanding about the current scenario  
 - Understanding of web, mobile & data flow in current.
- Day-3 :- followed the logic and the structure  
 - different commands of current framework.
- Day-4 :- basic understanding of Git.  
 - followed the current live code (commit & push).
- Day-5 :- Reviewed current live document, error and checking the warning and messages.

Figure 8.1 Annexure-I week 1



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---

TOTAL HOURS: 56 hours -----

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor \_\_\_\_\_

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date: \_\_\_\_\_

Date: 15/12/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1

Enrollment no: 215320107066

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Agrish Vyas  
 DIARY OF THE WEEK: DO: 15/07/23 TO: 21/07/23  
 DEPARTMENT: Computer Engineering SEM: 8  
 NAME OF THE ORGANISATION: Excel Infotech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT / Full Stack Development  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Hitesh Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day-6 :- SS - Feature or component  
 - Did research on each feature and component

Day-7 :- Starting the work on database using  
 - Created the form, table and workflow using PHP

Day-8 :- Did the work on the form and built content, CSS, HTML, JavaScript and performed

Day-9 :- Starting the CSS with bootstrap tag  
 - Performing CSS change, inline and VML CSS Grid

Day-10 :- Continued the single-environment effect using the CSS  
 - performed the responsive feature with the use of CSS

Figure 8.2 Annexure-1 week 2

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TOTAL HOURS: 57 HOURS

SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

SIGNATURE OF OFFICER-IN-CHARGE  
of Dept. / Section / Plant

Date:

Date: 12/01/23

Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure I

Enrollment no: 710370102066

## STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Agnesh Vekariya  
 DARY OF THE WEEK: 01/02/23 TO 24/02/23  
 DEPARTMENT: Computer Engineering SEM: 8  
 NAME OF THE ORGANISATION: Esience Solutions  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT - Full stack development  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Shishir Kulkarni

## DESCRIPTION OF THE WORK DONE IN BRIEF

- Day-1 :- The web-page which is responsive for all the device including mobile application was checked.
- Day-2 :- Bootstrap is used for the designing of the webpage which also do a lot of work.
- Day-3 :- A responsive student login form was made for all the devices.
- Day-4 :- The new topic jacking is started and the basic understanding of it is learnt.
- Day-5 :- The document document reg-logic error in jacking is made.

Figure 8.3 Annexure-I week 3



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TOTAL HOURS: 58-60

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 24/02/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure I  
Enrollment no: 2413 401 02 468

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Agnesh Venkatesh  
DIARY OF THE WEEK: IN: 24/02/23 TO: 03/03/23  
DEPARTMENT: Computer Engineering SEM: 5th  
NAME OF THE ORGANISATION: Essence Studio  
NAME OF THE PLANT/SECTION/DEPARTMENT: IT - Full stack Development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Nisha Prasad

DESCRIPTION OF THE WORK DONE IN BRIEF	
<u>24-2</u>	The Jquery plugin is used for implementing the web-system without handle of lots of use of CSS code.
<u>25-2</u>	Angular type of jquery which is the class for designing & implemented the model design.
<u>26-2</u>	The Slidex plugin is used for implementing the mouse-slidex in web-page.
<u>27-2</u>	The Modal plugin is used for implementing the modal model in simim & sim up
<u>28-2</u>	The Tooltip plugin is used for implementing the sign in form.

Figure 8.4 Annexure-I week 4

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TOTAL HOURS: 12

SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 6/8/22

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no.

290248142056

## STUDENT'S WEEKLY RECORD OF INTERSHIP

NAME OF STUDENT: Arish Vekariya  
 DIARY OF THE WEEK: 06-03-23 TO 10-03-23  
 DEPARTMENT: Computer Engineering SEM: 5<sup>th</sup>  
 NAME OF THE ORGANISATION: Private School  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT / Frontend Development  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Nishu Munawar

## DESCRIPTION OF THE WORK DONE IN BRIEF

07-03 :- Completed introduction part  
 started with introduction about machine learning

08-03 :- The topic was given which includes all previous language HTML, CSS, JS, bootstrap

09-03 :- started creating a responsive web-page design using bootstrap & CSS classes.

10-03 :- checked the responsive design and started work on user login

11-03 :- started the collected data through the form and started form data me local data storage.

Figure 8.5 Annexure-I week 5



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 ગુજરાત સરકારના અધીન ૨૬/૨૦૦૭ નંબરે

Roll No. \_\_\_\_\_

*[Signature]*  
SIGNATURE OF STUDENT

If the above marked are correct and the grading of work done by Teacher is  
 Excellent / Very Good / Good / Fair / Satisfactory / Pass

Signature of Faculty Member \_\_\_\_\_

*[Signature]*  
Signature of officer-in-charge  
of Dept. / Section / Year

Date \_\_\_\_\_

Grading of Work, for which may be given depending upon your judgement about the Timeliness, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no: 140518129000

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Ajmer Vekariya

DIARY OF THE WEEK: Dt: 19-03-23 TO 23/03/23

DEPARTMENT: Computer Programming SEM: 5th

NAME OF THE ORGANISATION: Exerice School+

NAME OF THE PLANT/SECTION/DEPARTMENT: IT / Institute Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Kishu Kumar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day-25 :- The New task is given in which the Admin. login page is created which must be a responsive featured.

Day-27 :- The New a more complex and big project is given by School which required to creating a web page.

Day-28 :- Used Jquery / Bootstrap / Javascript code to validate the form and make them responsive.

Day-29 :- Added Navbar, footer, banner, column, home and search form.

Day-30 :- checked the login form for the user which data are stored in the local storage.

Figure 8.6 Annexure-I week 6



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TOTAL HOURS: 140 hrs

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 12/05/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no: 191540107066

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Ajitesh Vekariya  
 DARY OF THE WEEK: from 20/03/23 TO 24/03/23  
 DEPARTMENT: Computer Engineering SEM: 5<sup>th</sup>  
 NAME OF THE ORGANISATION: Essence Software  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT / Software Development  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashish Pancharam

**DESCRIPTION OF THE WORK DONE IN BRIEF**


- Designing for the web-page  
   Web + Database → Design  
   - Content → Structure of web page  
   + Design - Validation
- completed the web-page form  
   started Run
- Basic understanding of Run  
   over complete
- Basic understanding of string named  
   - char / quat / str / int / float
- Basic understanding of array named  
   - string / index / row / col / input

Figure 8.7 Annexure-I week 7

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
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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 46 hr

  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 24/03/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure I

Enrollment no: 246246192006

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Ayush Vankarjee  
 DIARY OF THE WEEK: IN: 24/03/23 TO 31/03/23  
 DEPARTMENT: Computer Engineering SEM: 8th  
 NAME OF THE ORGANISATION: Essence Software  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT / Fullstack Development  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Nishu Khokhar

DESCRIPTION OF THE WORK DONE IN BRIEF

- Performed queries on the string based and array based. at the array
- Basic understanding of Hash method  
- Hash (Collor) / String / Array / Map / List
- Performed functions on hash method of the array.
- Performed exercises on the Date-time method, Proc, Lambda method.
- Basic understanding of CSV-FILE  
- CSV-FILE -> Read  
- CSV-FILE -> Write

Figure 8.8 Annexure-I week 8



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TOTAL HOURS: 20 hrs

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 31/05/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I  
 Enrollment no: 19054802466

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Ajayesh Venkatesh

DIARY OF THE WEEK: Dt. 05/04/23 TO 11/04/23

DEPARTMENT: Computer Engineering SEM: 3<sup>rd</sup>

NAME OF THE ORGANISATION: Science Subject

NAME OF THE PLANT/SECTION/DEPARTMENT: 71 / Fullstack Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Shri. Rajendra

DESCRIPTION OF THE WORK DONE IN BRIEF

- Performed program in ruby & C++ files
  - Service based
  - Voice based
- Performed remaining programs
  - Database
  - Query based
- Performed Ruby interactive programs given by server
  - Program
  - Usage with include & extend
  - Usage with range
- Performed remaining programs of ruby
  - Usage with system | system!
  - Usage with ENVIRONMENT
- Performed all the tasks of ruby
  - Performed me ruby program

Figure 8.9 Annexure-I week 9



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TOTAL HOURS: 10 hours

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor

Nishu  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 6-10-13

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.


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Annexure I

Enrollment no. ૨૨૨૧૦૧૦૨૦૧૬

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: Agnesh Vankar  
 DATE OF THE WEEK: DI-10/01/23 TO 14/01/23  
 DEPARTMENT: Computer Engineering SEM: 4th  
 NAME OF THE ORGANISATION: Future Skillz  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT / Employee Development  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divya Kulkarni

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Started to learning about Roll.
- Basic understanding given by senior about Roll.
- Understand & implemented the directory structure of the Roll.
- Understand & performed Double, group, rename using Roll.
- performed Roll
  - Nested directory
  - moving files
  - collection files
- performed consistent
  - File used collection
  - API driving (terminal)

Figure 8.10 Annexure-I week 10



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TOTAL HOURS: 110 hours

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 18/10/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment No. = 193491910 66

## STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Agrish Verma  
 DIARY OF THE WEEK: 01/10/23 TO 07/10/23  
 DEPARTMENT: Computer Engineering SEM: 5<sup>th</sup>  
 NAME OF THE ORGANISATION: Essence Software  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT Full Stack Development  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Nishu Khurana

## DESCRIPTION OF THE WORK DONE IN BRIEF

- Learned & performed model's task at the Router
  - DTH server model/table
  - STPL
  - Migration
- Performed Assignment at Router
  - has\_many & belongs\_to relationship
  - has\_one - belongs\_to - many "
- Performed view at the Router
  - Partial view
  - constant
  - Parameter
- Performed service at Router
- Performed console at Router
  - Delegate host
  - Asset-tag - helper

Figure 8.11 Annexure-I week 11

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TOTAL HOURS: 110 hrs

SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 21/04/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure I

Enrollment no: 190340141466

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Agnesh Vekariya

DIARY OF THE WEEK: Dt: 28/04/23 TO 28/04/23

DEPARTMENT: Computer Engineering SEM: 5th

NAME OF THE ORGANISATION: Edence School

NAME OF THE PLANT/SECTION/DEPARTMENT: IT Full Stack Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Nishu Kulkarni

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Performed & Implemented Front environments
  - Development Env
  - Test Env
  - Production Env
- Performed Database in rails
  - postgres Database
  - SQLite Database
- Performed Credentials & Authentication at the rails Env.
- Performed Callbacks & helpers in rails
  - Controller & model callbacks
  - routing configuration
  - SMTP & letter opener
- Performed background job
  - Sidekiq - job on
  - Heroku - Active job

Figure 8.12 Annexure-I week 12

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TOTAL HOURS: 10 hA

*[Signature]*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

*[Signature]*

*[Signature]*  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 28/04/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

# ANNEXURE – II



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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Annexure 2

Feedback Form by Industry expert

Student Name: Agnesh Vekariya  
Work Supervisor: Nikhil Menawatma  
Company/Organization: Essence Solusoft  
Enrollment No: 190190301086  
Internship Address:

Date: 03/05/23  
Title: Employee portal

Dates of Internship: From 07/02/23 to 30/04/23

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives			✓	
Produces high quality work and accepts responsibility			✓	
Uses technical knowledge and expertise		✓		
Analyzes problems effectively			✓	
Communicates well and writes effectively		✓		

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):

Additional comments, if any:

Signature of Industry person with name and Stamp:

**FOR, ESSENCE SOLUSOFT**

*Sachin*

**PROPRIETOR**

Signature of the Faculty Mentor

Figure 9 Annexure II

# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Arnav Modanwal**

**200390107011**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**August, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ IT SERVICES PVT. LTD.** has been carried out by **Arnav Modanwal** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.

WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390107011

Semester: 7<sup>th</sup>, Computer Engineering

Saffrony Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Arnav Modanwal.

In this internship tenure, we have covered the fundamentals of Data Analytics and Machine Learning. In the data analytics part, we have worked on API data and covered the basics of analysis using pandas and data visualization using matplotlib. In machine learning, we have implemented elementary regression models.

We wish Arnav Modanwal all the best for future endeavors.



Ms. Twinkle Shah  
Internship Coordinator  
InfoLabz, Ahmedabad



+91 8866662662  
+91 8141236662



info@infolabz.in  
www.infolabz.in



405 Vraj Avenue, Above SAM'S Pizza  
Nr, Commerce Six Rd, Navrangpura,  
Ahmedabad, Gujarat 380009



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INFOLABZ IT SERVICES PVT. LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bona fide record of original project work carried out by me under the supervision of **Chintan Nagrecha (Director of Infolabz)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Arnav Modanwal**

## **ACKNOWLEDGMENT**

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## **Abstract**

This internship report provides an overview of the key topics covered during a data analytics internship at INFOLABZ IT SERVICES PVT. LTD. The report encompasses fundamental concepts such as data analytics, dictionaries, APIs, and data visualization using Python libraries like Matplotlib. It delves into practical applications of APIs and explores their integration with data visualization techniques. The report further introduces machine learning concepts, including linear regression, multiple linear regression, and polynomial linear regression, highlighting their mathematical foundations and implementations. Additionally, the report includes hands-on experience with Convolutional Neural Networks (CNNs) for image classification. Through a comprehensive blend of theoretical explanations and practical examples, this report offers insights into the practical application of data analytics and machine learning techniques in real-world scenarios.

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## **Abbreviations**

QA	Quality Assurance
QC	Quality Control
MCU	Machine Control Unit
HMC	Horizontal Machining Center
CNC	Computerized Numerical Control.
VMC	Vertical Machining Center
PDI	Pre dispatch inspection

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# Chapter 1. INTRODUCTION

## 1.1 COMPANY PROFILE:

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make it's own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years, we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard-working developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concepts which could be used by millions of people

## 1.2 MISSION AND VISION OF THE COMPANY:

We strive to provide you with innovative and client-focused solutions. We help our customers modernise their networks in order to improve their market strategy and profitability. We provide excellence while ensuring quality customer service with our expert team, advanced technologies, and seamless processes.



### Our Mission

Our mission is to deliver best-in-class services with top-notch quality.



### Our Vision

Our vision is to sustain the exponential growth of the IT industry.

# Chapter 2. Day 1/Week 1 - 27<sup>th</sup> July, 2023

## 2.1 Basics of Data Analytics, Type of Data

Data analytics is the process of examining large sets of data to uncover patterns, correlations, and insights that can help organizations make informed decisions. It involves various techniques and tools to transform raw data into meaningful information. Data analytics includes tasks such as data collection, cleaning, processing, analysis, and visualization. It plays a crucial role in extracting valuable insights from data, identifying trends, and supporting data-driven decision-making.

Types of Data:

- **Structured Data:** This type of data is highly organized and follows a specific format. Examples include sales data, customer information, and financial records.
- **Unstructured Data:** Unstructured data does not have a specific format and is often more complex. It includes text-heavy content like social media posts, emails, customer reviews and images, audio files, and video footage.
- **Semi-Structured Data:** This type of data lies between structured and unstructured data. Examples include JSON files, XML files, and certain types of logs.

## 2.2 Dictionary:

A dictionary is a fundamental data structure in programming and computer science that stores a collection of key-value pairs. Each key in the dictionary maps to a specific value, allowing for efficient lookup, insertion, and retrieval of data. Dictionaries are also known as associative arrays, maps, or hash maps in various programming languages.

In a dictionary, keys are unique and immutable, meaning they cannot be changed after they are created. Values, on the other hand, can be of any data type, including numbers, strings, lists, or even other dictionaries. Dictionaries provide a flexible way to organize and manage data, making them particularly useful for tasks such as indexing, data representation, and efficient information retrieval.

```
[1]: # Creating a dictionary
student_scores = {
    'Alice': 95,
    'Bob': 87,
    'Eve': 92
}

# Accessing values using keys
alice_score = student_scores['Alice']

# Adding a new key-value pair
student_scores['Charlie'] = 78
```

## 2.3 Concepts of API:

- The fundamental idea behind an API (Application Programming Interface) is to establish a framework of regulations, protocols, and tools that facilitate communication and interaction among distinct software applications. Acting as a connector, an API bridges the gap between various software applications, facilitating seamless interaction and data exchange.
- Transitioning to an offline context, in Python, a dictionary operates as a fundamental API by enabling the organization of data using key-value pairs. In real-time scenarios, JSON (JavaScript Object Notation) frequently acts as the preferred format for APIs, as demonstrated by the example of a data.json file.
- When working with APIs, a loop is employed to iterate through keys instead of values, given that keys serve as identifiers for accessing corresponding values. This highlights the pivotal role of keys in the retrieval of information.

E.g.

```
(*) response2 = requests.get("https://isro.vercel.app/api/spacecrafts")
(A) isro = response2.json()
(+) isro

[5] {'spacecrafts': [{'id': 1, 'name': 'Aryabhata'},
                    {'id': 2, 'name': 'Bhaskara-I'},
                    {'id': 3, 'name': 'Rohini Technology Payload (RTP)'},
                    {'id': 4, 'name': 'Rohini Satellite RS-1'},
```



## 2.4 Request Package:

Python's requests library, a third-party module, streamlines the intricacies of dispatching HTTP requests and managing their corresponding outcomes. By concealing the intricacies of establishing HTTP connections, it furnishes an orderly, user-friendly approach to collaborating with web services. Employing the requests library, software developers can readily undertake activities such as retrieving information from web-based APIs, submitting data through forms, retrieving files, and accomplishing various other tasks.

E.g.

```
[7]: import requests
     response = requests.get("https://data.covid19india.org/data.json")

[8]: covid = response.json()

[9]: # Method-1 for Keys
     covid.keys()

[9]: dict_keys(['cases_time_series', 'statewise', 'tested'])
```

## Chapter 3. Day 2/Week 1 - 28<sup>th</sup> July, 2023

### 3.1 API Handling:

#### 3.1.1 Covid API:

```
[10]: response = requests.get("https://data.covid19india.org/data.json")

[8]: covid = response.json()

[5]: # Method-1 for Keys
      covid.keys()

[8]: dict_keys(['cases_time_series', 'statewise', 'tested'])

[5]: # Method-2 for Keys
      for i in covid:
          print(i)

      cases_time_series
      statewise
      tested
```

#### 3.1.2 ISRO API:

```
[9]: response2 = requests.get("https://isro.vercel.app/api/spacecrafts")

[4]: isro = response2.json()

[18]: print("Keys in the ISRO API are: ", list(isro.keys()))

      Keys in the ISRO API are: ['spacecrafts']

[28]: isro['spacecrafts'][0]['nama']

[20]: 'Aryabhata'
```

### 3.1.3 Bitcoin API:

```
[42]: response1 = requests.get("https://api.coindesk.com/v1/bpi/currentprice.json")
[43]: bitcoin = response1.json()
[44]: print("Keys in the BITCOIN API are: ",list(bitcoin.keys()))
      Keys in the BITCOIN API are: ['time', 'disclaimer', 'chartName', 'bpi']
[45]: print("Realtime rice of bitcoin (in USD):", bitcoin['bpi']['USD']['rate'],"$")
      Realtime rice of bitcoin (in USD): 29,522.3236 $
```

### 3.1.4 Mutual Funds API:

```
[34]: response3 = requests.get("https://api.mfapi.in/mf")
[37]: response3.json()[0]['schemeCode']
[37]: 100027
```

## 3.2 API Search:

```
[30]: print("Get the name of the spacecraft from id")
      print("=====")
      input_id = int(input("Enter the id: "))
      for i in range(0, len(isro['spacecrafts'])):
          if input_id == isro['spacecrafts'][i]['id']:
              print(isro['spacecrafts'][i]['name'])
              break
      else:
          print("ID not found!")
```

```
Get the name of the spacecraft from id
=====
Enter the id: 1
Aryabhata
```

## Chapter 4. Day 3/Week 1 - 31<sup>st</sup> July, 2023

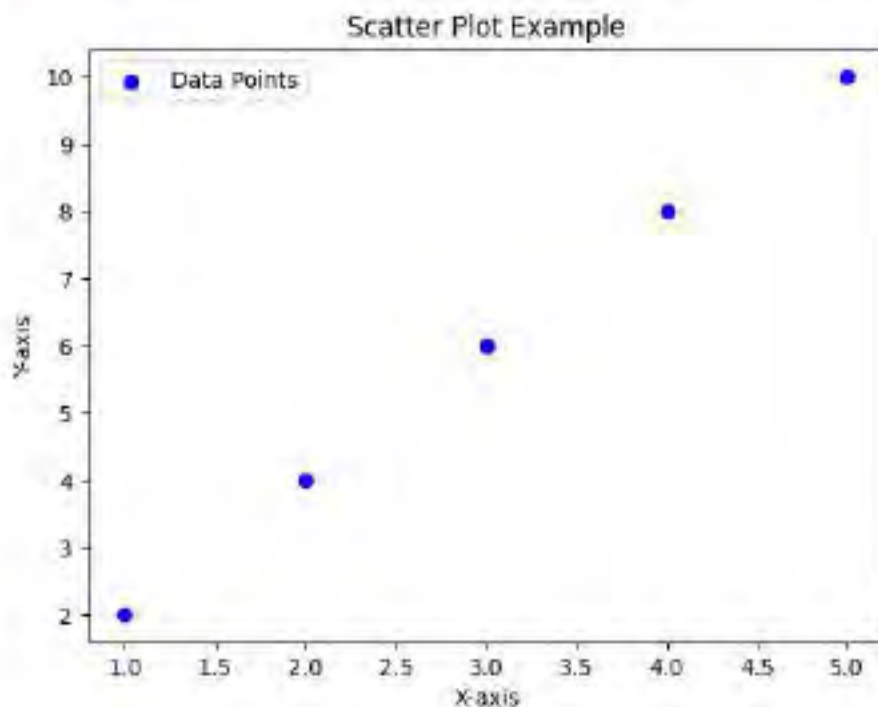
### 4.1 Data Visualization using Matplotlib:

Matplotlib is a widely-used Python library for creating a variety of data visualizations. It offers a comprehensive set of functions and tools for generating static, interactive, and publication-quality plots and charts. Matplotlib enables you to display data in forms such as line plots, bar charts, scatter plots, histograms, and more. It provides fine-grained control over plot customization, allowing you to adjust colors, labels, titles, legends, and other visual elements. With Matplotlib, you can effectively communicate insights and patterns within your data, making it an essential tool for data analysts, scientists, and researchers.

### 4.2 Different Visualizations in Matplotlib:

#### 4.2.1 Scatter Plot

```
[In]: import matplotlib.pyplot as plt
# Sample data
x = [1, 2, 3, 4, 5]
y = [2, 4, 6, 8, 10]
# Create a scatter plot
plt.scatter(x, y, color='blue', marker='o', label='Data Points')
# Add labels and title
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Scatter Plot Example')
# Add a legend
plt.legend()
# Display the plot
plt.show()
```



## 4.2.2 Multiple Bar Graph

```
[8]: data = {'Ahmedabad':[120,200,10], 'Surat':[150,175,7], 'Rajkot':[75,150,15]}
      values = []

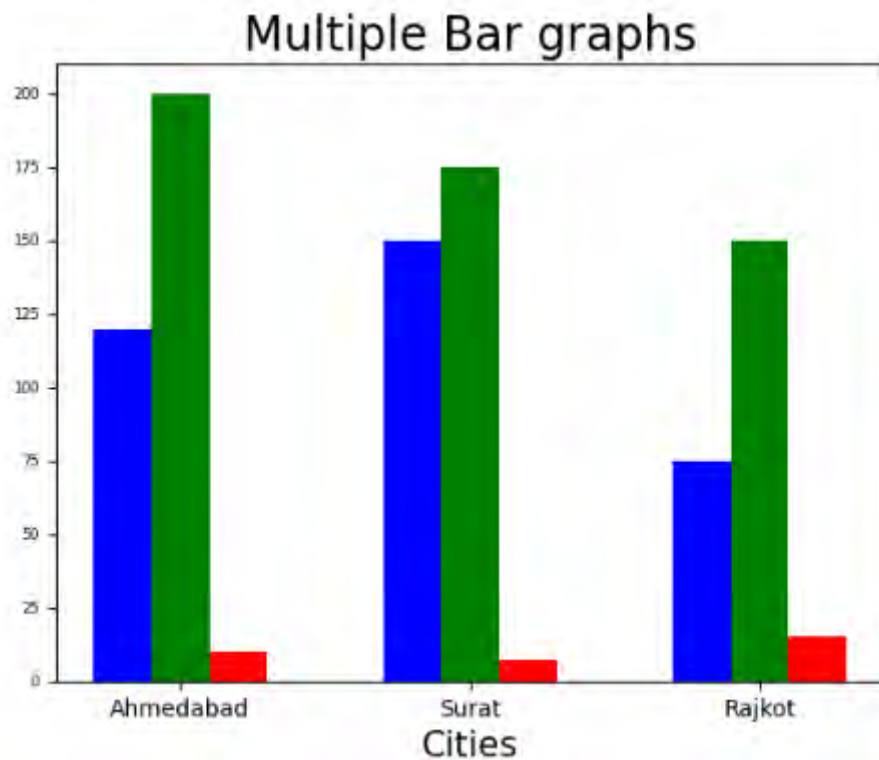
      data_keys = list(data.keys())

      for i in range(0, len(data)):
          temp_values = []
          for j in range(0, len(data[data_keys[i]])):
              temp_values.append(data[data_keys[j]][i])
          values.append(temp_values)

      X_axis = np.arange(len(data))

      plt.bar(X_axis, values[0], 0.2, color = 'blue')
      plt.bar(X_axis+0.2, values[1], 0.2, color = 'green')
      plt.bar(X_axis+0.4, values[2], 0.2, color = 'red')

      plt.title("Multiple Bar graphs", fontsize = 20)
      plt.xlabel("Cities", fontsize = 15)
      plt.xticks(X_axis+0.2, data_keys, fontsize = 10)
      plt.show()
```





## Chapter 5. Day 4/Week 1 - 1<sup>st</sup> August, 2023

### 5.1 Data Visualization:

- Data visualization involves transforming data into graphical or visual forms, aiding individuals in comprehending and elucidating information with greater simplicity.
- Visualizations empower you to delve into patterns, trends, correlations, and revelations that may remain obscured within the raw data. Proficient data visualization stands as a pivotal element in data analysis, communication, and informed decision-making spanning diverse domains.
- Python boasts numerous robust libraries catering to data visualization, with Matplotlib and Seaborn emerging as two of the frequently employed ones.

### 5.1 Data Visualization:

Visualizing data from an API using Matplotlib involves several steps in Python. While I won't provide actual code, I'll outline the key steps involved in the process:

#### 1. API Request:

- Make an HTTP request to the API endpoint using libraries like requests.
- Retrieve the data in a format such as JSON or XML.

#### 2. Data Parsing:

- Parse the received data to extract the relevant information you want to visualize.
- Convert the data into a suitable format for plotting.

#### 3. Data Preparation:

- Organize the data into arrays or lists, grouping data points based on categories or values.
- Perform any necessary data transformation or aggregation.

#### 4. Choosing a Plot Type:

- Determine the appropriate type of plot for your data, such as line plot, bar chart, scatter plot, etc.
- Consider the nature of your data and the message you want to convey.

#### 5. Creating the Plot:

- Use Matplotlib to create the chosen plot type.

- Configure plot properties like labels, titles, colors, and legends.
6. Customization:
- Customize the appearance of the plot to make it visually appealing and informative.
  - Adjust axes, grids, fonts, and other visual elements.
7. Visualization Refinement:
- Fine-tune the plot based on feedback and data analysis needs.
  - Ensure that the plot effectively communicates the insights from the API data.
8. Saving and Sharing:
- Save the generated plot to a file (e.g., PNG, JPEG, PDF) using `plt.savefig()` for future reference or sharing.
  - Embed the plot in reports, presentations, or web applications.
9. Interactivity (Optional):
- Consider adding interactivity to the plot using tools like `mplcursors` or embedding the plot in web frameworks like Flask or Django for dynamic visualizations.
10. Documentation:
- Document the steps you followed, data sources, APIs used, and the rationale behind the chosen visualization.



Example:

```
[10]: print("Enter Date between 2020-01-30 and 2021-08-16 in the Format (YYYY-MM-DD)")
print("-----")
start_date = input("Enter the start date: ")
end_date = input("Enter the end date: ")

start_index = 0
end_index = 0
confirmed = []

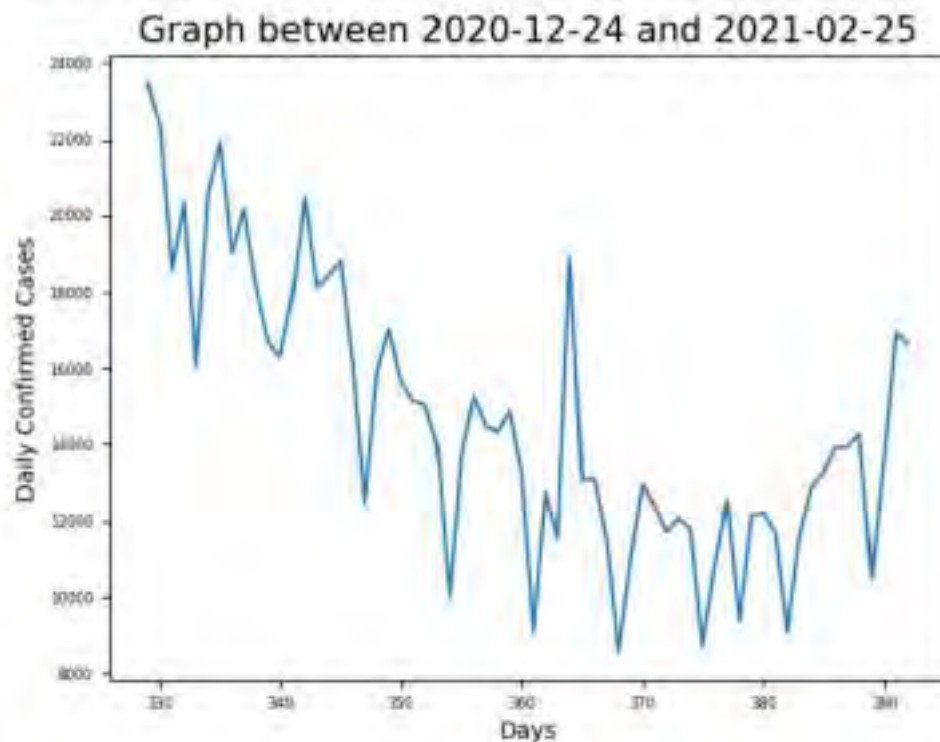
for i in range(0, len(covid['cases_time_series'])):
    if start_date == covid['cases_time_series'][i]['dateymd']:
        start_index = i;
    if end_date == covid['cases_time_series'][i]['dateymd']:
        end_index = i;

for i in range(start_index, end_index+1):
    confirmed.append(int(covid['cases_time_series'][i]['dailyconfirmed']))

range_date = np.arange(start_index, end_index+1)
plt.plot(range_date, confirmed)
title_string = "Graph between "+start_date+" and "+end_date
plt.title(title_string, fontsize=15)
plt.xlabel('Days', fontsize=10)
plt.ylabel('Daily Confirmed Cases', fontsize=10)
```

```
Enter Date between 2020-01-30 and 2021-08-16 in the Format (YYYY-MM-DD)
-----
Enter the start date: 2020-12-24
Enter the end date: 2021-02-25
```

```
[11]: Text(0, 0.5, 'Daily Confirmed Cases')
```



## Chapter 6. Day 5/Week 1 – 2<sup>nd</sup> August, 2023

### 6.1 Assignment 1:

#### Importing required libraries

```
[4]: import requests
import matplotlib.pyplot as plt
```

#### 6.1.1 INSHORTS API

```
[3]: response_inshorts = requests.get("https://inshortsapi.vercel.app/news?category=all")
inshorts = response_inshorts.json()
```

```
[4]: inshorts
```

```
{
  "title": "Woman accused of stealing laptop, iPad from Delhi HC denied bail",
  "url": "https://shrts.in/9uc5L",
  "author": "Deepika Bhatt",
  "content": "A video has surfaced on social media that shows a crocodile dragging a woman taking a bath near the river. As per reports, officials reached the spot and re",
  "date": "Wednesday, 16 August, 2023",
  "id": "a567b5836e33419db73ecdb66e0f5012",
  "imageUrl": "https://static.inshorts.com/inshorts/images/v1/variants/jpg/n/2023/08",
  "readMoreUrl": "https://www.youtube.com/watch?feature=youtu.be&ute_campaign=fullar",
  "time": "06:20 pm",
  "title": "Crocodile drags woman into river & eats her alive in Odisha; video surfa",
  "url": "https://shrts.in/75y9L",
  "author": "Nakul Ahuja",
  "content": "Shiv Sana (UBT) leader Sanjay Raut has said that NCP chief Sharad Pawar offered a position in the union government to Sharad. "When did Ajit Pawar become",
  "date": "Wednesday, 16 August, 2023",
  "id": "be24fb1aa8d04132b039cbd5e0c7467a",
  "imageUrl": "https://static.inshorts.com/inshorts/images/v1/variants/jpg/n/2023/08"
}
```

#### Question 1

```
[7]: #How many main keys are there in this API? Extract and print all keys.
print("Total number of keys in this API are: ",len(inshorts.keys()))
print("Keys in this API are: ",list(inshorts.keys()))
```

```
Total number of keys in this API are: 3
Keys in this API are: ['category', 'data', 'success']
```

#### Question 2

```
[8]: #How many news are available in this API?
print("Total number of new articles in the API are: ",len(inshorts['data']))
```

```
Total number of new articles in the API are: 9
```

### Question 3

```
(3) # Print all news in below format.  
# 1. News content , Author: AUTHOR NAME, DATE: Date of news  
# 2. News content , Author: AUTHOR NAME, DATE: Date of news  
# 3. News content , Author: AUTHOR NAME, DATE: Date of news .....  
  
for i in range(0, len(inshorts['data'])):  
    print("News Content: ", inshorts['data'][i]['content'])  
    print("Author Name: ", inshorts['data'][i]['author'])  
    print("Date: ", inshorts['data'][i]['date'])  
    print('\n')
```

```
News Content: A Delhi court has denied bail to a woman accused of s-  
elief to the accused, noting CCTV footage clearly shows her stealing  
Author Name: Nakul Ahuja  
Date: Wednesday, 16 August, 2023
```

```
News Content: A video has surfaced on social media that shows a cro-  
n was taking a bath near the river. As per reports, officials reache  
Author Name: Deepika Bhatt  
Date: Wednesday, 16 August, 2023
```

```
News Content: Shiv Sena (UBT) leader Sanjay Raut has said that NCP  
er offered a position in the union government to Sharad. "When did A  
Author Name: Nakul Ahuja  
Date: Wednesday, 16 August, 2023
```

## 6.1.2 ISRO SPACECRAFTS API

```
[10]: response_isro = requests.get("https://isro.vercel.app/api/spacecrafts")
      isro = response_isro.json()
```

```
[11]: isro
```

```
[11]: {'spacecrafts': [{'id': 1, 'name': 'Aryabhata'},
                      {'id': 2, 'name': 'Bhaskara-I'},
                      {'id': 3, 'name': 'Rohini Technology Payload (RTP)'},
                      {'id': 4, 'name': 'Rohini Satellite RS-1'},
                      {'id': 5, 'name': 'Rohini Satellite RS-D1'},
                      {'id': 6, 'name': 'APPLE'},
                      {'id': 7, 'name': 'Bhaskara-II'},
                      {'id': 8, 'name': 'INSAT-1A'},
                      {'id': 9, 'name': 'Rohini Satellite RS-D2'},
                      {'id': 10, 'name': 'INSAT-1B'},
                      {'id': 11, 'name': 'SROSS-1'},
                      {'id': 12, 'name': 'IRS-1A'},
                      {'id': 13, 'name': 'SROSS-2'},
                      {'id': 14, 'name': 'INSAT-1C'},
                      {'id': 15, 'name': 'INSAT-1D'},
                      {'id': 16, 'name': 'IRS-1B'},
                      {'id': 17, 'name': 'SROSS-C'},
                      {'id': 18, 'name': 'INSAT-2A'},
                      {'id': 19, 'name': 'INSAT-2B'}
```

### Question 1

```
[12]: #Print all main keys and total number of main keys as well.
      print("Keys in the ISRO API are: ",list(isro.keys()))
      print("Total number of main keys in the ISRO API are: ", len(isro.keys()))
```

```
Keys in the ISRO API are: ['spacecrafts']
Total number of main keys in the ISRO API are: 1
```

### Question 2

```
[13]: #Print all data using for in format - id : spacecraft_name
      for i in range(0, len(isro['spacecrafts'])):
          print(isro['spacecrafts'][i]['id'], " : ", isro['spacecrafts'][i]['name'])
```

```
7 : Bhaskara-II
8 : INSAT-1A
9 : Rohini Satellite RS-D2
10 : INSAT-1B
11 : SROSS-1
12 : IRS-1A
13 : SROSS-2
14 : INSAT-1C
15 : INSAT-1D
16 : IRS-1B
17 : SROSS-C
18 : INSAT-2A
19 : INSAT-2B
```

### Question 3

```
114) #Allow user to enter name of spacecraft. Print spacecraft is found or spacecraft not found
print("Find if the spacecraft exist in the API by name")
print("-----")
input_name = input("Enter the name of spacecraft: ")
for i in range(0, len(isro['spacecrafts'])):
    if input_name == isro['spacecrafts'][i]['name']:
        print("Spacecraft found!")
        break
else:
    print("Spacecraft not found!")

Find if the spacecraft exist in the API by name-
-----
Enter the name of spacecraft: INSAT-3A
Spacecraft found!
```

### 6.1.3 ISRO Customer API

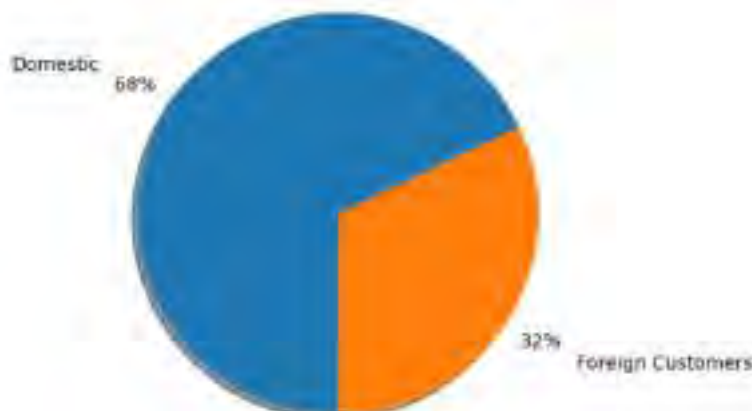
```
115) response_isrocustomer = requests.get("https://isro.vercel.app/api/customer_satellites")
116) isro_customer = response_isrocustomer.json()
117) isro_customer

118) {'customer_satellites': [{'id': 'DLR-TUBSAT',
    'country': 'Germany',
    'launch_date': '26-05-1999',
    'mass': '45',
    'launcher': 'PSLV-C2'},
    {'id': 'KITSAT-3',
    'country': 'REPUBLIC OF KOREA',
    'launch_date': '26-05-1999',
```

### Question 1

```
119) data = [len(isro_customer['customer_satellites']), len(isro['spacecrafts'])]
plt.pie(data, autopct = '%.9f%%', labels = ['Foreign Customers', 'Domestic'], startangle=100, shadow = True,
        pctdistance=1.2, labeldistance=1.4, colors = ['#f77ede', '#1f77b4'])

120) [matplotlib.patches.Wedge at 0x262b29c6078],
[matplotlib.patches.Wedge at 0x262b29c4f90],
[Text(3.184987892878123, -0.7456588453331787, 'Foreign Customers'),
Text(-1.184987892878123, 0.7456588453331779, 'Domestic')],
[Text(1.0156346583515534, -0.6391292959998696, '32%'),
Text(-1.015634658351553, 0.6391292959998617, '68%')]
```



## 6.1.4 CONCEPT OF DYNAMIC API

```
[19]: url = "https://api.postalpincode.in/pincode/"
#Question 1 - user enters the pincode
pincode = input("Enter the pincode: ")
url = url + pincode
#Question 3 -
#PINCODE ENTERED BY USER SHELL BE MERGED IN BELOW URL'S XXXXXX PART.
#URL: https://api.postalpincode.in/pincode/XXXXXX
print("API url:", url)

#retrieving the data from new url
response_pincode = requests.get(url)
pincode = response_pincode.json()

#Question 2 -
#print all the area under the pincode
print("\n")
print("Area(s) under this pincode are:")
print("=====")
for i in range(len(pincode[0]['PostOffice'])):
    print(i+1,"-",pincode[0]['PostOffice'][i]['Name'])
print("=====")
```

```
Enter the pincode: 221005
API url: https://api.postalpincode.in/pincode/221005
```

```
Area(s) under this pincode are:
=====
1 - Assi
2 - Bhagwanpur
3 - Bhu - H
4 - Durgakund
5 - Garwasi Toal
6 - Hindu Vishwa Vidhyalaya
7 - Lanka (Varanasi)
8 - Malviya Nagar (Varanasi)
9 - Sunderpur
=====
```

## Chapter 7. Day 6/Week 2 – 3<sup>rd</sup> August, 2023

### 7.1 Pandas: Data Frame:

Pandas is a powerful Python library widely used for data manipulation and analysis. One of its core components is the Data Frame, which is a two-dimensional labeled data structure similar to a spreadsheet or a SQL table. Data Frames are highly versatile and provide functionalities for cleaning, transforming, analyzing, and visualizing data.

Example:

```
[3]: df = pd.read_csv('prices.csv')
      print(df)
```

	area	price
0	800	5180000
1	1100	7190000
2	1500	9820000
3	1800	12100000
4	2200	14900000

### 7.2 Pandas: Excel:

Pandas is a popular Python library used for data manipulation and analysis, while Excel is a widely-used spreadsheet software developed by Microsoft. Pandas provides a powerful and flexible way to work with structured data in Python, and you can use it to read, write, and manipulate Excel files.

Example:

```
[1]: import pandas as pd
      filedata1 = pd.read_excel("Day-3/RESULT1.xlsx")
      print(filedata1)
      print(type(filedata1))
```

	SRNO	BRANCH	NAME	TOTAL	PERCENTAGE	PASSFAIL
0	1	CE	RAMESH	210	70	1
1	2	CE	SURESH	150	50	1
2	3	IT	MAHESH	225	75	1
3	4	IT	NARESH	180	60	1
4	5	CE	JAYESH	90	30	0

<class 'pandas.core.frame.DataFrame'>

## 7.3 Pandas: API to CSV:

Using the Pandas library, you can easily convert data from an API to a CSV file by following these general steps:

1. **Import Pandas:** Import the Pandas library into your Python environment. Pandas provides powerful data manipulation tools, including methods for reading and writing CSV files.
2. **API Request:** Make an HTTP request to the API endpoint to fetch the data you want to export to a CSV file.
3. **Data Parsing:** Parse the API response to extract the relevant data fields and format them appropriately.
4. **Create a DataFrame:** Use the extracted data to create a Pandas DataFrame, a tabular data structure similar to a spreadsheet.
5. **Data Transformation (Optional):** Perform any necessary data cleaning, manipulation, or transformation on the DataFrame to prepare it for export.
6. **Export to CSV:** Use the Pandas `to_csv()` method to export the DataFrame to a CSV file. Specify the desired file path and any additional parameters, such as delimiter and encoding.

Example:

```
import requests
import pandas as pd

url=requests.get("https://data.covid19india.org/data.json")
data=url.json()

df = pd.DataFrame(data["cases_time_series"])
print(df)
```

	dailyconfirmed	dailydeceased	dailyrecovered	date	dateymd
0	1	0	0	30 January 2020	2020-01-30
1	0	0	0	31 January 2020	2020-01-31
2	0	0	0	1 February 2020	2020-02-01
3	1	0	0	2 February 2020	2020-02-02
4	1	0	0	3 February 2020	2020-02-03
...	...	...	...	...	...
560	40081	583	42156	12 August 2021	2021-08-12
561	38761	477	35759	13 August 2021	2021-08-13
562	36135	491	37936	14 August 2021	2021-08-14
563	33245	421	35936	15 August 2021	2021-08-15
564	24692	438	36862	16 August 2021	2021-08-16

	totalconfirmed	totaldeceased	totalrecovered
0	1	0	0
1	1	0	0
2	1	0	0
3	2	0	0
4	3	0	0
...	...	...	...
560	32116848	429695	31294596
561	32155609	430172	31330355
562	32191744	430663	31368291
563	32224989	431084	31404227
564	32249681	431522	31441089

[565 rows x 6 columns]



## 7.3 XLRD:

XLRD stands as an external Python library, offering the functionality to extract information from Excel files, particularly those adhering to the older .xls format (Excel 97-2003). It's crucial to recognize that this library is unnecessary for accessing Excel files in the .xlsx format (Excel 2007 and beyond), as Pandas and alternative libraries inherently incorporate support for .xlsx files.

Example:

```
[1]: import xlrd
import matplotlib.pyplot as plt

[2]: xlrd.xlsx.ensure_elementtree_imported(False, None)
xlrd.xlsx.Element_has_iter = True

[3]: wb = xlrd.open_workbook("IPL.xlsx")
data = wb.sheet_by_index(0)

[4]: print("Total rows =", data.nrows)
print("Total columns =", data.ncols)

print("\n Player name is: ")
for i in range(1, data.ncols):
    print(i+1, ".", data.cell_value(0, i))
```

```
Total rows = 15
Total columns = 6
```

```
Player name is:
2 . BUTTLER
3 . RAHUL
4 . DEKOCK
5 . HARDIK
6 . MILLER
```

## Chapter 8. Day 7/Week 2 - 4<sup>th</sup> August, 2023

### 8.1 Introduction to Machine Learning:

Machine Learning (ML), a subset of artificial intelligence (AI), revolves around crafting algorithms and models that empower computers to learn and make informed choices through data analysis, all without requiring explicit programming. In essence, it entails constructing systems capable of learning and refining their capabilities based on experiential knowledge.

Types of Machine Learning:

1. **Supervised Learning:** Within this category, algorithms acquire knowledge from labeled data, wherein input-output pairs are furnished. The primary objective is to grasp a mapping function capable of prognosticating outputs for novel inputs.
2. **Unsupervised Learning:** In this scenario, algorithms grapple with unlabeled data, tasked with identifying patterns, structures, or associations inherent to the data. Common undertakings in unsupervised learning encompass clustering and dimensionality reduction.
3. **Reinforcement Learning:** This classification entails training an agent to interact with an environment and amass knowledge by receiving feedback in the form of rewards or penalties. The agent cultivates an understanding of optimal actions aimed at maximizing cumulative rewards.

### 8.2 Linear Model - Mathematics:

Linear regression is a fundamental statistical method used to model the relationship between a dependent variable and one or more independent variables by fitting a linear equation to the observed data. The goal of linear regression is to find the best-fitting line (or hyperplane in higher dimensions) that minimizes the distance between the predicted values and the actual data points. Here's the mathematical foundation of linear regression, along with an example:

#### Mathematical Formulation:

In a simple linear regression with one independent variable, the relationship between the dependent variable ( $y$ ) and the independent variable ( $x$ ) is represented by the equation:

$$y = \beta_0 + \beta_1 x + \varepsilon$$

Where:

- $y$ : Dependent variable (target)
- $x$ : Independent variable (input)
- $\beta_0$ : Intercept (y-intercept)

- $\beta_1$ : Slope (coefficient of x)
- $\varepsilon$ : Error term (residual)

Example:

Let's consider a simple example of predicting house prices based on their sizes. We have the following data:

Size (x)	Price (y)
1400	220000
1600	250000
1700	300000
1875	360000

We want to find a linear regression model to predict house prices based on their sizes.

**Step 1: Calculate Means** Calculate the mean of x and y:

- $\bar{x}$  (mean of sizes)  $\approx (1400 + 1600 + 1700 + 1875 + 1100) / 5 \approx 1535$
- $\bar{y}$  (mean of prices)  $\approx (220000 + 250000 + 300000 + 360000 + 190000) / 5 \approx 264000$

**Step 2: Calculate Slope ( $\beta_1$ )** Calculate the slope ( $\beta_1$ ) using the formula:

$$\beta_1 = \frac{\sum((x_i - \bar{x})(y_i - \bar{y}))}{\sum((x_i - \bar{x})^2)}$$

Sizes (x)	Price (y)	$x_i - \bar{x}$	$y_i - \bar{y}$	$(x_i - \bar{x}) * (y_i - \bar{y})$	$(x_i - \bar{x})^2$
1400	220000	-135	-44000	5940000	18225
1600	250000	65	-14000	-910000	4225
1700	300000	165	36000	5940000	27225
1875	360000	340	96000	32640000	115600
1400	220000	-435	-74000	32290000	189225

$$\sum((x_i - \bar{x})(y_i - \bar{y})) = 31686000$$

$$\sum((x_i - \bar{x})^2) = 155300$$

$$\beta_1 \approx 31686000 / 155300 \approx 204.968$$

**Step 3: Calculate Intercept ( $\beta_0$ )** Calculate the intercept ( $\beta_0$ ) using the formula:

$$\beta_0 = \bar{y} - \beta_1 * \bar{x}$$

$$\beta_0 \approx 264000 - 204.968 * 1535 \approx 52050.88$$

**Step 4: Make Predictions** Use the linear regression equation to make predictions:

- $y = \beta_0 + \beta_1 x$

Price ( $y$ )  $\approx 52050.88 + 204.968 * \text{Size (x)}$

For example, if we want to predict the price of a house with size 1550 sqft:

- $y \approx \beta_0 + \beta_1 * 1550$

$y \approx 52050.88 + 204.968 * 1550 \approx 53,805.848$

### 8.3 Linear Model Implementation:

```
[2]: import matplotlib.pyplot as plt
      from sklearn import linear_model
      import pandas as pd
```

```
[3]: df = pd.read_csv('prices.csv')
      print(df)
```

	area	price
0	800	5180000
1	1100	7190000
2	1500	9820000
3	1800	12100000
4	2200	14900000

```
[5]: reg = linear_model.LinearRegression()
      reg.fit(df[['area']], df[['price']])
      print(reg.predict([[3300]]))
```

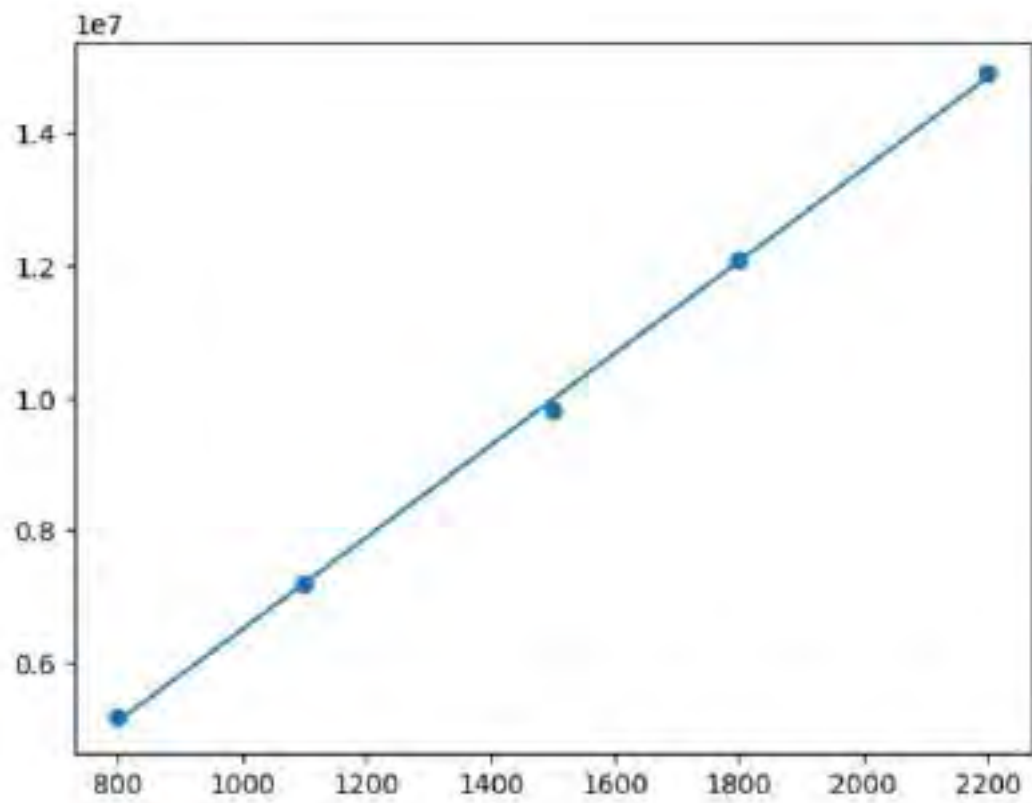
```
[[22497671.00977199]] ●●●
```

```
[6]: print(reg.coef_)
      print(reg.intercept_)
```

```
[[6955.86319218]]
[-456677.52442997]
```

```
[10]: y_predict = reg.predict(df[['area']])
```

```
plt.scatter(df.area, df.price)
plt.plot(df['area'], y_predict)
plt.show()
```



## Chapter 9. Day 8/Week 2 - 7<sup>th</sup> August, 2023

### 9.1 Multiple Linear Model: Mathematics:

Multiple Linear Regression is an extension of simple linear regression that involves more than one independent variable. It models the relationship between a dependent variable and multiple independent variables by fitting a linear equation to the observed data. Here's the mathematical foundation of multiple linear regression, along with a detailed example and tables:

#### Mathematical Formulation:

In multiple linear regression, the relationship between the dependent variable ( $y$ ) and multiple independent variables ( $x_1, x_2, \dots, x_n$ ) is represented by the equation:

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \dots + \beta_nx_n + \varepsilon$$

Where:

- $y$ : Dependent variable (target)
- $x_1, x_2, \dots, x_n$ : Independent variables
- $\beta_0$ : Intercept
- $\beta_1, \beta_2, \dots, \beta_n$ : Coefficients for independent variables
- $\varepsilon$ : Error term (residual)

#### Example:

Let's consider a real-world example of predicting house prices based on size (square feet) and the number of bedrooms. We have the following data:

Size ( $x_1$ )	Bedrooms ( $x_2$ )	Price ( $y$ )
1400	3	220000
1600	3	250000
1700	4	300000
1875	2	360000
1100	2	190000

**Step 1: Calculate Means** Calculate the means of  $x_1$ ,  $x_2$ , and  $y$ :

- $\bar{x}_1$  (mean of sizes)  $\approx (1400 + 1600 + 1700 + 1875 + 1100) / 5 \approx 1535$
- $\bar{x}_2$  (mean of bedrooms)  $\approx (3 + 3 + 4 + 2 + 2) / 5 \approx 2.8$
- $\bar{y}$  (mean of prices)  $\approx (220000 + 250000 + 300000 + 360000 + 190000) / 5 \approx 264000$

**Step 2: Calculate Coefficients ( $\beta_0, \beta_1, \beta_2$ )** Calculate the coefficients using the formulas:

- $\beta_1 = \frac{\sum((x_{1i} - \bar{x}_1) * (y_i - \bar{y}))}{\sum((x_{1i} - \bar{x}_1)^2)}$
- $\beta_2 = \frac{\sum((x_{2i} - \bar{x}_2) * (y_i - \bar{y}))}{\sum((x_{2i} - \bar{x}_2)^2)}$
- $\beta_0 = \bar{y} - \beta_1 * \bar{x}_1 - \beta_2 * \bar{x}_2$

**Step 3: Make Predictions** Use the multiple linear regression equation to make predictions:

- $y = \beta_0 + \beta_1 * x_1 + \beta_2 * x_2$

**Step 4: Evaluate Model** Assess the goodness of fit using metrics like Mean Squared Error (MSE) or R-squared.

Here's a table to show the calculations:

Size ( $x_1$ )	Bedrooms ( $x_2$ )	Price (y)	$x_1 - \bar{x}_1$	$x_2 - \bar{x}_2$	$(x_1 - \bar{x}_1) * (y - \bar{y})$	$(x_2 - \bar{x}_2) * (y - \bar{y})$	$(x_1 - \bar{x}_1)^2$	$(x_2 - \bar{x}_2)^2$
1400	3	220000	-135	0.2	-5940000	-88000	18225	0.04
1600	3	250000	65	0.2	910000	-88000	4225	0.04
1700	4	300000	165	1.2	5940000	132000	27225	1.44
1875	2	360000	340	-0.8	32640000	-105600	115600	0.64
1100	2	190000	-435	-0.8	-32290000	-105600	189225	0.64

**Step 2: Calculate Coefficients ( $\beta_0, \beta_1, \beta_2$ )**

$$\beta_1 \approx 31686000 / 155300 \approx 204.968$$

$$\beta_2 \approx -254000 / 5 \approx -50800$$

$$\beta_0 \approx 264000 - 204.968 * 1535 - (-50800) * 2.8 \approx 78007.82$$

**Step 3: Make Predictions** The multiple linear regression equation for predicting house prices based on size ( $x_1$ ) and bedrooms ( $x_2$ ) is approximately:

$$\text{Price (y)} \approx 78007.82 + 204.968 * \text{Size (x}_1) - 50800 * \text{Bedrooms (x}_2)$$

## 9.2 Multiple Linear Model Implementation:

```
import pandas as pd
from sklearn.linear_model import LinearRegression
import numpy as np

data=pd.read_csv("D:\INFOLABZ\multiple_regression.csv")
data=data.values

linear=LinearRegression()
output=linear.fit(data[:,0:3],data[:,3:])

print(pd.DataFrame(data))

   0    1    2    3
0 2000 4500 35 450000
1 2865 5705 32 713125
2 3175 6475 30 971250
3 3500 7750 28 124000
4 4200 9257 26 1943970
5 5000 13450 24 3497000

print(linear.predict(np.array([[2800,4500,35]])))

[[233633.726311]]
```



## Chapter 10. Day 9/Week 2 - 8<sup>th</sup> August, 2023

### 10.1 Polynomial Linear Regression Model: Mathematics:

Polynomial Linear Regression represents an advancement of the conventional Linear Regression framework, wherein the connection between the independent and dependent variables is depicted as a polynomial of nth degree. This expansion empowers the model to apprehend non-linear correlations inherent in the data.

```
(1) import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

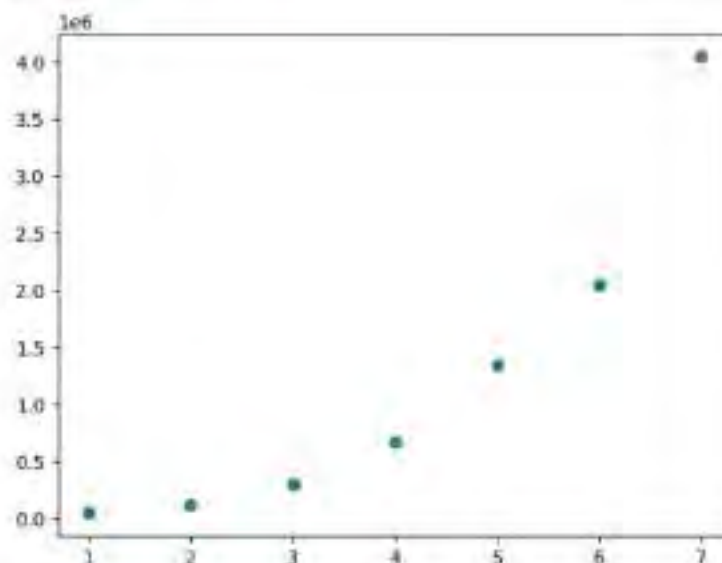
from sklearn.linear_model import LinearRegression
from sklearn.preprocessing import PolynomialFeatures
```

```
(2) df = pd.read_csv("orders.csv")
df
```

```
(3)
```

	orders	slot	amount
0	daily orders	1	44500
1	half weekly orders	2	127000
2	weekly orders	3	304500
3	half monthly orders	4	667500
4	monthly orders	5	1350000
5	half quarterly order	6	2047500
6	yearly orders	7	4041000

```
(4) plt.scatter(df.slot, df.amount)
plt.show()
```



```
[11]: poly = PolynomialFeatures(degree=5)
      x_poly = poly.fit_transform(df[['slot']])

[12]: reg = LinearRegression()
      reg.fit(x_poly, df[['amount']])

[13]: LinearRegression
      LinearRegression()

[14]: reg.predict([[2,3,4,5,6,7]])

[15]: array([[2223347.72732888]])
```

## 10.2 Image Data:

- When dealing with image data, employing TensorFlow, NumPy, Matplotlib, OpenCV, and Keras, ImageDataGenerator becomes essential. This ensemble showcases the process of loading and presenting images sourced from a directory through Python.
- In scenarios involving image analysis and machine learning endeavors, the incorporation of image preprocessing, data augmentation, model construction, and training phases emerges as indispensable requisites.

```
[1]: import tensorflow as tf
      import numpy as np
      import cv2
      import os
      import matplotlib.pyplot as plt
      from tensorflow.keras.preprocessing import image
      from tensorflow.keras.preprocessing.image import ImageDataGenerator

[2]: img = image.load_img("imgdata/training/laptop/1.jpg")
      plt.imshow(img)

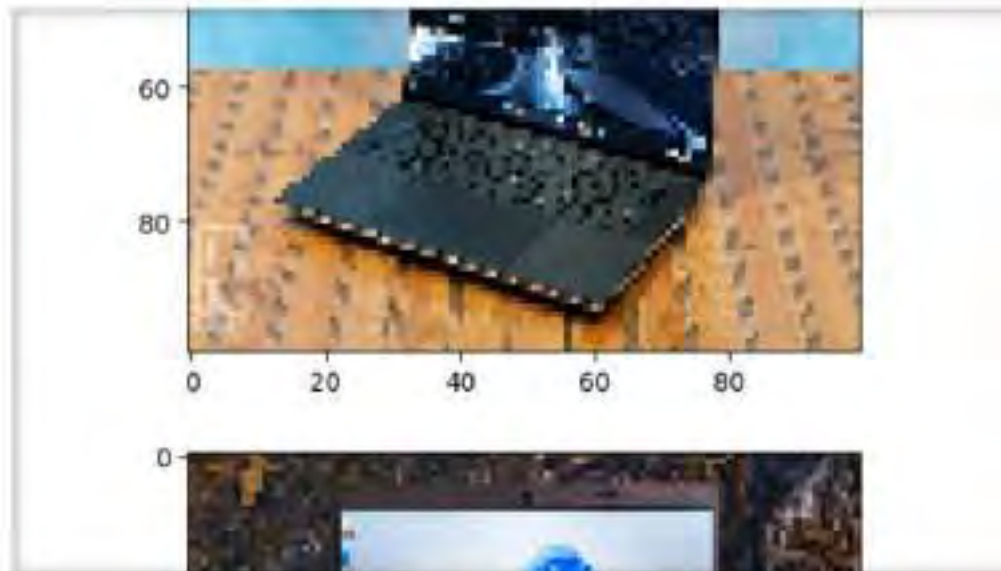
[3]: <matplotlib.image.AxesImage at 0x1c4368d47f8>
```



```
[4]: cv2.imread('imagedata/training/laptop/1.jpg').shape
```

```
[5]: (473, 848, 3)
```

```
[6]: dir_path = 'imagedata/training/laptop/'  
for i in os.listdir(dir_path):  
    img = image.load_img(dir_path+'/'+i, target_size=(100, 100))  
    plt.imshow(img)  
    plt.show()
```



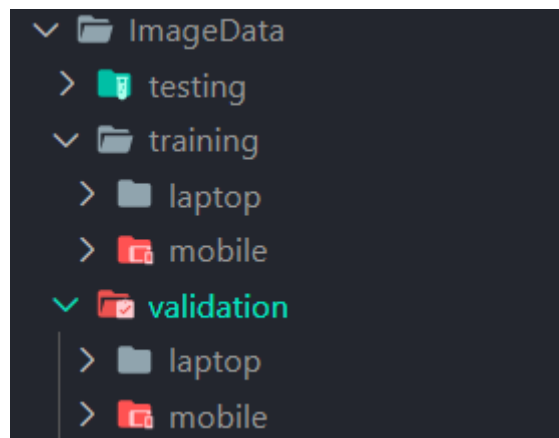
# Chapter 11. Day 10/Week 2 - 9<sup>th</sup> August, 2023

## 11.1 Assignment:

### 11.1.1 Task 1: CNN Model

- Developing Convolutional Neural Network (CNN) which could predict the images from the testing folder. Neural Network is a part of deep learning which is very much higher concept of Data Science.

#### Step 1: Folder Structure:



```
[19]: import os
import random
import matplotlib.pyplot as plt
import numpy as np

from tensorflow.keras.preprocessing.image import ImageDataGenerator
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Conv2D, MaxPooling2D, Flatten, Dense, Dropout

from tensorflow.keras.preprocessing.image import load_img, img_to_array
from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image

[20]: # Define paths
base_dir = 'ImageData'
train_dir = os.path.join(base_dir, 'training')
validation_dir = os.path.join(base_dir, 'validation')
test_dir = os.path.join(base_dir, 'testing')

laptop_train_dir = os.path.join(train_dir, 'laptop')
mobile_train_dir = os.path.join(train_dir, 'mobile')
laptop_validation_dir = os.path.join(validation_dir, 'laptop')
mobile_validation_dir = os.path.join(validation_dir, 'mobile')
```

## Step 2: Loading and Preprocessing Data

- Load and preprocess the images:

```
[3]: # Data augmentation and normalization
train_datagen = ImageDataGenerator(rescale=1.0/255.,
                                   rotation_range=40,
                                   width_shift_range=0.2,
                                   height_shift_range=0.2,
                                   shear_range=0.2,
                                   zoom_range=0.2,
                                   horizontal_flip=True)

train_generator = train_datagen.flow_from_directory(train_dir,
                                                  batch_size=20,
                                                  class_mode='binary',
                                                  target_size=(150, 150))

validation_datagen = ImageDataGenerator(rescale=1.0/255.)

validation_generator = validation_datagen.flow_from_directory(validation_dir,
                                                            batch_size=20,
                                                            class_mode='binary',
                                                            target_size=(150, 150))

Found 38 images belonging to 2 classes.
Found 18 images belonging to 2 classes.
```

## Step 3: Building the CNN Model:

```
[4]: # Now, let's build the CNN model
model = Sequential([
    Conv2D(32, (3, 3), activation='relu', input_shape=(150, 150, 3)),
    MaxPooling2D(2, 2),
    Conv2D(64, (3, 3), activation='relu'),
    MaxPooling2D(2, 2),
    Conv2D(128, (3, 3), activation='relu'),
    MaxPooling2D(2, 2),
    Flatten(),
    Dense(512, activation='relu'),
    Dropout(0.5),
    Dense(1, activation='sigmoid')
])
```

```
[5]: model.summary()
```

Model: "sequential"

Layer (type)	Output Shape	Param #
conv2d (Conv2D)	(None, 148, 148, 32)	896
max_pooling2d (MaxPooling2D)	(None, 74, 74, 32)	0
conv2d_1 (Conv2D)	(None, 72, 72, 64)	18496
max_pooling2d_1 (MaxPooling2D)	(None, 36, 36, 64)	0
conv2d_2 (Conv2D)	(None, 34, 34, 128)	73856
max_pooling2d_2 (MaxPooling2D)	(None, 17, 17, 128)	0
flatten (Flatten)	(None, 36992)	0
dense (Dense)	(None, 512)	18940416
dropout (Dropout)	(None, 512)	0
dense_1 (Dense)	(None, 1)	513

=====  
Total params: 19,034,177  
Trainable params: 19,034,177  
Non-trainable params: 0  
=====

```
[6]: model.compile(loss='binary_crossentropy',  
                  optimizer='adam',  
                  metrics=['accuracy'])
```

**Step 4:** Training the Model:

```

111) # Train the model
history = model.fit(train_generator,
                    validation_data=validation_generator,
                    epochs=50,
                    validation_steps=50,
                    verbose=2)

# Save the model
model.save('image_classifier_model.h5')

```

```

Epoch 42/50
2/2 - 0s - loss: 0.4980 - accuracy: 0.8000 - 227ms/epoch - 113ms/step
Epoch 43/50
2/2 - 0s - loss: 0.5504 - accuracy: 0.6667 - 244ms/epoch - 122ms/step
Epoch 44/50
2/2 - 0s - loss: 0.4727 - accuracy: 0.7667 - 240ms/epoch - 120ms/step
Epoch 45/50
2/2 - 0s - loss: 0.4665 - accuracy: 0.7667 - 235ms/epoch - 117ms/step
Epoch 46/50
2/2 - 0s - loss: 0.4987 - accuracy: 0.7667 - 246ms/epoch - 123ms/step
Epoch 47/50
2/2 - 0s - loss: 0.5082 - accuracy: 0.7667 - 239ms/epoch - 119ms/step
Epoch 48/50
2/2 - 0s - loss: 0.3561 - accuracy: 0.8000 - 262ms/epoch - 131ms/step
Epoch 49/50
2/2 - 0s - loss: 0.4777 - accuracy: 0.7333 - 278ms/epoch - 139ms/step
Epoch 50/50
2/2 - 0s - loss: 0.3131 - accuracy: 0.8333 - 276ms/epoch - 138ms/step

```

## Step 5: Predict the model

```

111) # Load the saved model
model = load_model('image_classifier_model.h5')

laptop_class = 0 # Class index for laptops
mobile_class = 1 # Class index for mobiles

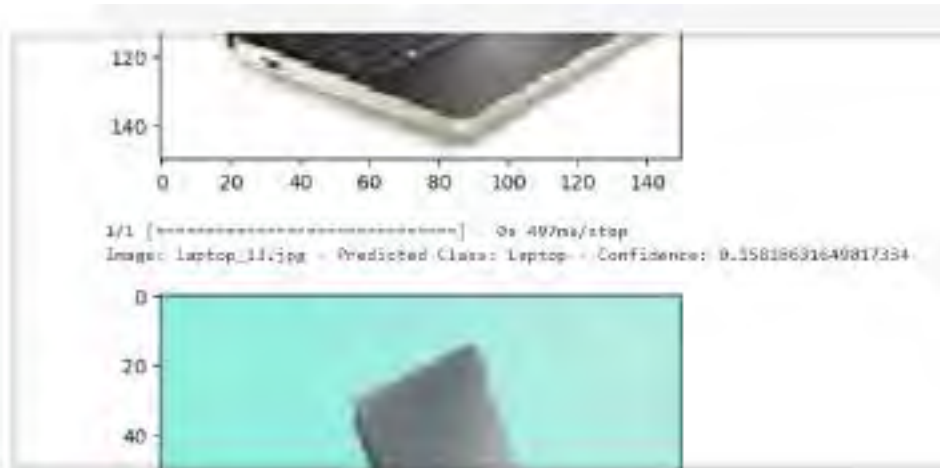
# Function to preprocess an image for prediction
def preprocess_image(image_path):
    img = load_img(image_path, target_size=(150, 150))
    img_array = img_to_array(img)
    img_array = np.expand_dims(img_array, axis=0)
    img_array = img_array / 255.0 # Normalize the image
    return img_array

# Predict images and print results
for image_name in os.listdir(test_dir):
    img = image.load_img(test_dir+'/'+image_name, target_size=(150, 150))
    plt.imshow(img)
    plt.show()

    image_path = os.path.join(test_dir, image_name)
    preprocessed_image = preprocess_image(image_path)
    prediction = model.predict(preprocessed_image)
    predicted_class = laptop_class if prediction < 0.5 else mobile_class
    predicted_class_name = 'Laptop' if predicted_class == laptop_class else 'Mobile'

    print(f"Image: {image_name} - Predicted Class: {predicted_class_name} - Confidence: {prediction[0][0]}")

```



## 11.1.2 Task 2: OpenCV

```
1) | import cv2 as cv
```

Write a script to open camera

```
2) | # Open the camera
    | cap = cv.VideoCapture(0)
    |
    | while True:
    |     # Capture a frame from the camera
    |     ret, frame = cap.read()
    |
    |     # Display the grayscale frame
    |     cv.imshow('Frame', frame)
    |
    |     # Exit the loop on 'q' key press
    |     if cv.waitKey(1) == ord('q'):
    |         break
    |
    | # Release the camera and close windows
    | cap.release()
    | cv.destroyAllWindows()
```





## Write script to Open Camera in gray scale mode ( black and white )

```
11) # Open the camera
cap = cv.VideoCapture(0)

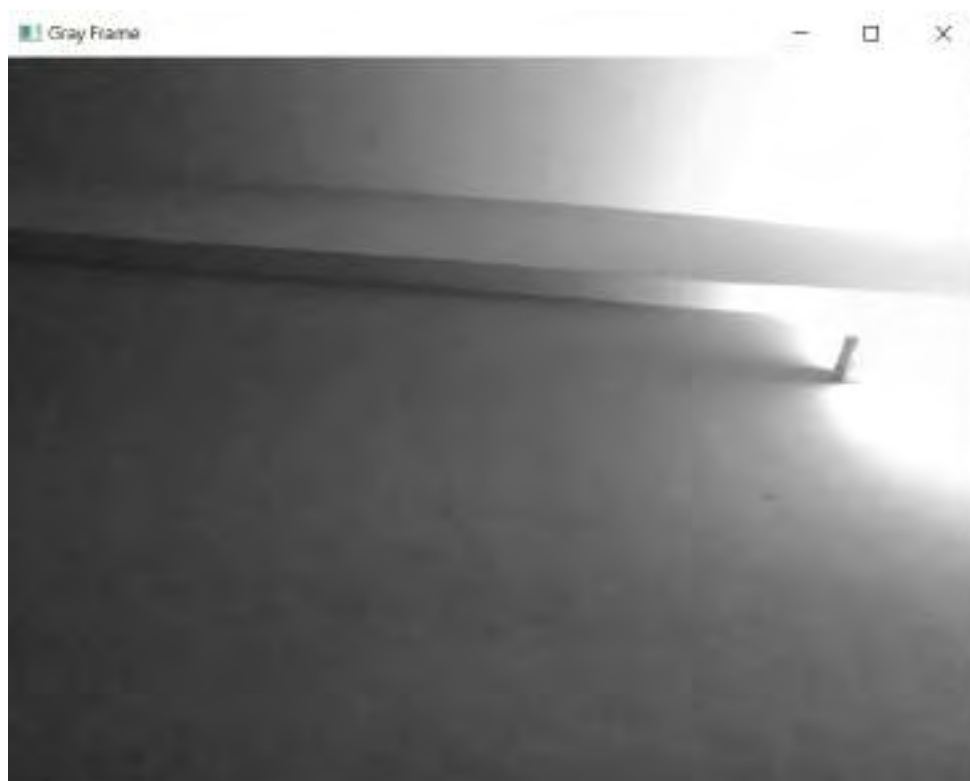
while True:
    # Capture a frame from the camera
    ret, frame = cap.read()

    # Convert the frame to grayscale
    gray_frame = cv.cvtColor(frame, cv.COLOR_BGR2GRAY)

    # Display the grayscale frame
    cv.imshow('Gray Frame', gray_frame)

    # Exit the loop on 'q' key press
    if cv.waitKey(1) == ord('q'):
        break

# Release the camera and close windows
cap.release()
cv.destroyAllWindows()
```



Write script to Capture image on click of key "c" while camera is open.

```
[4]: # Open the camera
cap = cv.VideoCapture(0)

while True:
    # Capture a frame from the camera
    ret, frame = cap.read()

    # Capture on press 'c'
    if cv.waitKey(1) == ord('c'):
        # Save the grayscale image
        cv.imwrite('captured_image.jpg', frame)
        print("Image captured!")

    # Display the grayscale frame
    cv.imshow('Gray Frame', frame)

    # Exit the loop on 'q' key press
    if cv.waitKey(1) == ord('q'):
        break

# Release the camera and close windows
cap.release()
cv.destroyAllWindows()
```

Image captured!



## Chapter 12. Day 11/Week 2 - 10<sup>th</sup> August, 2023

### 12.1 Conclusion:

During my internship at INFOLABZ IT SERVICES PVT. LTD., I had the opportunity to delve into various aspects of data analytics, visualization, and machine learning. Over the course of eleven days, I gained valuable insights and hands-on experience in several key areas of data science, which have significantly enhanced my skill set and understanding of the field.

In the initial days, I gained a comprehensive understanding of data analytics, exploring different types of data such as structured, unstructured, and semi-structured data. I also delved into the concept of dictionaries as fundamental data structures and the role of APIs (Application Programming Interfaces) in facilitating seamless communication between different software applications. Subsequently, I dived into the world of data visualization using Matplotlib, a powerful Python library. I learned to create a variety of visualizations, including scatter plots, bar graphs, and pie charts, which are essential tools for conveying insights and trends from data. This knowledge equipped me with the skills to effectively communicate data-driven findings.

My journey continued with practical applications of APIs, where I explored APIs related to COVID-19 data, ISRO spacecrafts, Bitcoin, and mutual funds. I learned to interact with these APIs, retrieve data, and visualize it using Matplotlib.

A significant portion of my internship was dedicated to understanding linear regression models, both simple and multiple. I delved into the mathematical foundations of these models and their implementation using Python. This understanding laid the groundwork for predictive analysis and equipped me with the skills to create models that can predict outcomes based on given input variables.

In the later stages of my internship, I undertook assignments that involved more advanced concepts. I explored polynomial linear regression, which allowed me to capture non-linear relationships in data. Additionally, I delved into the realm of image data analysis, learning how to preprocess and manipulate images using libraries like TensorFlow, NumPy, and OpenCV. I also developed a Convolutional Neural Network (CNN) model to predict images, providing me with a glimpse into the world of deep learning.

Overall, my internship at INFOLABZ IT SERVICES PVT. LTD. has been an enriching experience. I've gained valuable knowledge and practical skills in data analytics, visualization, and machine learning. The exposure to real-world projects and hands-on tasks has not only expanded my technical expertise but has also instilled in me a deeper appreciation for the role of data in shaping informed decisions across various industries. I'm grateful for the guidance and mentorship I received throughout the internship, and I look forward to applying these newfound skills in my future endeavors in the field of data science.

## References

- [1] Kaggle: <https://www.kaggle.com/>
- [2] COVID API: <https://data.covid19india.org/data.json>
- [3] ISRO API: <https://isro.vercel.app/api/spacecrafts>
- [4] Bitcoin API: <https://api.coindesk.com/v1/bpi/currentprice.json>
- [5] Mutual Fund API: <https://api.mfapi.in/mf>
- [6] Inshorts News API: <https://inshortsapi.vercel.app/news?category=all>
- [7] ISRO Foreign API: [https://isro.vercel.app/api/customer\\_satellites](https://isro.vercel.app/api/customer_satellites)
- [8] Postal Pin code API: <https://api.postalpincode.in/pincode/380001>

# **Internship at Forgeahead**

**AN INTERNSHIP REPORT**

*Submitted by*

**Aryan Bakulesh Patel**

**190390107026**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

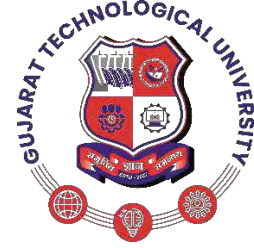


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Forgeahead Solutions** has been carried out by **Aryan Bakulesh Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



Ref: HR/Intern- 2023  
Date: 3rd May 2023

TO WHOMSOEVER THIS MAY CONCERN

This letter is to certify that Aryan Patel has successfully completed 3 months (February - April 2023) of Internship at Forgeahead Solutions Pvt. Ltd.

We hereby confirm that Aryan Patel was an integral part of the Machine Learning team. His positive attitude, willingness to learn, and strong work ethic were evident throughout the internship.

We wish him all the best for his future career, and we are confident that he will continue to make valuable contributions in the field of Machine Learning and Data Science.

With Regards,

For Forgeahead Solutions Pvt. Ltd.,

A handwritten signature in blue ink that reads "Devesh Hingorani".

Devesh Hingorani  
Chief Financial Officer

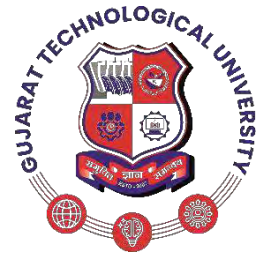
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**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship entitled **Internship at Forgeahead Solutions** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Mr. Amit Chauhan (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Aryan Bakulesh Patel**

\_\_\_\_\_



## **ACKNOWLEDGMENT**

I would like to express my sincere gratitude for the support and guidance provided by **Mr. Amit Chauhan** me during my 12-week internship at **Forgeahead Solution** . His expertise and encouragement have been instrumental in my personal and professional growth, and I cannot thank you enough for the valuable Concepts and lessons I learned under his guidance. I would like to thank him for the time he share his knowledge and experience with me. His guidance and feedback were immensely helpful in shaping my understanding of the industry, and I am grateful for the opportunities he provided me to contribute to the team.

I would also like to thank my Internal Guide **Prof. Chetan Chauhan** for helping us through our internship by giving us the necessary suggestion and advice along with their valuable co-ordination in completing this Internship.

## **Abstract**

This report contains the work done by me (Aryan Patel) during his internship at Forgeahead Solutions . It shows the work I did in the company during my internship period. In the report, I will discuss about various projects on which I worked, which helped me develop a better understanding of the industry and its various aspects. I got opportunity at Forgeahead Solutions. I have joined this company as a intern in machine learning department. I have learned varietyof technologies and tools in data science and concepts like Machine Learning , Rasa Platform , Python , SQL . During this internship the projects ranged from simple to complex,I have worked on mainly 3 projects named Python project on Tokenizes, Rasa Chatbot on Weather Forecast and Python project for converting csv files into yml files.

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## Abbreviations

- API: Application Programming Interface
- NLU: Natural Processing Language

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## Chapter 1. Industry Overview

### COMPANY PROFILE:



**Fig 1.1 Company Logo**

Forgeahead is our smithy. Our workshop. It's where we bring the best talent and the latest tools together with winning processes. It's where we take your ideas, give them form, and set them in motion.

Build as a Service (BaaS) is a revolutionary new model of product development from Forgeahead. BaaS is your execution engine... all the development and design horsepower you need to race ahead from a great idea to a great technology innovation. Build as a Service is your execution engine...all the development and design horsepower you need to race ahead from a great idea to a great technology innovation

There is moto in company, who are we, We're builders and smiths. We fuel out forge with passion. Values are at the core are these (1) Be where the work is (2) Make better things (3) Give and take responsibility (4) Build relationships, not just products. (5) Absolute candor with all, always.



**Fig 1.2 Values of the company**

## **Various Development Departments:**

### **1.1.1 SAAS Product Development**

We use Java, Python, and Node.js for backend development and build the backend for high-load, highly-scalable products, while our frontend developers bring complex, beautiful interfaces to life using AngularJS, React and BackboneJS.

### **1.1.2 Quality Assurance**

High-quality, top-tier products aren't built without proper testing. Our quality assurance engineers are armed with over two decades of experience in automation testing, automation engineering, performance testing, manual testing, compatibility testing, and continuous integration.

### **1.1.3 Mobile App Development**

Build iOS or Android native apps, or reach out to a wider audience with hybrid, cross-platform apps. Our mobile development experts use React Native and Flutter to build high-performance apps with amazing UI.

### **1.1.4 UI/UX**

UX architects and UI designers come together to build your MVP, re-design your interfaces, or design a complete product from scratch. From researching your competition to wireframing prototypes to developing mood boards to designing interfaces...everything you'll need.



## **1.1.5 DevOps**

Our DevOps expertise automates CI/CD pipelines, brings increased agility, reduces costs, and takes you into the future with serverless-computing, dynamic provisioning and pay-as-you-go cost models.

## **1.2 Tools and technologies:**

### **1.2.1 – Mobile**

- OS
- Android
- React Native
- Flutter
- Ionic

### **1.2.2 – Frontend**

- WPF
- ReactJs
- Angular
- Typescript

### **1.3.3 Backend**

- PHP
- ReactJs
- Angular
- Typescript

### **1.3.4– Database**

- MySQL
- Oracle
- Mongo DB
- MS SQL
- HTML5



**1.3 Tools used by Company**

## **Chapter 2. Internship Introduction**

### **2.1 – Internship Summary**

I got to know about the Forgeahead Solutions from my father that this company is providing. Data Science internship so I applied for the interview and after clearing the interview I got selected. My training began from the basic concept of python a knowledge about tools which we were going to use later in the training like visual studio and SQL management server. We also learnt about rasa platform which is very crucial in creating a chatbots. We learnt some basics program of Python. i also worked on micro projects python project for Tokenize, I have created chatbot which gave us vast knowledge of rasa platform. All and all it was very amazing experience in which we have learnt lot of valuable concepts.

### **2.2 – Aim**

- Software Developer Trainee Intern at Forgeahead Solutions PVT LTD.
- Learned Coding Standard.
- Get to know and learn some of the features of Visual Studio Code.
- Learn and Worked on Visual Studio Code.
- Research, Discuss and develop different aspect of the Data Science.
- Organizing technical information and creating a plan and break down of the action to be taken to achieve the result.

### **2.3 – Objectives**

- Conceptual development
- Planning of the space

- Programming
- Researchers
- Communication with the stakeholders
- Management
- Execution of the Design

## **2.4 Scope**

- Project scope management is a process that helps in determining and documenting the list of all the project goals, tasks, deliverables, deadlines, and budgets as a part of the planning process. In project management, it is common for a big project to have modifications along the way. With the scope in the project management defined right in the beginning, it becomes much easier for project teams to manage and make the required changes.

## Chapter 3. Referred Technologies

### 3.1 Tools and technologies used:

#### 3.1.1 About Visual studio



**Fig 3.1 visual studio**

- Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs including websites, web apps, web services and mobile apps. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight. It can produce both native code and managed code.
- Visual Studio includes a code editor supporting IntelliSense as well as code refactoring. The integrated debugger works as both a source-level debugger and as a machine-level debugger. Other built-in tools include a code profiler, designer for building GUI applications, web designer, class designer, and database schema designer. It accepts plug-ins that expand the functionality at almost every level—including adding support for source control systems and adding new toolsets like editors and visual designers for domain-specific languages or toolsets for other aspects of the software development lifecycle (like the Azure DevOps client: Team Explorer).

#### 3.1.2 About SQL Server Management Studio

#### 3.1.3 About Python

Python is a high-level, general-purpose programming language. Its design philosophy emphasizes code readability with the use of significant indentation via the off-side rule. Python is dynamically typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly procedural), object-oriented and functional programming. It is

often described as a "batteries included" language due to its comprehensive standard library. Guido van Rossum began working on Python in the late 1980s as a successor to the ABC programming language and first released it in 1991 as Python 0.9.0. Python 2.0 was released in 2000. Python 3.0, released in 2008, was a major revision not completely backward-compatible with earlier versions. Python 2.7.18, released in 2020, was the last release of Python 2.

Python is a multi-paradigm programming language. Object-oriented programming and structured programming are fully supported, and many of their features support functional programming and aspect-oriented programming (including metaprogramming and metaobjects). Many other paradigms are supported via extensions, including design by contract and logic programming.

Python uses dynamic typing and a combination of reference counting and a cycle-detecting garbage collector for memory management. It uses dynamic name resolution (late binding), which binds method and variable names during program execution.

Its design offers some support for functional programming in the Lisp tradition. It has filter, mapandreduce functions, list comprehensions, dictionaries, sets, and generator expressions. The standard library has two modules implement functional tools borrowed from Haskell and Standard ML.

Its core philosophy is summarized in the document The Zen of Python (PEP 20), which includes aphorisms such as: Beautiful is better than ugly.

- Explicit is better than implicit.
- Simple is better than complex.
- Complex is better than complicated.
- Readability counts.

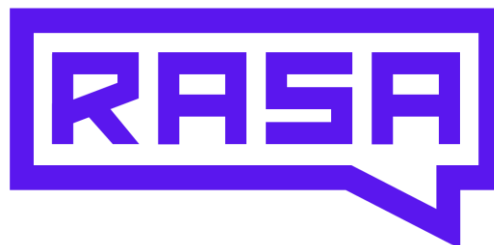
### 3.1.4 About Rasa Platform

Rasa is an open source platform for building chatbots and voice assistants. It provides a framework for developers to design, train, and deploy conversational AI applications. The platform is based on machine learning and natural language processing (NLP) technologies, and supports both text-based and voice-based interactions.

Rasa consists of two main components: Rasa NLU (Natural Language Understanding) and Rasa Core. Rasa NLU is responsible for understanding user messages and extracting relevant information, while Rasa Core manages the dialogue flow and decides what actions to take based on user input.

One of the key advantages of Rasa is its flexibility and customizability. It allows developers to train chatbots with their own data and domain-specific language, enabling the creation of highly personalized and accurate conversational experiences. Rasa also provides a variety of pre-built components, including language models, dialogue management policies, and integration modules, making it easy to get started with chatbot development.

Rasa integrates with a wide range of communication channels, including Facebook Messenger, Slack, and WhatsApp, as well as custom web and mobile applications. The platform also provides detailed analytics and insights into chatbot performance, enabling developers to optimize and improve the user experience over time.



**Fig 3.2 Rasa Platform**

### 3.2 Learning platform

- Learn Rasa platform
- YouTube
- Stack Overflow

## Chapter 4. Daily Tasks

### 4.1 Weekly Tasks

#### ❖ Week 1

- Meet up with the team
- Creation of company email address and discussion of projects
- PPT for python
- Installation of Visual Studio
- Understanding data science steps

#### ❖ Week 2

- Basics problems solving with python.

#### ❖ Week 3

- Python tokenize problem solving
- Understanding and completing python tokenize project

#### ❖ Week 4 and 5

- Introduction to rasa
- Rasa installations and practice
- Creating first chatbot using rasa
- Understanding more about rasa

#### ❖ Week 6-9

- Started working on rasa chatbot on weather forecast.
- Understanding more features and advantages of rasa

#### ❖ Week 9-12

- Python project on converting CSV files to YAML files
- Helping in various company project



## Chapter 5. Project Implementation

### 5.1 Rasa Chatbot on Weather Forecast

#### 5.1.1 Project Overview

Rasa is an open source conversational AI framework that allows developers to build powerful chatbots and virtual assistants. With Rasa, developers can create chatbots that can understand natural language inputs, carry out complex conversations, and provide useful responses to users.

One popular use case for Rasa chatbots is weather forecasting. By integrating weather APIs with a Rasa chatbot, developers can create a weather chatbot that can answer user queries about the weather conditions in a particular location.

With a weather forecasting chatbot built on Rasa, users can ask questions such as "What is the weather like in New York today?" or "Will it rain in San Francisco tomorrow?" The chatbot can use natural language processing to understand the user's query, extract the relevant information, and provide a response that is accurate and relevant.

To build a weather forecasting chatbot on Rasa, developers can start by defining the intents, entities, and actions that the chatbot should support. They can then use Rasa's NLU and dialogue management capabilities to train the chatbot on a dataset of weather-related queries and responses.

In addition to answering user queries about the weather, a weather forecasting chatbot built on Rasa can also provide additional features such as sending weather alerts, providing daily or weekly weather forecasts, or suggesting clothing or gear based on the weather conditions.

Overall, a weather forecasting chatbot built on Rasa can provide a convenient and efficient way for users to get accurate and up-to-date weather information. With Rasa's advanced conversational AI capabilities, developers can create chatbots that provide a personalized and engaging user experience, and help users stay informed about the weather conditions in their area.

#### 5.1.2 Problem

- ❖ Creating a rasa chatbot based on the weather forecast.

#### 5.1.3 Software description

- ❖ This project is built on rasa platform to host the chatbot we require HTML, CSS and JavaScript. which has different functionality addressing different problems and some useful features.

## 5.1.4 Photos

In this photo you can see is the nlu.yml file which is used as base for chatbot to read and understand the user question or user text

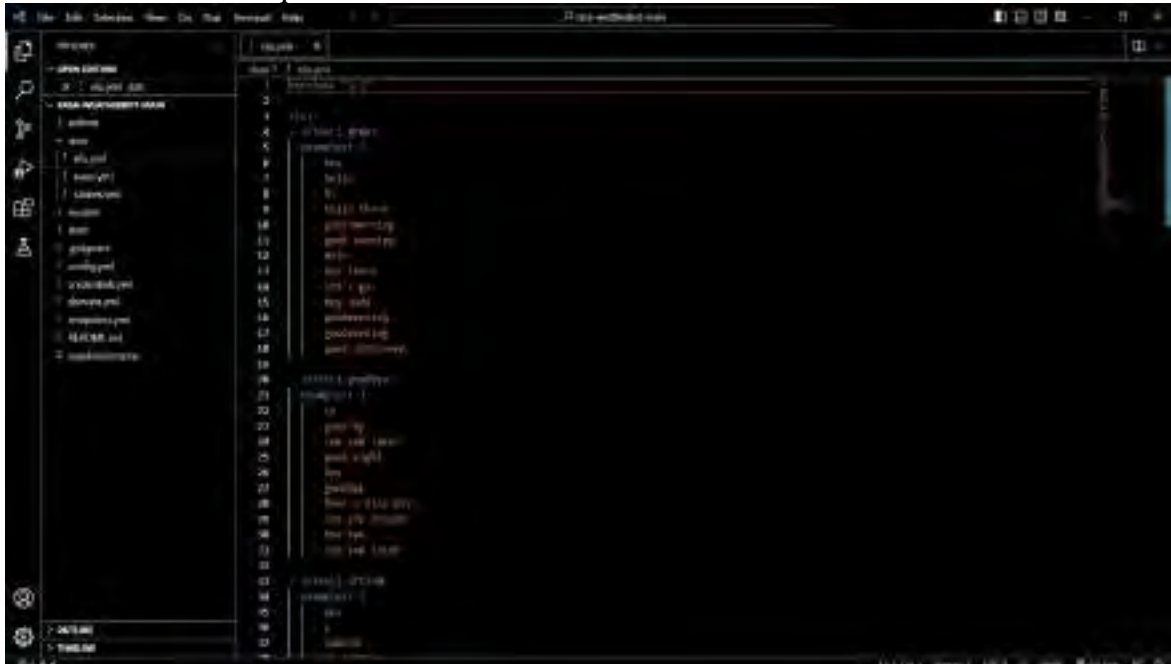


Fig 5.1 nlu.yml file for program

In this photo you can see is the stories.yml file which is used as scenario for chatbot to keep the conversation running after particular question is answer, where intent is user text and action is work assign to the chatbot when that type of question is asked



Fig 5.2 Story.yml file



## 5.2 Python project on converting CSV files to YAML files

### 5.2.1 Project Overview

Converting CSV files into YAML files using Python is a useful task for data analysts, developers, and others who work with large amounts of data. In this project, we will explore how to write a Python program that can convert a CSV file into a YAML file.

To get started, we will need to import the necessary Python libraries, including ``csv`` and ``yaml``. We will also need to define the input and output file paths for our program. Once we have defined our input and output files, we can use the ``csv`` library to read the data from the CSV file and store it in a Python dictionary.

Next, we will need to define the structure of the YAML file that we want to create. This will typically involve defining the top-level keys and any nested keys that are required. We can then use the ``yaml`` library to write the data from our dictionary to a YAML file, using the defined structure.

In addition to converting CSV files into YAML files, our Python program can also perform data cleaning and manipulation tasks. For example, we can remove any unnecessary columns or rows from the CSV file, or convert data types as required.

Finally, we can add additional features to our Python program to make it more user-friendly, such as command-line arguments for specifying the input and output file paths, or error handling for cases where the input file is missing or malformed.

Overall, converting CSV files into YAML files using Python is a useful skill for anyone working with data. By writing a Python program to automate this task, we can save time and ensure that our data is accurately and consistently formatted.

### 5.2.2 Problem

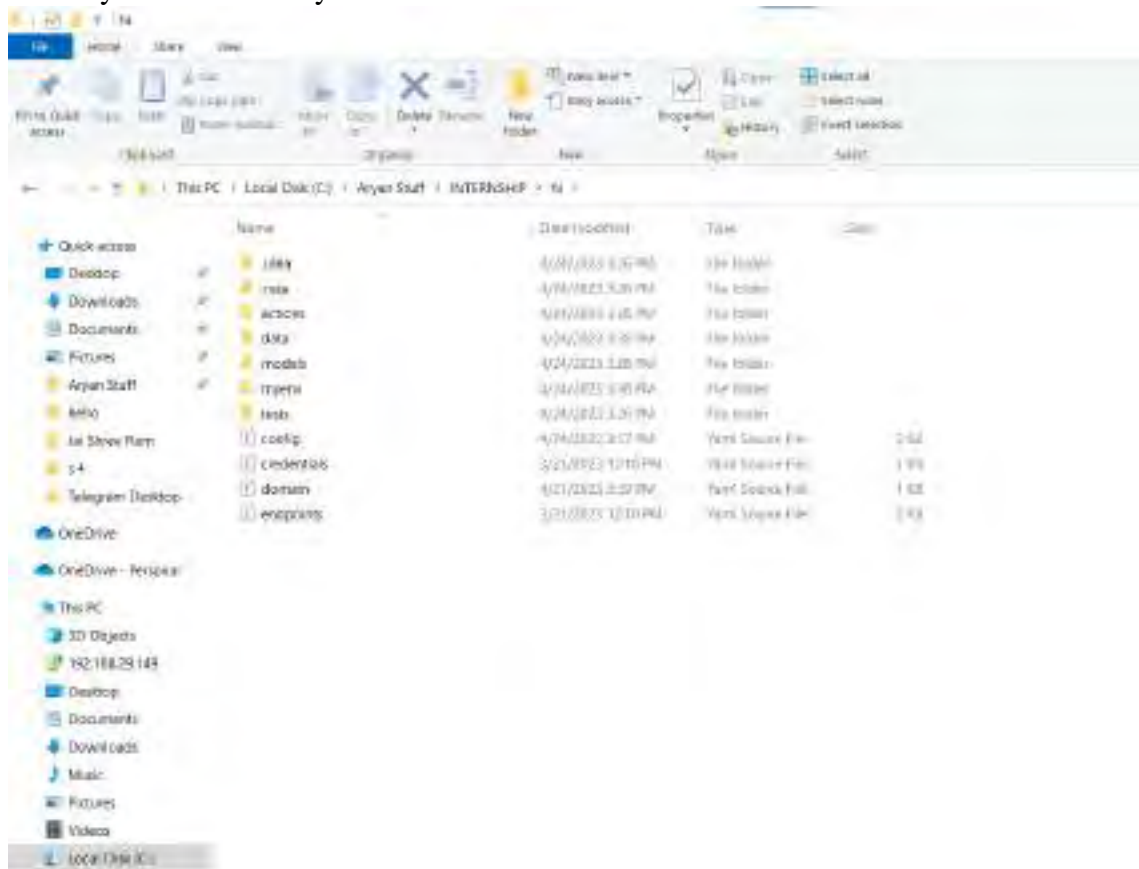
- ❖ It is always time-consuming to create and install rasa platform libraries every time clients ask for new chatbots so to overcome this problem this project can be used in order to save time and provide a better and fast business service.

### 5.2.3 Software description

- ❖ This project is built on python as code will be in python it is easy to convert in python than other language besides this rasa platform files will be required to run and train the model provided the python program.



In this photo we can see is the required files which are generated when we install rasa files for a chatbot where in this project we just change the data folder which contain the files nlu.yml, stories.yml and domain.yml.



**Fig 5.7 Rasa Chatbot Requirements**

## References

### ❖ For Python:

- <https://www.w3schools.com>
- <https://www.tutorialspoint.com>
- <https://www.javapoint.com>
- Python Phrasebook- PDF
  - Brad Dayley
  - ISBN: 0672329107
  - Sams Publishing, 275 pages (November 2006)
- Python in a Nutshell, 3rd Edition-PDF
  - Alex Martelli
  - ISBN: 144939292X
  - O'Reilly Media, May 2017, 654 pages

### ❖ For Rasa platform:

- <https://rasa.com/>
- <https://stackoverflow.com/>
- <https://www.geeksforgeeks.org/>

## Appendix



Fig 6.1 Internship Request





# **INTERNSHIP AT CREART SOLUTIONS**

## **AN INTERNSHIP REPORT**

*Submitted by*

**KASVALA BHARGAV KISHORBHAI**

**200390107055**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

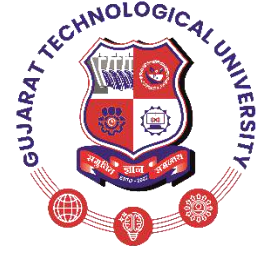


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at CreArt Solution** has been carried out by **Bhargav Kishorbhai Kasvala** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof.

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate

## Joining Letter

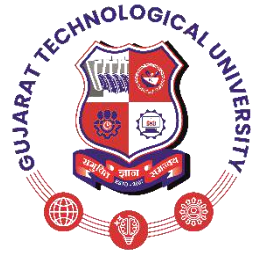
<b>INTERNSHIP JOINING LETTER</b>	 <b>CREART</b>
	Date: 27 <sup>th</sup> July 2023
<i>This is to certify that</i>	
Mr/Ms. Bhargav Kasvda Enrollment No : 200350107056 College : Saffron Institute Of Technology	
has been selected for the 15 days of summer Internship from 27 <sup>th</sup> July 2023 to 10 <sup>th</sup> August 2023 at CreArt Solutions, Ahmedabad	
We wish him/her all the best for his future endeavours.	
	<b>CreArt Solutions PVT LTD.</b> 202, Heritage Horizon, Dpo Hotel, Dev Corporate, CID Road, Ahmedabad, Gujarat, India - 380009 <a href="http://www.creat.in">www.creat.in</a>   <a href="mailto:hello@creat.in">hello@creat.in</a>   <b>Office Location:</b> INDIA   USA   UK
<hr/> <b>Krishnamohan Gupta</b> Director	

# Completion Letter

<b>INTERNSHIP COMPLETION LETTER</b>	 <b>CREART</b>
Date: 10 <sup>th</sup> August 2023	
<i>This is to certify that</i>	
Mr/Ms. Bhargav Kaswala Enrollment No : 200350107055 College : Satyame Institute Of Technology	
has successfully completed the 15 days of summer internship from 27 <sup>th</sup> July 2023 to 10 <sup>th</sup> August 2023 at CreArt Solutions, Ahmedabad.	
We wish him/her all the best for his future endeavours.	
	<b>CreArt Solutions PVT LTD.</b> 302, Heritage Horizon, Dpp Hotel Dev Corporate, C.D. Road, Ahmedabad, Gujarat, India - 380009 <a href="http://www.creat.in">www.creat.in</a>   <a href="mailto:help@creat.in">help@creat.in</a>   <b>Office Locations:</b> INDIA   USA   UK
<hr/> <b>Krishnamohan Gupta</b> Director	



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CreArt Solutions** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. & Alkesh Kaba (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

KASVALA BHARGAV KISHORBHAI

## **ACKNOWLEDGMENT**

This Summer Internship work has been the most practical and exciting part of my learning experience, which would be an asset for me and also for my future carrier.

I would like to thank my head od department **Mr. Akshay Kansara**, who was a constant source of inspiration.

My most sincere thanks to my internal Internship guide \_\_\_\_\_ for his/her kind co-operation and who has always been guiding, encouraging and motivating me throughout the internship and project. I am gratefully to my collage **Saffrony Institute of Technology** for providing me all the required resources and good working environment.

I would like to thank my external guide **Mr. Alkesh Kaba**, for supporting me throughout the internship work and motivating me. I would also like to thank the **organization** “**CreArt Solutions PVT LTD**” who supported me for my internship and project.

Thank you.

## **Abstract**

This report contains the work done by the author during his internship at *CreArt Solutions*. It shows the work I did in the company during my internship period. In the report, the author discusses the process of manufacturing and steps of assembly of the machines. The author also discusses the structure of the company, all the departments and their work. It also explains what the author learned during this internship period.



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## **Abbreviations**

HTML Hypertext Markup Language

CSS Cascading Style Sheets

IDE Integrated Development Environment

XAMPP X-operating system, Apache, MySQL, PHP, Perl

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# Chapter 1. INTRODUCTION

## 1.1 COMPANY PROFILE:



Fig 1.1 Company Logo

CreArt is a privately owned venture of IT Solutions, Digital Marketing, Software Solutions and SEO services formed in 2013, in Ahmedabad, India. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

It is a full-service digital marketing agency providing services for brand identity, search engine optimization, search engine marketing & website design. CreArt specialized in web development e-commerce website design & conversion rate optimization for online stores. Also offer hosting domain, hosting support & maintenance.

CreArt offers Internship programs. Basically, they are free or paid either online/ offline.

Website Link: <https://creart.in/>

### 1.1.1 MISSION AND VISION OF THE COMPANY:

Our internship program was conducted from 27-July-2023 to 10-August-2023. During our internship course, we were to be taught about various concepts of the PHP and Laravel Framework from very basic.

We covered different important basics which are used in every programming language. The Goals to be achieved during whole internship course were as follows:

1. Basic PHP
2. How to download Xampp and how to use it
3. PHP Laravel
4. Make Project

## **1.2 System Information**

**Tools:** Laptop, Internet, XAMPP, Visual Studio code(IDE).

**Technology:** HTML, CSS, JAVASCRIPT

## Chapter 2 Internship Program

### 2.1 Internship Program Learning.

#### 2.1.1 Week-1 Basic Introduction of PHP

❖ 27 July 2023

1. Introduction about PHP and Laravel

- PHP is stand for 'Hypertext Preprocessor'.
- PHP is a server-side scripting language that is embedded in HTML. It is mainly used in back-end of website. It is also mange dynamic content, database, session tracking etc.
- The comments in PHP can be #, //, /\*..\*/.
- XAMPP is used to run PHP programs.

2. Information and Task of Internship

- Internship project- Video calling web app
- Company details.
- Certificate

❖ 28 July 2023



Fig 2.1 XAMPP Download

1. Download XAMPP and create and run program.

- Download and install XAMPP for windows from chrome browser for run a PHP program. It provides connect to local server and database connection to PHP program. It is required to load and run a PHP program.

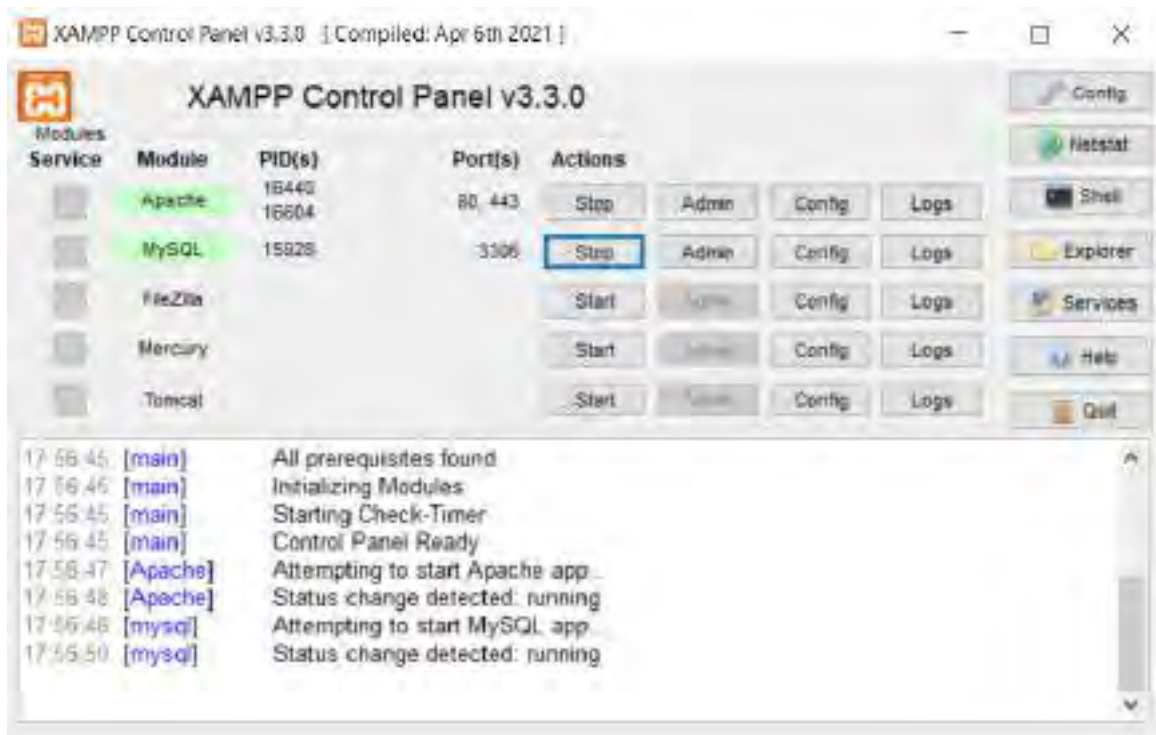


Fig 2.2 XAMPP Panel

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1>My first PHP page</h1>
```

```
<?php
```

```
echo "Hello World!";
```

```
?>
```

```
</body>
```

```
</html>
```

## ❖ 31 July 2023

### 1. PHP variable

- Variable are the entity that are used for storing the values. The value can be assigned to the variable in following manner:

`$variable_name=value;`

Ex.

```
<?php
$i=10;
echo "the value of variable= $i";
?>
```

## 2. Data type

- Data Types define the type of data a variable can store. PHP allows 4 different type of data types. Mention below.

1. Boolean
2. Integer
3. Double
4. String

The special data type is NULL

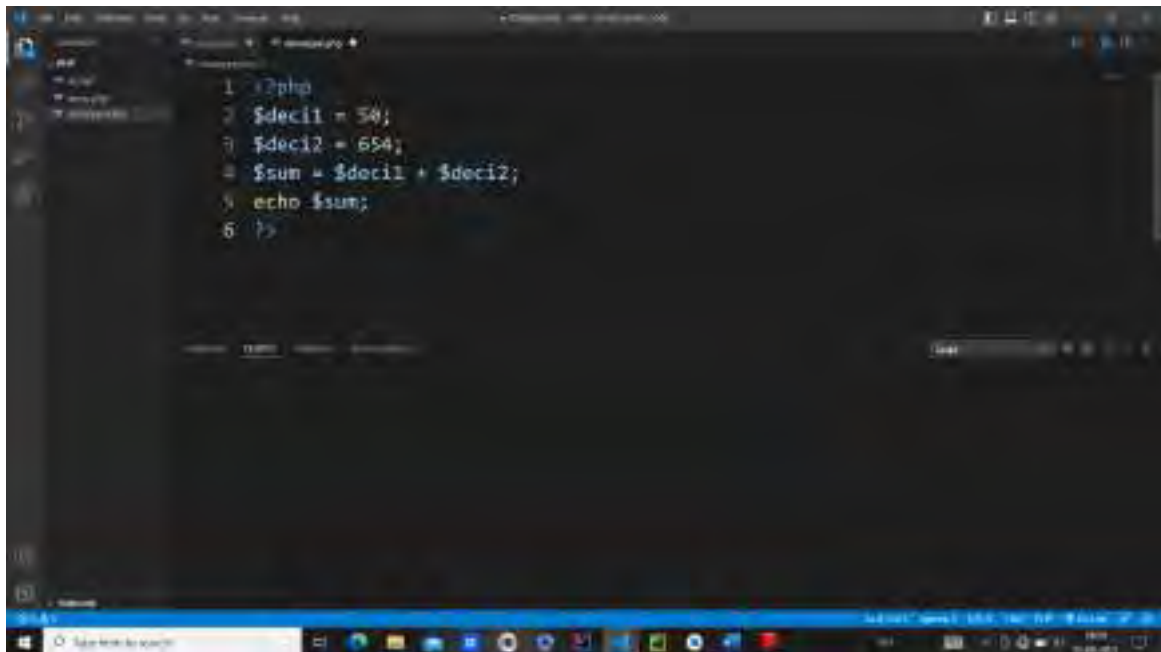
A screenshot of a code editor window with a dark theme. The editor contains six lines of PHP code. Line 1: `<?php`. Line 2: `$dec1 = 50;`. Line 3: `$dec2 = 654;`. Line 4: `$sum = $dec1 + $dec2;`. Line 5: `echo $sum;`. Line 6: `?>`. The code is displayed in a light blue font against the dark background. The editor's interface includes a file explorer on the left and a taskbar at the bottom.

Fig 2.3 variable example

❖ **1 August 2023**

## 1. PHP arrays



- Array is similar type of elements, each element has two parts key and value.



Fig 2.4 Array In PHP

```
1 <?php
2 $age = array("peter">"35", "ben">"45", "jon">"45");
3 echo "peter is ".$age["peter"]."old";
4 </?>
```

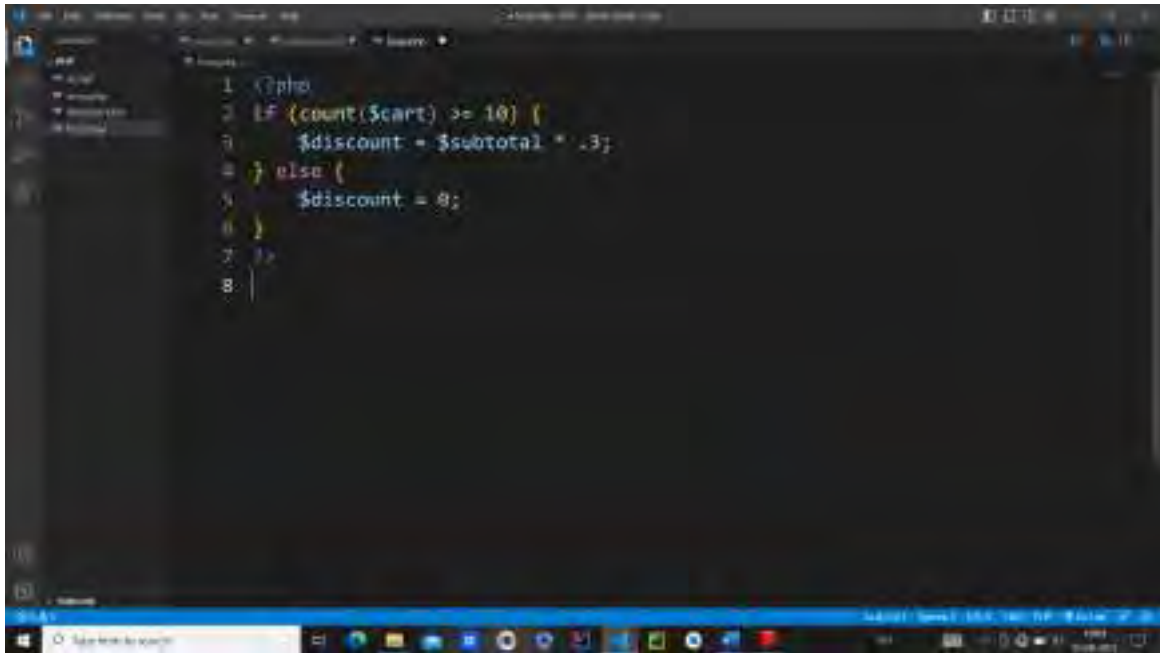
Fig 2.5 Arrays example

- Array creation=`$mylist=array(10,20,30,40);`

## ❖ 2 August 2023

### 1. conditional statements and loops

- Comparison operators are used in combination with the if, else, and elseif keywords to build conditional statements that control the flow of a program.
- Selection statement: if, if...else, if...elseif.

A screenshot of a code editor window showing PHP code. The code is as follows:

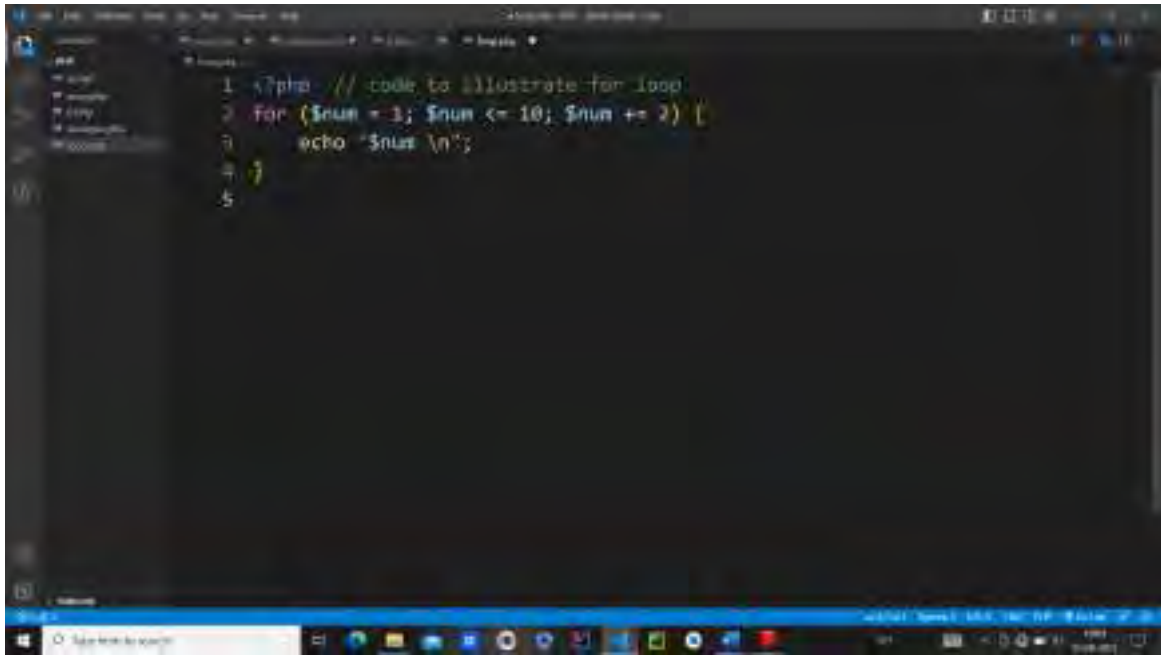
```
1 <?php
2 if (count($cart) >= 10) {
3     $discount = $subtotal * .13;
4 }
5 else {
6     $discount = 0;
7 }
8 |
```

The code is displayed in a dark-themed editor with line numbers on the left. The taskbar at the bottom shows the Windows logo and several application icons.

Fig 2.6 Selection statement example

### 2. Loop Statement

- Loop in PHP is used to execute a statement or a block of statements, multiple times until and unless a specific condition is met. This helps the user to save both time and effort of writing the same code multiple times.
- 
- for loop
- while loop
- do-while loop



```
1 <?php // code to illustrate for loop
2 for ($num = 1; $num <= 10; $num += 2) {
3     echo "$num \n";
4 }
5
```

Fig 2.7 Loop statement example

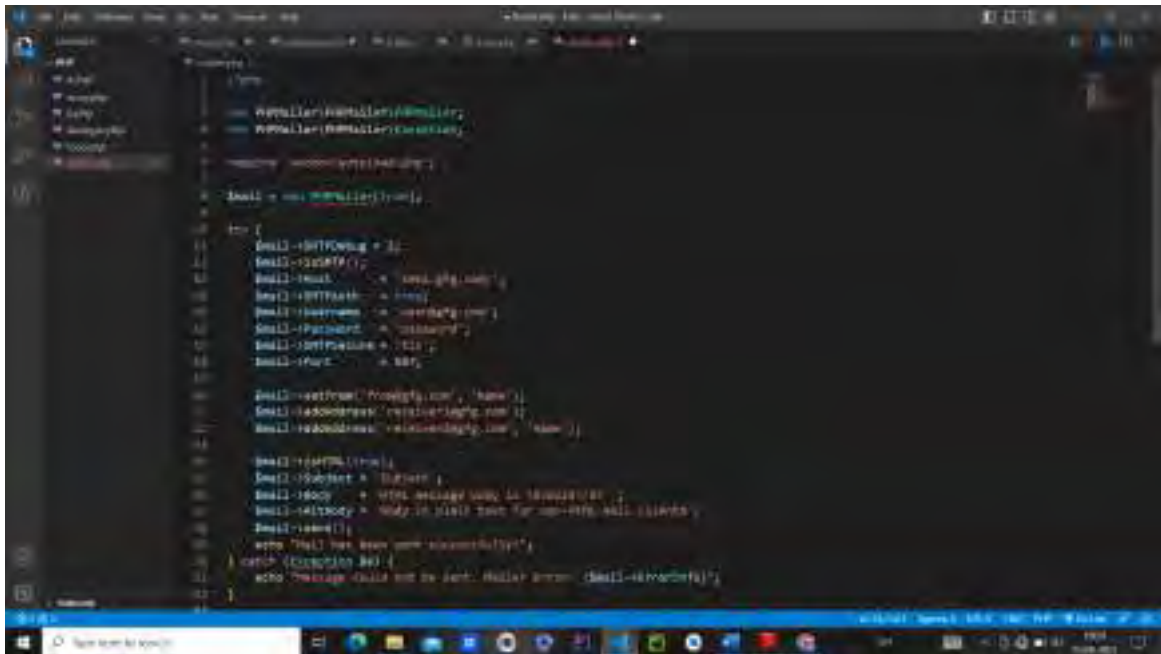
## 2.1.2 Week-2 Project and PHP Laravel

### ❖ 3 August 2023

#### 1. introduction to PHP mailer library

- PHP Mailer is a code library to send (transport) emails safely and easily via PHP code from a web server (MUA to the MSA server).
- Sending emails directly via PHP code requires a high-level familiarity to SMTP standard protocol and related issues and vulnerabilities about Email injection for spamming. PHP Mailer simplifies the process of sending emails and it is very easy to use.
- Create a PHP Mailer class object.

```
$mail = PHPMailer();
```

A screenshot of a code editor showing PHP code for sending an email using the PHPMailer library. The code includes comments for each step, such as setting the SMTP host, port, and authentication, and then calling the send method. The email body is set to HTML.

```
1 // Create a new PHPMailer instance
2 $mail = new PHPMailer();
3
4 // Tell PHPMailer to use SMTP
5 $mail->isSMTP();
6
7 // Set the SMTP host to your SMTP server
8 $mail->SMTPHost = 'smtp.gmail.com';
9
10 // Set the SMTP port to your SMTP server
11 $mail->SMTPPort = 587;
12
13 // Set the SMTP authentication
14 $mail->SMTPAuth = true;
15
16 // Set the SMTP username and password
17 $mail->SMTPUsername = 'your_email@gmail.com';
18 $mail->SMTPPassword = 'your_password';
19
20 // Set the email address and name
21 $mail->setFrom('your_email@gmail.com', 'Name');
22
23 // Set the recipient address and name
24 $mail->addAddress('recipient_email@gmail.com', 'Name');
25
26 // Set the email subject
27 $mail->setSubject('Subject');
28
29 // Set the email body
30 $mail->Body = 'HTML message body is allowed!';
31 $mail->isHTML();
32
33 // Send the email
34 $mail->send();
35
36 // If you need to send an email with an attachment
37 $mail->addAttachment('attachment.pdf');
```

Fig 2.8 PHP Mailer example

## ❖ 4 August 2023

### 1. Video calling web application

- Video calling web application is where two-way or multipoint reception and transmission of audio and video signals by people in different locations for real-time communication.
- In this project we create simple video calling web page.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Video Calling Web App</title>
5   <link rel="stylesheet" type="text/css" href="style.css">
6   <script src='https://cdn.scaledrone.com/scaledrone.min.js'></script>
7   <script type="text/javascript" src="script.js"></script>
8 </head>
9 <body>
10  <div class="header">
11    <h1 align="center">Video Calling Web App</h1>
12  </div>
13
14  <div class="content">
15    <video class="from" id="localVideo" autoplay muted></video> |
16    <video class="to" id="remoteVideo" autoplay controls></video>
17  </div>
18
19  <div class="footer">
20    <h1 align="center">@copyright</h1>
21  </div>
22 </body>
23 </html>
```

Fig 2.9 HTML of website

## 1. Front-end Development

- HTML & CSS is used to develop front-end side of web application.

```
1  .header {
2      height: 100px;
3      border: 1px solid black;
4      background-color: black;
5  }
6  h1 {
7      color: white;
8  }
9  .footer {
10     height: 80px;
11     border: 1px solid black;
12     background-color: black;
13 }
14 .content {
15     height: 400px;
16     border: 1px solid black;
17 }
18 .from {
19     height: 250px;
20     width: 250px;
21     border: 1px solid black;
22     margin-top: 100px;
23     margin-left: 300px;
24     border-radius: 20px;
25     float: left;
26 }
27 .to {
28     height: 250px;
29     width: 250px;
30     border: 1px solid black;
31     margin-top: 100px;
32     margin-left: 300px;
33     border-radius: 20px;
34     float: left;
35 }
```

Fig 2.10 CSS of website

❖ 7 August 2023

1. Javascript of website

```
if (!location.hash) {
  location.hash = Math.floor(Math.random() * 0xFFFFFFFF).toString(16);
}
const roomHash = location.hash.substring(1);
const drone = new ScaleDrone('8iFajSULSQLorBFR');
const roomName = 'observable-' + roomHash;
const configuration = {
  iceServers: [{
    urls: 'stun:stun.l.google.com:19302'
  }]
};
let room;
let pc;
function onSuccess() {};
function onError(error) {
  console.error(error);
};
drone.on('open', error => {
  if (error) {
    return console.error(error);
  }
  room = drone.subscribe(roomName);
  room.on('open', error => {
    if (error) {
      onError(error);
    }
  });
  room.on('members', members => {
    console.log('MEMBERS', members);
    const isOfferer = members.length === 2;
    startWebRTC(isOfferer);
  });
});
function sendMessage(message) {
  drone.publish({
    room: roomName,
    message
  });
}
function startWebRTC(isOfferer) {
  pc = new RTCPeerConnection(configuration);
  pc.onicecandidate = event => {
    if (event.candidate) {
      sendMessage({'candidate': event.candidate});
    }
  }
}
```

```

};
if (isOfferer) {
  pc.onnegotiationneeded = () => {
    pc.createOffer().then(localDescCreated).catch(onError);
  }
}
pc.onaddstream = event => {
  remoteVideo.srcObject = event.stream;
};
navigator.mediaDevices.getUserMedia({
  audio: true,
  video: true,
}).then(stream => {
  localVideo.srcObject = stream;
  pc.addStream(stream);
}, onError);
room.on('data', (message, client) => {
  if (client.id === drone.clientId) {
    return;
  }
  if (message.sdp) {
    pc.setRemoteDescription(new RTCSessionDescription(message.sdp), () => {
      if (pc.remoteDescription.type === 'offer') {
        pc.createAnswer().then(localDescCreated).catch(onError);
      }
    }, onError);
  } else if (message.candidate) {
    pc.addIceCandidate(
      new RTCIceCandidate(message.candidate), onSuccess, onError
    );
  }
});
}
function localDescCreated(desc) {
  pc.setLocalDescription(
    desc,
    () => sendMessage({'sdp': pc.localDescription}),
    onError
  );
}

```

## ❖ 8 August 2023

1. Create a video channel for video calling web application

- Scaledrone is used to create video channel.
- Channel ID: 8iFajSULSQLorBFR



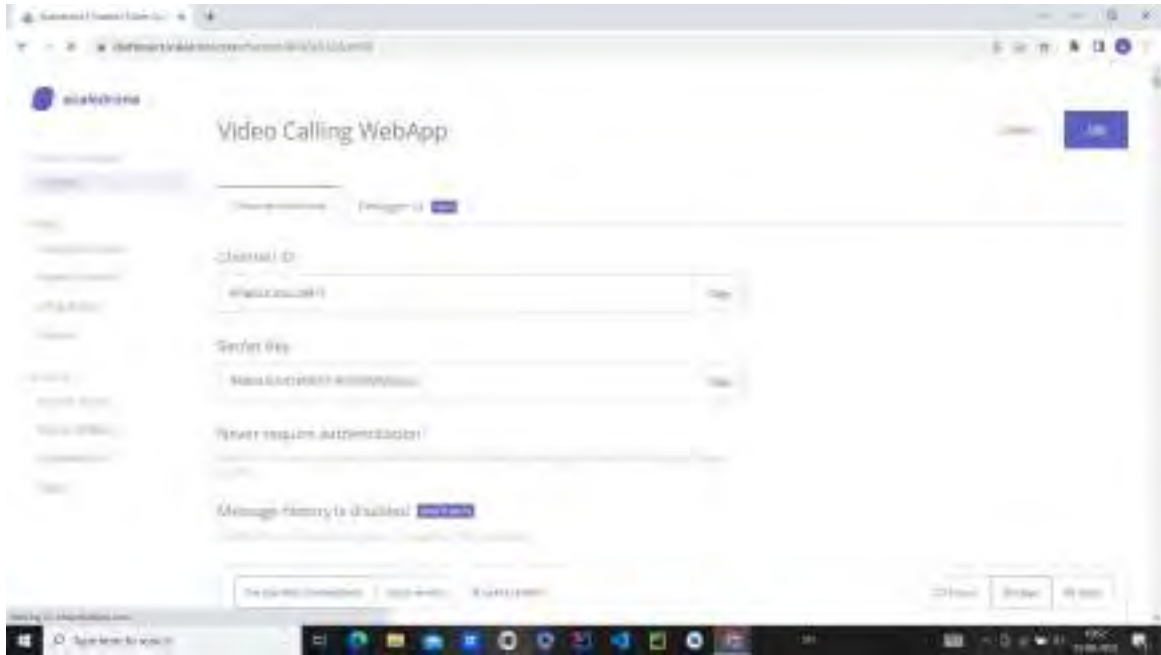


Fig 2.11 Scaledrone website

## 2. Hosting video calling web application

- Using Infinity Free website hosting platform, we host our video calling app.

### ❖ 9 August 2023

#### 1. Introduction to Laravel and download

- Laravel is a free and open-source PHP web framework, created by Taylor Otwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern and based on Symfony.
- Laravel aims to make the development process a pleasing one for the developer without sacrificing application functionality.
- Laravel Install: [Laravel.com](https://laravel.com/docs/10.x/installation)
- Install Command: `composer create-project laravel/laravel example-app`



Fig 2.12 laravel logo

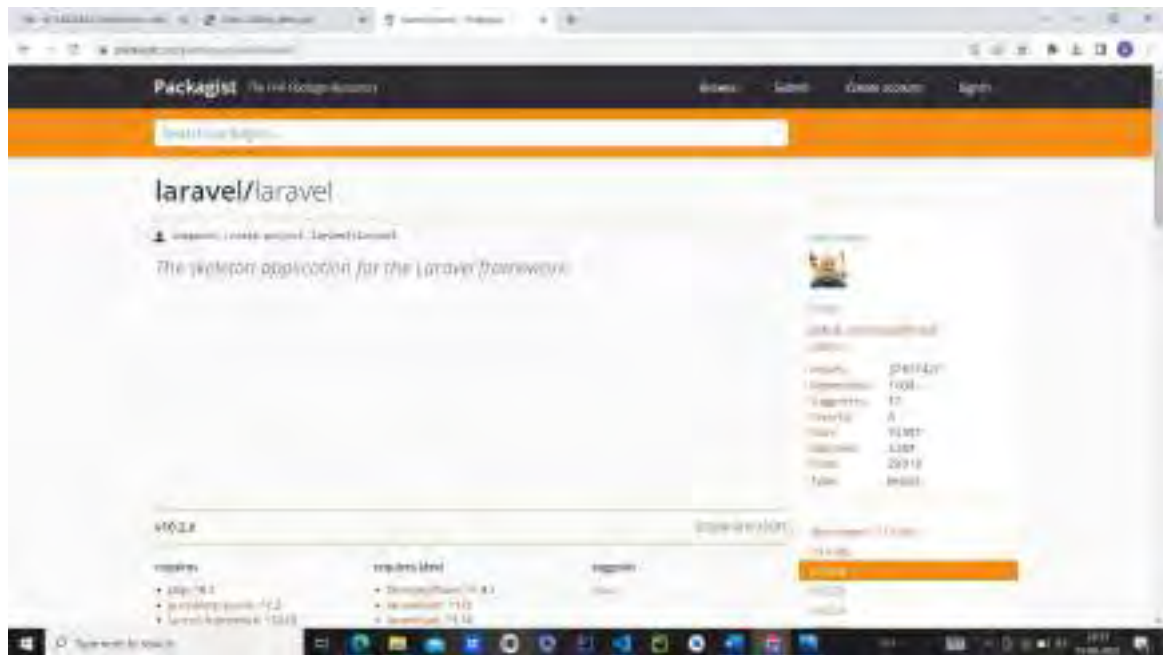


Fig 2.13 Packagist website

❖ 10 August 2023

1.Example of Laravel Framework.

```

if ($credential_no || $ssn || $passport_no || $birthdate) {
    $workersResults1 = Worker::select()
        ->when($credential_no, function ($query) use ($credential_no) {
            return $query->where('credential_no', $credential_no);
        })
        ->when($ssn, function ($query) use ($ssn) {
            return $query->orWhere('ssn', $ssn);
        })
        ->when($passport_no, function ($query) use ($passport_no) {
            return $query->orWhere('passport_no', $passport_no);
        })
        ->when($birthdate, function ($query) use ($birthdate, $gender) {
            return $query->orWhere(function ($query) use ($birthdate, $gender) {
                $query->whereDate('birthdate', $birthdate)
                    ->where('gender', $gender);
            });
        });
    ->get();
} else {
    $workersResults1 = collect([]);
}

```

Fig 2.14 Example of Laravel

## Chapter 3 Project

- In My Internship, I learn PHP and Develop “Video Calling Web Application”.

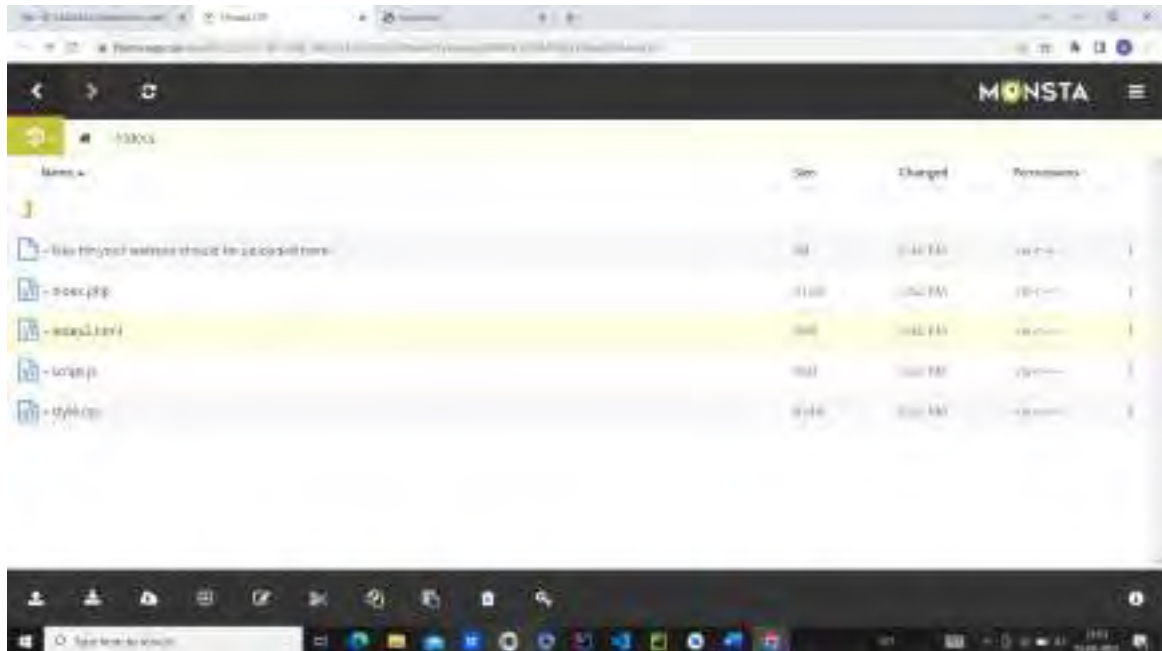


Fig 3.1 Hosting files

- add a project files into the infinity free for hosting.
- Video calling web app is a web application by which a user can do a video call to other user from different location at any time



Fig 3.2 Hosting website



Fig 3.3 Prototype

- We used “Infinity free” web hosting platform to host our website.

## **Chapter 4 Conclusion**

My internship in CreArt Solutions has been an excellent and rewarding experience. I can conclude that have been a lot I've learnt from my work in the internship. I am able to develop a dynamic web-based application using PHP and Laravel Framework. It is a amazing experience to host my own website on internet. This internship has enabled me to contribute meaningfully to PHP and has gives me a glimpse into the challenges and opportunities in my career. Working in Web Development using PHP language has increased my interested my interest in them.

## References

- [1] [www.laravel.com](http://www.laravel.com)
- [2] [www.W3School.com](http://www.W3School.com)
- [3] [www.wikipedia.org](http://www.wikipedia.org)
- [4] [www.udemy.com](http://www.udemy.com)
- [5] [www.researchgate.net](http://www.researchgate.net)

## **Appendix**

Scanned copies of your NOC Letter  
Scanned Copies of Weekly report Annexure-I  
Scanned copy of Annexure-II  
Other scanned supporting documents etc.

# **INTERNSHIP AT RADIXWEB**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Bhargavkumar Shaileshbhai Patel**

**190390107027**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



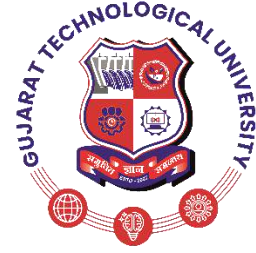
**Gujarat Technological University, Ahmedabad**

**May, 2023**





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Radixweb** has been carried out by **Bhargavkumar Shaileshbhai Patel (190390107027)** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay Kansara

Internal Guide

Head of Department

## Company Certificate



Date: 28th April, 2023

**ONGOING TRAINING CERTIFICATE  
TO WHOMSOEVER IT MAY CONCERN ..**

This is to certify that **Mr. Bhargavkumar Shaileshbhai Patel** (EC: 2757) is currently working as **Trainee Software Engineer in Mobile Development** with **Radix Software Services Pvt. Ltd** Ahmedabad since **1st February, 2023**.

Warm Regards,  
  
Yours Sincerely,

(Company Stamp & Authorized Signature)

## PMMS Certificate



### **GUJARAT TECHNOLOGICAL UNIVERSITY**

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII. ACADEMIC YEAR 2022-2023

Date of certificate generation : 05 May 2024 (00:22:13)

This is to certify that, *Patel Bhargavkumar Shaileshbhai* ( Enrolment Number - 190390107027 ) working on project entitled with *Internship at Radixweb* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student: Patel Bhargavkumar Shaileshbhai

Name of Guide: Mr. Chetan Banchodhbhai Chaudhari

Signature of Student: \_\_\_\_\_

\*Signature of Guide: \_\_\_\_\_

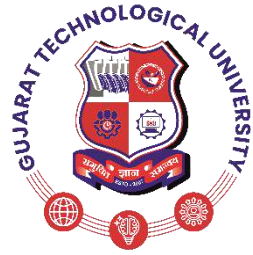
#### **Disclaimer :**

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Radixweb** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Mrs. Varsha Oberoi (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Bhargavkumar Shaileshbhai Patel**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would to thank Mr. Mayur Raval and Mrs. Mansi Soni and HR team of RadixWeb – Radix Software Services PVT LTD for providing me with the opportunity to undertake my internship within the organization. I express my sincere gratitude to my external guide Mrs. Varsha Oberoi for their constant encouragement and mentorship, which helped me to enhance my skills and knowledge.

I would also like to thank my internal Guide, Mr. Chetan Chauhan, who provide continuous guidance during the internship.

I also extend my appreciation to my colleagues and teammates for their friendly work environment and helping me with my project work. Their suggestions and ideas have been of great value to me. I would like to thank the entire Radixweb family for making my internship an enriching experience. The organization has provided me with a valuable learning experience, which will undoubtedly benefit me in my future endeavors.

I am extremely grateful to the department staff members and friends that helped me in completing this internship successfully.

Thank you all once again for your support and guidance.

Sincerely,

Bhargavkumar Shaileshbhai Patel

(190390107027)

## **Abstract**

*Industrial training is an important phase of a student's life. A well planned, properly executed and evaluated industrial training helps a lot in developing a professional attitude. It develops an awareness of industrial approach to problem solving, based on a broad understanding of process and mode of operation of organization.*

*The purpose and inspiration for this industrial training is to assist me, a student studying computer science, acquire a responsiveness to the abstract self-disciplinary nature of problems by providing me with discipline, skills, teamwork, and technical knowledge through an appropriate training environment.*

*I was appointed by RadixWeb for a twelve-week training period as a trainee software engineer to carry out and manage the business's web development initiatives. I've worked with Git, HTML, CSS, Bootstrap, Tailwind CSS, Docker, JavaScript, jQuery, TypeScript, SQL, Python fundamentals, and ReactJs fundamentals during this industrial training. These tools are necessary for the production and development of web applications.*

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## **Abbreviations**

QA	Quality Assurance
CSS	Cascading Style Sheets
SQL	Structured Query Language
PHP	Hypertext Preprocessor
HTTP	HyperText Transfer Protocol
SDLC	Software Development Life Cycle
HTML	Hypertext Markup Language
GB	GigaByte
DOM	Document Object Model
AJAX	Asynchronous JavaScript
DML	Data Manipulation Language
DQL	Data Query Language
XML	Extensible Markup Language
JSX	JavaScript XML

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## CHAPTER 1:- OVERVIEW OF THE COMPANY

### 1.1 HISTORY

RadixWeb is a software development company based in Ahmedabad, India, with additional offices in the United States and the United Kingdom. The company was founded in 2000 and has since become a leading provider of software development and IT outsourcing services.

RadixWeb offers a wide range of services to clients in various industries, including custom software development, web application development, mobile app development, cloud computing, software testing, and maintenance and support. The company has expertise in various technologies, such as .NET, PHP, Python, Angular, React, Node.js, and more.

RadixWeb has a team of over 700 skilled professionals, including software engineers, project managers, and quality assurance specialists. The company has received various awards and recognitions for its services, including the Stevie Business Awards for Innovation in Technology Development, the best IT Consulting Company Award by Globee Business Awards, the most Innovative IT Company of 2022 by TITAN Business Awards, the Great Place to Work India, 2021 Certification, and the International Association of Outsourcing Professionals (IAOP) award.

RadixWeb is committed to delivering high-quality software solutions to its clients, and has established a reputation for excellence in the industry. The Fig 1.1 shows the RadixWeb logo. The company prides itself on its customer-centric approach, and its ability to deliver innovative and cost-effective solutions that meet the unique needs of each client.



Fig. 1.1 RadixWeb Logo [1]

## 1.2 DIFFERENT PRODUCTS

### OnPrintShop



Fig 1.2 OnPrintShop Logo [2]

OnPrintShop is a web-to-print solution developed by RadixWeb that enables printing companies to create and manage online stores for their customers. It is a comprehensive solution that includes features such as product personalization, design templates, order management, and payment processing.

The solution is designed to cater to the needs of printing companies that want to expand their business by offering online printing services to their customers. With OnPrintShop, printing companies can create customized online stores for their customers where they can order products such as business cards, brochures, flyers, and more.

OnPrintShop offers a range of features that enable printing companies to create a seamless online shopping experience for their customers. The solution includes a powerful product personalization tool that enables customers to customize their products with text, images, and graphics. The solution also includes a wide range of design templates that customers can choose from to create their customized products.

Order management is also a key feature of OnPrintShop, with the solution offering a range of tools to manage orders efficiently. The solution includes order tracking, order history, and shipping integration with leading logistics providers.

Payment processing is also streamlined with OnPrintShop, with the solution supporting multiple payment gateways to enable customers to pay for their orders securely.

Overall, OnPrintShop is an excellent solution for printing companies looking to expand their business by offering online printing services. The solution offers a range of features that enable printing companies to create a seamless online shopping experience for their customers while also managing orders efficiently.

## RxWeb



Fig 1.3 RxWeb Logo [3]

RxWeb is an open-source framework for developing TypeScript reactive web apps. By offering a set of tools and rules for developing scalable and maintainable systems, it is intended to make the development of sophisticated online apps simpler.

The framework is constructed on top of Angular and RxJS, two commonly used web development technologies. The reactive programming paradigm, which RxWeb makes use of, enables programmers to design code that reacts to changes in data over time. This improves user experience and makes it simpler to manage complex data flows in web applications.

The capabilities and conventions offered by RxWeb make it simple to create reactive web apps. These consist of:

1. **Reactive forms:** To make it easier to create forms for online applications, RxWeb offers a reactive form module. This module offers a set of validators for form validation and makes use of RxJS's power to manage form data changes.
2. **Reactive HTTP:** To make communication with web servers simpler, RxWeb offers a reactive HTTP module. This module handles HTTP requests and responses using observables, which makes handling complex data flows and handling failures simpler.
3. **Reactive storage:** RxWeb offers a reactive storage module that makes it easier for web applications to manage client-side storage. This module offers a simple-to-use API for saving and retrieving data while utilizing local storage and session storage.
4. **Code generation:** RxWeb offers a collection of tools for code generation that make it easier to create intricate web apps. The time and effort needed to create web applications is decreased by these tools, which produce boilerplate code from straightforward configuration files.

RxWeb is an effective framework that makes it easier to create reactive web apps. It is the best option for creating scalable and maintainable web apps due to its concentration on reactive programming and code generation.

## **Fabrika16**



Fig 1.4 Fabrika16 Logo [4]

Fabrika16 is a software product developed by RadixWeb that is designed to automate the operations of textile and garment manufacturing companies. The product is a complete solution that enables organizations to optimize their operations, lower errors, and boost productivity.

Fabrika16 includes a range of modules that cover various aspects of textile and garment manufacturing, including production planning, inventory management, quality control, and sales management. The system can be fully customized to meet the unique needs of each client.

Some of the key features of Fabrika16 include:

1. **Production planning and scheduling:** The solution enables businesses to create production schedules based on customer orders, production capacity, and material availability. The scheduling module helps businesses optimize their production processes and reduce lead times.
2. **Inventory management:** Fabrika16 includes a comprehensive inventory management module that enables businesses to track raw materials, finished products, and work-in-progress. The solution includes features such as barcode scanning, stock alerts, and real-time inventory updates.
3. **Quality control:** The solution includes a quality control module that enables businesses to monitor and control the quality of their products throughout the production process. The module includes features such as quality inspections, defect tracking, and root cause analysis.



4. Sales management: Fabrika16 includes a sales management module that enables businesses to manage their customer orders, quotations, and invoices. The module includes features such as order tracking, order status updates, and automated invoicing.

Overall, Fabrika16 is a powerful software solution that can help textile and garment manufacturing companies optimize their operations and improve their bottom line.

## **Picsy**



Fig 1.5 Picsy Logo [5]

Picsy is a product developed by RadixWeb, a software development company based in India. Picsy is a mobile application that allows users to create personalized photo books, collages, and other photo products using their own photos. The app is available for both iOS and Android platforms.

With Picsy, users can choose from a variety of pre-designed templates for their photo products or create their own designs. The app offers a user-friendly interface that allows users to easily select and arrange their photos, add text and stickers, and customize the layout and design of their photo products.

One of the unique features of Picsy is its AI-powered photo sorting and selection algorithm, which helps users quickly sort through their photo collections and select the best photos for their photo products. The app also offers a variety of editing tools, including filters and photo enhancement options, to help users enhance their photos before adding them to their photo products.

Once a user has created their photo product, they can order it directly through the app and have it delivered to their doorstep. Picsy offers a variety of printing and shipping options, including standard and express shipping, and accepts a variety of payment methods.

Picsy has received positive reviews from users, who praise its ease of use, customizable design options, and high-quality photo printing. The app is a great tool for anyone looking to create personalized photo products, whether as a gift or for their own personal use.

### 1.3 ORGANIZATION CHART

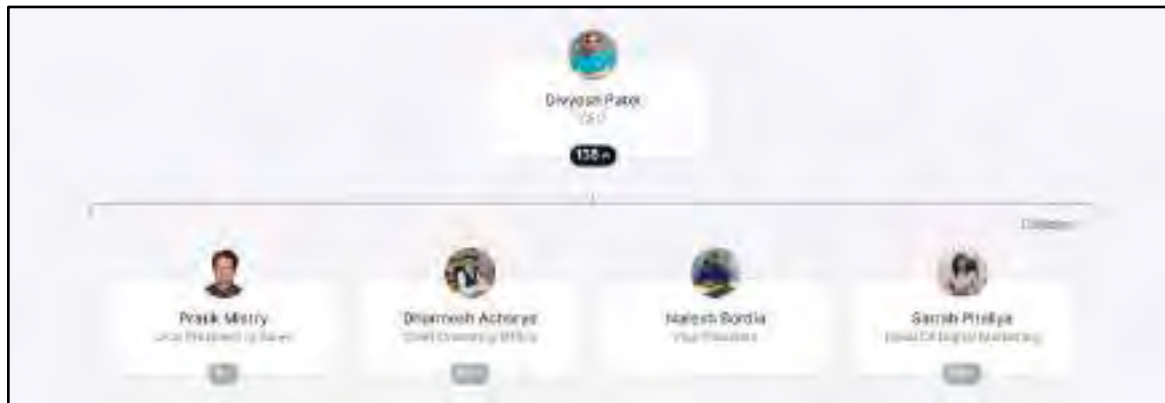


Fig 1.6 Organization Chart [6]

The Fig 1.6 shows the organization chart of the RadixWeb in which at the top the CEO Divyesh Patel of the RadixWeb. Under the CEO, there are four different persons: Pratik Mistry (Vice President in Sales), Dharmesh Acharya (Chief Operating Office), Naresh Boradia (Vice President), Sarrah Pitaliya (Head of Digital Marketing). Each divisional vice president oversees several department managers.

### 1.4 CAPACITY OF PLANT

With rich and varied experience of 20+ years in software development and stringent quality standards, RadixWeb offer utmost qualitative, on-time and cost-effective software solutions. RadixWeb serve clientele across the industries and globe with offices in US, Canada, UK, Australia, and Development center in India with a workforce of 700+ IT professionals.

RadixWeb have successfully completed 1800+ projects with 700+ SMEs and Fortune 500 companies.

### 1.5 MISSION AND VISION OF THE COMPANY

**Mission**

RadixWeb's mission is to provide innovative and customized software solutions to clients across various industries. The company aims to leverage its expertise in technology to help clients achieve their business objectives and enhance their competitive edge. RadixWeb strives to maintain the highest standards of quality, integrity, and professionalism in all its operations.

**Vision**

RadixWeb's vision is to be a globally recognized software development company that delivers innovative and cutting-edge solutions to clients across various industries. The company aims to achieve this vision by continuously investing in the latest technology, attracting and retaining top talent, and providing exceptional customer service to clients. RadixWeb also aims to be a socially responsible company that contributes to the betterment of society and the environment.

## **CHAPTER 2:- DIFFERENT UNIT OF THE ORGANIZATION**

### **2.1 WORK BEING CARRIED OUT BY EACH DEPARTMENT**

RadixWeb has various departments, each playing a crucial role in delivering high-quality software solutions to its clients. Here's a brief overview of the work carried out by each department:

1. **Business Development:** The Business Development department is responsible for identifying potential clients and establishing partnerships with them. They are responsible for understanding the clients' requirements, developing proposals, and negotiating contracts. They work closely with the other departments to ensure that the proposed solutions meet the clients' needs.
2. **Project Management:** The Project Management department is responsible for managing the software development projects from start to finish. They work closely with the clients, the development team, and other stakeholders to ensure that the project is completed within the specified timeline, budget, and scope. They also ensure that the project meets the quality standards set by the company.
3. **Software Development:** The Software Development department is responsible for designing, developing, testing, and maintaining software applications. They work with various programming languages, frameworks, and tools to develop custom software solutions that meet the clients' requirements. They follow agile methodologies and best practices to ensure that the software is delivered on time, within budget, and with the desired quality.
4. **Quality Assurance:** The Quality Assurance department is responsible for testing the software applications developed by the software development team. They ensure that the software meets the functional and non-functional requirements specified by the clients. They perform various types of testing, such as unit testing, integration testing, system testing, and acceptance testing, to ensure that the software is bug-free and meets the quality standards set by the company.
5. **UX/UI Design:** The UX/UI Design department is responsible for designing user interfaces and user experiences for software applications. They work closely with the software development team to ensure that the software is user-friendly, intuitive,

and visually appealing. They use various tools and techniques to create wireframes, mockups, and prototypes that showcase the software's design and functionality.

6. **Human Resources:** The Human Resources department is responsible for recruiting, training, and managing the company's workforce. They ensure that the company has the right talent and resources to deliver high-quality software solutions to its clients. They also ensure that the company's policies and procedures are compliant with the relevant laws and regulations.
7. **Marketing:** The Marketing department is responsible for promoting the company's services and brand. They develop marketing strategies, create content, and use various channels to reach out to potential clients. They also organize events, webinars, and conferences to showcase the company's expertise and capabilities.

Overall, each department plays a critical role in delivering high-quality software solutions to RadixWeb's clients. They work collaboratively to ensure that the projects are completed on time, within budget, and with the desired quality.

## **2.2 LIST TECHNICAL SPECIFICATIONS OF MAJOR EQUIPMENT USED IN EACH DEPARTMENT**

1. **Business Development:** Laptops, desktop computers, projectors, conference call systems, CRM software, project management software.
2. **Project Management:** Laptops, desktop computers, project management software, collaboration tools, communication software, time tracking software.
3. **Software Development:** Laptops, desktop computers, servers, integrated development environments (IDEs), code editors, version control software, testing frameworks, programming languages, software development kits (SDKs).
4. **Quality Assurance:** Laptops, desktop computers, software testing tools, test automation tools, defect tracking software, virtualization software.
5. **UX/UI Design:** Laptops, desktop computers, design software, wireframing tools, prototyping tools, graphic design software, user testing software.
6. **Human Resources:** Laptops, desktop computers, HR software, payroll software, time tracking software, benefits management software.
7. **Marketing:** Laptops, desktop computers, marketing automation software, email marketing software, social media management tools, analytics software, content creation tools.

It's worth noting that the specific technical specifications of the equipment used in each department can vary depending on the specific needs of the department and the projects being worked on.

### 2.3 SCHEMATIC LAYOUT WHICH SHOWS THE SEQUENCE OF OPERATION FOR MANUFACTURING OF END PRODUCT

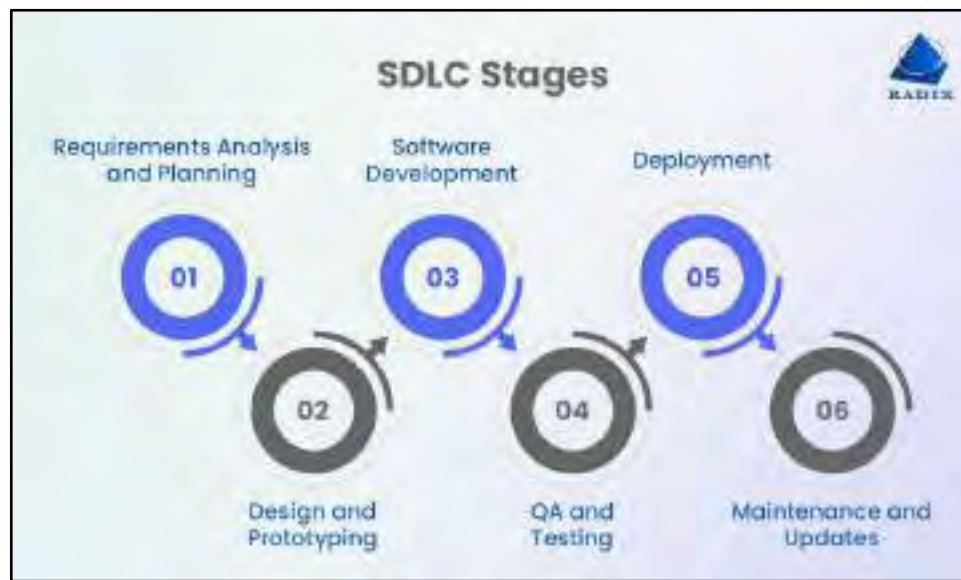


Fig 2.1 Software Development Life Cycle Stages [1]

SDLC (Software Development Life Cycle) has different process stages in which software passes through during its lifetime. The software development life cycle consists of a defined step-by-step process for developing quality software. And if any of the steps are missed, then all the software development efforts will go in vain.

The software development life cycle stages consist of requirement gathering, design, development, testing, deployment, and maintenance. However, when you hire a dedicated team of experts, they are responsible for each software product development phase.

Moreover, the software design process steps remain constant, irrespective of implementing the software development methodology.

### 2.4 DIFFERENT STAGES OF THE PRODUCTION

#### Stage-1: Requirements Analysis and Planning

In the software development process, requirements analysis and planning are considered the first step. For many projects, this step requires a great amount of attention. Project managers and prospects exchange words to understand each other's persona and requirements.

There are several questions to be asked at this stage, which are:

- Who is going to use the product?
- How will the software be used upon completion?
- What types of functionalities and features will the software have?
- What should be the final outcome of this product or software?

After getting answers to the above questions, a general outline is created for the software development team to focus on. Then data is monitored to ensure the validity and any possibility for incorporation of the same. Finally, a requirement specification document is created as a roadmap for the next stage of the software development process.

Before proceeding with the software product development strategic move, technical feasibility needs to be checked at this stage.

### **Stage-2: Design and Prototyping**

In this phase of SDLC, you need to create simple wireframes to show how interactions will function in the software or create full-featured prototypes using various tools like InVision or Adobe to test with users, depending on the software development approach you are using.

In this stage, you can identify whether there are any errors or bottlenecks or not. You can easily get prompt feedback from the users and improve the products based on their feedback or issues. This will help you with the finalized product for development.

### **Stage-3: Software Development**

Development phase only comes into the software process once you are ready with your final requirements, wireframe, prototype, and sure about UX design. The software engineers start working on the development by choosing their given programming language for enterprise software development.

Apart from writing codes, software developers perform unit and module testing to detect potential errors in the early stage of development. However, some organizations prefer to outsource their software development requirements for better product development. In fact, the actual reason for outsourcing development varies from simply not having capable in-house resources or skills.

Tasks are divided based on the development approach, and the product can be developed by the specified timeline. Many important documents are created, including the design document, the functional requirement specification document, and the coding guidelines used for the final delivery.

#### **Stage-4: QA and Testing**

Quality is the key to the success of any software product. Hence, the testing and quality assurance stage involves various types of testing, such as system testing, bug fixing, user acceptance testing (UAT), and test report generation.

Once the product is ready with all the features and functionalities, it's deemed ready for quality assurance. It's performed iteratively as issues are found, corrected, and verified.

#### **Stage-5: Deployment**

Deployment is one of the important stages in the software development life cycle. Once the developers are done with coding and testing, the next development phase is to deploy or publish your software on the given servers.

As the product is now available on the market to potential customers, it's named an Alpha release. This is because a limited set of users use the product and give their feedback. Once all the feedback is gathered, the required changes are updated to the software for seamless performance and then released as a Beta version. Now, more user base will have access to the software product.

#### **Stage-6: Maintenance and Updates**

The SDLC is not completed once your software is deployed or available on the market. You know, it's a 'lifecycle' and "iterative process", right?



The ending of one phase is just the beginning of another. And this is applicable after the deployment stage as well.

As we know, in this competitive market, project requirements and customer need always keep changing. While using the software product, some users may also find bugs or errors. Moreover, they will also request new features and different functionalities for a seamless experience. And the software requires platform upgrades and software maintenance.

## **CHAPTER 3:- INTRODUCTION TO INTERNSHIP**

### **3.1 INTERNSHIP SUMMARY**

I gained invaluable experience in the field of Computer science. The experience not only challenged me to think critically and creatively, but it also allowed me to make a significant contribution to the team. Throughout the internship, I was impressed with the company culture and the commitment to the client's work. Overall, my internship provided me with a unique and valuable experience. I am grateful for the opportunity to have worked with such a talented and supportive team and to have gained the skills and knowledge necessary to succeed in life.

During my internship, I had the opportunity to learn several important technologies and tools that are widely used in web development. These included Git, HTML, CSS, Bootstrap, Tailwind CSS, Docker, JavaScript, jQuery, TypeScript, SQL, and ReactJS.

Overall, my internship was a valuable learning experience that allowed me to gain practical experience with a wide range of technologies and tools used in web development. I look forward to applying these skills to future projects and continuing to expand my knowledge in this field.

### **3.2 PURPOSE**

Industry experience is often an important part of applying for full time positions. Internships allow individuals to apply theoretical concepts learned in the classroom to real-world situations. One can develop skills and knowledge that are relevant to their future career goals. It provide an opportunity to meet and work with professionals in a specific field. Networking can be an important way to develop relationships that can lead to future job opportunities. It provide a chance to learn about the workings of a particular industry, including its trends, challenges, and opportunities. It can be a challenging and rewarding experience that can help individuals develop their confidence, work ethic, and professional identity.

### **3.3 OBJECTIVE**

A driven individual with in-depth knowledge of languages and development tools looking for a position at a firm focused on growth where I can use my abilities to the company's advantage while also having the opportunity to further further my learning. To employ my experience in testing, designing, and maintenance as a Software Developer to meet the various needs of the people. I would like to join a team of driven people that are committed to the growth of the business. Internships can provide an opportunity to develop personal and professional skills, such as communication, time management, and problem-solving. These skills are important for success in any career.

### **3.4 SCOPE**

The scope for the internship role at my company was to perform the tasks that had been allotted to me before the deadline.

The things that I was allowed to do:

- Be punctual and attend all the scheduled meetings, including orientations, training sessions, and team meetings.
- Dress appropriately as per the company culture and guidelines.
- Be respectful and courteous to everyone, including supervisors, colleagues, and clients.
- Ask questions and seek feedback to improve your skills and understanding of the tasks assigned to you.
- Follow the company policies and guidelines related to confidentiality, security, and professional conduct.
- Take initiative and show a willingness to learn and contribute to the team's goals.
- Communicate effectively with your supervisor and colleagues, including sharing progress reports and seeking guidance as needed.

The things that I was not allowed to do:

- Don't engage in any behaviour that violates the company's policies or the law, including harassment, discrimination, or unethical conduct.

- Don't use company resources or information for personal gain or share confidential information with unauthorized individuals.
- Don't miss any deadlines or fail to complete assigned tasks without prior communication and approval from your supervisor.
- Don't be late or absent from work without valid reasons or prior approval from your supervisor.
- Don't engage in any unprofessional behaviour, including gossiping, being rude, or disruptive in the workplace.
- Don't assume anything, ask questions if you are unsure about anything, and seek feedback to improve your work.

### 3.5 TECHNOLOGY

- Git
- HTML
- CSS
- Bootstrap
- Tailwind CSS
- Docker
- JavaScript
- jQuery
- TypeScript
- SQL
- Python fundamentals
- ReactJS

### 3.6 INTERNSHIP PLANNING

The Internship was mainly divided into two parts:

1. **Common Training:** This training was carried out from 01/02/2023 to 11/04/2023. In this training all the new interns got the common training which included the training about the Git, HTML, CSS, Bootstrap, Tailwind CSS, Docker, JavaScript, jQuery, TypeScript and Mysql. This part of the training was intended to learn the

concepts that would be required to be used in the live projects in the future and make familiar with all the common languages.

2. **Technology-specific Training:** This training was carried out from 12/04/2023 to 01/05/2023. In this training I learned about the Basic and Advanced ReactJS Framework. This training involve Assignments or tasks that allow me to apply their newly acquired knowledge in practical scenarios. It helps me become more proficient in my chosen field of study or career path. This training was designed to equip me with the necessary skills and knowledge to perform tasks related to the project effectively in the future.

### 3.7 INTERNSHIP SCHEDULING



Fig 3.1 Gantt Chart Of Internship

The Fig 3.1 shows the Gantt Chart of the languages learned during the internship. It depicts that which language I learned during the particular week.

## **CHAPTER 4:- SYSTEM ANALYSIS**

### **4.1 STUDY OF CURRENT SYSTEM**

Food Order Apps have become an integral part of the food industry, allowing customers to place orders from their favorite restaurants or fast food chains with just a few taps on their mobile devices. The current system of food Order Apps typically involves the following steps:

1. **Registration:** Users need to download the app and create an account by providing basic information such as name, email address, and phone number.
2. **Search and selection:** Once registered, users can browse through a list of nearby restaurants and view their menus. They can also filter their search based on cuisine, location, ratings, and price.
3. **Ordering:** Users can select the items they want to order and customize them as per their preference. They can also add special instructions or dietary requirements.
4. **Payment:** Users can choose to pay online or opt for cash on delivery. Online payments can be made via credit/debit cards, e-wallets, or net banking.
5. **Tracking:** Users can track the status of their orders in real-time, from the time the order is placed to the time it is delivered.
6. **Delivery:** Once the order is placed, it is picked up by a delivery partner and delivered to the customer's doorstep. Customers can rate their experience and provide feedback to the restaurant or the delivery partner.

Food Order Apps also offer various features such as loyalty programs, discounts, and referral bonuses to retain customers and attract new ones. They also use data analytics to personalize the user experience and improve their services.

Overall, the current system of food Order Apps has revolutionized the way people order food, making it more convenient, accessible, and efficient.

## 4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

While food Order Apps have become an increasingly popular way for people to order food, there are still several problems and weaknesses associated with them. Some of the main issues include:

1. **Technical issues:** Users often face technical issues such as app crashes, slow loading times, or payment failures, which can lead to frustration and affect the user experience.
2. **Limited customization options:** While some apps allow users to customize their orders, others may have limited options, which may not cater to the needs of all customers, such as those with specific dietary requirements.
3. **Inaccurate delivery times:** Delivery times may be inaccurate, leading to delays or missed deliveries, which can result in dissatisfaction and impact customer loyalty.
4. **Lack of transparency:** Some apps may not provide clear information on delivery charges, taxes, or other additional fees, leading to confusion and potentially higher costs for customers.
5. **Quality control:** There is a risk that food quality may not meet the expectations of customers due to issues such as temperature control during delivery or inaccurate order fulfillment.
6. **Dependence on delivery partners:** Many food Order Apps rely on third-party delivery partners, which can lead to issues such as delayed deliveries or poor customer service.
7. **Security concerns:** There are also security concerns related to the collection and storage of user data, as well as the potential for fraudulent activities such as payment fraud or identity theft.

## 4.3 REQUIREMENTS OF NEW SYSTEM

Table 4.1 New System Requirements

<b>Component</b>	<b>Minimum</b>	<b>Recommended</b>
Processor	1.9 gigahertz x86 or x64 bit dual core processor	3.3 gigahertz or faster 64 bit dual core processor
Memory	2 GB ram	4GB ram or more

The Table 4.1 shows the minimum and recommended requirements of the new system with the components list.

## **4.4 SYSTEM FEASIBILITY**

### **4.4.1 Does the system contribute to the overall objectives of the organization?**

- Yes the system contribute to the overall objective, with more features.
- System had multiple features to overcome problems.

### **4.4.2 Can the system be implemented using the current technology and within the given cost and schedule constraints.**

- Yes, the system have highly integrated module which is being designed with ReactJS.

### **4.4.3 Can the system be integrated with other systems which are already in place?**

- System have integrable module that easily integrate with the current system.

## **4.5 PROPOSED SYSTEM**

The proposed system for a food Order App would be a comprehensive platform that allows users to easily SignUp, SignIn, and order food, as well as add delivery details, and for the admin to add meals and view orders.

The proposed system would also address the weaknesses of existing food Order Apps by ensuring that the app is reliable, user-friendly, and secure. It would also offer a wider range of customization options, accurate delivery times, transparent pricing, and quality control measures to ensure that the food meets the expectations of customers.

## **4.6 FEATURES OF NEW SYSTEM**

- User Registration: The app would allow users to create an account by providing basic information such as email and password.



- User SignIn: After registration, users would be able to sign in to their account with their email address and password.
- Order Food: Users would be able to order the food available
- Add Delivery Details: Users would also be able to add delivery details such as their address,
- Admin Panel: The admin panel would allow the restaurant owners or managers to add, edit and delete meals from their menu. They can also view the list of orders and their status in real-time.

#### **4.7 LIST MAIN MODULES OF THE PROPOSED SYSTEM**

- SignUp
- SignIn
- Home
- AdminLogin
- Admin Panel

#### **4.8 SOFTWARES USED**

- Visual Studio Code
- React Developer Tools

## **CHAPTER 5:- SYSTEM DESIGN**

### **5.1 SYSTEM DESIGN & METHODOLOGY**

The process of defining an electronic control system's architecture, product design, modules, interfaces, and data to meet predetermined requirements is known as system design. You could think of systems design as the application of systems theory to the creation of products. The fields of systems analysis, systems architecture, and systems engineering have certain areas of overlap. Therefore, the process of defining and creating systems to meet specific user needs is known as systems design. Understanding component pieces and their subsequent interactions with one another is the fundamental topic of system design.

The physical portion of system design can generally be broken down into three sub-tasks:

- Use Interface Design
- Data Design
- Process Design

## CHAPTER 6:- IMPLEMENTATION

### 6.1 IMPLEMENTATION PLATFORM

#### Visual Studio Code

Visual Studio Code is a free and open-source code editor developed by Microsoft that runs on Windows, Linux, and macOS. It offers support for a wide range of programming languages, including Python, Java, C++, and JavaScript, and comes with features such as syntax highlighting, code completion, debugging tools, and Git integration. Visual Studio Code also supports extensions, which allows users to customize the editor to their specific needs, making it a popular choice among developers.

### 6.2 TECHNOLOGY

#### Git

Git is a popular version control system designed to help developers manage and track changes to their codebase over time. It was created by Linus Torvalds in 2005 and has since become one of the most widely used tools for software development.

At its core, Git is a distributed system, meaning that every developer working on a project has a complete copy of the codebase on their local machine. This allows developers to work on their own code without disrupting others, and makes it easy to merge changes from multiple contributors into a single codebase.

Git also offers a range of features that make it easy to track changes to a codebase over time. For example, developers can create "commits" to record changes to their code, add comments to explain their reasoning behind those changes, and roll back to previous versions of the codebase if necessary.

One of the key benefits of Git is its ability to handle conflicts that arise when multiple developers make changes to the same codebase at the same time. Git provides tools for merging conflicting changes, allowing developers to collaborate effectively without losing any code.

Finally, Git also provides a range of tools for managing and sharing code with other developers. For example, developers can use Git to create "branches" that allow them to work on new features or bug fixes without disrupting the main codebase. They can also use Git to share their code with others, either by pushing changes to a central repository or by forking the codebase and creating their own version.

Overall, Git is a powerful and flexible tool that has become an essential part of modern software development. Its ability to handle complex codebases and support collaboration makes it a must-have tool for any development team.

The topics which I learned in Git during the internship are as follows:

- Learned how to create the Repository, clone the Repository, Making Changes in the Repository.
- Learned how to commit, push and Resolve Conflict while taking pull.
- Learned how to create branch, checkout the branch, merging the branch, cherry pick, merge and rebase, stage the changes and stash the changes.

## **HTML**

HTML (HyperText Markup Language) is a standard markup language used to create web pages and other information that can be displayed in a web browser. It consists of a set of tags and attributes that define the structure, content, and formatting of web documents.

HTML documents are made up of a series of elements, which are enclosed in tags. Tags are composed of angle brackets (<>) and are usually paired, with a start tag and an end tag. The content of an element is placed between the start and end tags, and can include text, images, links, and other types of media.

HTML also allows for the use of attributes, which provide additional information about an element. Attributes are placed within the opening tag and can specify things like the color of text, the location of an image, or the target of a link.

HTML is essential for creating websites and is often used in conjunction with other technologies such as CSS (Cascading Style Sheets) and JavaScript to create interactive, dynamic web pages. With HTML, web developers can create well-structured and accessible web pages that can be accessed from a variety of devices and platforms.

The topics which I learned in HTML during the internship are as follows:

- Learned HTML5, Empty tags, common HTML tags, Attribute, tables, Ordered List and Unordered List.
- Learned HTML Layout, Semantic Markup, Header and Footer, section, nav, forms, Validation and HTML5 media Tags (Audio and Video).

## CSS

CSS (Cascading Style Sheets) is a stylesheet language used for describing the presentation of a document written in HTML or XML. CSS is used to control the visual style and layout of web pages, including fonts, colors, spacing, and more. It allows web developers to separate the design and layout of a web page from its content, making it easier to maintain and update.

CSS works by selecting HTML elements and applying styles to them. This can be done using various selectors, such as element selectors, class selectors, and ID selectors. Styles can be applied to specific elements, groups of elements, or to the entire document.

CSS provides a wide range of properties that can be used to define styles, such as font-size, color, background-color, margin, padding, border, and many others. These properties can be combined to create complex visual effects and layout designs.

CSS also supports the concept of cascading, where multiple styles can be applied to an element, with the most specific style taking precedence. This allows for a high level of control over the appearance of web pages, and makes it possible to create consistent and professional-looking designs across an entire website.

Overall, CSS is an essential tool for web developers, allowing them to create visually appealing and responsive web pages that are easy to maintain and update.

The topics which I learned in CSS during the internship are as follows:

- Learned CSS Selectors (id selectors, class selectors, element selectors), background properties, border properties.
- Learned Text properties, Display properties (inline, block, inline-block)
- Learned CSS Float properties, CSS Position properties and CSS Overflow properties.

- Learned CSS Box Model.
- Learned Flex Model.
- Learned CSS Media Queries.
- Learned Grid Layout.

## **Bootstrap**

Bootstrap is a popular open-source front-end framework that provides a collection of tools, CSS styles, and JavaScript components to help developers quickly build responsive and mobile-first websites and web applications. It was created by Twitter and is now maintained by a large community of developers.

Bootstrap uses a grid system to define the layout of a webpage, which allows developers to create responsive designs that adapt to different screen sizes and devices. It also provides a set of pre-designed components such as buttons, forms, navigation menus, and typography, that can be easily customized and extended.

One of the main benefits of Bootstrap is that it enables developers to save time by providing a standardized set of components that can be easily integrated into their projects. It also ensures a consistent look and feel across different websites and applications, making it a great choice for web developers who want to focus on functionality rather than design.

Bootstrap is compatible with all modern web browsers and supports the latest HTML, CSS, and JavaScript standards. It also has a large community of developers and contributors who provide support, resources, and plugins to enhance its functionality and ease of use.

In summary, Bootstrap is a popular front-end framework that provides a comprehensive set of tools and components to help developers build responsive and mobile-first websites and web applications quickly and efficiently.

The topics which I learned in Bootstrap during the internship are as follows:

- Learned Text Alignment & Display, Float & Fixed positions, Colors & background, margin & spacing, sizing & borders, buttons & buttons groups.
- Learned navbar & nav, Listgroups & Badges, Forms & Input, Input Groups, Alert & Progress Bars, Tables & Pagination, Cards, Breadcrumbs, Carousel, Badge.

- Learned Grid System & Flex box, Carousel Slider, Collapse & Accordion, popovers, Modals.

## **Tailwind CSS**

Tailwind CSS is a popular utility-first CSS framework that provides developers with a set of pre-defined CSS classes to quickly and easily style HTML content. Unlike traditional CSS frameworks, which often have pre-built components and require extensive customization, Tailwind CSS focuses on providing low-level utility classes that can be combined to create custom designs without writing any CSS code.

The framework is highly customizable and includes a comprehensive set of pre-built classes for layout, typography, color, and spacing, among other things. This allows developers to quickly prototype and iterate on designs, as well as create responsive layouts that adapt to different screen sizes.

One of the key benefits of Tailwind CSS is its flexibility. Because it provides low-level utility classes, developers can create highly customized designs without having to override default styles or deal with complex CSS specificity issues. Additionally, the framework is highly modular, making it easy to selectively include only the classes needed for a particular project.

Tailwind CSS also includes a variety of tools and plugins to further enhance its capabilities, such as a responsive design engine, a JIT (Just-In-Time) compiler that optimizes CSS output, and a growing collection of community-created plugins for additional functionality.

Overall, Tailwind CSS is a powerful and flexible CSS framework that provides developers with a modern and efficient way to style their web projects.

## **Docker**

Docker is a platform that enables developers to create, deploy, and run applications in a consistent, reliable, and scalable way. It uses containerization technology to package an application and all its dependencies into a single container that can be easily moved from one environment to another.

Docker containers are lightweight and efficient, allowing developers to easily spin up and tear down environments for testing, development, and production. Each container is isolated from the host operating system and other containers, providing a secure and reliable way to run applications.

Docker provides a wide range of tools and services to manage containers, including Docker Engine, Docker Compose, and Docker Swarm. Docker Engine is the core of the Docker platform, providing a runtime environment for containers. Docker Compose enables developers to define multi-container applications, while Docker Swarm provides a way to manage a cluster of Docker nodes.

Overall, Docker has become a popular choice for developers and organizations looking to streamline the development and deployment of their applications, and is used by many companies across a variety of industries.

The topics which I learned in Docker during the internship are as follows:

- Learned docker container, images, building images, using images, dockerfile, docker CLI.
- Learned Docker Compose, Multistages in dockerfile, Docker Volumes, Docker hub, push and pull the images.

## **JavaScript**

JavaScript is a programming language that is commonly used to create dynamic and interactive web pages. It is a high-level language that is interpreted by browsers, which means that it is executed on the client-side, or on the user's computer, rather than on the server.

JavaScript allows web developers to add a variety of interactive features to web pages, such as drop-down menus, pop-up windows, and animations. It can also be used for more complex tasks, such as creating web-based games, building web applications, and even controlling robots and drones.

One of the key features of JavaScript is its ability to manipulate the Document Object Model (DOM), which is the programming interface for HTML and XML documents. This



allows developers to dynamically change the content and appearance of web pages in response to user actions, without the need for a full page refresh.

JavaScript is a versatile and flexible language, and it can be used in a variety of environments, including web browsers, servers, and even mobile devices. It is also constantly evolving, with new features and updates being added regularly, which makes it an exciting language for developers to work with.

The topics which I learned in JavaScript during the internship are as follows:

- Learned JavaScript Variables, Data types, Functions, for, while, foreach loop, Array, methods, events.
- Learned Array methods, String methods, Number methods, Date methods, Regular Expression.
- Learned DOM, callback, promises, async and await.
- Learned Function Expression, function constructor, self-invoking constructor, function call, function apply, function hoisting, global variable and local variable and function closure.
- Learned Web storage API, web fetch API.

## **jQuery**

jQuery is a fast, lightweight, and powerful JavaScript library that simplifies HTML document traversing, event handling, animating, and AJAX interactions for rapid web development. It is cross-platform compatible and can be used with any web browser that supports JavaScript.

One of the most significant advantages of jQuery is its ability to help developers create complex web applications with minimal code. jQuery provides an extensive range of functionalities for creating dynamic and interactive web pages, including DOM manipulation, event handling, and animation effects.

The library offers a wide range of features, including a CSS selector engine, which allows developers to easily select and manipulate elements within an HTML document. It also provides numerous pre-built plugins that can be used to enhance web pages with features like sliders, carousels, and tooltips.

Another key advantage of jQuery is its support for AJAX, which enables developers to create dynamic web applications that can communicate with servers asynchronously, without requiring the entire page to reload.

Overall, jQuery is an excellent tool for web developers who want to create robust, feature-rich web applications with minimal effort.

The topics which I learned in jQuery during the internship are as follows:

- Learned jQuery id and class selectors, events, hide, show, toggle, fadeIn, fadeout, jQuery DOM manipulation (text(), html(), val(), attr()).
- Learned jQuery Add elements (append(), prepend(), after(), before(), remove(), empty()), css() and iterate(\$.each()).
- Learned jQuery Traversing, Ancestors (parent(), parents(), parentUntil()), Descendants (children(), find()), filtering (first(), last(), eq(), filter(), not()).

## **TypeScript**

TypeScript is an open-source programming language that is a superset of JavaScript. It was developed and maintained by Microsoft, and it aims to provide developers with a more robust, scalable and reliable way to write code in JavaScript.

TypeScript adds static type checking to JavaScript, allowing developers to catch errors at compile time rather than at runtime. It also includes additional features like interfaces, classes, modules, and namespaces that make it easier to organize and maintain large-scale codebases.

One of the main benefits of using TypeScript is that it helps developers catch errors early in the development process. This can save a significant amount of time and effort that would otherwise be spent debugging code. Additionally, TypeScript can help improve the overall quality of code by making it easier to read, maintain, and understand.

TypeScript can be used in a variety of contexts, including web development, server-side applications, and mobile development. It is compatible with popular frameworks like React, Angular, and Node.js, making it a popular choice for many developers. Overall, TypeScript is a powerful and flexible programming language that can help developers build high-quality, scalable applications with ease.

The topics which I learned in TypeScript during the internship are as follows:

- Learned TypeScript data types, type Annotation, Number, Number methods, String, string methods, Array, Array methods, Class, function, enum, interface, tuples, union, set, map, date.
- Learned Generic, Modules, Namespace.

## SQL

SQL stands for Structured Query Language and is a standard language used for managing and manipulating data in relational database management systems (RDBMS). It is a powerful tool for querying, updating, and retrieving data from databases.

SQL uses a set of commands to interact with the database. These commands include SELECT, INSERT, UPDATE, DELETE, CREATE, and DROP, among others. Each command is used for specific purposes, such as selecting data from a database, inserting data into a database, updating existing data, and deleting data from a database.

SQL also allows for complex queries using joins and subqueries. Joins are used to combine data from two or more tables based on a common field, while subqueries are used to retrieve data from one table that meets certain conditions specified in another table.

One of the strengths of SQL is its ability to handle large amounts of data efficiently. It also provides strong data integrity and security features to protect sensitive information.

Overall, SQL is a versatile language used by developers, data analysts, and data scientists to manage and analyze large amounts of data in a relational database environment.

The topics which I learned in SQL during the internship are as follows:

- Learned Create, alter, drop, normalization, DML (update, insert and delete).
- Learned DQL (where, comparison & logical operator, range operator, in/not operator, like, orderby, top, distinct), union, except, intersect, derived tables and Common Table Expression.
- Learned String functions, Date functions, Rankings functions, system functions.
- Learned Aggregate functions(sum, count, avg, max, min), groupby, having, rollup, select into, joins, subqueries.
- Learned Views, Indexes, Stored Procedures, Exception Handling.

## **ReactJS**

ReactJS is a popular open-source JavaScript library used for building user interfaces for web applications. It was developed by Facebook and released in 2013. ReactJS allows developers to build complex and interactive UIs with ease by breaking them down into smaller, reusable components.

One of the key features of ReactJS is its virtual DOM (Document Object Model). Instead of directly updating the actual DOM, ReactJS uses a virtual DOM to compare and update the changes made by the user in the UI. This allows for faster and more efficient rendering of the UI as it only updates the necessary components rather than the entire page.

ReactJS follows a unidirectional data flow, where the data flows only in one direction - from parent to child components. This allows for better control over the state of the application and makes it easier to debug errors.

ReactJS is also highly customizable and can be easily integrated with other libraries and frameworks. It is widely used in the industry for building complex, high-performance web applications and has a large and active community of developers constantly working to improve and expand its capabilities.

The topics which I learned in ReactJS during the internship are as follows:

- Learned how to create a new React App, JSX, Rendering Elements, JavaScript in JSX, Components and Props and CSS in React.
- Learned Import and Export, class based Component, Function vs Class, State.
- Learned Events, passing methods to children, Conditional in JSX.
- Learned Controlled Input form submission.
- Learned Uncontrolled Input with ref and React Fragment.
- Learned Debugging React Apps.
- Learned React Hooks (useState, useEffect, useReducer, createContext, useRef).
- Learned React Portals.

## **6.3 OUTCOMES:**

### **6.3.1 DAILY TASKS:**

## Some of the Tasks of HTML are as follows:-

Task-1: Created a Personalized Resume

Output:

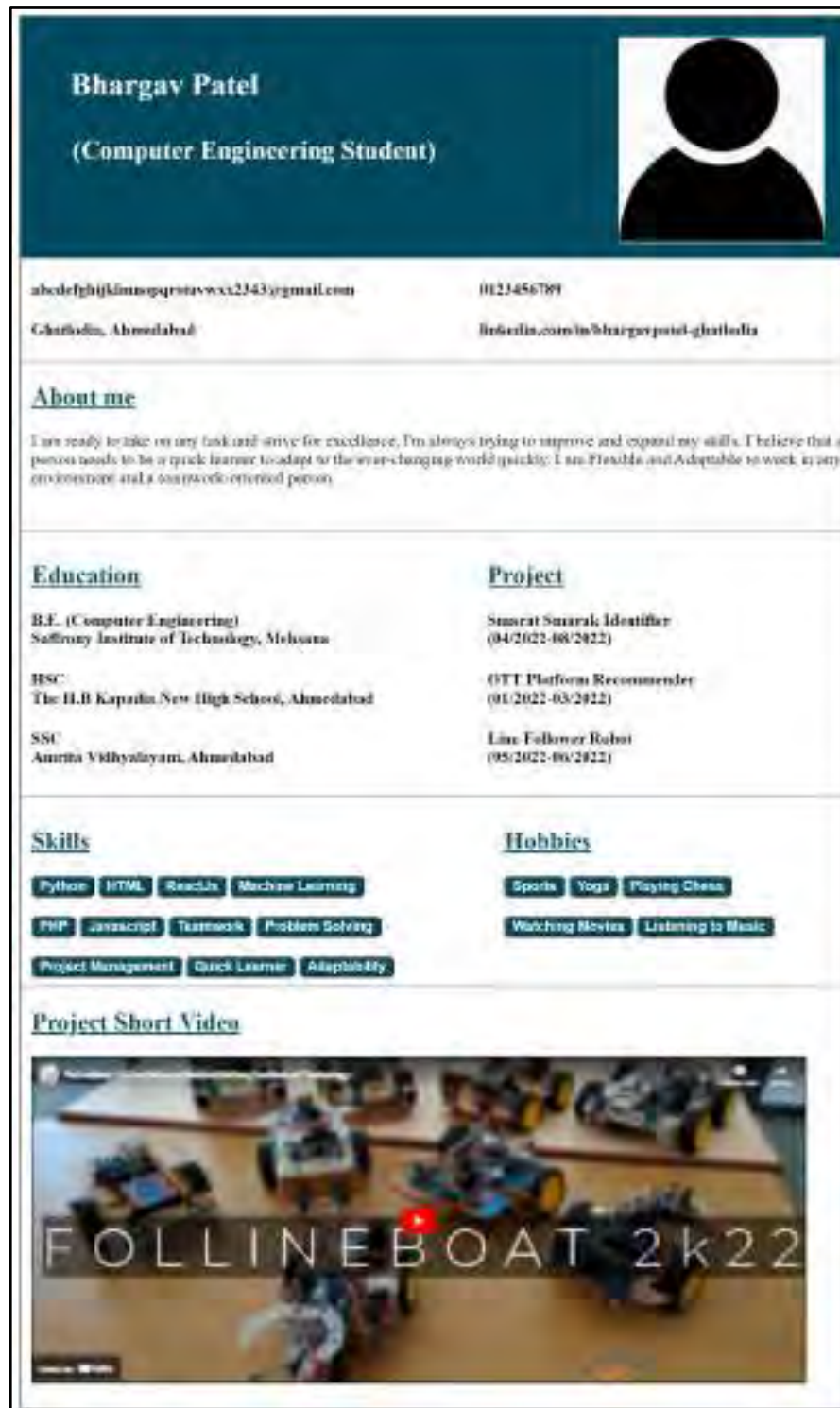


Fig 6.1 Personalized Resume

The Fig 6.1 shows the personalized resume of mine which contains the different sections like about me, education, project, skills, hobbies and project short video developed with the help of the HTML, CSS.

### Some of the Tasks of CSS are as follows:-

Task-1: Created a Responsive layout of the Student Card for both desktop and Mobile screen.

Output:



Fig 6.2 Student Information In Cards

The Fig 6.2 shows the cards displayed in the grid format which contains student information and college information with their logo.

Task-2: Created a Responsive Website Layout for both desktop and mobile screen.

Output:



Fig 6.3 CSS Website Layout

The Fig 6.3 shows the website layout which contains the header and the content with responsiveness for both desktop and mobile screen.

**Some of the Tasks of Bootstrap are as follows:-**

Task-1: Created the Clone of the Myntra for both desktop and Mobile screen.

Output:

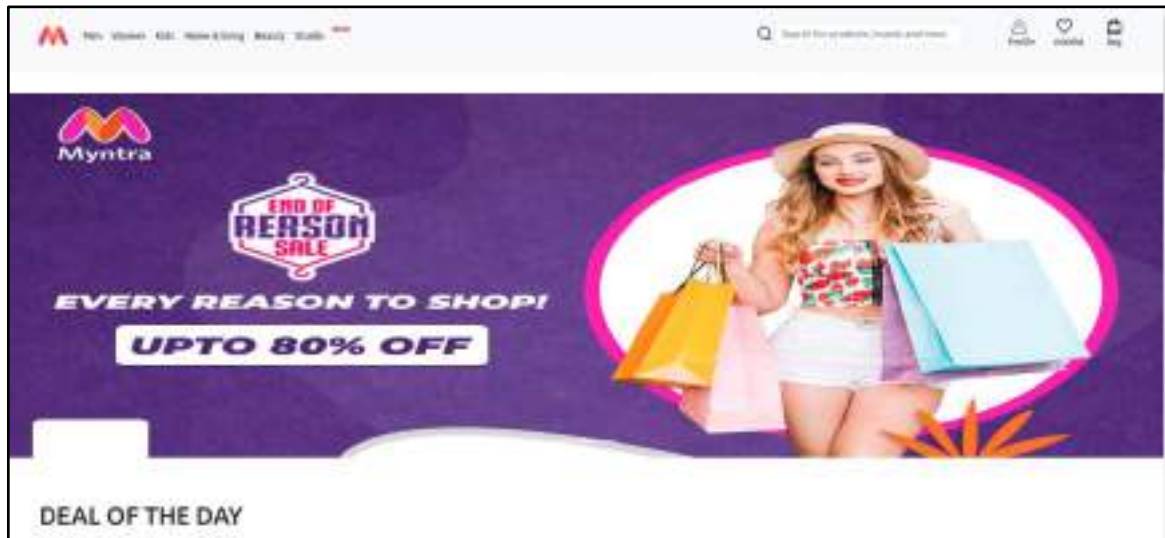


Fig 6.4 Myntra Clone

The Fig 6.4 shows the clone of the Myntra App containing the static home page of the App developed with the help of the HTML and Bootstrap.

Task-2: Created a LoopLAB Website Layout for both desktop and Mobile screen.

Output:

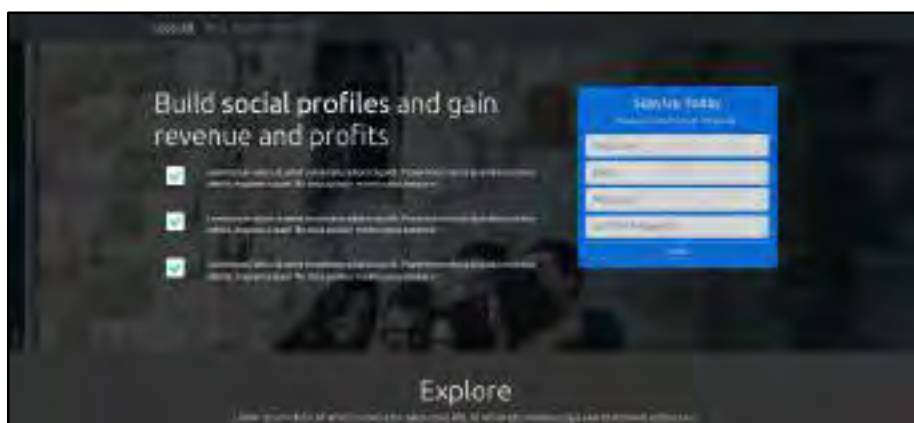


Fig 6.5 LoopLAB Website Layout

The Fig 6.5 shows the LoopLAB website layout which contains the header and the content with responsiveness for both desktop and mobile screen.

Task-3: Created a Mizuxe Website Layout for both desktop and Mobile screen.

Output:

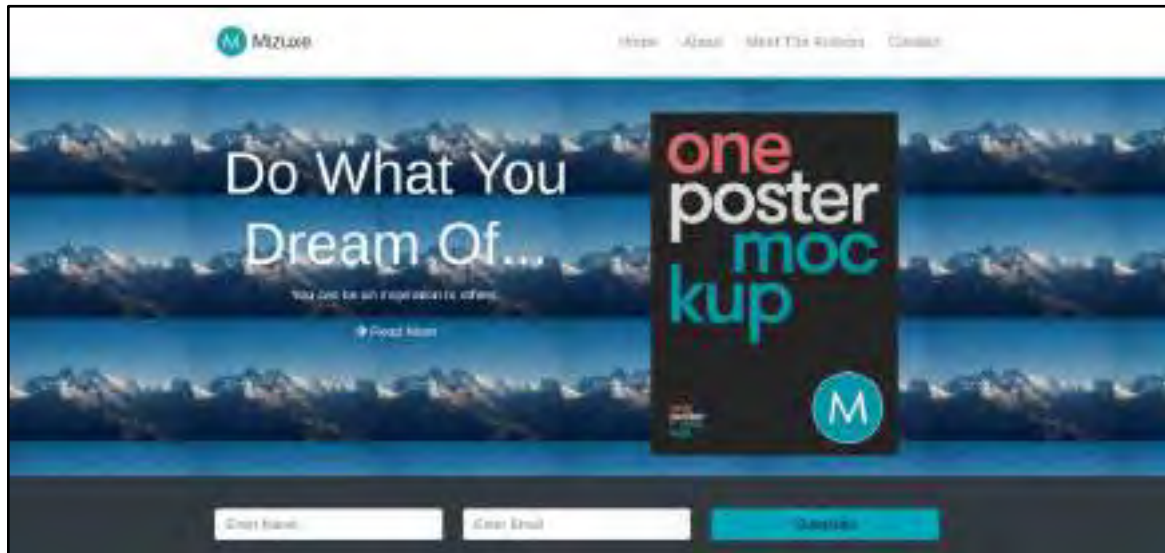


Fig 6.6 Mizuxe Website Layout

The Fig 6.5 shows the Mizuxe website layout which contains the header and the content with responsiveness for both desktop and mobile screen.

**Some of the Tasks of Tailwind CSS are as follows:-**

Task-1: Created FoodNinja Website Layout.

Output:



Fig 6.7 FoodNinja Website Layout



The Fig 6.7 shows the static layout of the Food Ninja website containing the login and signup button, sidebar and card containing the recipes of the food.

Task-2: Created a Product Listing Page layout.

Output:

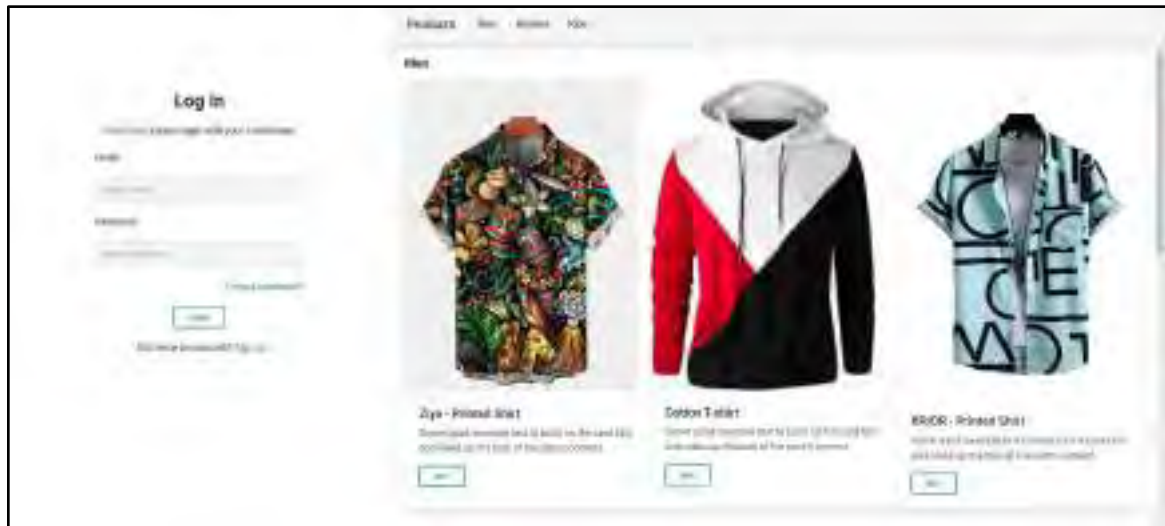


Fig 6.8 Tailwind Product Listing Website Layout

The Fig 6.8 shows the static layout of the product listing page containing the login section in the sidebar and products displayed on the right side with categories.

Task-3: Created the Haus Gitschberg website layout for desktop, Tablet and Mobile screens.

Output:



Fig 6.9 Haus Gitschberg Website Layout

The Fig 6.5 shows the static layout of the Haus Gitschberg which contains the header and the content with responsiveness for desktop, tablet and mobile screen.

### Some of the Tasks of JavaScript are as follows:-

Task-1: Created a Product Listing Page with Add to Cart functionality and remove the item from the cart.

Output:

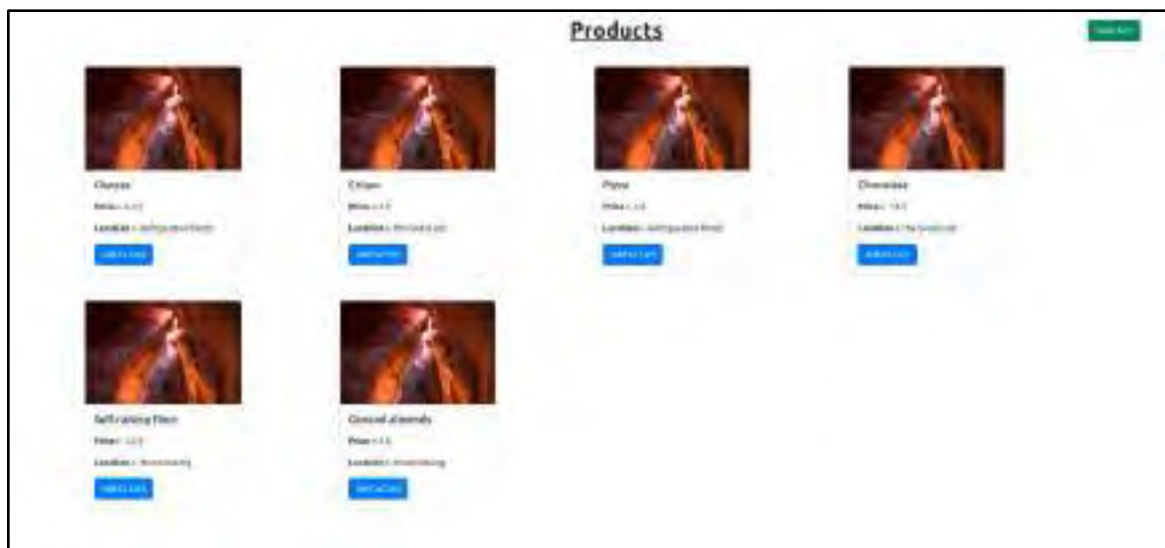


Fig 6.10 Product Listing Page With JSON Data

The Fig 6.10 shows the products listed in the cards containing the image of the product, product name, price and add to cart button from the JSON file with the functionality of adding the product in the cart and can remove from it.

Task-2: Created an Exam timer

Output:

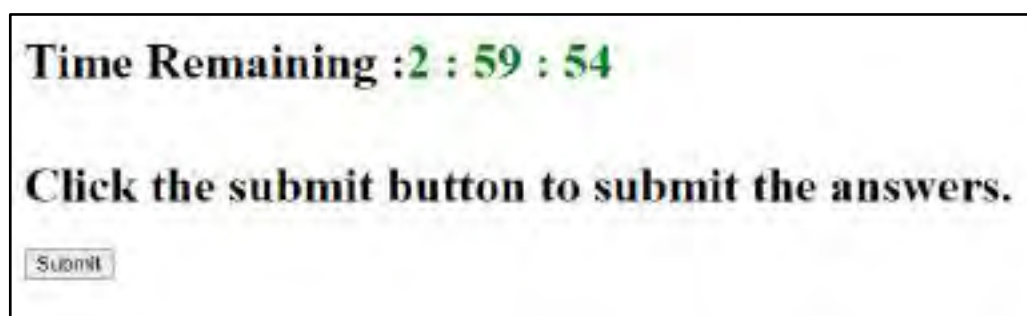


Fig 6.11 Exam Timer

The Fig 6.11 shows the exam timer containing the timer and the submit button to stop the exam.

### Some of the Tasks of jQuery are as follows:-

Task-1: Created a Website that fetches data from the API and displayed it in the table and performed the CRUD operations.

Output:

The screenshot shows a web application interface. At the top, there is a form titled "Form" with input fields for "Name", "Email", "Gender" (with radio buttons for Male and Female), and "Status" (with radio buttons for Active and Inactive). Below the form are two buttons: "Submit" and "Get Data". Below the form is a table with columns: "id", "Name", "Email", "Gender", "Status", "Update", and "Delete". The table contains 10 rows of user data.

id	Name	Email	Gender	Status	Update	Delete
114088	Ashwaj Mishra IT	ashwaj_mishra@vivo.com	male	inactive	Update	Delete
114089	Ms. Sumitika Ghose	ms_sumitika_ghose@vivo.com	female	inactive	Update	Delete
114090	Mr. Michael Kelly	michael_kelly@vivo.com	female	active	Update	Delete
114091	Anna Lindgreen	anna_lindgreen@vivo.com	male	active	Update	Delete
114092	Ms. Rajeshwar Chakravarti	rajeshwar_chakravarti@vivo.com	male	inactive	Update	Delete
114093	Aravind Reddy	aravind_reddy@vivo.com	female	active	Update	Delete
114094	Mr. Harish Reddy	harish_reddy@vivo.com	female	active	Update	Delete
114095	Mr. Raj	raj@vivo.com	male	active	Update	Delete
114096	Sumitika Ghose	sumitika_ghose@vivo.com	female	active	Update	Delete
114097	Chaitanya	chaitanya@vivo.com	male	inactive	Update	Delete

Fig 6.12 CRUD Operations With API

The Fig 6.12 shows the form with input fields name, email, gender and status and two buttons for submitting the data and fetching the data from the API, performed the CRUD operations with the help of the Postman.

### Some of the Tasks of TypeScript are as follows:-

Task-1: Created an Inventory Management System

Output:

The Fig 6.13 shows the inventory management system from where the product can be purchased by selecting the product and the quantity, the admin can add the product by providing the product id, product name, product price and product quantity, and the admin can update the product quantity available by selecting the product and the quantity. The admin can view the products in stock with all the details.



Fig 6.13 Inventory Management System

Task-2: Create an Central Recruitment Process System for the HR group of the company. Some of the features of this system will be creating vacancies, storing Applicants data, Interview process initiation, Scheduling Interviews, Storing Interview results for the applicant and finally Hiring of the applicant.

Output:

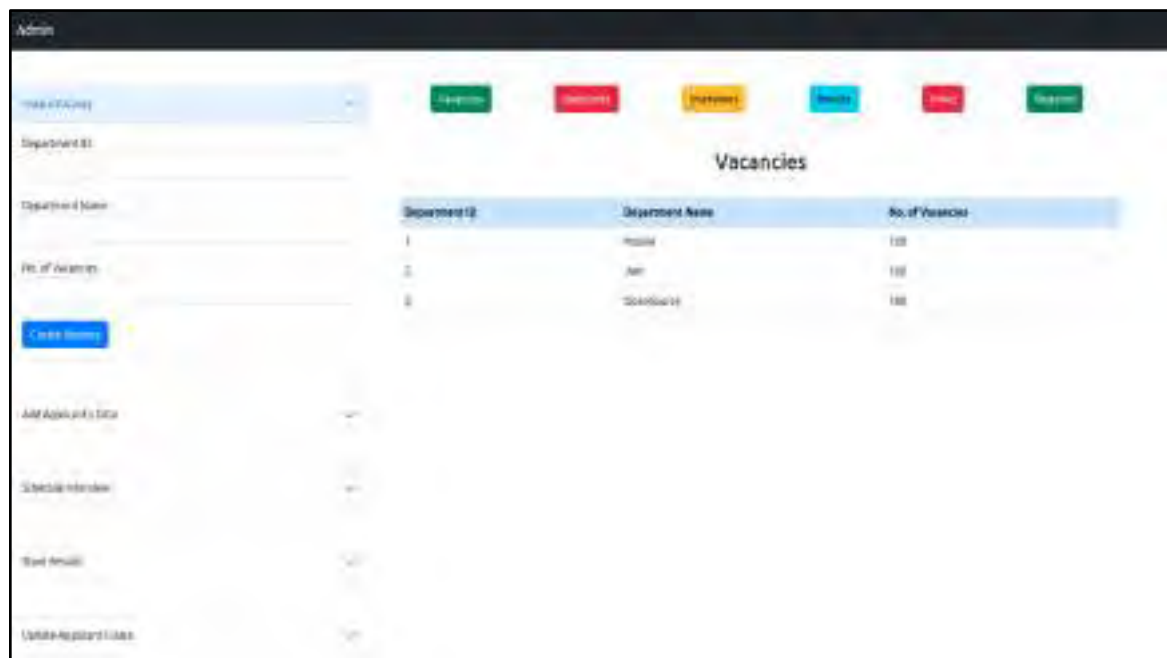


Fig 6.14 Central Recruitment Process System

The Fig 6.14 shows the central recruitment system with the functionality to create the vacancy, to add applicant's data, to schedule interview, to store the result and update the applicant's data. The Admin can view all the details by selecting the different table.

### Some of the Tasks of ReactJs are as follows:-

Task-1: Created an Student Admission Form

Output:



Fig 6.15 ReactJS Student Admission Form

The Fig 6.15 shows the student Admission Form with the student details, father details, mother details, emergency details and contact details. When the user fills the form and submit it then the students details will be displayed below the form in the form of table.

Task-2: Created a Book Listing Page when the admin add the Books available.

Output:

The Fig 6.16 shows the book listing page with form containing the input fields like image url, title, author, price, submit button and below that the books are displayed in the form of cards. When the admin fills the form and submit it then the books details will be displayed below it.



Fig 6.16 Book Listing Page

Task-3: Created a Student Card with delete and toggle functionality.

Output:



Fig 6.17 Student Cards With Delete

The Fig 6.17 shows the cards displayed in the grid format which contains student information and college information with their logo with delete button and its functionality.



Fig 6.18 Student Cards With Delete And Toggle

The Fig 6.18 shows the cards displayed in grid format which contains student information and toggle functionality for college information with their logo with delete button.

Task-4: Created a Leave History Table of an Employee from the JSON data.

Output:

UserName : Vikas

Leave History

Status	Type	Days	From Date	To Date	Applied On	Applied By	Header
Approved	Annual Leave (A)	1	2023-02-15 (Wed)	2023-02-15 (Wed)	2023-02-15 11:00:00 AM	Hikum Prasad	
Approved	Annual Leave (A)	1	2023-02-06 (Mon)	2023-02-06 (Mon)	2023-02-06 11:00:00 AM	Hikum Prasad	
Rejected	Sick Leave (S)	0.5	2023-02-03 (Fri)	2023-02-03 (Fri)	2023-02-03 11:00:00 AM	Hikum Prasad	
Applied	Sick Leave (S)	0.5	2023-04-05 (Fri)	2023-04-05 (Fri)	2023-04-05 11:00:00 AM	Hikum Prasad	

Fig 6.19 Leave History Table

The Fig 6.19 shows the leave history table containing the different colors for the different types of the leaves and edit and delete icon based on the leave data.

Task-5: Created a City Tour Website layout containing the City information cards with toggle and delete functionality

Output:



Fig 6.20 City Tours App

The Fig 6.20 shows the City tours app containing the details in the cards containing the both toggle and delete functionality.

Task-6: Created a Todo List App

Output:

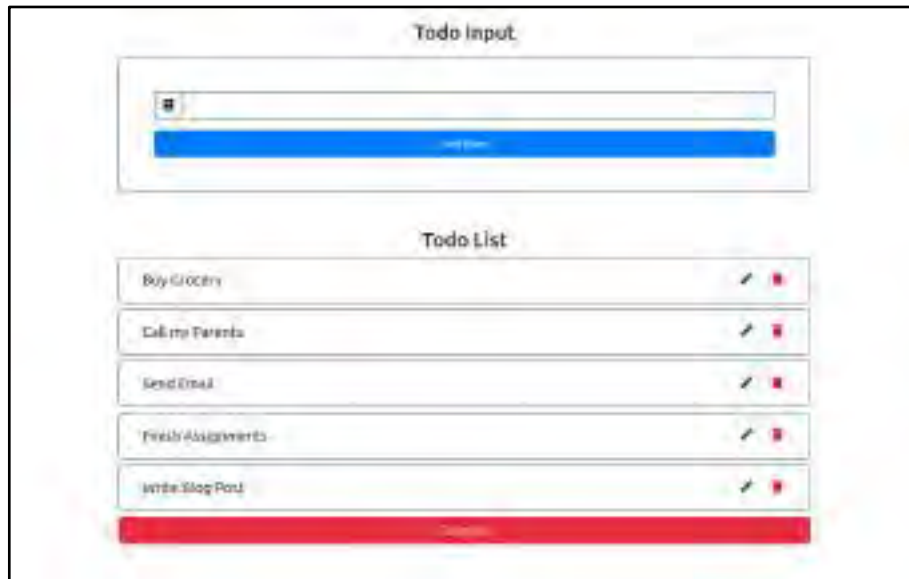


Fig 6.21 Todo App

The Fig 6.21 shows the todo app in which user can add the todo task, edit it, delete it and can clear all the todos.

### 6.3.2 Project Outcome

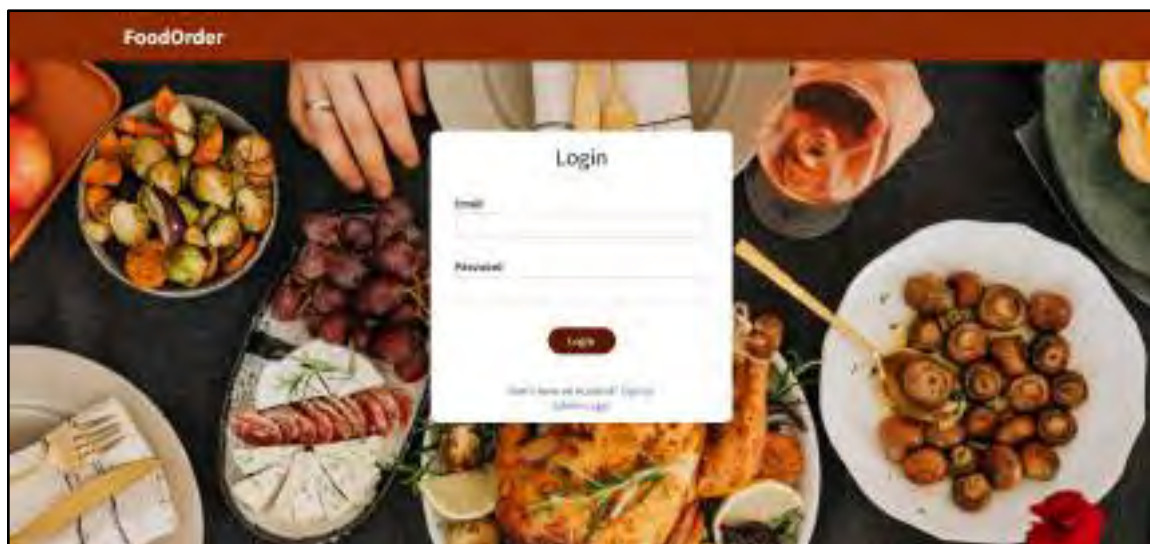


Fig 6.22 Food Order App Login Page

The Fig 6.22 shows the login page of the food order app containing the header, links to the signup page, admin page. The user can fill the details and can views the meals. The new user can register itself with the help of the signup page.





Fig 6.23 Food Order App Home Page

The Fig 6.23 shows the home page of the food order app with header containing the categories, subcategories in the dropdown, cart and logout button. The meals are displayed in the cards with add to cart functionality. When the user clicks the subcategories user is redirected to the particular section.

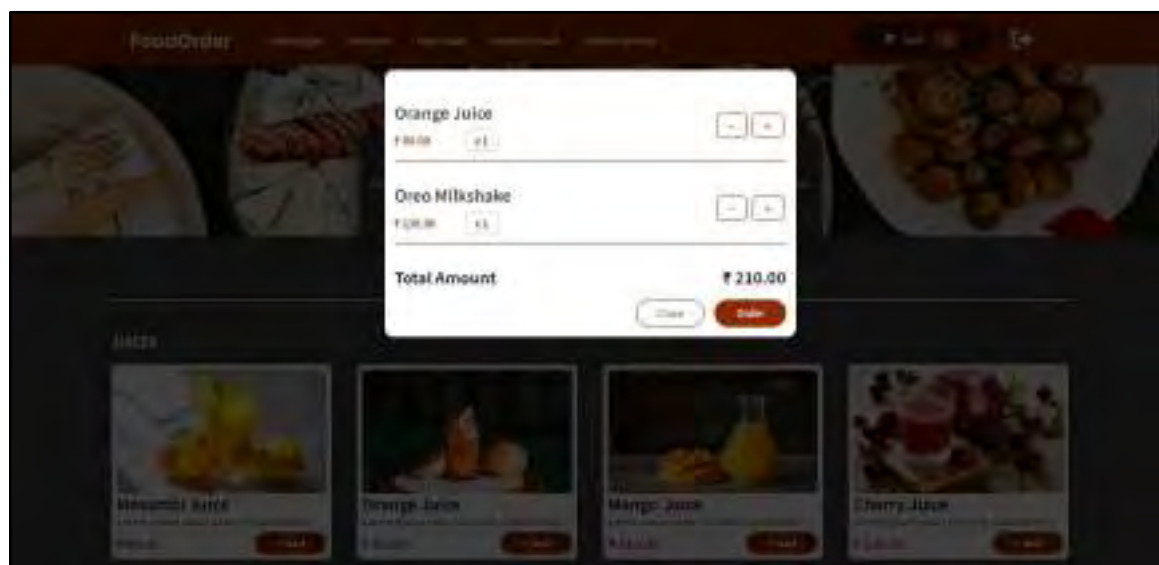


Fig 6.24 Food Order App Confirm Page

The Fig 6.24 shows the cart containing the meals added by the user with two buttons order and close. The user can increment and decrement the quantity of the meal from it. The user needs to fill the address details for the order. The form contains the validation on the input fields.



Fig 6.25 Food Order App Admin Page With Orders

The Fig 6.25 shows the admin panel page containing the different features for the admin. The admin can view the orders, add the category, add the subcategory, add meals and can update the existing meals.

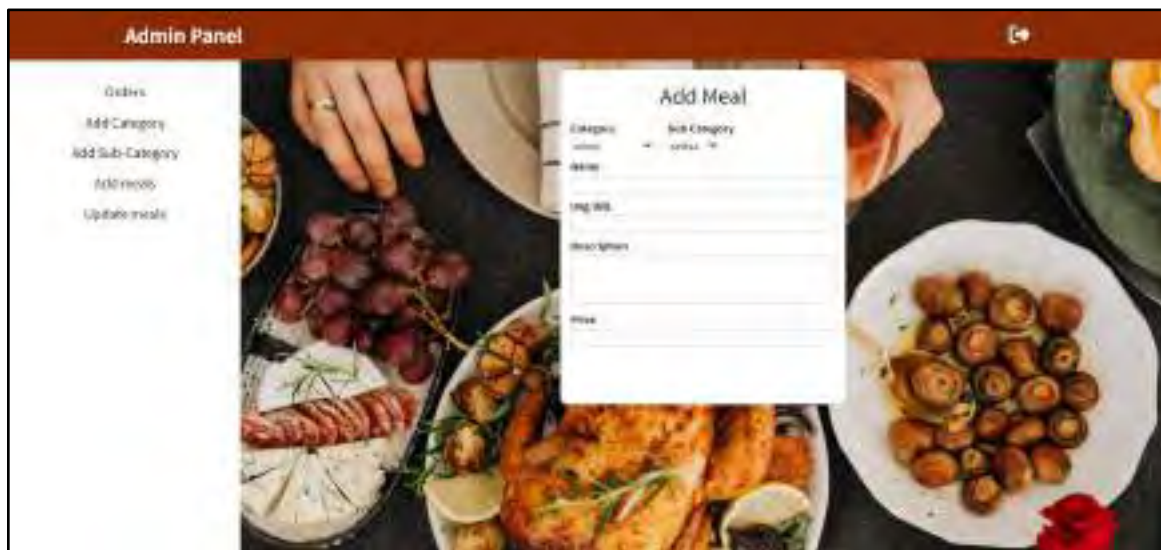


Fig 6.26 Food Order App Admin Page With Add Meal Option

The Fig 6.26 shows the admin panel with the add meal option for the admin to add the new meals with its details.

## CHAPTER 7:- TESTING

### 7.1 TESTING STRATEGY:

Once source code has been generated, software must be tested to uncover as many errors as possible before delivery to customers. Your goal is to design a series of test cases that have a high likelihood of finding errors. Software testing techniques provide systematic guidance for designing tests that

- Exercise the internal logic of software components
- Exercise the inputs and outputs domains of the program to uncover errors in program function, behavior, and performance.

During early stages of testing, a software engineer performs all tests. However, as the testing process progresses, testing specialists may become involved. Reviews and other activities can and do uncover errors, but they are not sufficient. Every time the program is executed, the customer tests it! Therefore, you must execute the program before it gets to the customer with the specific intent of finding and removing all errors. To find the highest possible number of errors, tests must be conducted systematically, and test cases must be designed using disciplined techniques.

#### Testing Objectives

- Testing is a process of executing a program with the intention of finding an error.
- A good test case is one that has a high probability of finding an as-yet undiscovered error.
- A successful test is one that uncovers an as-yet undiscovered error.

#### Unit Testing

Unit testing is a software development process in which the smallest testable part of an application, called units, is individually scrutinized for proper operation. Unit testing is often automated, but it can also be done manually. This testing mode is a component of Extreme Programming (XP), a pragmatic method of software development that takes a meticulous approach to building a product by means of continual testing and revision.

Unit testing involves only those characteristics that are vital to the performance of the unit under test. This encourages developers to modify the source code without immediate concerns about how such changes might affect the functioning of the units or the program. Once all the units in a program have been found to be working in the most efficient and error free manner possible, larger components of the program can be evaluated by means of integration testing.

### **Sub System Testing**

After testing each unit, we move on to larger units called sub systems. In subsystem testing we tested the whole Add-on as one system and App as another system. We tested each subsystem and got successful results. We found no error or bug after the final test.

### **System Testing**

Now, it's time for whole System testing. We have found many cosmetic bugs and minor bugs. We have fixed it and again tested it. We worked on each error and exception that We got while testing and most of them are removed or made such corrections that it will not happen again.

### **Recovery Testing**

It is a system test that forces the software to fail in a variety of ways and verifies that recovery is properly performed.

### **Security Testing**

It attempts to verify that protection mechanisms built into a system will, in fact, protect it from improper penetration.

### **Performance Testing**

It is designed to test the run-time performance of software within the context of an integrated system performance testing occurs throughout all steps in the testing process.

## **7.2 TESTING RESULTS AND ANALYSIS:**

### **7.2.1 Test Cases**

The table 7.1 shows the test cases containing the test id, test condition, expected output, actual output and remarks of the test case.

Table 7.1 Test Cases

<b>Test ID</b>	<b>Test condition</b>	<b>Expected Output</b>	<b>Actual Output</b>	<b>Remark</b>
1	User should be able to SignUp	User details should be stored in the firebase	User details should be stored in the firebase	Test Condition Passed
2	User should be able to SignIn	User can view the Home page	User can view the Home page	Test Condition Passed
3	User can add the Meal.	Meal should be added in the cart	Meal should be added in the cart	Test Condition Passed
4	User can remove the Meal.	Meal should be removed from the cart	Meal should be removed from the cart	Test Condition Passed
5	User should be able to order the food	Order Request should be sent	Order Request should be sent	Test Condition Passed
6	Admin should be able to view the orders	Admin can view the orders	Admin can view the orders	Test Condition Passed
7	Admin should be able to add the Meals	Admin can add the Meals	Admin can add the Meals	Test Condition Passed

## **CHAPTER 8:- CONCLUSION AND DISCUSSION**

### **8.1 OVERALL ANALYSIS OF INTERNSHIP:**

This internship has been very helpful for the transition of me from engineering student to Trainee Software Engineer. It had given me insight into how to behave and work in the professional world and how to make sure that you are running behind in any scenarios like learning new skills or taking the lead.

### **8.2 SUMMARY OF INTERNSHIP WORK:**

In this internship, I learned a lot of new technologies such as Git, HTML, CSS, Bootstrap, Tailwind CSS, Docker, JavaScript, jQuery, TypeScript, SQL and ReactJS framework along with many non-technical skills such as Teamwork, Communication skills and soft skills such as behaviour and etiquette. Also learned how to complete the work on time and what can be done to improve the existing code and many more. I applied many theoretical concepts learned in the classroom into real-world situations. It developed skills and knowledge that are relevant to my future career goals. It provided me an opportunity to meet and work with professionals in a specific field. It provided a chance to learn about the workings of a particular industry, including its trends, challenges, and opportunities.


## BIBLIOGRAPHY

### Website References

1. <https://radixweb.com/>
2. <https://www.onprintshop.com/>
3. <https://rxweb.io/>
4. <https://fabrika16.com/>
5. <https://www.picsy.in/>
6. <https://theorg.com/org/radixweb>
7. <https://www.w3schools.com/>
8. <https://tailwindcss.com/>
9. <https://jquery.com/>
10. <https://getbootstrap.com/>
11. <https://react.dev/>
12. <https://git-scm.com/>
13. <https://www.typescriptlang.org/>
14. <https://www.docker.com/>

## Appendix

### Annexure-I



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
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Annexure 1  
 Enrollment no:  
190390107077

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Rishangboman Shalabhba Patil

DIARY OF THE WEEK: Dt: 1/02/2023 TO 4/02/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: RadioWeb - Radio Software Solutions PVT LTD


NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Vaishali Dhara

DESCRIPTION OF THE WORK DONE IN BRIEF

- On the first day of the internship we had an introduction session of all the students and of the company's work culture also we played indoor games and had fun activities.
- On the second day we had an network introduction session, company's code of conduct and we were allotted the desk and PC, also the basic introduction on the github.
- On the third day I started performing the github operations like creating repositories, cloning, pull, fetch, push, resolving conflicts while merging, staging the local changes, understanding and learning the different commands.
- On the fourth day, I started HTML & understanding different elements, different types of storage, created the Employee details form and the Resume using HTML and CSS.





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---

TOTAL HOURS: 36 HOURS B. S. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

✓

<p>Signature of Faculty Mentor</p> <p style="text-align: center;"><i>[Signature]</i></p> <p>Date: <u>18/03/23</u></p>	<p>Signature of officer-in-charge of Dept. / Section / Plant</p> <p style="text-align: center;"><i>[Signature]</i></p> <p>Date: <u>27/3/23</u></p>
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Grading of Work, for trainees may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:


190390107027

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Bhargavkumar Shalabhji Patel  
 DIARY OF THE WEEK: Dt. 05/07/2023 TO 11/07/2023  
 DEPARTMENT: Computer SEM: 3<sup>th</sup>  
 NAME OF THE ORGANISATION: Radio Web - Radio Software Services PVT LTD  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Yashu Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Understanding and performing different HTML tags like <img>, <marks>, etc
- Understanding the source code to solve the bugs, CSS properties
- Understood the float property, flex layout, grid layout and the media queries for the responsive websites and position property.
- Performed hands on the media queries by changing the font size, hiding elements and understood the box model of the CSS.
- Created the flexbox Image gallery + performing the flexbox different properties.
- Developed the basic layout of the website containing header, footer, leftbar and sidebar.
- Developed the layout of the student card containing the information of the student with its image and details of the college using flex property and linking it to the other page containing leftbar with some links and some content in the middle with responsive.



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---

TOTAL HOURS: 54 HOURS B. S. Patil  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


↙

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature] [Signature]

Date: 18/03/23 Date: 21/2/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I  
Enrollment no:  
4907901e7027

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Bhanganurkuman Shailashbbai Patil

DIARY OF THE WEEK: DE: 10/02/2023 TO: 18/02/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: RadixWeb - Radix Software Services PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vasuba Dhevari

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Developed a website layout with header, leftbar and linking all the Profile and Assignment exercise.
- Developed a portfolio website and linking the webpage with different sections of the page using ids.
- Developed a navbar with submenu using the bootstrap
- Understood and learned the different classes of the bootstrap
- Performing hands on the different classes of the bootstrap
- Understood the SCSS, the variable, @include, @mixin
- Developed the Resume page using bootstrap
- Developed the layout or the clone of the Myritva's website, using the bootstrap with responsive for all the devices like desktop, Tablet and the mobile.



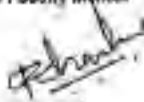
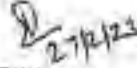
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---

TOTAL HOURS: 36 HOURS B. S. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

✓

Signature of Faculty Mentor  Date: <u>18/8/23</u>	Signature of officer-in-charge of Dept. / Section / Plant  Date: <u>27/8/23</u>
--	---

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:

490390107027

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Abhangarhiman Shaleshbhai Patel

DIARY OF THE WEEK: Dt: 19/02/2023 TO 25/02/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: RadioWeb - Radio Software Services PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vasaba Dhurat

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Developed the layout of the Mizuse website using HTML, CSS, Bootstrap with responsive for all the devices.
- Developed the website layout of the login page with home page content on the right, Hotel listing page, product listing page and ticket booking page using HTML, CSS and Bootstrap and responsive for all the devices.
- Developed the localhost website layout containing four sections like home, explore, create and share with footer using HTML, CSS and bootstrap.
- Understood the tailwind CSS classes, difference between the tailwind CSS and bootstrap & how to create the vite project with tailwind CSS.
- Understood that how to use the tailwind ready made elements.
- Developed the food ninja website layout using HTML and tailwind CSS.
- Developed the product listing page with login section in the leftbar and products on the right using HTML and tailwind CSS.
- Developed the portfolio website using HTML and tailwind CSS.

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<p>TOTAL HOURS: <u>54</u> HOURS</p>	<p style="text-align: right;"><u>B. S. Patel</u> SIGNATURE OF STUDENT</p>
<p><input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is  <b>EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR</b></p>	
<p>Signature of Faculty Mentor</p> <p style="text-align: center;"><i>[Handwritten Signature]</i></p> <p>Date: <u>18/5/23</u></p>	<p>Signature of officer-in-charge of Dept. / Section / Plant</p> <p style="text-align: center;"><i>[Handwritten Signature]</i> <u>27/5/23</u></p> <p>Date:</p>
<p><input type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.</p>	



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Annexure I

Enrollment no:

490390107027

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Bhargavkumar Shastrihbhai Patel

DIARY OF THE WEEK: Dt. 26/03/2023 TO 04/03/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Radix Web - Radix Software Services PVT LTD


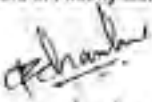
SAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vanasha Ahirani

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Developed the website layout of the movies with their image, title and language in the card format with responsive for all devices.
- Developed the courses shopping cart page with course details in the card format with total price of all courses and checkout button.
- Learned about the docker, containers, image, docker compose, docker volumes, dockerfile, how to pull the image, how to push the image, docker hub and docker Registry.
- Created vite vanilla project and deployed it using the dockerfile, applied the concept of multistage in the dockerfile.
- Learned about the Javascript basics, variables, types & scope, some operations on the Array like push, pop, shift and unshift.
- Performed Practices on the strings, how to split it, how to get values from the HTML form, ahead operator, Rest operator.



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	TOTAL HOURS: <u>54 HOURS</u>	<u>B. S. Patel</u> SIGNATURE OF STUDENT
<input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR		
Signature of Faculty Mentor 	Signature of officer-in-charge of Dept. / Section / Plant	
Date: <u>18/03/23</u>	Date: <u>18/03/23</u>	
<input checked="" type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.		



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Annexure I

Enrollment no:

190390107027

### STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Rishangkrumar Shaileshbhai Patel

DIARY OF THE WEEK: DI: 05/03/2023 TO 11/03/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>




NAME OF THE ORGANISATION: RadixWeb - Radix Software Services PVT LTD


NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vansha Dhoni

#### DESCRIPTION OF THE WORK DONE IN BRIEF

- Created an application to check whether entered date is valid date or not.
- Designed a form for storing employee details with validations such as Employee ID should be 5 characters long, etc using HTML & JavaScript.
- Created an Exam Application with 3 hours timer to stop the exam.
- Created a form with Email, Name, Gender and status with submit and get data button & with the help of the public API and the Postman I fetched the data, tested the data, update/Patch the data and deleted the data into the API.
- Learned how to store the data into the localstorage, read that data using the fetch and display it in the table.
- Created an application which displays the product information in the Grid format by reading it from JSON file with features to add the product to the cart with no duplicated product, view the summary of the cart with Total price and can remove the product from the cart using the JavaScript & localstorage.

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	TOTAL HOURS: <u>45 HOURS</u>	<u>B.S. Patel</u> SIGNATURE OF STUDENT
<input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR		
Signature of Faculty Mentor 	Signature of officer-in-charge of Dept. / Section / Plant 	
Date: <u>16/3/23</u>	Date: <u>16/3/23</u>	
<input type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.		



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Annexure I  
 Enrollment no:  
40390107077

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Rhanganubhanna Shalishbhai Patel

DIARY OF THE WEEK: Dt: 12/03/2023 TO 18/03/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: RadixWeb - Radix Software Services Pvt Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Vanasha Ghelani

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Created an application which accepts two inputs Product Name & Product Price through which user can add the product and user can see all the added products in the table format using HTML and Javascript
- Created an invoice with the help of the JSON data stored in the file using the fetch method with HTML and Javascript
- learned JQuery, its selectors, hide/show, fade, slide, etc., set methods, get methods, remove methods, css classes, dimensions, etc.
- Created an website that fetches the data from API and displayed it in the table format with one price input field, name and dropdown input field and based on the input the table changes using JQuery.
- Created an calculator with some basic operations using JQuery.
- Created an website that fetches the data from the API and display the products purchased by each user with Add to Cart functionality.
- Created a form with Email, Name, Gender and status and performed basic CRUD operations with public API & Fetchman using JQuery.



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TOTAL HOURS: 45 HOURS B. S. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 26/05/23 Date: 26/05/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1

Enrollment no:

190790467027

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: Rhaggaakumar Shalubhoni Patel

DIARY OF THE WEEK: Dt: 19/03/2023 TO 25/03/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: RadioWeb - Radio Software Services Pvt Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Vasuba Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Learned TypeScript, its basic data types, Array, tuple, any, void, optional Parameter, function overloading, classes, Access Modifiers, Union, Generics, modules, interfaces, etc
- Stored employee's data in array and searched the employee based on the index number, Employee ID, insert data and edits using TypeScript
- Stored employee's data and list the employee's data with combining fields & computing PF and total salary
- Created an inventory management Application for the retail shop, whenever purchase is made quantity must be reduce and the reorder request must be sent using TypeScript.
- Created a web-based central recruitment process system for the HR group with features to create vacancies, storing Applicants data, interview process initiation, scheduling interview, showing interview results for the Applicant and finally hiring of the Applicant Reports using TypeScript



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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS: 54 HOURS S. S. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 6/05/23 Date: 6/05/23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:

190390107027

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: Rhanganubhuvan Shalishbhai Patil

DIARY OF THE WEEK: Dt: 26/03/2023 TO 04/04/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: RadixWeb - Radix Software Services Pvt Ltd


NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vaishali Ghemai

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Created an typescript program which contains Enum for State and City, created Passenger object and stored data in the generic Array and display student who stays in Ahmedabad City.
- Created a typescript program for banking application where customer can withdraw and deposit amount in his account.
- Created a typescript program to find out duplicate object and find object containing lastname Pahl.
- Created a javascrip program for toggle password visibility.
- Created a leave history table from the given data.
- Learned SQL, DBMS & RDBMS, primary key, Candidate key, Alternate key, Composite key, top-down Approach, Bottom-up Approach, JOINS, DML queries, DDL queries, order by, group by, distinct, union, intersect, string functions, Ranking functions, Date function, subqueries, views and performed practicals on the above topics.





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TOTAL HOURS: 54 HOURS B. S. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 6/5/23 Date: 6/5/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Assesure I  
 Enrollment no:  
190390107027

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Abhangauman Shalleshbhai Patil

DIARY OF THE WEEK: DI: 02/04/2023 TO 08/04/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: Radix Web - Radix Software Services PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Varsha Dhanai

DESCRIPTION OF THE WORK DONE IN BRIEF

- Learned sql and performed practicals on the different topics
- Learned Aggregate functions (SUM, COUNT, AVG, MAX, MIN), Group by, having, Rollup, select into, Joins (Inner Join, outer Join, left outer join, right outer join, full outer join, Self join), Subqueries
- Learned views, Indexes, Stored Procedures, Exception handling
- Learned how to process JSON, declare variable, if-else, case-statement, while, IS\_JSON, JSON\_VALUE, JSON\_QUERY, JSON\_ARRAYAGG, JSON\_EXTRACT.
- Learned how to import data from the Excel, storing that data into the table, copying data from one table into another, converting table rows into the JSON object.
- Revised python basics and performed practicals on it and solved practice problems of the competitive programming.



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TOTAL HOURS: 54 HOURS

B. S. Patel  
SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Date: Feb 15/23

Date: 17/2/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc:



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Annexure I

Enrollment no:

490390107027

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Rhanganthuman Shalekhhai Patel

DIARY OF THE WEEK: Dt: 09/04/2023 To 15/04/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: PodicWeb - Radio Software Services PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Nascha Ghelani

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Learned Django basics and performed basics of the Django.
- Learned ReactJS basics which includes how to create a React App, Hello World Application, JSX, Components and props, children props.
- Created a studentIDCard component which include another component Image, Personal (ID, FirstName, LastName, DOB), College component (CollegeName, College Address, College Logo)
- Stored Above example of javascript variable and then display dynamically, call the studentIDCard component 3 times
- Learned Composing Component, CSS in React, Conditional Rendering, State.
- Created a Book Mini Project
- Created Students Array of 3 students and passed it as the object to the studentIDCard Component using map function & props.
- Created a student Admission Form with student details, Father & Mother details, emergency contact list & Reference details and displayed the details in the table.



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TOTAL HOURS: 55 HOURS B. S. Pali  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 6/5/23 Date: 6/5/23

Grading of Work, for trainee may be given depending upon your judgement about  
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Semester I

Enrollment no:

190290107007

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Rhagnubuman Shailabhai Patel

DIARY OF THE WEEK: Dt: 16/04/2023 TO 27/04/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: RadioWeb - Radio Software Services PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vaacha Choudi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Created a StudentID Card component that contains delete button to delete the Card using ReactJs
- Created Leave History table with the help of the JSON data and the ReactJs.
- Created one toggle button in the StudentID Card Component, which hide/show the college details using the ReactJs.
- Created City Information listing page with each city description inside the toggle button and delete functionality using ReactJs
- Created a Todo List App with edit and delete functionality.
- Created a student form and displayed the details in the Card.
- Learned Rendering lists and conditional content, styling React Components, debugging React Apps, managing user input, validation, Resetting logic, JSX Limitations, React Fragment, React Portals, useState, useEffect, useReducer hooks, React Context, and Rules of Hooks in the ReactJs



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 (ગજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS: 54 HOURS G. S. Pata  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: Signature of officer-in-charge  
of Dept / Section / Plant

Date: 21/5/13 Date: 21/5/13

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ હેઠળ સ્થાપિત)

Annexure I

Enrollment no:

190390107027

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Bhargavbhanu Shaileshbhai Patel

DIARY OF THE WEEK: Dt: 23/04/2023 TO 29/04/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: RadixWeb - Radix Software Services PVT LTD


NAME OF THE PLANT/SECTION/DEPARTMENT: Mobile Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vaashta Chahal


**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Learned child Component Re-Evaluation, preventing unnecessary Re-Evaluations with Read-Memo, preventing function Re-Creation with useCallbacks, understanding state Scheduling and batching, usememo, class based components, working with state and events, how to connect to firebase, connection of App with firebase, GET Request, POST Request with axios, Routing, Request with async and await, custom Hooks
- Worked on the food order App which includes Signup page, Login Page, Home page with categories and subcategories in the navbar and products displayed below, Cart, Order, Admin Login, View orders and Add Meal option.



	<p><b>GUJARAT TECHNOLOGICAL UNIVERSITY</b>          (Established under Gujarat Act No. 20 of 2007)          ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી          (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)</p>
<p>TOTAL HOURS: <u>51 HOURS</u></p>	<p style="text-align: center;"><u>B. S. Patel</u> SIGNATURE OF STUDENT</p>
<p><input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is          EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR</p>	
<p>Signature of Faculty Mentor:</p> <p style="text-align: center;"><i>[Handwritten Signature]</i></p>	<p>Signature of officer-in-charge of Dept. / Section / Plant</p> <p style="text-align: center;"><i>[Handwritten Signature]</i></p>
<p>Date: <u>6/5/23</u></p>	<p>Date: <u>6/5/23</u></p>
<p><input checked="" type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about          his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.</p>	

## Annexure-II



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Annexure 2

Feedback Form by Industry expert

Student Name: Bhangav Kumar Shailashobai Patel      Date: 03/05/2023

Work Supervisor: Vansha Oberoi      Title: Internship at Radixweb

Company/Organization: RadixWeb - Radix Software Services Pvt. Ltd

Enrollment No: 190390107027

Internship Address: B/H Nirma University, Ekyanth, Malabar Colony Rd, Chhambdi, Gandhinagar

Dates of Internship: From 01/02/2023      to 29/04/2023



Please evaluate your intern by indicating the frequency with which you observed the following behaviors:


Parameters	Needs Improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility			✓	
Uses technical knowledge and expertise			✓	
Analyzes problems effectively			✓	
Communicates well and writes effectively			✓	✓

Overall performance of student intern: (Needs Improvement/ Satisfactory/Good/Excellent):

Good

Additional comments, if any: Performing well

Signature of industry person with name and Stamp:   05/5/23

Signature of the Faculty Mentor: 

### Attendance Proof

Date	Day	Attendance
01/08/2023	Sunday	Holiday
02/08/2023	Monday	Holiday
03/08/2023	Tuesday	Holiday
04/08/2023	Wednesday	Present
05/08/2023	Thursday	Present
06/08/2023	Friday	Present
07/08/2023	Saturday	Present
08/08/2023	Sunday	Present
09/08/2023	Monday	Present
10/08/2023	Tuesday	Present

Date	Day	Attendance
11/08/2023	Sunday	Holiday
12/08/2023	Monday	Present
13/08/2023	Tuesday	Present
14/08/2023	Wednesday	Present
15/08/2023	Thursday	Present
16/08/2023	Friday	Present
17/08/2023	Saturday	Present
18/08/2023	Sunday	Present
19/08/2023	Monday	Present
20/08/2023	Tuesday	Present

Date	Day	Attendance
21/08/2023	Sunday	Holiday
22/08/2023	Monday	Holiday
23/08/2023	Tuesday	Holiday
24/08/2023	Wednesday	Holiday
25/08/2023	Thursday	Holiday
26/08/2023	Friday	Holiday
27/08/2023	Saturday	Present
28/08/2023	Sunday	Present
29/08/2023	Monday	Present
30/08/2023	Tuesday	Present
31/08/2023	Wednesday	Present
01/09/2023	Thursday	Present

# **INTERNSHIP REPORT**

*Submitted by*

**Bhoomi Patel**

**200390107047**

**Computer Engineering**

**Summer Internship at**

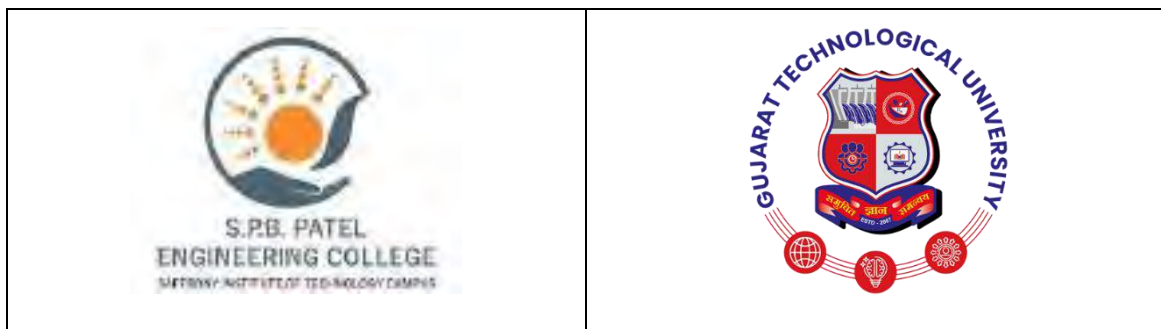
**CreArt Solutions PVT LTD.**

**during**

**27-07-2023 to 10-08-2023**

**S.P.B Patel Engineering College**

**Saffrony Institute of Technology, Mehsana**



**Gujarat Technological University, Ahmedabad**

**August 2023**

# INTERNSHIP CERTIFICATE



## INTERNSHIP COMPLETION LETTER

Date: 10<sup>th</sup> August 2023

*This is to certify that*

Mr/Ms. Bhoomi Patel  
Enrollment No : 200390107047  
College : Saffron Institute of Technology

has successfully completed the 15 day's of summer internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at  
CreArt Solutions, Ahmedabad.

We wish him/her all the best for his future endeavours.



Krishnamohan Gupta  
Director

**CreArt Solutions PVT LTD.**

202, Heritage Horizon, Opp Hotel Div Corporate, C/G/Road,  
Ahmedabad, Gujarat, India - 380009  
www.creat.in | hello@creat.in | **Office Locations:** INDIA | USA | UK

# **ACKNOWLEDGEMENT**

The internship opportunity I had with CreArt was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be a part of it. I am also grateful for having a chance to meet so many wonderful people and professionals who led me through this internship period.

Bearing in mind previous I am using this opportunity to express my deepest gratitude and special thanks to the Mentor of CreArt who in spite of being extraordinarily busy with his duties, took time out to hear, guide and keep me on the correct path and allowing me to carry out my project at their esteemed organization and extending during the training.

I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objectives. Hope to continue cooperation with all of you in the future.

Sincerely.

**MR. KRISHNAMOHAN GUPTA**

**(DIRECTOR, CREART SOLUTIONS PVT LTD.)**

# **ABSTRACT**

This report is describing the work I completed as a Computer Engineering intern at CreArt during July-August of 2023. It provides an overview of the company; an overview of my role and the projects I worked on at the company. The report presents the project completed during internship at CreArt Which is “Real time API integration in web pages using Django framework”. This project has been completed successfully and result was according to expectations. And all the Circuits are tested and working to our expectations.

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# **Chapter-1 About the company**

## **1.1 Introduction**

CreArt is a privately owned venture of IT Solutions, IT Consultants and Corporate Training formed in 2013. the strong collaboration between design, development, and delivering services on time, which benefits not only clients but also communities in which the projects are implemented.

We are involved in UI/IUX Design, Web/CMS/Shopify Development Mobile App Development, SEO & social media, AR/VR development, AI & Machine Learning. We strongly believe in delivering the best services to the clients till their satisfaction.

Our main objective is to provide professional, qualitative, innovative and accessible services in every possible form.

We always aspire to create resistant future. We believe in bringing Business, People and Technology together in the way forward. We are a professional and highly dedicated group of skilled experts. To provide quality to our clients, we work in active environment and follow best practices.

CreArt is focused on rigorous development and comprehensive quality.

## Chapter-2 Overview of the Python

### 2.1. Getting Started With Python

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.

It is used for:

- web development (server-side),
- software development,
- mathematics,
- system scripting.

#### What can Python do?

- Python can be used on a server to create web applications.
- Python can be used alongside software to create workflows.
- Python can connect to database systems. It can also read and modify files.
- Python can be used to handle big data and perform complex mathematics.
- Python can be used for rapid prototyping, or for production-ready software development.

#### Why Python?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.).
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way or a functional way.

## Chapter-3 Overview of the Django

### 3.1. Django Introduction

Python Django is a web framework that allows users to quickly create efficient web pages. Django is also called batteries included framework because it provides built-in features such as Django Admin Interface, default database – SQLite3, etc. When you're building a website, you always need a similar set of components: a way to handle user authentication (signing up, signing in, signing out), a management panel for your website, forms, a way to upload files, etc. Django gives you ready-made components to use.

#### Ridiculously fast

- Django was designed to help developers take applications from concept to completion as quickly as possible.

#### Reassuringly secure

- Django takes security seriously and helps developers avoid many common security mistakes. Its user authentication system provides a secure way to manage user accounts and passwords.

#### Exceedingly scalable

- Some of the busiest sites on the web leverage Django's ability to quickly and flexibly scale to meet the heaviest traffic demands.

#### How does Django Work?

Django follows the MVT design pattern (Model View Template).

- **Model** - The data you want to present, usually data from a database.
- **View** - A request handler that returns the relevant template and content - based on the request from the user.
- **Template** - A text file (like an HTML file) containing the layout of the web page, with logic on how to display the data.

### 3.2. Install Django

**Step 1:** Add web framework

**Step 2:** Properly install or not

**Step 3:** Create Django project

**Step 4:** Run Django project



### 3.3. Create Superuser

Django provides us Admin Panel for it's users. So, we need not worry about creating a separate Admin page or providing authentication feature as Django provides us that feature. Before using this feature, you must have migrated your project, otherwise the superuser database will not be created.

**Step 1:** For creating superuser, first reach the same directory as that of manage.py and run the following command:

**Step 2:** Now we can login into our Django Admin page by running the command `python manage.py runserver`.



**Step 3:** Now we can see our admin home page.



### 3.4. Create App

**Step 1:** I will name my app new.

Django creates a folder named new in my project, with this content:

**Step 2:** Specify the app in to the myproject → myadmin

**Step 3:** Specify the app in to the myproject → customer

### 3.5. Create Models

A Django model is the built-in feature that Django uses to create tables, their fields, and various constraints. In short, Django Models is the SQL of Database one uses with Django. SQL (Structured Query Language) is complex and involves a lot of different queries for creating, deleting, updating or any other stuff related to database. Django models simplify the tasks and organize tables into models. Generally, each model maps to a single database table. We can use the admin panel of Django to create, update, delete or retrieve field of a model and various similar operations. Django models provide simplicity, consistency, version control and advanced metadata handling.

**Step 1:** Create models in your app.

**Step 2:** Now write code in models.py file.

```
1 from django.db import models
2
3 class Notice(models.Model):
4     subject = models.CharField(max_length=155)
5     description = models.TextField()
6     created_at = models.DateTimeField(auto_now_add=True)
7     updated_at = models.DateTimeField(auto_now=True)
8
9
10
```

## Chapter-4 Working of the Project

### 4.1. Project Definition

This project is aimed at developing a website which integrates the data from the real time API, using Python, Django, Html, CSS, Bootstrap for displaying the news.

### 4.2. Create App

**Step 1:** I will name my app new.

Django creates a folder named new in my project, with this content:

**Step 2:** Specify the app in to the myproject → myadmin

**Step 3:** Specify the app in to the myproject → customer

```
33
34 INSTALLED_APPS = [
35     'django.contrib.admin',
36     'django.contrib.auth',
37     'django.contrib.contenttypes',
38     'django.contrib.sessions',
39     'django.contrib.messages',
40     'django.contrib.staticfiles',
41     'myadmin',
42     'user',
43 ]
44
```

### 4.3. Django Views

A view function is a Python function that takes a Web request and returns a Web response. This response can be the HTML contents of a Web page, or a redirect, or a 404 error, or an XML document, or an image, anything that a web browser can display. Django views are part of the user interface; they usually render the HTML/CSS/Javascript in your Template files into what you see in your browser when you render a web page.



- Organization of code related to specific HTTP methods (GET, POST, etc.) can be addressed by separate methods instead of conditional branching.
- Object-oriented techniques such as mixins (multiple inheritances) can be used to factor code into reusable components.

#### 4.4. Django URL Patterns

In Django, each view needs to be mapped to a corresponding URL pattern. This is done via a Python module called URLConf(URL configuration). Every URLConf module must contain a variable `urlpatterns` which is a set of URL patterns to be matched against the requested URL. These patterns will be checked in sequence until the first match is found. Then the view corresponding to the first match is invoked. If no URL pattern matches, Django invokes an appropriate error handling view.

**Step 1:** Add the path to the app `newapp\urls.py`.

```

1
2 URL configuration for newapp project.
3
4 Theurlpatterns list routes URLs to views. It's like the Django admin site.
5 https://docs.djangoproject.com/en/4.2/topics/http/urls/#
6
7 urlpatterns
8     1. Add an entry: 'Add an entry: view'
9     2. Add a URL: urlpatterns = path('', views.home, name='home')
10
11
12
13
14
15
16
17 from django.contrib import admin
18 from django.urls import path, include
19
20 urlpatterns = [
21     path('admin/', admin.site.urls),
22     path('user/', include('user.urls')),
23 ]

```

**Step 2:** Add the url to the project `CreArt\urls.py`.

```

1 from django.contrib import admin
2 from django.urls import path, include
3 from user import views
4
5 urlpatterns = [
6     path('notice', views.all_notices, name='notice')
7 ]

```



## 4.5. Build website

**Step 1:** Create model App and apply command.

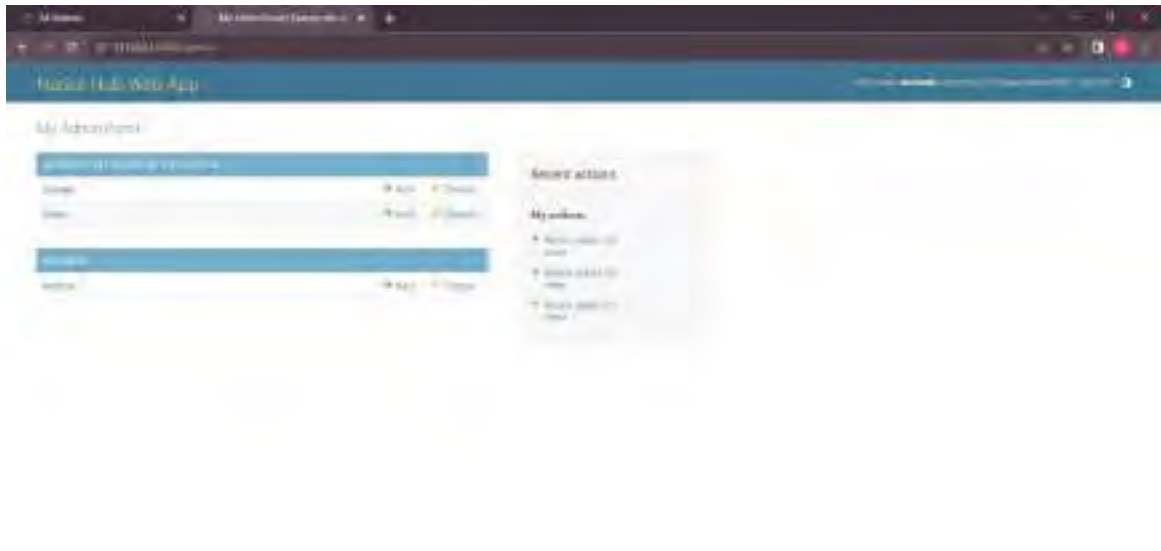
```
(VE) C:\Users\DELL\Desktop\SI-DJ\myproject>python manage.py startapp myadmin
(VE) C:\Users\DELL\Desktop\SI-DJ\myproject>python manage.py startapp customer
```

**Step 2:** Make Migration command.

```
1 from django.db import migrations, models
2
3 class Migration(migrations.Migration):
4
5     initial = True
6
7     dependencies = [
8
9     ]
10
11     operations = [
12         migrations.CreateModel(
13             name='Notice',
14             fields=[
15                 ('id', models.BigAutoField(auto_created=True, primary_key=True, serialize=False, verbose_name='ID')),
16                 ('subject', models.CharField(max_length=255)),
17                 ('description', models.TextField()),
18                 ('created_at', models.DateTimeField(auto_now=True)),
19                 ('updated_at', models.DateTimeField(auto_now=True)),
20             ],
21         ),
22     ]
```

**Step 3:** Create admin panel.

```
1 from django.contrib import admin
2 from myadmin.models import Notice
3
4 admin.site.site_header = 'Notice Hub Web App'
5 admin.site.index_title = 'My Admin Panel'
6 class NoticeAdmin(admin.ModelAdmin):
7     list_display = ['id', 'subject', 'description', 'created_at', 'updated_at']
8
9 admin.site.register(Notice, NoticeAdmin)
```



**Step 4:** Add notices in myadmin.



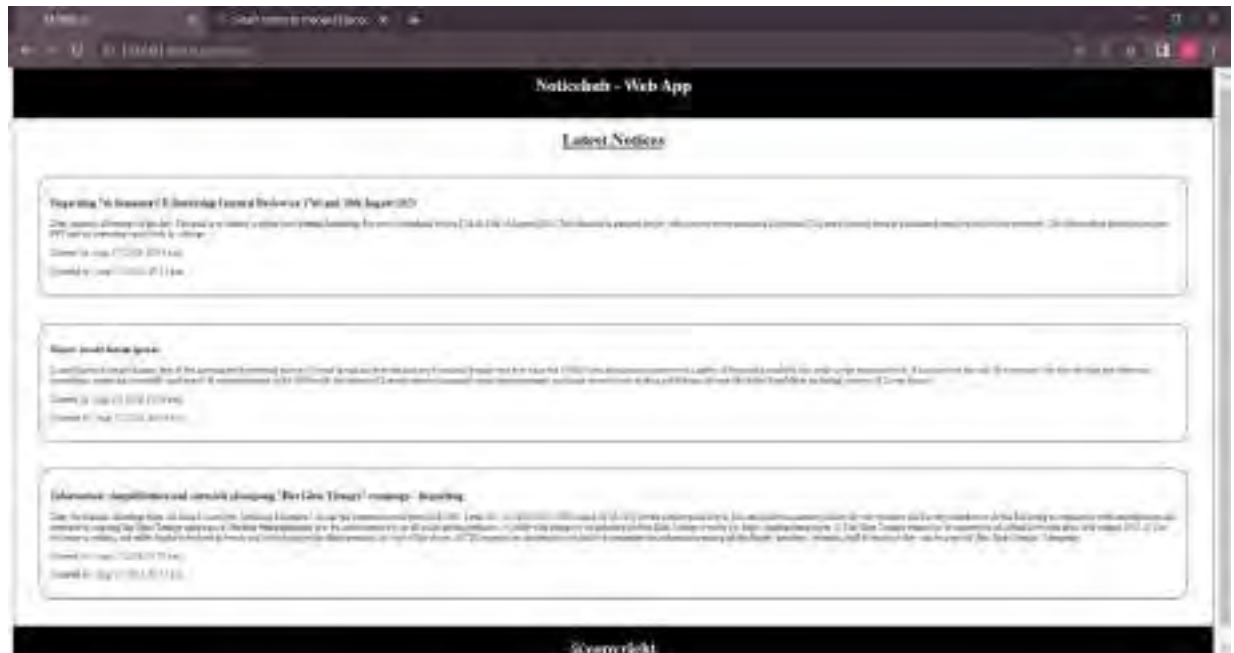
**Step 5:** Design the web page.

```

<!-- load static JS -->
<script src="/static/js/main.js"></script>
</script>
</head>
<body>
    <div class="container">
        <div class="row">
            <div class="col-md-3">
                <div class="list-group">
                    <a href="#">Home</a>
                    <a href="#">About</a>
                    <a href="#">Contact</a>
                    <a href="#">Admin</a>
                </div>
            </div>
            <div class="col-md-9">
                <div class="row">
                    <div class="col-md-12">
                        <div class="card">
                            <div class="card-header">
                                <h3>Notices</h3>
                            </div>
                            <div class="card-body">
                                <table border="1">
                                    <thead>
                                        <tr>
                                            <th>ID</th>
                                            <th>Title</th>
                                            <th>Content</th>
                                            <th>Created At</th>
                                            <th>Updated At</th>
                                        </tr>
                                    </thead>
                                    <tbody>
                                        <tr>
                                            <td>1</td>
                                            <td>Notice 1</td>
                                            <td>This is a notice</td>
                                            <td>2023-01-01</td>
                                            <td>2023-01-01</td>
                                        </tr>
                                        <tr>
                                            <td>2</td>
                                            <td>Notice 2</td>
                                            <td>This is a notice</td>
                                            <td>2023-01-02</td>
                                            <td>2023-01-02</td>
                                        </tr>
                                        <tr>
                                            <td>3</td>
                                            <td>Notice 3</td>
                                            <td>This is a notice</td>
                                            <td>2023-01-03</td>
                                            <td>2023-01-03</td>
                                        </tr>
                                    </tbody>
                                </table>
                            </div>
                        </div>
                    </div>
                </div>
            </div>
        </div>
    </div>
</body>
</html>

```

## Output:



## CONCLUSION:

In a nutshell, this internship has been an excellent and rewarding experience. I can conclude that there has been a lot I've learned from my work at CreArt. The technical aspects of my work are not flawless and could be improved provided enough time. As someone with no prior experience with Node.js whatsoever, I believe my time spent in research and discovering it was well worth it and contributed to finding an acceptable solution to build a fully functional web service. Two main things that I've learned the importance of are time-management skills and self-motivation.

## APPENDIX

# INTERNSHIP JOINING LETTER



Date: 27<sup>th</sup> July 2023

*This is to certify that*

Mr/Ms. Bhooni Patel  
Enrollment No : 200390107047  
College : Saffron Institute of Technology

has been selected for the 15 days of summer internship from **27<sup>th</sup> July 2023** to **10<sup>th</sup> August 2023** at **CreArt Solutions, Ahmedabad.**

We wish him/her all the best for his future endeavours.



---

**Krishnamohan Gupta**  
Director

**CreArt Solutions PVT LTD.**

202, Heritage Horizon, Opp Hotel Dey Corporate, C.G.Road,  
Ahmedabad, Gujarat, India - 380009  
[www.creart.in](http://www.creart.in) | [hello@creart.in](mailto:hello@creart.in) | **Office Locations:** INDIA | USA | UK

# **INTECHBIT**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Biren Sureshkumar Patel**

**190390107028**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INTECHBIT** has been carried out by **Biren Sureshkumar Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay kansara

Internal Guide

Head of Department

## Company Certificate



Date: 02<sup>nd</sup> May, 2023

### TO WHOM IT MAY CONCERN

This is to certify that **Biren Sureshkumar Patel** has successfully completed a 3-month internship in Web Development in Java at INTECHBIT.

Biren joined the internship program on **25th Jan 2023** and completed it on **1st May 2023**, during which he worked on various projects and tasks that required him to use Java programming language and web development technologies.

During his time at INTECHBIT, Biren has shown dedication, hard work, and professionalism. He has been a valuable member of our team, contributing to several projects and demonstrating an ability to work independently and as part of a team.

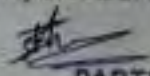
We would like to commend Biren for his commitment to learning and for being a proactive participant in the internship program. We believe that he has the skills and knowledge to excel in his future endeavors in web development.

Warm regards,

Bhavesh Patel

IntechBit

FOR, INTECHBIT

  
PARTNER

Intechbit, Ahmedabad

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# PMMS Certificate



## GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 03 May 2023 (10:47:50)

This is to certify that, *Patel Biren Sureshkumar* ( Enrolment Number - 190390107028 ) working on project entitled with *Smart SMS* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : Patel Biren Sureshkumar

Name of Guide : Mr. Chetan Ranchodhbhai Chauhan

Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

**Disclaimer :**

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INTECHBIT** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Bhavesh Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**1. Biren Sureshkumar Patel**

## **ACKNOWLEDGMENT**

The internship opportunity I had with **INTECHBIT** was a great chance for learning and professional development. Therefore, I consider myself as a lucky individual as I was provided with an opportunity to be a part of it. Specifically, I would like to thanks **Bhavesh Patel** sir for his dedication towards to train the students in internship. I would also like to thank my Internal Guide **Prof. Chetan Chauhan** sir for helping us through our internship by giving us the necessary suggestion and advice along with their valuable co-ordination in completing this Internship.

In this internship I was enjoyed a lot to learn so many different things about technology and various concepts. During this internship we had started from the scratch to better understanding of Advance concepts for that thank to INTECHBIT team.

## **ABSTRACT**

In this internship we are going to learn one of the most used frameworks of java namely spring boot. Spring Boot provides us to reduce the code as compared with other framework of java like Spring. With the use of spring boot, we are working on multiples CRUD (Create Read Update Delete) operations as an initial task or basic tasks to see how spring boot reduce the boilerplate code. As an increasing level we are looking forward to real time project that is smart SMS and the aim was to send the single or to send the bulk messages to the user in one short with including DLT templates. Send a message will take many forms like text message, Group messages and CSV messages to the users. Use of DLT was to append the customize message with the dynamic value to the user's text message.

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## **ABBREVIATIONS**

- HTML - Hyper Text Mark-up Language
- CSS – Cascading Style Sheet
- JS – Java Script
- SQL – Structured Query Language
- DBMS – Database Management System
- OOP – Object Oriented Programming
- MVC – Model View Controller
- JSP – Java Server Page

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## **Chapter 1 OVERVIEW OF THE COMPANY**

### **1.1 COMPANY PROFILE:**

Established in 2016, incorporation with our parent IT company, INTECHBIT. has managed to make its own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, Domain & Hosting services, SMS services etc.

In the span of six years, we have managed to deliver all projects on time with Almost accuracy to our clients across the globe. We have dedicated teams of experienced and hardworking developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concepts which could be used by millions of people.

### **1.2 SERVICE PROVIDE:**

#### **1.2.1 Mobile Apps Development**

Everyone loves to have fast and quick way to get what he or she wants. We Provides mobile application development services to all the clients.

#### **1.2.2 Web Design & Development**

Design it's not only colors and fonts. In this includes the information architecture, user interface.

### **1.2.3 Responsive Design**

We think this is not surprise for you. But it is almost the most important component for a successful web.

### **1.2.4 Desktop Application**

Our desktop applications help businesses meet their respective requirements and provide a competitive advantage in the growing market.

## **CHAPTER 2: INTERNSHIP PROJECT DETAILS**

### **2.1 PROJECT TITLE**

During internship I worked on Smart SMS System (WAPP) project for Sending bulk messages.

### **2.2 PURPOSE**

The goal of creating a smart SMS system web application is to allow businesses to send and receive bulk SMS messages online, as well as automate SMS campaigns, notifications, reminders, and other functions.

Personalization, attachments, delivery reports, upload CSV file attachment, surveys, vouchers, and WhatsApp integration can all be found in a smart SMS system web application. A smart SMS system web application can assist businesses in increasing sales and customer satisfaction while also lowering costs and saving time.

### **2.3 OBJECTIVE**

The goal of a smart SMS system is to provide a convenient and effective way for many people to communicate information using mobile technology. Depending on the context and purpose of the communication, a smart SMS system may have different goals. Some examples of possible objectives include:

1. To disseminate useful information to a specific audience, such as notices, updates, reminders, and alerts.
2. To improve safety performance in aviation SMS by monitoring and improving safety goals and objectives.

## 2.4 SCOPE

The scope of a smart SMS system refers to the number of consumers, services, locations, and technologies that it can support. The scope of the system can change depending on the requirements and goals of the organization using the smart SMS system.

## 2.5 TECHNOLOGIES

- Spring Boot
- JSP
- jQuery
- JavaScript
- MySQL
- MongoDB

## **CHAPTER 3: SYSTEM ANALYSIS**

### **3.1 INTRODUCTION TO SYSTEM**

Smart SMS system is a project that aims to develop a web application that can send and receive bulk SMS messages online, as well as to automate SMS campaigns, notifications, reminders, and more. The project also intends to provide features such as personalization, attachments, delivery reports, surveys, vouchers, and Group manage.

### **3.2 LIMITATION OF EXISTING SYSTEM**

In existing smart SMS application do not have any facilities for DLT template. According to governance guidelines it is mandatory to implement this in SMS system and old application working on old technology and codes it requires latest technology.

### **3.3 OBJECTIVE OF NEW SYSTEM**

- Implementing DLT template in system application.
- Implementing manager to manage DLT template.
- Integrate all system components with DLT template
- Changing new UI of smart SMS System.
- Using MongoDB for database management.

### 3.4 REQUIREMENTS OF NEW SYSTEM

#### 3.4.1 Functionality and Non-functionality Requirements

*Table 3.4.1.1 Functionality and Non-functionality Requirements*

FUNCTIONALITY	NON-FUNCTIONALITY
WA Template	Usability
Easy dashboard	Security
Log reports	Performance
Group manager	Responsive design

### 3.5 SOFTWARE AND HARDWARE REQUIRMENTS

*Table 3.4.1.2 Software Requirements*

Software
Java version 17
IntelliJ
MongoDB
HTML, CSS
JavaScript
SQLyog database
Postman Client

### **3.6 FEATURES AND MODULES/ COMPONENTS OF NEW SYSTEM**

- DLT Template
- WA Template
- Manage WA Template
- Group Message, CSV Message
- Manage setting
- WA BOT Master
- Login Log
- Organization/ Department/ Tags Master

All messages sent are saved in a database and displayed in the message history interface of the application. There are numerous other options, such as Create, Update, Delete, and Select. These are operations performed on one or more records or messages. Additionally, the application provides administrative services.

## **Chapter 4. IMPLEMENTATION**

### **4.1 IMPLEMENTATION PLATFORM / ENVIRONMENT**

- IntelliJ
- Notepad ++
- SQLyog
- MongoDB
- Postman
- Spring Initializr (Web based tool)

### **4.2 PROCESS / PROGRAM / TECHNOLOGY / MODULES SPECIFICATION(S)**

In the beginning, I worked on an older version of this project to better understand its functionality and to learn more about spring boot. As a result, I worked on two versions of this project at the same time. These are referred to as smart SMS and WAPP.

Process for implementing Smart SMS:

- DLT Template User/Admin
- Bulk DLT Template Upload
- Campaign log history User/Admin
- Keyword and Master keyword User/Admin

Process for implementing WAPP:

- WA Template
- Manage WA Template
- Manage Setting
- Incoming message history User/Admin
- WA-BOT master
- Login log
- Organization / Department manager
- Tag master User/Admin



## Chapter 5. TASKS / OUTCOMES / RESULTS

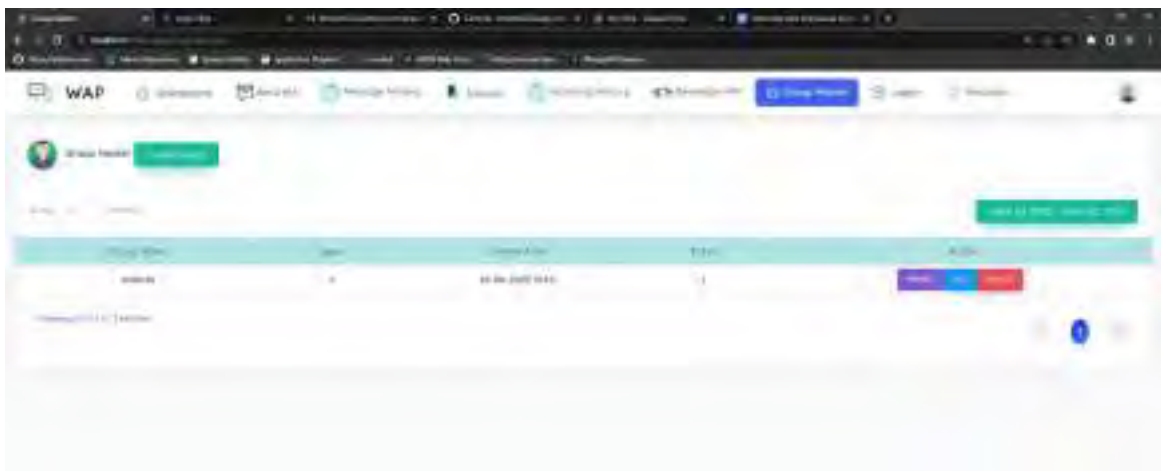
### 5.1 Implementation Of “SMART SMS V9”

#### 5.1.1 TASK - 1: Add Group Master Model to project.

- Implemented create group with the field group name and group type. So that those created information will be shown on the below table with columns like group name, type, created on, total and action.
- In action there will be an import button to import number for a group and in import there are three methods to import
  - CSV file
  - Single number
  - Copy & Paste

#### 5.1.2 Result

- Below image is for create a group master so that we can send a DLT template to the user whose mobile number are in same group.



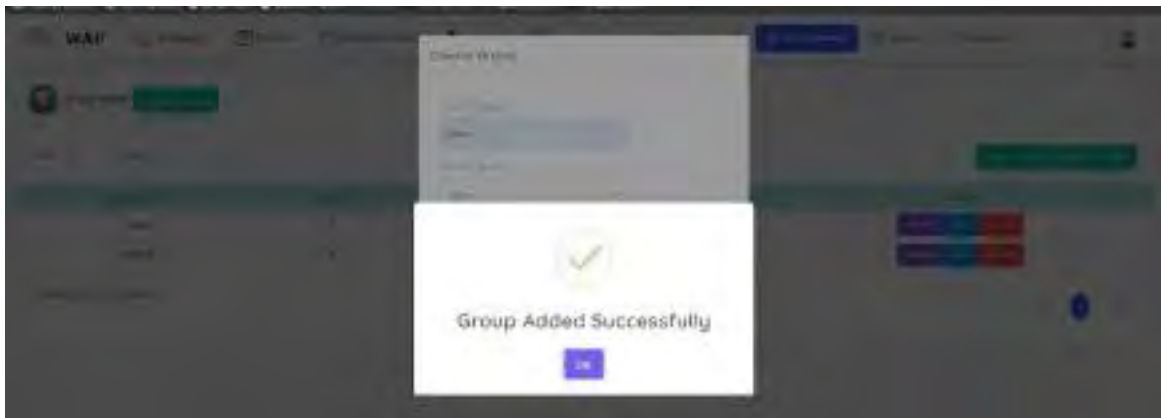
*Figure 5.1 Group Master*

- When user click on create group button then form will pop up and user can fill the form and create a group as they want.



*Figure 5.2 create a group form*

- After saving the form success message will pop up with message like group Added successfully.



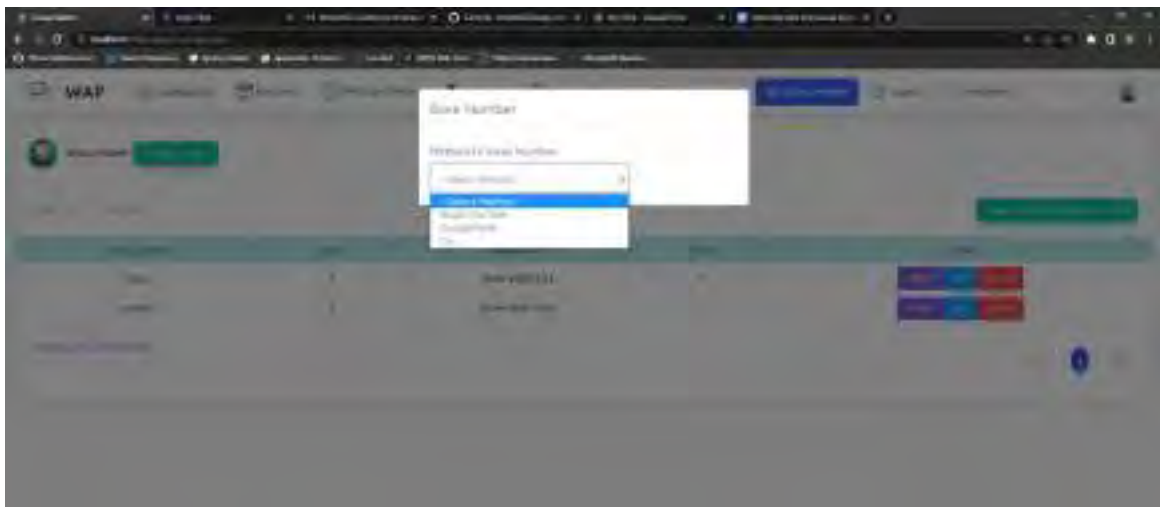
*Figure 5.3 Success Message Pop Up*

- After creating group data for that group will be shown on display in the form of table with the action column for edit and delete.



*Figure 5.4 Saved data on table*

- For DLT template we have to import the numbers so for that import button is there to import the numbers in that group.
- There will be three type to import numbers
  - Single number (Only one number imported at a time)
  - Copy & Paste (Multiple numbers imported at a time)
  - CSV (We can upload csv file and import it)



*Figure 5.5 Importing methods*

### **5.1.3 TASK - 2: Add Manage Setting to project.**

- As admin can manage the users same, we need to create manage setting which is manage by admin
- There are various fields in the setting. And admin can also delete those setting
- All settings are stored in manage setting list.
- Setting can help us to save the records of any member because in the add setting file we can asking for URL, App id , Account id , manager id etc.

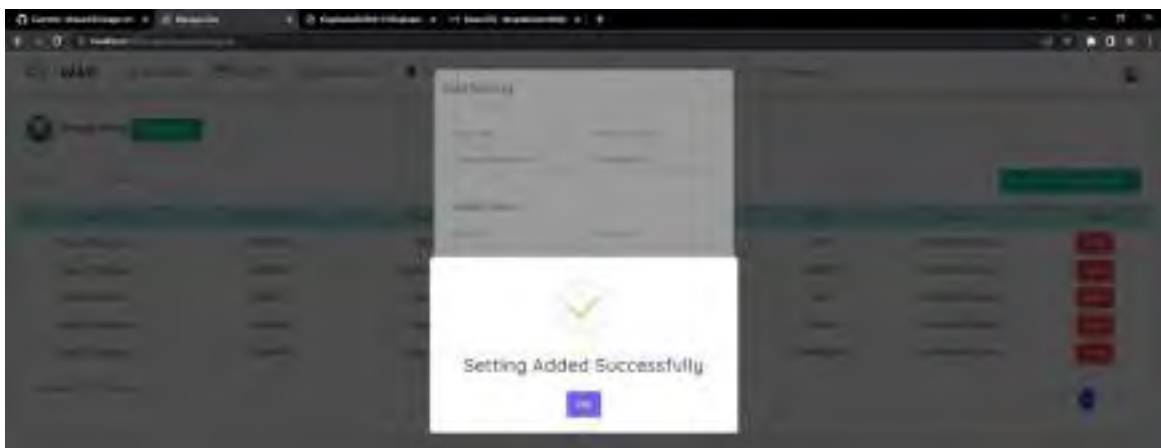
### **5.1.4 Result**

- Below form is for creating setting that form require app URL, mobile number, account id, manager id.



*Figure 5.6 Add setting*

- After click on save button on pop up will alert with the message setting added successfully.



*Figure 5.7 Success Message*

App URL	Mobile Number	Account ID	Manager ID	Status	Created At	Action
1234567890	9876543210	12345678	98765432	Active	2023-10-27 10:30:00	Save
1234567890	9876543210	12345678	98765432	Active	2023-10-27 10:30:00	Save
1234567890	9876543210	12345678	98765432	Active	2023-10-27 10:30:00	Save
1234567890	9876543210	12345678	98765432	Active	2023-10-27 10:30:00	Save
1234567890	9876543210	12345678	98765432	Active	2023-10-27 10:30:00	Save

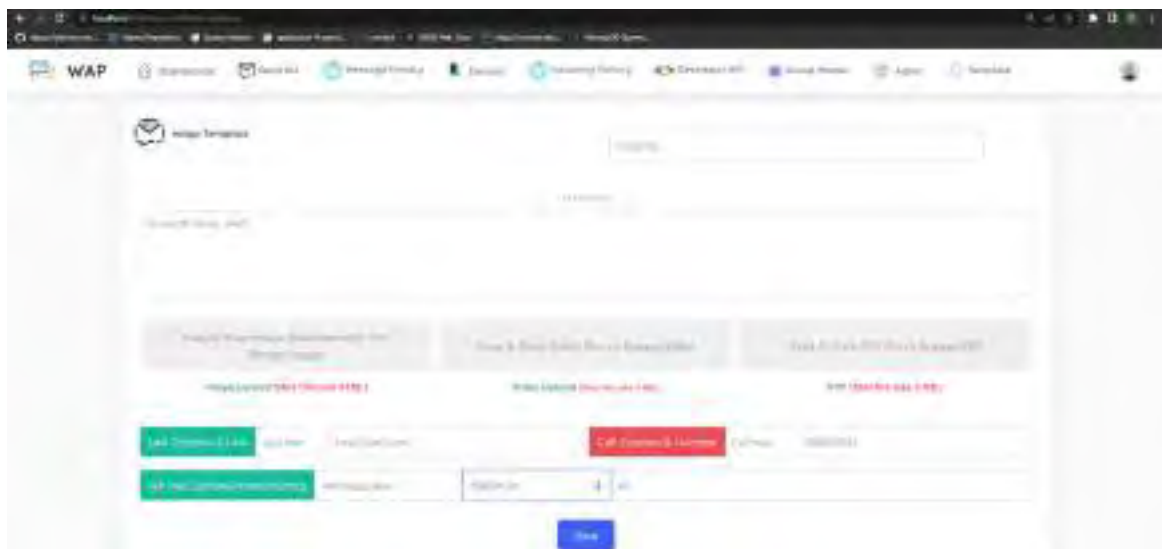
*Figure 5.8 Row with Created Settings*

### 5.1.5 TASK - 3: Add WA Template to project.

- Added WA template to add templates. In these file users need to fill up some of the fields like template name, message, upload image, video, pdf, URL, call no, WhatsApp no etc.
- After saving the template those data will be shown on manage template table with the column like template, message, submit Date, response and action.
- In Action there is two options edit and delete. Edit for update the template and delete template.

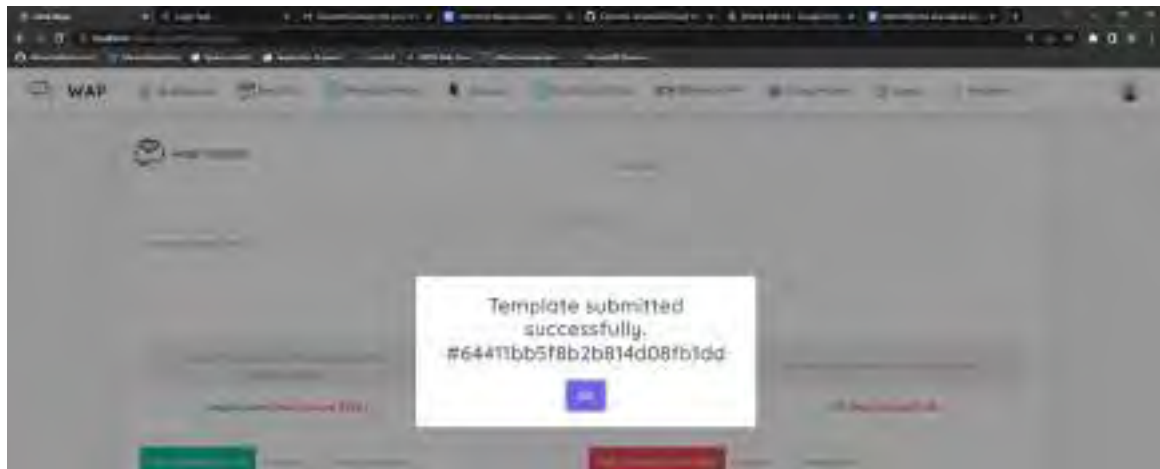
### 5.1.6 Result

- WA template is same as DLT template but the difference is WA will be used for sending message on WhatsApp.
- Below is the page to send template to user with the field like template name, message and WhatsApp number.
- After click on save then one template will be created so that we can send the template on WhatsApp to user.



*Figure 5.9 Add WA template Form*

- After click on save button template is created that will be shown on alert with the message Template submitted successfully with the template id.



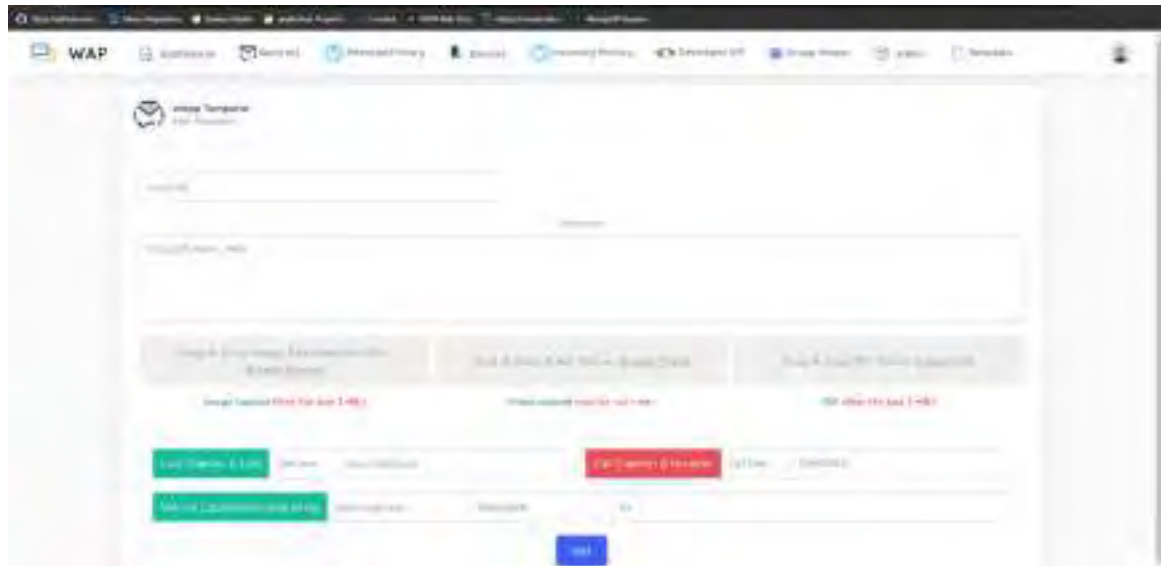
*Figure 5.10 Success Alert with message*

- After Saving the template that template will be displayed on template history table with column like
  - Template Name
  - Message
  - Submit Date
  - Response Status
  - Action



*Figure 5.11 Manage template with templates on tables*

- We can also edit the template once it is created by using edit button provided in action column and we can change any template information like template name, message etc.



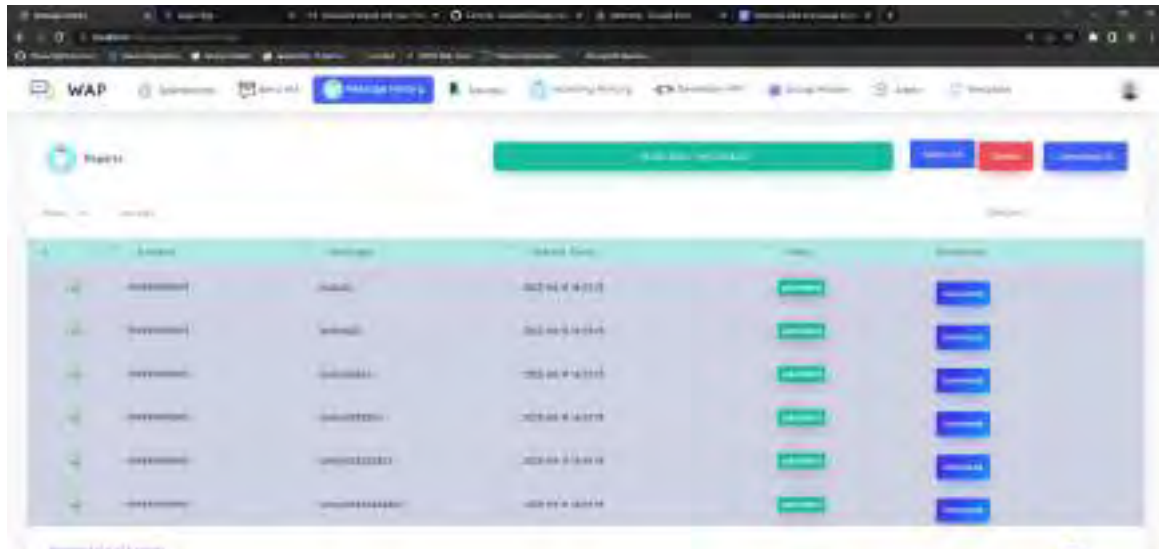
*Figure 5.12 Edit template*

### 5.1.7 TASK - 4: To Add Single and multiple delete option to Message History.

- To delete the message, we have to add delete button to each row on action column and to delete multiple rows at once we have to add first select button at the top of the file.
- By using select button we can select the whole row and hit the multiple delete button to delete the selected rows.
- Single delete button will be there on each row and multiple delete & select button will be there at the right corner of the message history page on the top of it.

### 5.1.8 Result

- In Below image there are two new added buttons one is select All and second is Delete all.
- If user wants to select multiple rows at a time then user can click select all and if user wants to delete then user can delete it by using delete all button.



*Figure 5.13 Multiple selected rows*

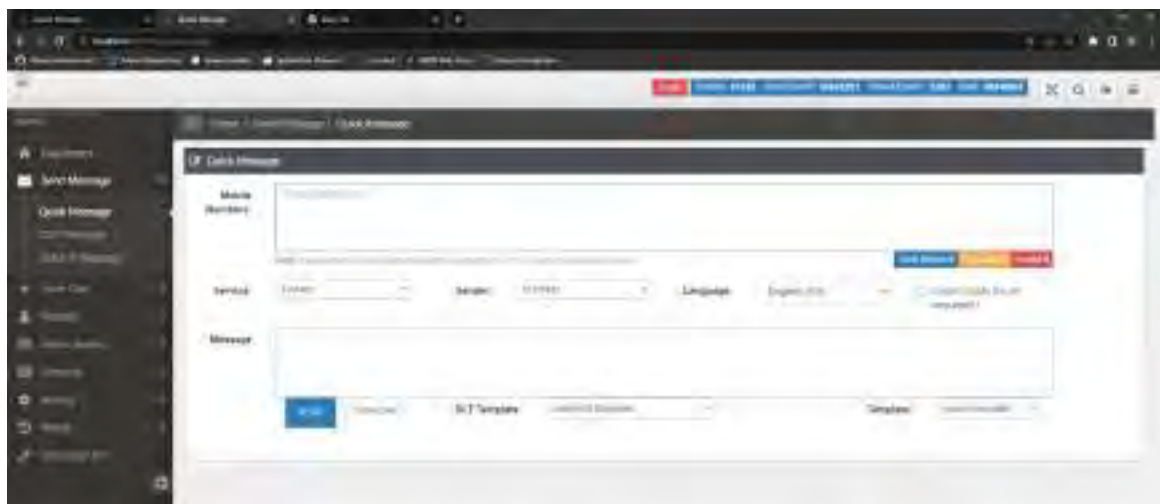
### 5.1.9 TASK - 5: Add DLT Template in Quick Message

- Have to add DLT select option on the quick message page to select the customize message with the dynamic values in it.
- When user click on any DLT template then message should be appended to message body provided on that page for that need to add for each loop in jsp file of that page that fetches DLT from the SQL table and with the id provided in jsp we can fetch the DLTs with the help of jQuery.
- When user click on select then through id it will fetch the DLTs.
- This template will basically used to send message to users via text message.



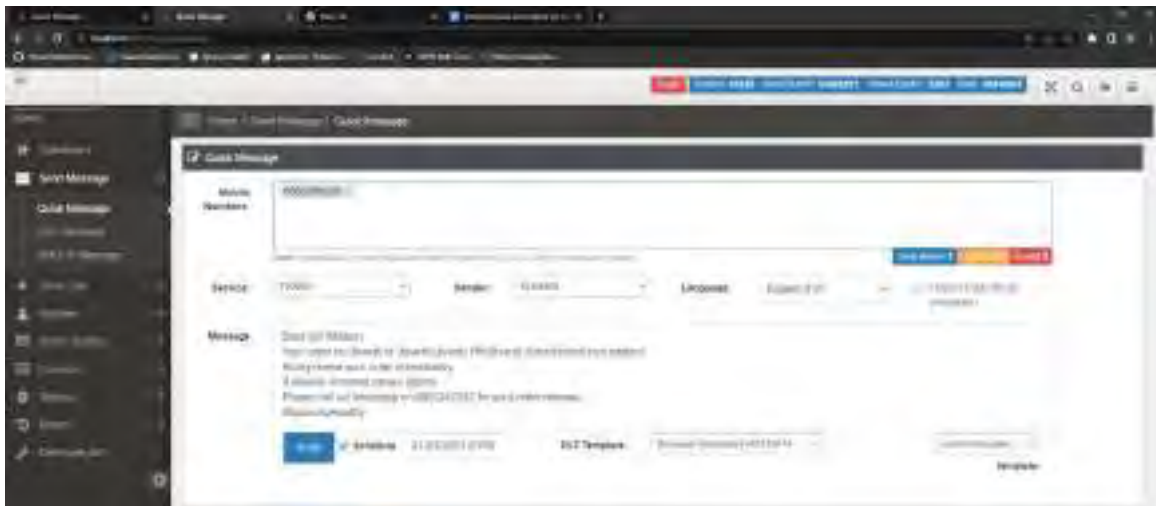
### 5.1.10 Result

- Below page is quick message page in this page we can see that there are many fields to send a DLT template like
  - Mobile Numbers
  - Service
  - Sender
  - Language
  - Message
  - DLT Template (Select Bar)
- So, admin needs to fill this all fields and then admin will able to send the DLT templates to users whose number was mentioned in mobile numbers field.



*Figure 5.14 Quick Message Page*

- In Below image admin can add multiple mobile numbers and select DLT template.
- Once DLT template will selected then message of that template will append to message body provided on quick message page.
- Admin can send the message to as many numbers as they want.



*Figure 5.15 Appended Message on message body*

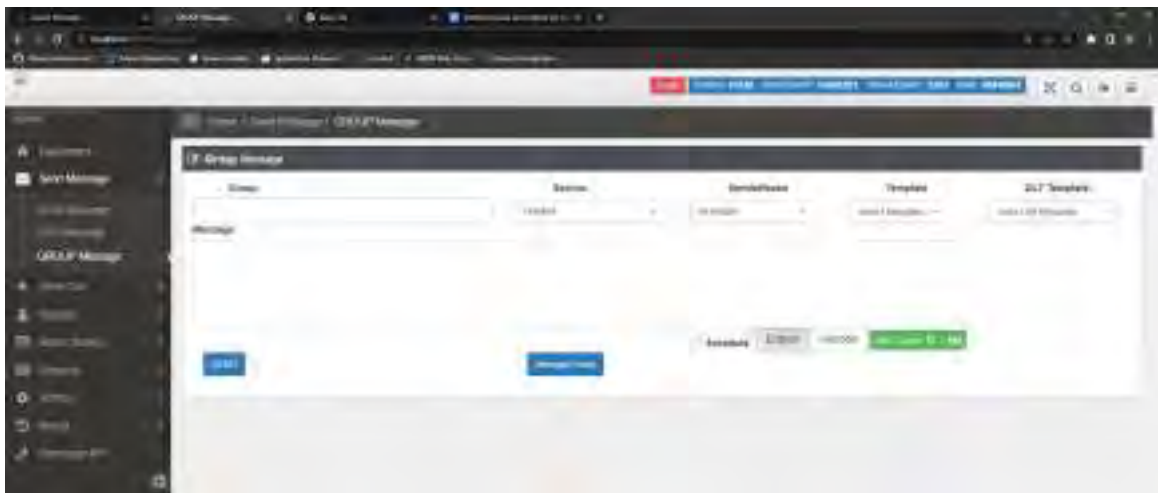
### 5.1.11 TASK - 6: Add DLT Template in Group Message

- Have to add DLT select option on the Group message page to select the customize message with the dynamic values in it.
- When user click on any DLT template then message should be appended to message body provided on that page for that need to add for each loop in jsp file of that page that fetches DLT from the SQL table and with the id provided in jsp we can fetch the DLTs with the help of jQuery.
- When user click on select then through id it will fetch the DLTs.
- This file group message will used to send user who can a part of any group.
- Means there are two groups and in that group there are five five mobile number created and in this file if admin wants to send a DLT template message to the group one users then admin can send template to specific mobile number.

### 5.1.12 Result

- Below page is group message page in this page we can see that there are many fields to send a DLT template like
  - Group Name
  - Service
  - Sender

- Language
  - Message
  - DLT Template (Select Bar)
- So, admin needs to fill this all fields and then admin will able to send the DLT templates to users whose number was mentioned in mobile numbers field.



*Figure 5.16 Group Message Page*

- In Below image admin can add multiple mobile numbers and select DLT template.
- Once DLT template will selected then message of that template will append to message body provided on group message page.
- Admin can send the message to user whose mobile number will be in these group.



*Figure 5.17 Appended Message on message body*

### 5.1.13 TASK - 7: Add DLT Template in QuickUrlMessage.

- Have to add DLT select option on the QuickUrlmessage page to select the customize message with the dynamic values in it.
- When user click on any DLT template then message should be appended to message body provided on that page for that need to add for each loop in jsp file of that page that fetches DLT from the SQL table and with the id provided in jsp we can fetch the DLTs with the help of jQuery.
- When user click on select then through id it will fetch the DLTs.
- After message is added on message body user have to click on create Url to generate random Url and that random generated Url will be appended to message body just after the custom message.

### 5.1.14 Result

- Below page is quick message page in this page we can see that there are many fields to send a DLT template like
  - Mobile Numbers
  - Service
  - Sender
  - Language
  - Message
  - DLT Template (Select Bar)
- So, admin needs to fill this all fields and then admin will able to send the DLT templates to users whose number was mentioned in mobile numbers field.
- There is a small change in this file as compared with quick message.
- And the change is create URL why this was added just because after filling all the fields admin needs to click on create URL to generate URL.



*Figure 5.18 QuickUrlMessage Page*

- After DLT template message was appended to message body then admin needs to click on create a link.
- So that one URL will create and append to DLT template message
- This will used to send a message with dynamic link in a message if admin or DLT template sender wants.



*Figure 5.19 Appended Message on message body*

### 5.1.15 TASK - 8: Added new file UploadBulkDlt.

- Upload bulk dlt page will send the customize message with the mobile numbers on DLT table in database so that user can select the DLTs from their GUI. Basically, it provides dlt templates.
- These page accept the four types of csv files like jio, airtel,vi etc. that file will be of csv , xls , xlsx any type it would be.
- And also, user need to provide peid from their side.
- After hit on send button all the mobile number with the dlt template will be stored on database.

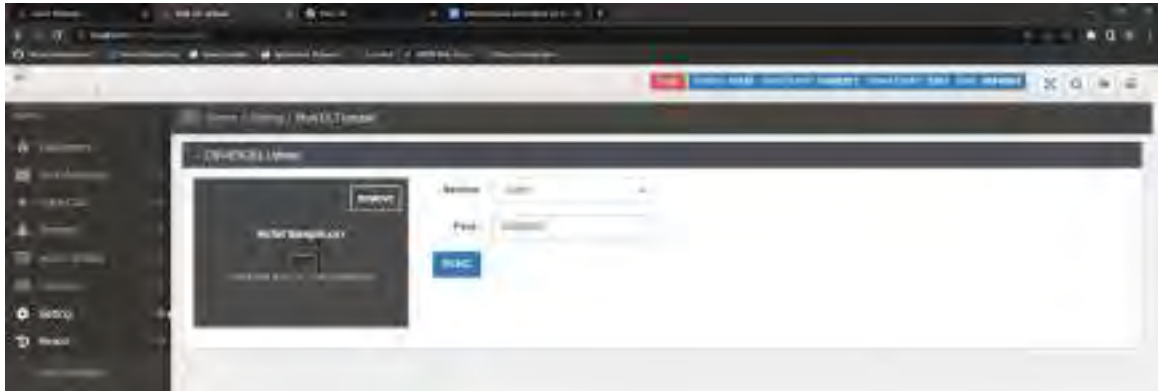
### 5.1.16 Result

- What if admin wants to add new DLT templates then this file will help.
- In this below image one drop file field is there to upload a files that contains DLT templates with name, mobile numbers , created date etc.
- And admin needs to select the file network name like Airtel, Vi, Jio etc. And provide peid.



*Figure 5.20 UploadBulkDlt Page*

- In Below image we can see that Airtel file have been uploaded and it in the csv format.
- Also, Airtel select option was selected with the peid.



*Figure 5.21 Airtel file*

### 5.1.17 TASK - 9: Add Organization.

- Organization page include organization name, mobile number, email and notes that will be required to create an organization.
- When user wants to create an organization then they need to fill up the form then able to create it.
- Also, in manage user when user was created then also user need to enter the organization name that reflect in users table and also through organization department will create.

### 5.1.18 Result

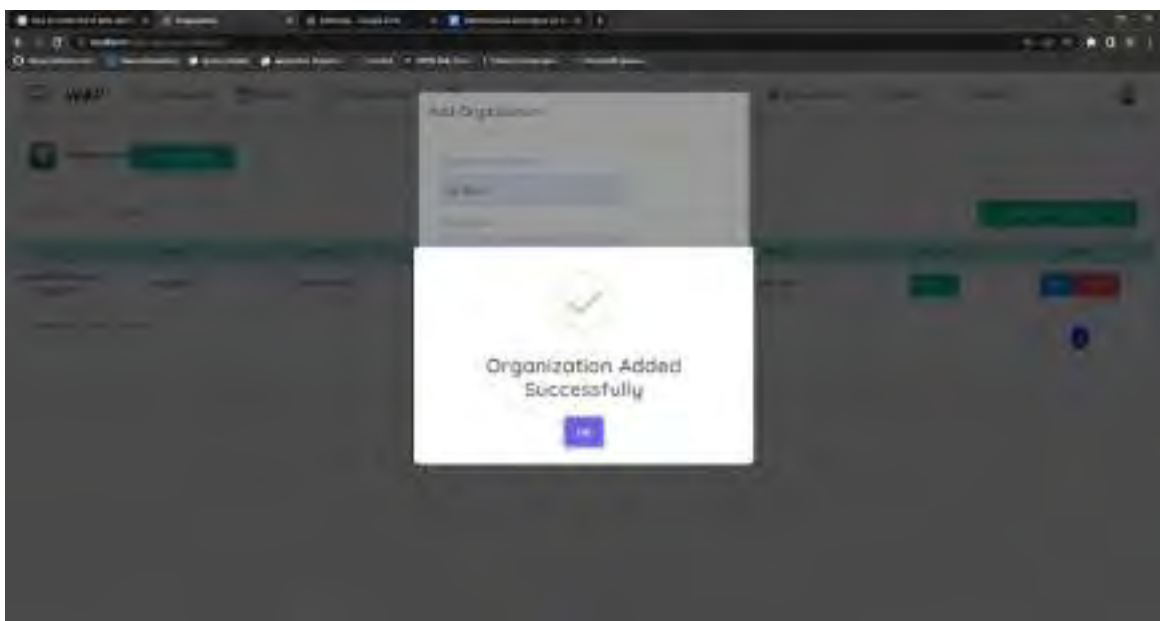
- In first image there are many fields to add organization like
  - Organization Name
  - Mobile Number
  - Email
  - Notes

- After filling all the above-mentioned fields user can able to create a organization.
- And click on save button to create an organization.



*Figure 5.22 Add Organization form*

- After click on save button one alert will pop up that show's organization added successfully.
- This pop up come up with message Organization added successfully.



*Figure 5.23 Successfully Added*



- After adding organization all the information about that organization will displayed on page in the form of table.
- Table stores info with the column like
  - Organization Id
  - Name
  - Mobile Number
  - Email
  - Notes
  - IsActive
  - Action



*Figure 5.24 Showing on table*

- This chapter contains all the task that are completed by me during 3 months internship program.
- All the task contains detailed information on what features have been added and how they work and also the agenda about each task.

## **Chapter 6. CONCLUSION**

### **6.1 SUMMARY OF INTERNSHIP / PROJECT WORK**

On the whole, this internship was a useful experience. I have gained some knowledge and skills. I achieved several of my learning goals, however for some the conditions did not permit. I got insight into professional practice. Related to my study I learned more about how to make project with Java Spring Boot. There is still a lot to discover & to improve. The internship was also good to find out what my strength and weaknesses are. This helped me to define what skills and knowledge I have improve in the coming time. However, I could perform certain tasks in research better if I practice more then I learn new thing in my subject.


## REFERENCES

- <https://www.javatpoint.com/spring-mvc-tutorial>
- <https://www.geeksforgeeks.org/rest-api-architectural-constraints/>
- <https://www.mongodb.com/docs/manual/tutorial/query-documents/>
- <https://www.w3schools.com/sql/default.asp>
- <https://stackoverflow.com/questions/tagged/spring-boot>
- <https://start.spring.io/>
- <https://developer.mozilla.org/en-US/>

## APPENDIX



## ANNEXURE-I



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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 1  
 Enrollment no:  
140704107978

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: BIBEN SUBELHUMAN PATEL

DIARY OF THE WEEK: Dt: 25/01/2023 TO 28/01/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: INFORMATION & TECHNOLOGY

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SHAVECH PATEL


**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day = 1

- AS the first day my employee welcome me
- they gave me list of software my install on my desktop
- make a gmail account, gmail and other mailings

Day = 2

- studied variable and data type like number, float, double, char, Boolean etc and how to use different type because in number we have integer type like integer, long, short etc
- different loop like for loop, while do while loop with its example and difference correct statement of if else if else loop etc



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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**SUPPLEMENTRY NOTES**  
 (add additional sheets if required)

- Did some task based on what I learned today programs related to loop and control statement and complete the task.

Day - 3

- Learn methods Java build in and user defined methods
- In java there is a lot's of keywords like static final, void, super, default and many more learn and see that keywords uses in program.
- Today program like how to make a variable constant and how to stop user to make a inheritance class with the help of final keyword and then to use static keyword in program.

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TOTAL HOURS: 27 HOURS SIGNATURE OF STUDENT B. S. Patel

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor [Signature] Signature of officer-in-charge  
 of Dept. / Section / Plant [Signature]

Date: 18/01/23 Date: 08/02/2023

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.


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 (ગુજરાત અધિનિયમ ક્રમાંક- ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 1  
 Enrollment no:  
140340107028

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: BIREN SURESHKUMAR PATEL  
 DIARY OF THE WEEK: Dt: 20/01/2021 TO 04/02/2021  
 DEPARTMENT: COMPUTER ENGINEERING SEM: 5<sup>th</sup>  
 NAME OF THE ORGANISATION: INTERFAST  
 NAME OF THE PLANT/SECTION/DEPARTMENT: INFORMATION & TECHNOLOGY  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HAVECH PATEL

**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day - 4

- and dimensional and two dimensional array and how to declare and initialize the array with different types
- oops concepts like class, object, inheritance, polymorphism, abstraction etc
- program like write a program that implement all the polymorphism etc. in a class

Day - 5

- determine what is it and how it use in real time project
- operation in database like insertion, update, delete etc
- make a complete database in mysql and doing above operation in it



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**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

Day - 6

- JDBC (Java Database Connectivity) use in web application
- make connection by using JDBC and connect with database

Day - 7

- Explore different database MySQL, Oracle, Ms etc
- note down the differences and their syntaxes

Day - 8

- learn networking concepts IP, Port number, MAC address, Domain, URL etc
- make a use of above concepts in program like communication via chat and how to use buffer in that program each and every thing.

Day - 9

- Servlet - server side component it helps return to make a response to client that has been requested.
- details of how client request and server response
- program with Servlet that take input from the user and show them in web page in their screen doing this as a page.

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TOTAL HOURS: 56 HOURS S.P.B. Patel  
SIGNATURE OF STUDENT


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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature] [Signature]

Date: 10/3/23 Date: 08/02/2023

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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ નામ સ્થાપિત)

Signature: \_\_\_\_\_  
 Enrollment no: 14020101038

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: BIGEN SURESHKUMAR PATEL

DIARY OF THE WEEK: DE 05/02/2023 TO 11/02/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: INFORMATION & TECHNOLOGY

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: SHWETA PATEL


DESCRIPTION OF THE WORK DONE IN BRIEF

Day - 10

- Create a JSP CROW SERVER PAGE OF PUBLIC TYPE OF JSP
- JSP tags which we write to embed JAVA code with HTML
- how to use JSP with the help of it's different scripting,   
- received, standard ACTION
- create a login PAGE using JSP that include java code which   
CREATE USER ID on submit will redirect to new page

Day - 11

- create a Registration PAGE
- Field of registration PAGE is first name, last name, mobile no email
- If request request dispatcher send sendRedirect object to have   
user to from registration PAGE to welcome PAGE



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**SUPPLEMENTARY NOTES**  
 (add additional sheets if required)

Day - 12


- studied JSP (JSP SETUP FACES)
- JSP is an SERVER SIDE INTERFACE COMPONENT.
- MVC = MODEL VIEW (CONTROLLER) BASED ARCHITECTURE.

Day - 13

- Build employee management system using MVC
- Model is bean that contains getters and setters, View is user interface JSP and JSP CONTROLLER is SERVICE
- These APP contains employee id, name and age

Day - 14

- Start with Spring. One module
- First learn some basic concepts of Spring framework that required to learn before Spring Boot
- see lifecycle of Spring and disadvantages like dependency Injection, configuration.
- Loose coupling and tight coupling how diff is a difference between them.

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TOTAL HOURS: 45 HOURS -----

S.P. Patel  
-----  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor: [Signature]

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: 18/03/23

Date: 17/02/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦૧૨૦૦૭ વ્રાસ સ્થાપિત)

Annexure I  
 Enrollment no: 170245107975

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: ABEEN SUBEESHUJAN ANTEL

DIARY OF THE WEEK: IN: 17/07/2023 TO: 18/07/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 7<sup>TH</sup>

NAME OF THE ORGANISATION: INTECHART

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: THAVESH PATEL


**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day - 15

- Types of decorated injection like construction, letter head, and field card.
- Build a report with formula and superformula some that uses logic and work copying.
- Separate banner into class, Java code and writing Dash.

Day - 16

- Learn the structure and how to work.
- There are two types of structure in the structure of (object) i.e. Decorated and i.e. Application.



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**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

Day - 17


- ડિપેન્ડેન્સી @ Primitives, @ variables, @ compilation.
- when to use primitive and variables and in which package they defined
- implemented project that use above concepts as per requirement.

Day - 18

- Learn difference between lazy initialization and eager initialization
- Use these two in my program that uses a bean managed by spring framework and use lazy and eager
- lazy initialize instance when Bean is first made use of and eager initialize instance when first part of application.

Day - 19

- Spring Bean Scope - singleton and prototype.
- writing test of the test in singleton scope is by default and it generate only one instance for every instance where as in prototype it generate different of many instance for instances.

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TOTAL HOURS: 45 19/02/23

[Signature]  
SIGNATURE OF STUDENT


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Signature of Faculty Mentor  
[Signature]  
Date: 18/02/23

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of Dept. / Section / Plant  
[Signature]  
Date: 20/02/2023

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Annexure I  
 Enrollment no:  
190245102018

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DIBEN JOBE/MIUMBA PATEL

DIARY OF THE WEEK: DC: 14/01/2021 TO 16/01/2021

DEPARTMENT: COMPUTER ENGINEERING SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL


DESCRIPTION OF THE WORK DONE IN BRIEF

Day - 20

- Understood the feasibility provided by Spring Boot
- Generated Spring Boot project using maven
- Added required dependency in project which check in pom.xml

Day - 21

- Learn Spring Boot key features
- Spring Boot starter, Auto configuration, Actuator, etc.
- Create a Spring Boot project using Spring Initializr that provide Spring Boot starter and allow to use developer as we want.



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**SUPPLEMENTARY NOTES**  
 (add additional sheets if required)

Day - 12

- Learn Spring boot Data JPA.
- It provide predefined method for CRUD operations.
- Methods like save(), findById(), findById(), delete().

Day - 13

- Introduced with some helpful annotation that used to reduce boilerplate code.
- Used Lombok library to reduce code like getters, setters, constructors etc.

Day - 14

- Learn REST API and its architecture.
- Created a project that provide CRUD operation with GET, PUT, Post and delete mapping.
- It allows user to add, update, ~~update~~ <sup>fetch</sup> and delete the data from the database.

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TOTAL HOURS: 45 HOURS SIGNATURE OF STUDENT: B. S. Patel

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Date: 18/11/21 Date: 27/02/2023

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Annexure 1  
 Enrollment no:  
190340107028

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: NIBEN LURESHKUMAR PATEL

DIARY OF THE WEEK: DM 26/02/2023 TO 24/03/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: EMTECHDIT

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: DHAVESH PATEL


**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day - 25

- I learned HTTP status codes that are allowed the client side after request send
- try some by myself like 400 Bad Request, 404 Not Found, 405 Not Acceptable, 412 Precondition Failed and more
- some of them are built by our mentor 200 (OK), 201 C (reated) etc

Day - 26

- today I learned more about JPA
- if we want to use all CRUD methods from the JPA then Repository class needs to extends JpaRepository interface and we need to provide implementation to that interface then we can use direct spring JPA methods like save, findById, saveAll, findById, delete, deleteAll, deleteById, deleteAll, and existsById etc



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**SUPPLEMENTARY NOTES**  
 (add additional sheets if required)

Day - 27

- Today I learned about query methods from mathias names dataset.
- In that I study how to fetch data between some range and how to check if tablebase containing particular data for every and more.
- It's like a SQL query and in that we don't need to create query hibernate will create it we just need to write method.

Day - 28

- Today I learned about mapping. one to one, one to many, many to one and many to many.
- Complete a task of creating employee tables that have JARSC mapping.

Day - 29

- Today I see their real project and get ideas into about smart sms project.
- It has features like sending message, RESET, REPORTS, send emails, APIs etc.

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TOTAL HOURS: 45 HOURS B. S. Patel  
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Annexure I  
 Enrollment no.  
1913101010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: HIRAN KUBESHKUMAR PATEL  
 DIARY OF THE WEEK: Dt. 05/03/2017 TO 11/03/2017  
 DEPARTMENT: COMPUTER ENGINEERING SEM: 7th  
 NAME OF THE ORGANISATION: INTECHBIT  
 NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL

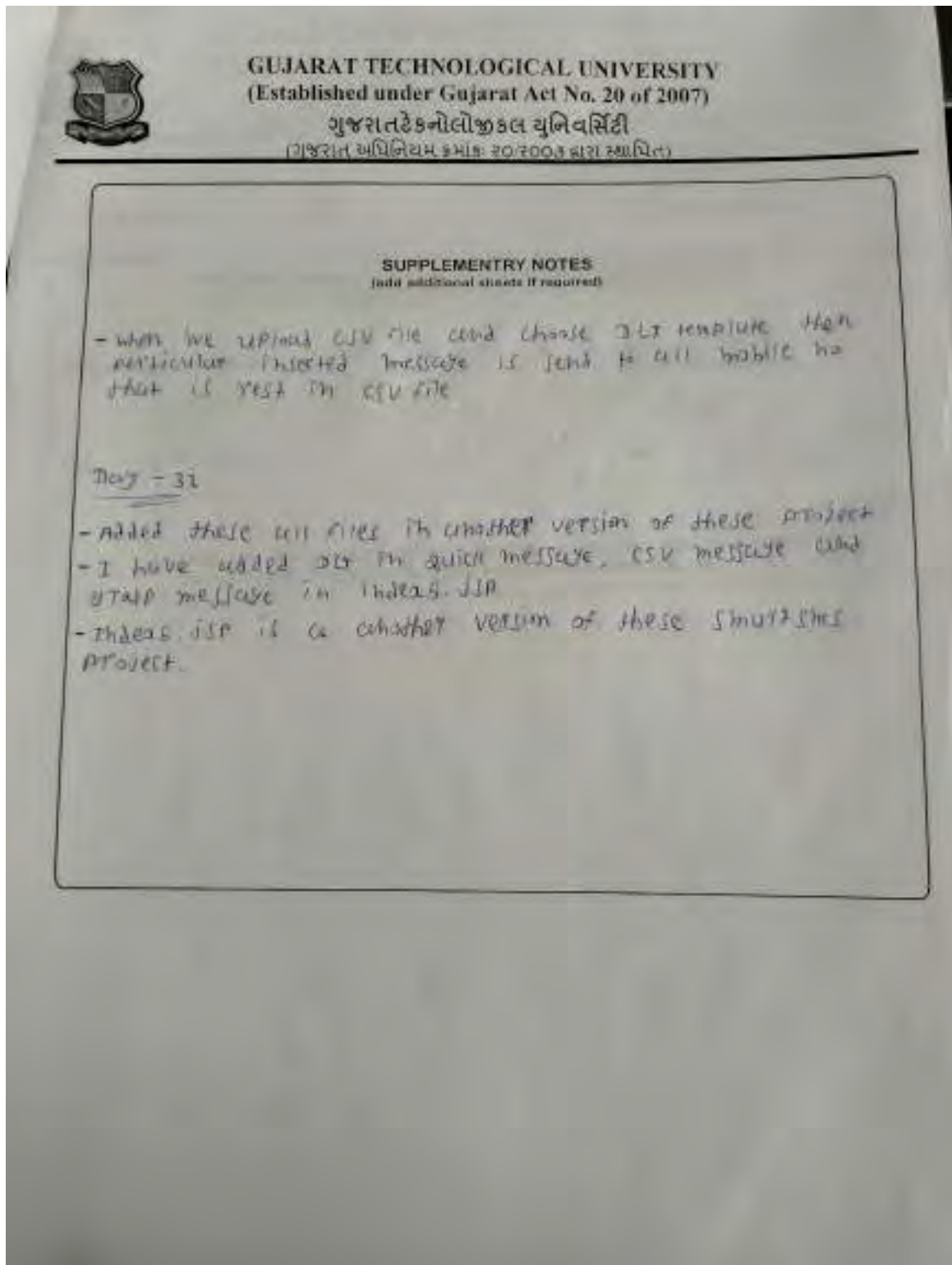
**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day - 30

- Added DLT (stochastic log) and triggered in sites
- Create a DLT template field in sms message file and fetch template id and add that in smsmessage table.
- when user click on DLT template the message is inserted in msg body and that message is send to user as a text message.

Day - 31

- Added DLT template template in csv message file
- Fetch the template id as well as field from the DLT template table as a entity id.





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TOTAL HOURS: 19 Mon/Pl

D. S. Patel  
SIGNATURE OF STUDENT

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Date: 13/03/23

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Annexure I  
 Enrollment no.  
190310107025

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: DIREN SHREKHUMAR PATEL  
 DURATION OF THE WEEK: Fr: 12/03/2021 TO: 18/03/2021  
 DEPARTMENT: COMPUTER ENGINEERING SEM: 5<sup>th</sup>  
 NAME OF THE ORGANISATION: INTECHIT  
 NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: GHAVESH PATEL


**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day - 33

- I have added bot template in quickstart/message and sendSMSLink file.
- when we click on create OTP then it create a random OTP and compare it with message in message body.
- basically it will generate random 4 digit OTP.

Day - 34

- I have added template id and add the user comparison log table.
- when user click on send then the user comparison log table will get the template id and pid from the database table which is a log output.
- table of user comparison log is like a history or record of what user send via quick start, sms, call and other msg.



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**SUPPLEMENTARY NOTES**  
 (add additional sheets if required)

300-35


- I have added `updateService` and `deleteService` methods. And all can work in that manner.
- `update` or `delete` query is used. I need to just put it in `service class`. `delete` method used. That method instead of `delete` calling the `delete` query.

300-36

- Today I have added `update` section. `update` button. And has option to `update` or `delete`. `update` and `delete` and user to write a `pid`.
- `update` content will be reflected on `display` table is 20.

300-37

- Today I need have analyzed how `delete` is performed then will try to `delete` multiple row at the same time and hit the `delete` button.
- Today I have analyzed these things and by tomorrow I need to implement it.


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TOTAL HOURS: 45 HOURS SIGNATURE OF STUDENT: B. S. Patel

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Annexure 1  
 Enrollment no.  
190310010101

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIREN JURECHUNVAR PATEL  
 DIARY OF THE WEEK: DL 19/01/2019 TO 15/03/2019  
 DEPARTMENT: COMPUTER ~~ENGINEERING~~ ENGINEERING SEM: 7<sup>th</sup>  
 NAME OF THE ORGANISATION: INTERHBIT  
 NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: ANAVESH PATEL


**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day - 31

- Completed the task of implementing delete button in database Admin file
- When user hit the multiple row and try to delete it then those selected row will be removed at same time from the table as well as db table
- Added select all button also at the top right side of the page to select all row by hitting it.

Day - 32

- Implementation of receive device, javascript, template and dropdown using ajax in all files like quizmessage, homework and assignments.jsp
- Added select and delete button in dropdownlist at top right side of these page and also add submit and dropdown reset in navigation bar



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**SUPPLEMENTARY NOTES**  
 (add additional sheets if required)

Day - 40

- Implement the edit option in keywords master table
- Ensure the edit in admin console so that if admin wants to update any information then he can do
- Admin console also contains the delete option in admin console to delete the keyword table.

Day - 41

- Add create subkeyword in subkeyword master
- After admin or user create a subkeyword then table will be created in that page with information filled by them.
- Also added edit option in Admin → edit Auth.

Day - 42

- Implement and separated subkeyword master for user and admin
- Fix the parent keyword and fetch from the keyword master for user subkeyword master → create subkeyword.
- User able to see their created subkeyword and admin can see user and their data.

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TOTAL HOURS: 45 HOURS SIGNATURE OF STUDENT: B. P. Patel

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Attendance /  
 Enrollment No.  
190140147018

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: ADARSH (UREJ) KUMBAR PATEL  
 DIARY OF THE WEEK: Dt. 26/03/2023 TO 01/04/2023  
 DEPARTMENT: COMPUTER ENGINEERING SEM: 7th  
 NAME OF THE ORGANISATION: INTERMBIT  
 NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: ADARSH PATEL

**DESCRIPTION OF THE WORK DONE IN BRIEF**


Day = 43

- Implemented fetching mobile number from the Instagram master table when user create a new Instagram.
- Added reply in each row of Instagram master table and when user reply post/comment then it will be added to list below of that post.
- But it is hide initially if user click on plus then it will visible with three column.

Day - 44

- Implemented keyword info that contains added on and keywords of those numbers who's info in keyword master table and info in Instagram table is same.
- When we create a keyword then we have to choose post/comment that is matching but Instagram number so we create a keyword by using Instagram number and only those keyword information is created in keyword info.





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**SUPPLEMENTARY NOTES**  
(Add additional sheets if required)

300 - 45


- In previous keyword info that fetch data into the keyword master list not from the subkeywords as previous.
- Another added is when we click on keyword in keyword master list then all keyword creation list have to be pop up because in keyword there is an hyperlink so that we can click it.

300 - 46

- Added users select option and service select option using ajax call in the site gateway and in that create credit pop up and in same way add users and service in snpp gateway.
- In snpp gateway when admin click on create then admin able to select the users and service.

300 - 47

- Introduced with new project that used same user as in snpp sms and just it to add new file with template name message whatsapp no etc.
- After saving the template then data will be reflected in template history.

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TOTAL HOURS: 45 HOURS -----

B. S. Patel  
-----  
SIGNATURE OF STUDENT


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Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: \_\_\_\_\_ Date: 03/04/2023

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Annexure I  
 Enrollment no: 17a34a197018

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: BIREN SURESHKUMAR PATEL

DIARY OF THE WEEK: DI. 02/04/2023 TO 08/04/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 5th

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL


DESCRIPTION OF THE WORK DONE IN BRIEF

Day - 48

- added edit functionality on template history page when user click on edit then they redirect to another page.
- In that page all the data about that particular template is fetched.
- So that user can check if fetched data like template, msg, link, mobile number etc.

Day - 49

- added a delete button on the right side of edit btn.
- If user wants to delete the template then click on it and click on the confirm then it will delete the template.
- changes in navbar, add template in new and old way - template and template history ID and give name as + message template to template history.



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---

**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

Day - 50

- changes in the edit file code as its file was because in edit page it will fetch all the data except img, pdf, video.
- and some changes and after that it will fetch all the data with img, video and pdf.
- Also able to remove the img, video and pdf. And upload with.

Day - 51

- added delete button in admin panel at incoming student table.
- Also added select all button to select all row at a time and just right side of it put the whatever delete btn to delete those selected row if necessary.
- Also delete the single row using click on it and press delete.

Day - 52

- added new file manage setting, with these user will able to create a setting by filling the fields.
- and also after saving the setting user will able to see it in below table.

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TOTAL HOURS: 45 HOURS B. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of officer-in-charge  
of Dept. / Section / Plant  
[Signature]

Date: \_\_\_\_\_ Date: 10/04/2013

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.


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Address: \_\_\_\_\_  
 Enrollment no: 17020107018

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: BIREN JURESHKUMAR PATEL  
 DIARY OF THE WORK: D: 09/04/2017 TO 15/04/2017  
 DEPARTMENT: COMPUTER ENGINEERING NAME: PHD  
 NAME OF THE ORGANISATION: INTERCHIT  
 NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL


**DESCRIPTION OF THE WORK DONE IN BRIEF**

09-13

- Added single delete btn and multiple delete btn in two file manage setting and manage history column
- If user select the multiple button row and press the delete btn then those selected row will be deleted
- So basically implement the delete button and select all button to select all row

09-14

- Enabled the download single row data and download all row data button
- when user click on download then that row data will be downloaded and when click on download all then all row data will be downloaded in system.
- downloaded file will be in csv format



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---

**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

Day - 55

- added edit button to manage settings to update the data, and included the controller - get all and edit controller.
- get all is to get all data when user click on edit on button. but now and edit is to update the existing data.

Day - 56

- Today I have added the edit and delete button to work file to update.
- Also fetched the template to the add widget from the user template that was created.
- If user select the template then fetched template will be show else it will be hidden and select the text then Action text will be show.

Day - 57

- Added the login/report file in project that show the data from the student and database.
- It show username, address, marks and login and to fetch username need to join two table which is login and user.

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TOTAL HOURS: 45 હાવર્સ B. S. Patel  
SIGNATURE OF STUDENT

☐ The above entries are correct and the grading of work done by Trainee is  
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[Signature]

Date: [Date] Date: 17/04/2023

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## ANNEXURE-II



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---

Annexure 1

**Feedback Form by Industry expert**

Student Name: BHAVESH PATEL  
Work Supervisor: \_\_\_\_\_  
Company/Organization: INTECHBIT  
Enrollment No: 19029019848  
Internship Address: C-402, GATEWAY COMPLEX II, SURAT, GUJARAT, INDIA  
Dates of Internship From: 25/01/2022 to 1/05/2022

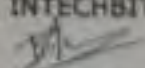
Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise				✓
Analyzes problems effectively				✓
Communicates well and writes effectively				✓

Overall performance of student intern: (Needs improvement) Satisfactory Good Excellent

Additional comments, if any:

Signature of Industry person with name and Stamp: **BHAVESH PATEL**  
Signature of the Faculty Member: \_\_\_\_\_

**FOR, INTECHBIT**  
  
**PARTNER**

# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD.**

**AN INTERNSHIP REPORT**

*Submitted by*

**Brahmbhatt Ashka Hemantbhai**

**200390107023**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at InfoLabz IT Services Pvt. Ltd.** has been carried out by **Brahmbhatt Ashka Hemantbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390107023  
Semester: 7<sup>th</sup>, Computer Engineering  
Saffrony Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Brahmhatt Ashka Hemantbhai .

In this internship tenure, we have covered the fundamentals of JS And ES6. We have also worked on the React framework along with API integration and developed an API-based React application.

We wish Brahmhatt Ashka Hemantbhai all the best for future endeavors.



Ms. Twinkle Shah  
Internship Coordinator  
InfoLabz, Ahmedabad



+91 886662662  
+91 8141236662



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www.infolabz.in



405 Vraj Avenue, Above SAM'S Pizza  
Nr, Commerce Six Rd, Navrangpura,  
Ahmedabad, Gujarat 380025



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at InfoLabz IT Services Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. FirstName LastName & FirstName LastName (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Brahmbhatt Ashka Heamantbhai**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would like to extend my sincere appreciation to all those who have been instrumental in the successful completion of my dynamic web development project during my internship.

My gratitude goes to Mr. Chintan Nagrecha for their valuable guidance and mentorship throughout the project. Their insights and support were invaluable in shaping the project's direction.

I would also like to thank the InfoLabz IT Services Pvt. Ltd. team for their welcoming environment and the opportunity to work alongside professionals. Their collaboration and insights greatly enhanced my learning experience.

I am grateful to my fellow interns and colleagues for their camaraderie and knowledge-sharing, which contributed to the project's success.

Lastly, my heartfelt thanks to my family and friends for their unwavering support during this journey.

Thank you all for your contributions.

Sincerely,

Ashka Brahmhatt

## **Abstract**

This report contains the work done by the author during his internship at InfoLabz IT Services Pvt. Ltd.. It shows the work I did in the company during my internship period. In the report, the author discusses the process of manufacturing and steps of assembly of the machines. The author also discusses the structure of the company, all the departments and their work. It also explains what the author learned during this internship period.

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# **Chapter 1. INTRODUCTION**

## **1.1 COMPANY PROFILE:**

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make it's own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard working developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concept which could be used by millions of people.

## **1.2 MISSION AND VISION OF THE COMPANY:**

**Mission:**

Our mission is to deliver best-in-class services with top-notch quality.

**Vision:**

Our vision is to sustain the exponential growth of the IT industry.

## Chapter 2. INTERNSHIP NOTES AND TASKS

### 2.1 INTRODUCTION TO JS AND ES6 WEEK 1: 27 JULY 2023

JS:

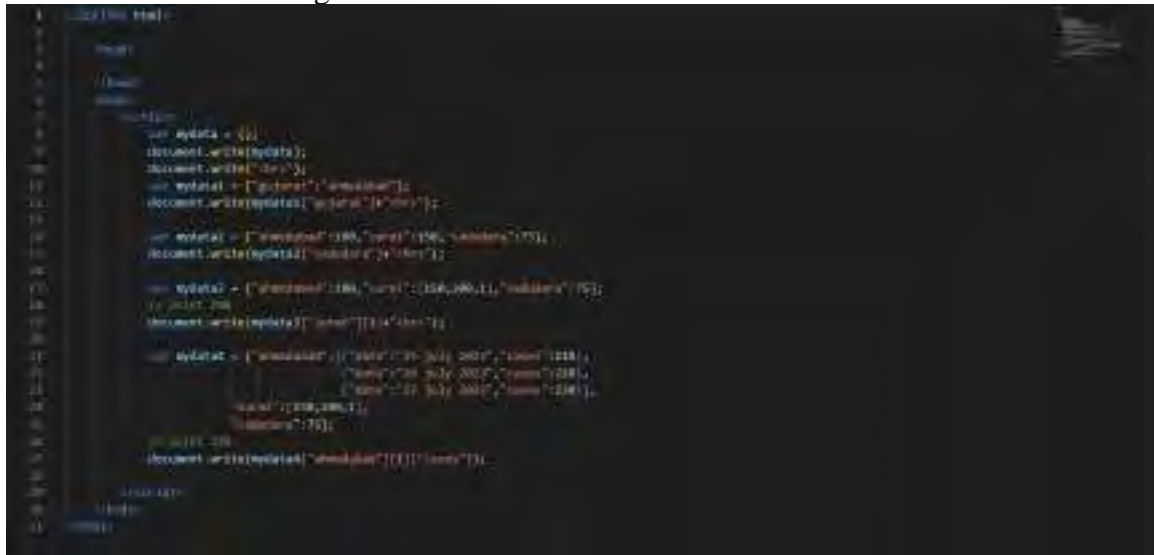
Modern web development uses dynamic programming language JavaScript. By operating directly within users' browsers, it improves the development of interactive and responsive websites. JS enables developers to handle user interactions, edit information instantly, and create fluid online applications by modifying the DOM of web pages. With an initial emphasis on the client-side, JavaScript has broadened its influence to include server-side settings as well as other areas, securing its position as a pillar of web innovation.

ES6:

ES6 is like an update of JavaScript. Cool new programming techniques such employing the terms "let" and "const" to better store data were introduced. Additionally, there are classes that assist structure code and arrow functions that shorten functions.

ES6 introduced to help manage things that take a while, like loading photographs, and made it simpler to handle them. It also made it simpler to manipulate arrays using the "..." trick and improved the appearance of code-internal text using template words.

In short, ES6 is like a superpower for JavaScript, making it smarter, easier to read, and able to do more fun things!

A screenshot of a code editor with a dark background and light-colored text. The code is written in JavaScript and demonstrates basic operations. It includes comments, variable declarations, array creation, and DOM manipulation using document.write(). The code is as follows:

```
1 // Basic JS
2
3 // Variables
4 let name = 'John';
5 let age = 30;
6
7 // Arrays
8 let fruits = ['apple', 'banana', 'orange'];
9
10 // Objects
11 let person = {
12   name: 'John',
13   age: 30,
14   isStudent: true
15 };
16
17 // DOM Manipulation
18 document.write('Hello, ' + name + '!');
19
20 // Array Iteration
21 fruits.forEach(function(fruit) {
22   document.write(fruit + ' ');
23 });
24
25 // Object Iteration
26 for (let key in person) {
27   document.write(key + ': ' + person[key] + ' ');
28 }
29
30 // Template Literals
31 let message = `Hello, ${name}! You are ${age} years old.`;
32 document.write(message);
33
34 // Arrow Functions
35 const greet = () => {
36   document.write('Hello, World!');
37 };
38 greet();
39
40 // Closures
41 function outerFunction() {
42   let innerFunction = function() {
43     document.write('I am a closure!');
44   };
45   return innerFunction;
46 }
47
48 // Promises
49 Promise.resolve('Hello, Promise!').then(function(value) {
50   document.write(value);
51 });
52
53 // Async/Await
54 async function fetchData() {
55   try {
56     let data = await Promise.resolve('Hello, Async/Await!');
57     document.write(data);
58   } catch (error) {
59     document.write('Error: ' + error);
60   }
61 }
62
63 // Classes
64 class Person {
65   constructor(name, age) {
66     this.name = name;
67     this.age = age;
68   }
69   greet() {
70     document.write(`Hello, ${this.name}!`);
71   }
72 }
73
74 // Modules
75 // Importing a module
76 import { greet } from './greet.js';
77 greet();
78
79 // Exporting a module
80 export function greet() {
81   document.write('Hello, World!');
82 }
```

Fig 2.1: Basic JS

```
1 // ...
2 // ...
3 // ...
4 // ...
5 // ...
6 // ...
7 // ...
8 // ...
9 // ...
10 // ...
11 // ...
12 // ...
13 // ...
14 // ...
15 // ...
16 // ...
17 // ...
18 // ...
19 // ...
20 // ...
21 // ...
22 // ...
23 // ...
24 // ...
25 // ...
26 // ...
27 // ...
28 // ...
29 // ...
30 // ...
31 // ...
32 // ...
33 // ...
34 // ...
35 // ...
36 // ...
37 // ...
38 // ...
39 // ...
40 // ...
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64 // ...
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71 // ...
72 // ...
73 // ...
74 // ...
75 // ...
76 // ...
77 // ...
78 // ...
79 // ...
80 // ...
81 // ...
82 // ...
83 // ...
84 // ...
85 // ...
86 // ...
87 // ...
88 // ...
89 // ...
90 // ...
91 // ...
92 // ...
93 // ...
94 // ...
95 // ...
96 // ...
97 // ...
98 // ...
99 // ...
100 // ...
```

Fig 2.2: Applying data into table

## 2.2 FUNCTIONS WEEK 1: 27 JULY 2023

JS Functions:

Functions are mini-programs that you can reuse repeatedly without having to write new code. Simply provide them with some information, let them do their thing, and get Results. Functions are very useful when one is dealing with figures, experimenting with data, or web pages.

```
1 // ...
2 // ...
3 // ...
4 // ...
5 // ...
6 // ...
7 // ...
8 // ...
9 // ...
10 // ...
11 // ...
12 // ...
13 // ...
14 // ...
15 // ...
16 // ...
17 // ...
18 // ...
19 // ...
20 // ...
21 // ...
22 // ...
23 // ...
24 // ...
25 // ...
26 // ...
27 // ...
28 // ...
29 // ...
30 // ...
31 // ...
32 // ...
33 // ...
34 // ...
35 // ...
36 // ...
37 // ...
38 // ...
39 // ...
40 // ...
41 // ...
42 // ...
43 // ...
44 // ...
45 // ...
46 // ...
47 // ...
48 // ...
49 // ...
50 // ...
51 // ...
52 // ...
53 // ...
54 // ...
55 // ...
56 // ...
57 // ...
58 // ...
59 // ...
60 // ...
61 // ...
62 // ...
63 // ...
64 // ...
65 // ...
66 // ...
67 // ...
68 // ...
69 // ...
70 // ...
71 // ...
72 // ...
73 // ...
74 // ...
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76 // ...
77 // ...
78 // ...
79 // ...
80 // ...
81 // ...
82 // ...
83 // ...
84 // ...
85 // ...
86 // ...
87 // ...
88 // ...
89 // ...
90 // ...
91 // ...
92 // ...
93 // ...
94 // ...
95 // ...
96 // ...
97 // ...
98 // ...
99 // ...
100 // ...
```

Fig 2.3: Functions





## User Input 1: JS Pop Up Boxes Alert

```
1 <script type="text/javascript">
2   <!--
3   </script>
4   </script>
5   </script>
6   </script>
7   </script>
8   </script>
9   </script>
10 </script>
11 </script>
```

Fig 2.9: Alert

## Confirm

```
1 <script type="text/javascript">
2   <!--
3   </script>
4   </script>
5   </script>
6   </script>
7   </script>
8   </script>
9   </script>
10  </script>
11  </script>
12  </script>
13  </script>
14  </script>
15  </script>
```

Fig 2.10: Confirm

## Prompt

```
1 <script type="text/javascript">
2   <!--
3   </script>
4   </script>
5   </script>
6   </script>
7   </script>
8   </script>
9   </script>
10  </script>
11  </script>
12  </script>
13  </script>
14  </script>
15  </script>
16  </script>
17  </script>
18  </script>
19  </script>
```

Fig 2.11: Prompt

## User Input 2: Form to Variable

```
1 <script type="text/javascript">
2   <!--
3   </script>
4   </script>
5   </script>
6   </script>
7   </script>
8   </script>
9   </script>
10  </script>
11  </script>
12  </script>
13  </script>
14  </script>
15  </script>
16  </script>
17  </script>
18  </script>
19  </script>
20  </script>
21  </script>
22  </script>
```

Fig 2.12: Form to Variable





## 2.5 Assignment

### WEEK 1: 2 AUGUST 2023

#### COVID DATA CHECK

API: <https://data.covid19india.org/data.json>

- Allow user to input date in text box.
- On click of submit, It should display number of new cases and deaths occurred on that day.
- Check below reference output.
- If Field is blank print message : Please enter date instead of table.
- If Date not matched: print date not found instead of table.



Fig 2.15: Data Fetching using Covid API

## COVID Data Check

Date:

New Cases	11527
New Deaths	116

Fig 2.16: Covid Output

## MUTUAL FUND

API: <https://api.mfapi.in/mf>

- Print total number of schemes available in this API.
- Allow user to input scheme code in text box.
- Search scheme code from this API and print scheme name.
- If blank print message: Please enter scheme code
- If not found print message : Scheme not found



Fig 2.17: Data Fetching using Mutual Fund API



Fig 2.18: Mutual Fund Output

## 2.6 React Environment Setup

### WEEK 2: 3 AUGUST 2023

React JS:

It is a dynamic JavaScript library that revolutionizes how we create user interfaces. React simplifies large user interfaces into modular, reusable components using a component-based methodology, making development and maintenance quick and easy.

React is unique because of its Virtual DOM, a performance-improving method that guarantees quick rendering by updating just relevant portions of the website.

```
install vs code ( project import)
install node js

command prompt: npm ( list / suggestions )

Create first project :
npm init react-app firstapp

init ->
react-app ->
```

Fig 2.19: Installation Explanation



Fig 2.20: Simple React App

## 2.7 Variable Data Map and Object Map WEEK 2: 4 AUGUST 2023

### Variable Data Map

```
1  import java.util.*;
2
3  public class Main {
4      public static void main(String[] args) {
5          //App class
6          +
7          function App() { static metadata = "This app is good!"
8          return
9          }
10         @Override void print() {
11             System.out.println(metadata);
12         }
13         @Override void printMetadata() {
14             System.out.println(metadata);
15         }
16         @Override void printMetadata2() {
17             System.out.println(metadata);
18         }
19         @Override void printMetadata3() {
20             System.out.println(metadata);
21         }
22         @Override void printMetadata4() {
23             System.out.println(metadata);
24         }
25         @Override void printMetadata5() {
26             System.out.println(metadata);
27         }
28         @Override void printMetadata6() {
29             System.out.println(metadata);
30         }
31         @Override void printMetadata7() {
32             System.out.println(metadata);
33         }
34         @Override void printMetadata8() {
35             System.out.println(metadata);
36         }
37         @Override void printMetadata9() {
38             System.out.println(metadata);
39         }
40         @Override void printMetadata10() {
41             System.out.println(metadata);
42         }
43         @Override void printMetadata11() {
44             System.out.println(metadata);
45         }
46         @Override void printMetadata12() {
47             System.out.println(metadata);
48         }
49         @Override void printMetadata13() {
50             System.out.println(metadata);
51         }
52         @Override void printMetadata14() {
53             System.out.println(metadata);
54         }
55         @Override void printMetadata15() {
56             System.out.println(metadata);
57         }
58         @Override void printMetadata16() {
59             System.out.println(metadata);
60         }
61         @Override void printMetadata17() {
62             System.out.println(metadata);
63         }
64         @Override void printMetadata18() {
65             System.out.println(metadata);
66         }
67         @Override void printMetadata19() {
68             System.out.println(metadata);
69         }
70         @Override void printMetadata20() {
71             System.out.println(metadata);
72         }
73         @Override void printMetadata21() {
74             System.out.println(metadata);
75         }
76         @Override void printMetadata22() {
77             System.out.println(metadata);
78         }
79         @Override void printMetadata23() {
80             System.out.println(metadata);
81         }
82         @Override void printMetadata24() {
83             System.out.println(metadata);
84         }
85         @Override void printMetadata25() {
86             System.out.println(metadata);
87         }
88         @Override void printMetadata26() {
89             System.out.println(metadata);
90         }
91         @Override void printMetadata27() {
92             System.out.println(metadata);
93         }
94         @Override void printMetadata28() {
95             System.out.println(metadata);
96         }
97         @Override void printMetadata29() {
98             System.out.println(metadata);
99         }
100        @Override void printMetadata30() {
101            System.out.println(metadata);
102        }
103    }
104 }
```

Fig 2.21: Variable Data Mapping

### Object Map

```
1  import java.util.*;
2
3  public class Main {
4      public static void main(String[] args) {
5          //App class
6          +
7          function App() { static metadata = "This app is good!"
8          return
9          }
10         @Override void print() {
11             System.out.println(metadata);
12         }
13         @Override void printMetadata() {
14             System.out.println(metadata);
15         }
16         @Override void printMetadata2() {
17             System.out.println(metadata);
18         }
19         @Override void printMetadata3() {
20             System.out.println(metadata);
21         }
22         @Override void printMetadata4() {
23             System.out.println(metadata);
24         }
25         @Override void printMetadata5() {
26             System.out.println(metadata);
27         }
28         @Override void printMetadata6() {
29             System.out.println(metadata);
30         }
31         @Override void printMetadata7() {
32             System.out.println(metadata);
33         }
34         @Override void printMetadata8() {
35             System.out.println(metadata);
36         }
37         @Override void printMetadata9() {
38             System.out.println(metadata);
39         }
40         @Override void printMetadata10() {
41             System.out.println(metadata);
42         }
43         @Override void printMetadata11() {
44             System.out.println(metadata);
45         }
46         @Override void printMetadata12() {
47             System.out.println(metadata);
48         }
49         @Override void printMetadata13() {
50             System.out.println(metadata);
51         }
52         @Override void printMetadata14() {
53             System.out.println(metadata);
54         }
55         @Override void printMetadata15() {
56             System.out.println(metadata);
57         }
58         @Override void printMetadata16() {
59             System.out.println(metadata);
60         }
61         @Override void printMetadata17() {
62             System.out.println(metadata);
63         }
64         @Override void printMetadata18() {
65             System.out.println(metadata);
66         }
67         @Override void printMetadata19() {
68             System.out.println(metadata);
69         }
70         @Override void printMetadata20() {
71             System.out.println(metadata);
72         }
73         @Override void printMetadata21() {
74             System.out.println(metadata);
75         }
76         @Override void printMetadata22() {
77             System.out.println(metadata);
78         }
79         @Override void printMetadata23() {
80             System.out.println(metadata);
81         }
82         @Override void printMetadata24() {
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88         @Override void printMetadata26() {
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91         @Override void printMetadata27() {
92             System.out.println(metadata);
93         }
94         @Override void printMetadata28() {
95             System.out.println(metadata);
96         }
97         @Override void printMetadata29() {
98             System.out.println(metadata);
99         }
100        @Override void printMetadata30() {
101            System.out.println(metadata);
102        }
103    }
104 }
```

Fig 2.22: Object Mapping

## 2.8 React Bootstrap

### WEEK 2: 7 AUGUST 2023

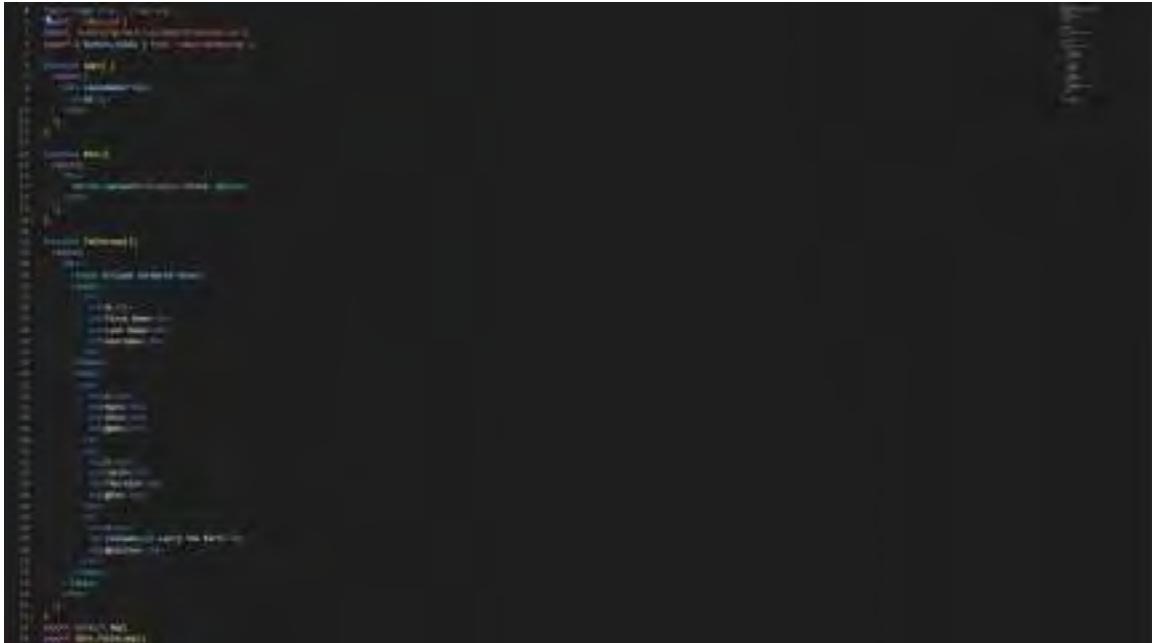


Fig 2.23: Bootstrap

## Reactprops

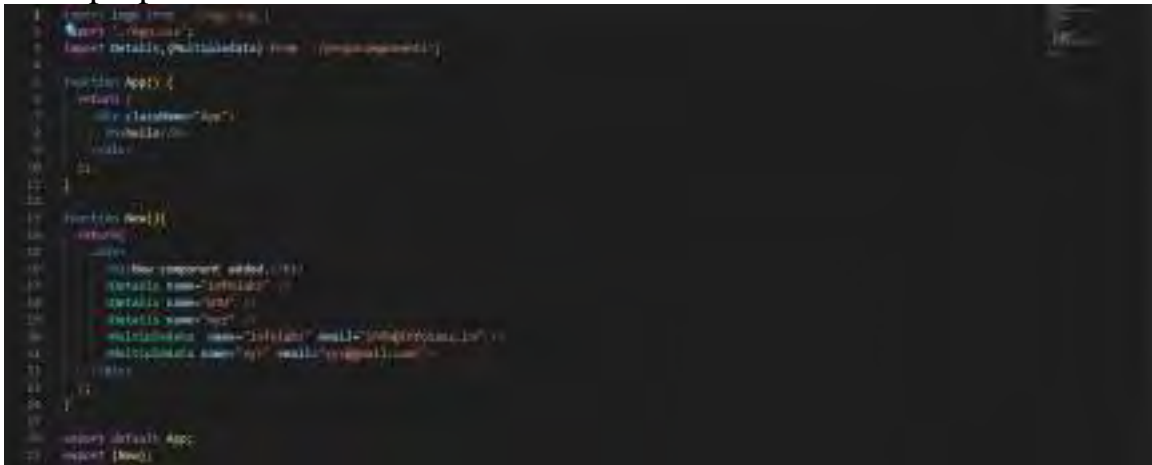


Fig 2.24: Reactprop

## 2.9 React Hooks

### WEEK 2: 8 AUGUST 2023

UseEffect and UseState:

Use the useEffect hook to execute side effects in functional components. Data retrieval, DOM modification, and other actions that take place outside of the regular component rendering process are examples of side effects. Two arguments are required: a function that contains the code for the side effect and an optional array of dependents that determine when the effect should be applied.

UseState is a hook that enables local state variables in components. It essentially eliminates the requirement for component state that is dependent on classes. You can obtain a state variable and a function to update that variable by executing useState with an initial value.

```
import React from 'react';
import 'bootstrap/dist/css/bootstrap.min.css';
import { Container, Row, Col, Card } from 'react-bootstrap';
import React, {useState, useEffect} from react;

function App() {
  return (
    <Container fluid>
      <Row xs={1} md={3} className="g-4">
        <Col className="container-fluid mt-4">
          <Card>
            <Card.Img variant="top" src="holder.js/100px160" />
            <Card.Body>
              <Card.Title>Card title</Card.Title>
              <Card.Text>
                This is a longer card with supporting text below as a
                natural lead-in to additional content. This content is
                a little bit longer.
              </Card.Text>
            </Card.Body>
          </Card>
        </Col>
      </Row>
    </Container>
  );
}

export default App;
```

Fig 2.25: UseEffect and UseState

## Chapter 3: FINAL PROJECT

```
const express = require('express');
const bodyParser = require('body-parser');
const mongoose = require('mongoose');
const bcrypt = require('bcrypt');
const jwt = require('jsonwebtoken');
const User = require('./models/user');
const News = require('./models/news');

const app = express();
app.use(bodyParser.json());
app.use(bodyParser.urlencoded({ extended: false }));

// Routes
app.get('/', (req, res) => {
  res.render('index');
});

app.post('/register', async (req, res) => {
  const { username, password } = req.body;
  const user = await User.findOne({ username });
  if (user) {
    return res.status(400).json({ message: 'User already exists' });
  }
  const hashedPassword = await bcrypt.hash(password, 10);
  const newUser = new User({ username, password: hashedPassword });
  await newUser.save();
  res.status(201).json({ message: 'User registered successfully' });
});

app.post('/login', async (req, res) => {
  const { username, password } = req.body;
  const user = await User.findOne({ username });
  if (!user) {
    return res.status(400).json({ message: 'User not found' });
  }
  const validPassword = await bcrypt.compare(password, user.password);
  if (!validPassword) {
    return res.status(400).json({ message: 'Invalid password' });
  }
  const token = jwt.sign({ id: user._id }, 'secret_key');
  res.json({ token });
});

app.get('/news', async (req, res) => {
  const news = await News.find();
  res.json(news);
});

app.post('/news', async (req, res) => {
  const { title, content } = req.body;
  const newNews = new News({ title, content });
  await newNews.save();
  res.status(201).json(newNews);
});

app.put('/news/:id', async (req, res) => {
  const { title, content } = req.body;
  const news = await News.findOne({ _id: req.params.id });
  if (!news) {
    return res.status(404).json({ message: 'News not found' });
  }
  news.title = title;
  news.content = content;
  await news.save();
  res.json(news);
});

app.delete('/news/:id', async (req, res) => {
  const news = await News.findOne({ _id: req.params.id });
  if (!news) {
    return res.status(404).json({ message: 'News not found' });
  }
  await news.remove();
  res.json({ message: 'News deleted successfully' });
});

app.listen(3000, () => {
  console.log('Server is running on port 3000');
});
```

Fig 3.1: News webapp project

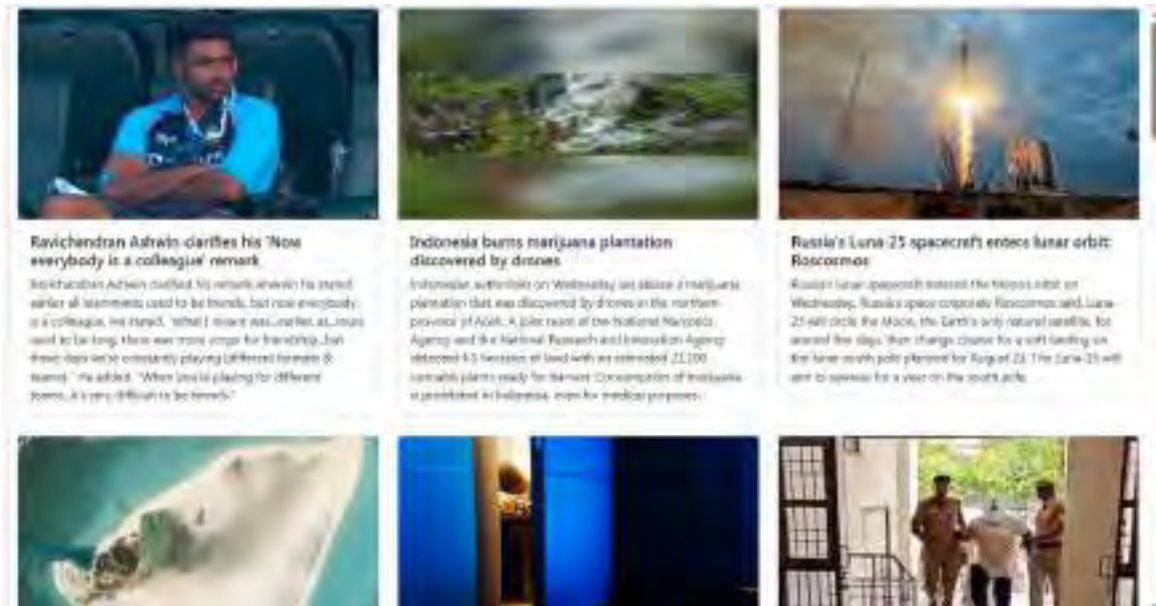


Fig 3.2: Project Output

## References

<https://infolabz.in/about.php>



# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD**

**AN INTERNSHIP REPORT**

*Submitted by*

**Patel Brijesh Dipakbhai**

**200390107008**

*Web development using Python django*

**BACHELOR OF ENGINEERING**

**In**

**Computer Engineering Department**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

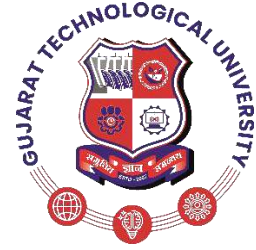


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ** has been carried out by **Patel Brijesh** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 6th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

Sign

Sign

Prof.Akshay Kansara

Prof.Akshay Kansara

Internal Guide

Head of Department

# CERTIFICATE OF COMPLETION



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | API DEVELOPMENT | DATA SCIENCE | IoT

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390197008  
Semester: 7<sup>th</sup>, Computer Engineering  
Saffron Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Brijesh Patel.

In this internship tenure, we have covered the fundamentals of the Django framework along with an understanding of MVC architecture. We have also worked on JSON structures as well as different API(s) and API fetching in web pages using the Django framework.

We wish Brijesh Patel all the best for future endeavors.



Ms. Twinkle Shah  
Internship Coordinator  
InfoLabz, Ahmedabad



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+91 614128832



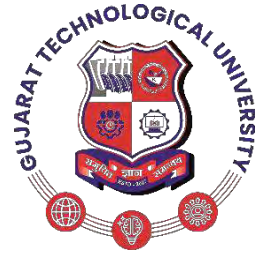
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SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INFOLABZ** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

---

# **COMPANY PROFILE**

Established in 2016, incorporated with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make its own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services, etc.

In the span of seven years, we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard-working developers. Our developers who are always willing to take on new challenges and looking forward to learning new things, are the heart of this company.

Our objective is to sustain with exponential growth in the IT industry. Our mission is to deliver the best with top-notch quality every quarter and our vision is to develop a product with one of its kind concept which could be used by millions of people

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# Week 1

27 JULY 2023

- **Introduction to Django:**

Django is an open-source web framework for building web applications using the Python programming language. It follows the Model-View-Controller (MVC) architectural pattern and emphasizes rapid development, clean code, and reusability.

Django provides a wide range of tools and features, including an Object-Relational Mapping (ORM) system for database interaction, a templating engine for rendering dynamic content, built-in user authentication, and a powerful admin interface for managing application data. It promotes the "Don't Repeat Yourself" (DRY) principle and encourages best practices for security and scalability. Django is widely used by developers to create a variety of web applications, from simple websites to complex web platforms.

- **Django Environment setup:**

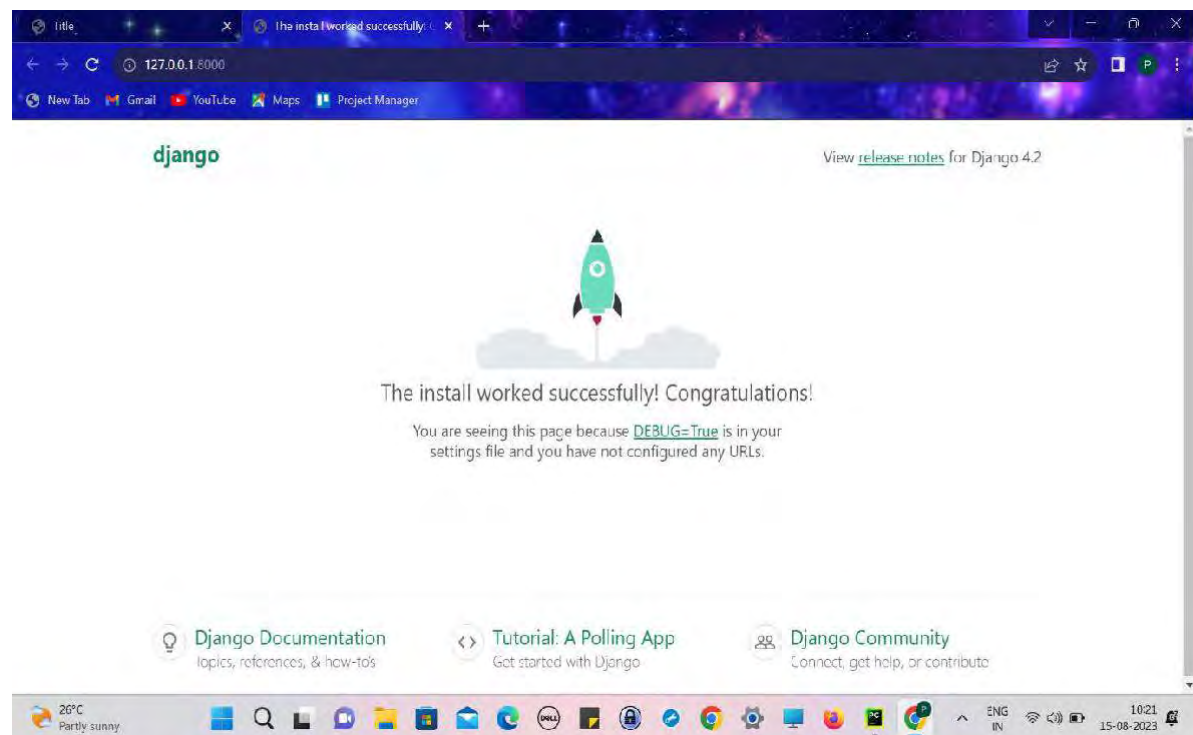
- Install Python.
- Install PyCharm community edition.
- Install SQLite database browser.

- **Django Project Creation:**

Type the following commands or install dependencies in the terminal.

- `pip install django`
- `django-admin startproject project name .`
- `python manage.py makemigrations`
- `python manage.py migrate` In Django, `makemigrations` is a command used to create files that capture changes in your app's data structure.
- `python manage.py runserver`

**Make Migrations & Migrate:** In Django, **makemigrations** is a command used to create files that capture changes in your app's data structure. These changes are then applied to the database using the `migrate` command, ensuring your code and database remain in sync.

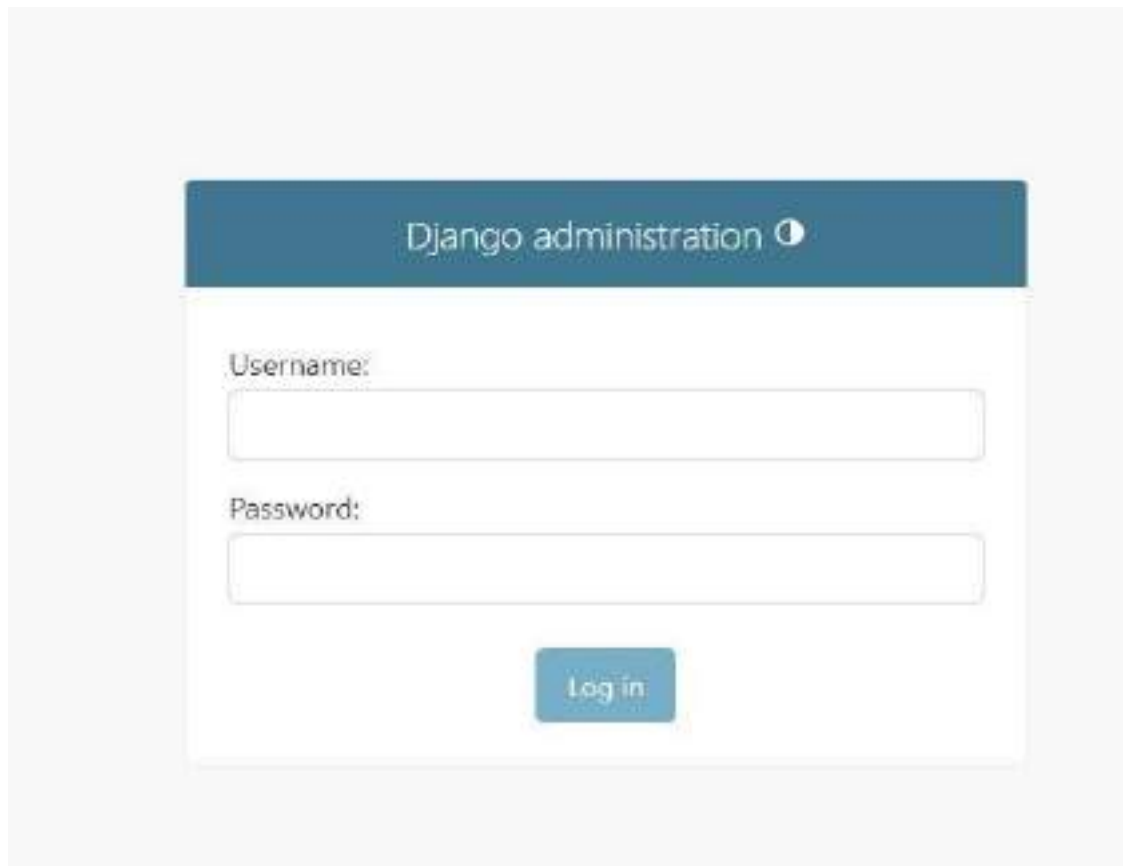


- **Superusers in Django:**

In Django, a superuser is a user account with administrative privileges that can access and manage the admin interface. Superusers have the ability to add, edit, and delete records across the application's models through the Django admin panel. They play a crucial role in managing the backend of a Django-powered website or application.

When you write /admin after the user page address you will see a login or admin panel.

<http://127.0.0.1:8000/admin/login/?next=/admin/>



- **Creating Superuser:**

To create superuser you have to type the command in the terminal `python manage.py createsuperuser`  
This will execute and give the following output

```
(venv) PS C:\Users\gurus\PycharmProjects\Internship practice 10> python manage.py createsuperuser
Username (leave blank to use 'gurus'): Anand
Email address: anand@gmail.com
Password:
Password (again):
Superuser created successfully.
```

- Now for login you have to use the superuser name and password. You can create more than one superuser.



- After login you will see the following page.

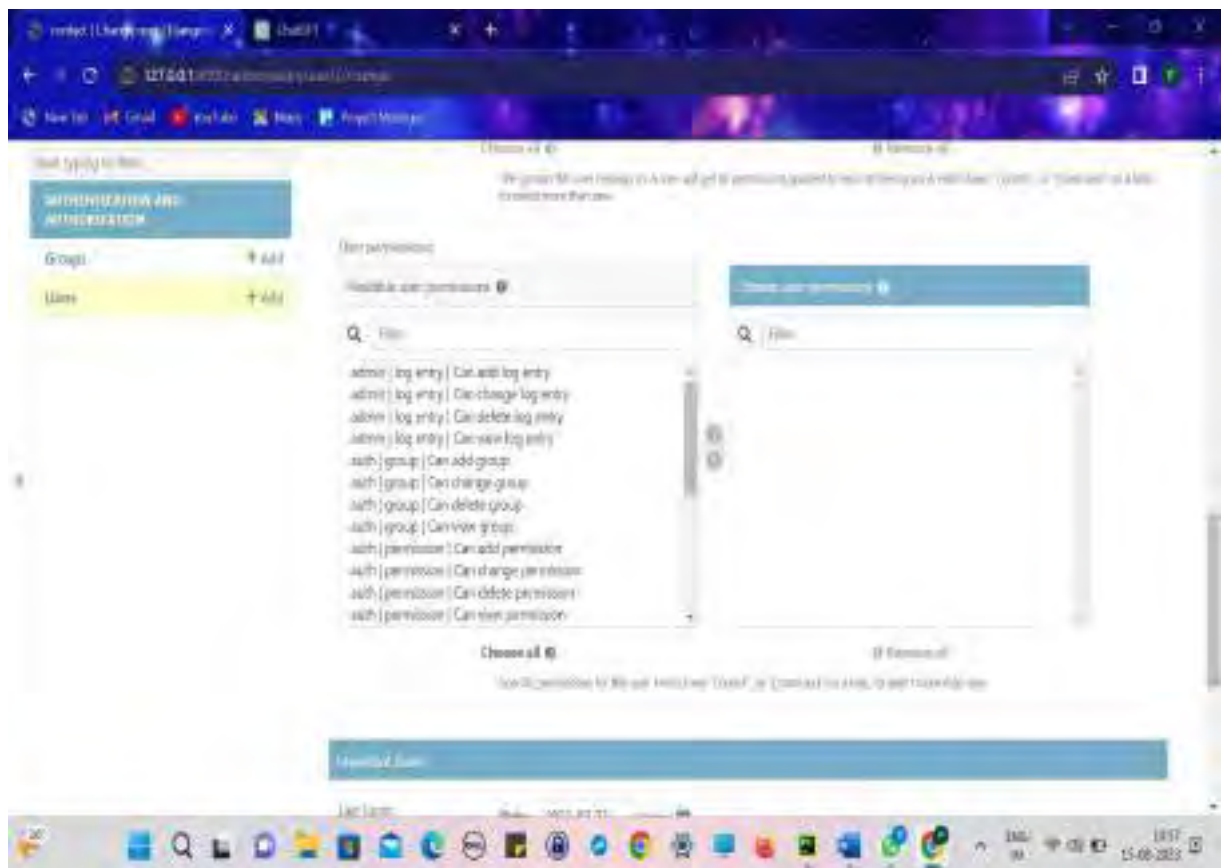


## Week 1

28 JULY 2023

- **Superuser permissions :**

In Django, "Superuser permissions" refer to the highest level of administrative access granted to a user. Superusers have complete control over the application, allowing them to manage and modify all aspects of the system, including creating, editing, and deleting user accounts, managing content, and performing administrative tasks. These permissions are essential for maintaining and overseeing the entire Django application.



- After setting the permission when the user login again it will have the following permissions that are been given.
- Because the user was given the login and view other users' permission, it can be seen in the above-mentioned figure.



- **Introduction to SQLite 3:**

SQLite3 is the default database backend used by Django, a popular Python web framework. It provides an easy and efficient way to store and retrieve data for web applications. Django abstracts the database interactions, allowing developers to work with models and query data using Python code. While suitable for development and smallscale applications, it's recommended to switch to more robust databases like PostgreSQL or MySQL for larger and production-level projects due to their scalability and advanced features.

- **CRUD Operations in Django:**

1. **Delete Operation:** Use Django admin's built-in interface to select and delete records. Registered models in the admin panel allow easy record deletion.
2. **Insert Operation:** In the admin panel, use the "Add" button to input data and create new records.
3. **Update Operation:** Modify records via the admin panel by selecting them, making changes, and saving the updates.

For the read operation you have to use the ORM (Object Relational Mapping) because using it you can call the objects directly.

- **Apps in Django:**

In Django, apps are modular components that encapsulate specific functionalities or features of a web application. Each app focuses on a particular aspect of the project, such as user authentication, blog posts, comments, etc. Apps promote code organization, reusability, and maintainability. They consist of models, views, templates, and other supporting files needed for that specific feature. Apps can be reused across projects, fostering a modular and scalable approach to web development.

For creating the apps in the django you have to type the following command in the terminal.

- `django-admin startapp appname`
- The app contains `model.py`, `admin.py`, `view.py` etc. inbuilt files.

After that you have to register the app in the `settings.py` installed apps of the main project.

```
INSTALLED_APPS = [  
    'django.contrib.admin',  
    'myapp.apps.MyappConfig',  
    'django.contrib.auth',  
    'django.contrib.contenttypes',  
    'django.contrib.sessions',  
    'django.contrib.messages',  
    'django.contrib.staticfiles',  
]
```





- **Creating Database:**

We create the database in the apps folder in the preinstalled files models.py and admin.py. The information for the same using e.g., is provided below. For performing the crud operation in database, we will use model.py and admin.py file of app we create.

- **Models.py:**

In Django, the models.py file is where you define the structure and behavior of your application's data. It contains Python classes, called models, that represent the various entities and their attributes in your database. These models define the data schema, relationships, and constraints. By creating models in models.py, you're essentially creating a blueprint for how your data will be stored, retrieved, and manipulated in the database.

The simple database created in models.py is shown in below figure.

- **Admins.py:**

In Django, the admins.py file is used to configure and customize the admin interface for managing your application's data. You can register your models with the admin site, which allows you to easily perform CRUD operations on your data through a userfriendly web interface. By customizing admins.py, you control how your models are displayed, filtered, and edited in the admin panel, enhancing the management and manipulation of your application's data without needing to build custom views or templates.

```

from django.db import models

# create your models here.
2 usages
class product(models.Model):
    name = models.CharField(max_length=50)
    price = models.IntegerField()

2 usages
class category(models.Model):
    name = models.CharField(max_length=60)
    description = models.TextField()

```

Fig : models.py

```

from django.contrib import admin
from .models import product, category

# Register your models here.
1 usage
class productdisplay(admin.ModelAdmin):
    list_display = ['name', 'price']

admin.site.register(product, productdisplay)

1 usage
class categorydisplay(admin.ModelAdmin):
    list_display = ['name', 'description']

admin.site.register(category, categorydisplay)

```

Fig : admin.py

- The database looks in the following way in the website and sqlite3 database.



## **Week 1**

**31 JULY 2023**

- **Multiple Database Tables with different Fields :**

Multiple databases refer to the practice of using and managing more than one separate database within a single software application or system. This can involve utilizing different database systems, instances, or schemas to store and manage various sets of data or to achieve specific performance, security, or scalability goals. It's commonly used in scenarios where an application needs to handle diverse types of data or distribute data storage across multiple resources.

- **Multiple Database in Django:**

In Django, multiple databases refer to the capability of using and managing more than one distinct database within a single Django project. This feature allows you to define and interact with multiple database connections using the same codebase. Each database connection can use a different database engine, such as SQLite, PostgreSQL, MySQL, etc., and may serve different purposes within your application. This is useful for scenarios where you need to segregate data or use different databases for different parts of your application, such as separating user data from analytics data.

The multiple databases are created using the same format as done in the single database but more than one database is created. The above e.g., explains the below.

```

from django.db import models

# Create your models here.
2 usages
class contactus(models.Model):
    name = models.CharField(max_length=30)
    email = models.CharField(max_length=50)
    phone = models.IntegerField()
    message = models.TextField()

2 usages
class userinfo(models.Model):
    name = models.CharField(max_length=30)
    email = models.EmailField()
    phone = models.CharField(max_length=11)
    linkedin = models.URLField()
    description = models.TextField()
    addedon = models.DateTimeField(auto_now_add=True)

```

```

CITY_CHOICES = [
    ('1', 'Ahmad'),
    ('2', 'Surat'),
    ('3', 'Rajkot')
]

2 usages
class address(models.Model):
    name = models.CharField(max_length=30)
    add = models.TextField()
    city = models.CharField(choices=CITY_CHOICES, max_length=30)

```

```
from django.contrib import admin
from .models import contactus, userinfo, address

# Register your models here.

class showcontact(admin.ModelAdmin):
    list_display = ('name', 'email', 'phone', 'message')

admin.site.register(contactus, showcontact)

class showuserinfo(admin.ModelAdmin):
    list_display = ('name', 'email', 'phone', 'linkedin', 'description', 'address')

admin.site.register(userinfo, showuserinfo)
```

```
class showaddress(admin.ModelAdmin):
    list_display = ('name', 'add', 'city')

admin.site.register(address, showaddress)
```

# Week 1

1 August 2023

- **Foreign Key Concept:**

A foreign key is a link between two database tables. In Django models, it's a field that connects one model to another. It maintains data integrity and enables you to navigate between related data. For example, a book model might have a foreign key to an author model, creating a connection between the two. It gives the following functionalities.

- Model Relationships.
- Database Integrity.
- Navigation.
- Data Integrity.

The e.g., of foreign key shown using the bank database e.g.

```
class movie(models.Model):
    name = models.CharField(max_length=50)
    description = models.TextField()
    moviecategory = models.ForeignKey(moviecategory, on_delete=models.CASCADE)
    maleactor = models.ForeignKey(male_actor, on_delete=models.CASCADE)
    femaleactress = models.ForeignKey(female_actor, on_delete=models.CASCADE)
```

3 usages

```
class moviecategory(models.Model):  
    name = models.CharField(max_length=50)  
    description = models.TextField()  
    def __str__(self):  
        return self.name
```

3 usages

```
class male_actor(models.Model):  
    name = models.CharField(max_length=50)  
    dob = models.DateField()  
    description = models.TextField()  
    def __str__(self):  
        return self.name
```

3 usages

```
class female_actor(models.Model):  
    name = models.CharField(max_length=50)  
    dob = models.DateField()  
    description = models.TextField()  
    def __str__(self):  
        return self.name
```



## Week 1

2 August 2023

- **Assignment 1 :** Create multiple database tables for the user ( role, City, Country, State, Bank \_details, User\_address , User\_details ) White use of foreign key.

```

from django.db import models

# Create your models here
class role(models.Model):
    user_type_name = models.CharField(max_length=50)

USER_STATE_CHOICES = [
    ('1', 'ACTIVE'),
    ('2', 'INACTIVE')
]

class user_detail(models.Model):
    user_name = models.CharField(max_length=50)
    user_password = models.CharField(max_length=40)
    user_email = models.EmailField()
    user_phone = models.CharField(max_length=40)
    user_type = models.CharField(max_length=20)
    user_state = models.CharField(choices=USER_STATE_CHOICES, max_length=40)

class country(models.Model):
    country_name = models.CharField(max_length=40)

    def __str__(self):

```

```

class bank_detail(models.Model):
    user_id = models.ForeignKey(user_address, on_delete=models.CASCADE)
    bank_name = models.CharField(max_length=40)
    digit_no = models.IntegerField()
    end_month = models.IntegerField(choices=ENDMONTH_CHOICES)
    end_year = models.IntegerField(choices=ENDYEAR_CHOICES)

```

```

        return self.country_name
    """
    """
class state(models.Model):
    country_id = models.ForeignKey(country, on_delete=models.CASCADE)
    state_name = models.CharField(max_length=50)

    def __str__(self):
        return self.state_name
    """
    """
class city(models.Model):
    state_id = models.ForeignKey(state, on_delete=models.CASCADE)
    city_name = models.CharField(max_length=50)

    def __str__(self):
        return self.city_name
    """
    """
class user_address(models.Model):
    user_id = models.CharField(max_length=48)
    building_name = models.CharField(max_length=50)
    street_name = models.CharField(max_length=50)
    city_name = models.ForeignKey(city, on_delete=models.CASCADE)
    pincode = models.IntegerField()

```

## Site administration

AUTHENTICATION AND AUTHORIZATION		
Groups	<a href="#">+ Add</a>	<a href="#">✎ Change</a>
Users	<a href="#">+ Add</a>	<a href="#">✎ Change</a>
NEWAPP		
Bank_details	<a href="#">+ Add</a>	<a href="#">✎ Change</a>
Citys	<a href="#">+ Add</a>	<a href="#">✎ Change</a>
Countrys	<a href="#">+ Add</a>	<a href="#">✎ Change</a>
Roles	<a href="#">+ Add</a>	<a href="#">✎ Change</a>
States	<a href="#">+ Add</a>	<a href="#">✎ Change</a>
User_addresses	<a href="#">+ Add</a>	<a href="#">✎ Change</a>
User_details	<a href="#">+ Add</a>	<a href="#">✎ Change</a>

## Week 2

3 August 2023

### Loading HTML Page in Django:

In Django, HTML (Hypertext Markup Language) is used to structure the content and layout of web pages. HTML templates in Django allow you to dynamically generate HTML content by embedding Python code within HTML markup. This allows you to create dynamic web pages that display data from the backend, adapt to user interactions, and maintain a consistent layout across your application.

- **Steps for Templates:**

Here are the basic steps for creating HTML file in Django using

1. Create an app: `python manage.py startapp myapp`
2. Configure `myapp/templates/my_template.html`.
3. Define a view function in `myapp/views.py`.
4. Map a URL to the view in `myapp/urls.py`.
5. Access template variables and logic in `my_template.html`.
6. Run the development server: `python manage.py runserver`.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Title</title>
</head>
<body>
  <h1>Hello</h1>
</body>
</html>
```

```
from django.shortcuts import render

# Create your views here.
usage
def index(request):
    return render(request, template_name='index.html')
```

- The above-mentioned steps then have to be followed further for creating urls.py file for app path and then installing or registering it in the project urls.py file.

```
from django.urls import path
from . import views
urlpatterns = [
    path('', views.index, name="indexfile"),
]
```

## Week 2

4 August 2023

- **Implementation of Static folder ( CSS, JS & IMAGES ) in Django:**

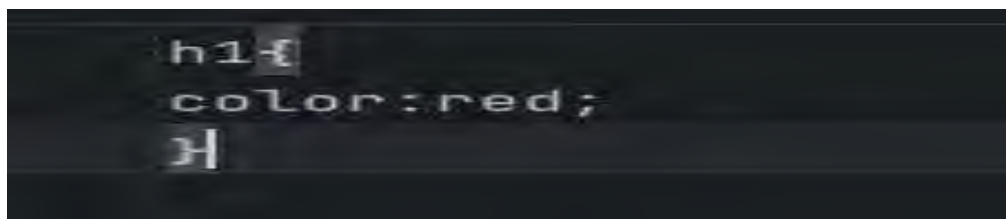
### **CSS and JS in Django:**

**CSS:** In Django, CSS (Cascading Style Sheets) is used to style and format the visual appearance of web pages. It allows you to define how the HTML elements on your web pages should be presented, including aspects like colors, fonts, spacing, and layout. CSS helps make your Django web application more visually appealing and user-friendly.

**JavaScript:** JavaScript in Django refers to the use of the JavaScript programming language within a Django web application. Django is a Python web framework, and JavaScript is a client-side scripting language primarily used to enhance interactivity and functionality in web browsers.

### **Steps for CSS:**

1. **Create Directory:** Make a "static" directory inside your app's folder.
  2. **Add CSS File:** Place your CSS file in "static/app\_name/".
  3. **Link in Template:** In your HTML template, load static files with `{% load static %}` and use `{% static 'path_to_css_file' %}` to create the CSS URL.
  4. **Apply Styles:** Define styles in the CSS file and use class names or IDs to apply them to HTML elements in your template.
  5. **Run Development Server:** Start Django's development server to see your CSS changes locally.
- Here is the simple sample code for CSS attached as a figure below.



```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Title</title>
  <link rel="stylesheet" href="http://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/1.6.4/jquery.min.js"></script>
  <script src="http://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>
  <h1>Welcome to about us page</h1>
  <a href="#" or \_imagefile" #1">GO TO HOME PAGE</a><br>
  <table border="1" class="table table-striped table-bordered">
    <thead>
      <tr>
        <th>Header 1</th>
        <th>Header 2</th>
        <th>Header 3</th>
        <th>Header 4</th>
      </tr>
    </thead>
  </table>

```

## Welcome to home page

- **Steps for JS:**

1. Create Directory: Make a "static" directory inside your app's folder.
  2. Add JavaScript File: Place your JavaScript file in "static/app\_name/".
  3. Link in Template: In your HTML template, use the <script> tag with the file's URL to incorporate the JavaScript.
  4. Write JavaScript Code: Inside your JavaScript file, write the client-side code you want to execute.
  5. Run Development Server: Start Django's development server to test your JavaScript locally.
- Here is the simple sample code for JavaScript attached as a figure below.

```

function viewmsg() {
  alert("IMAGE CLICKED");
}

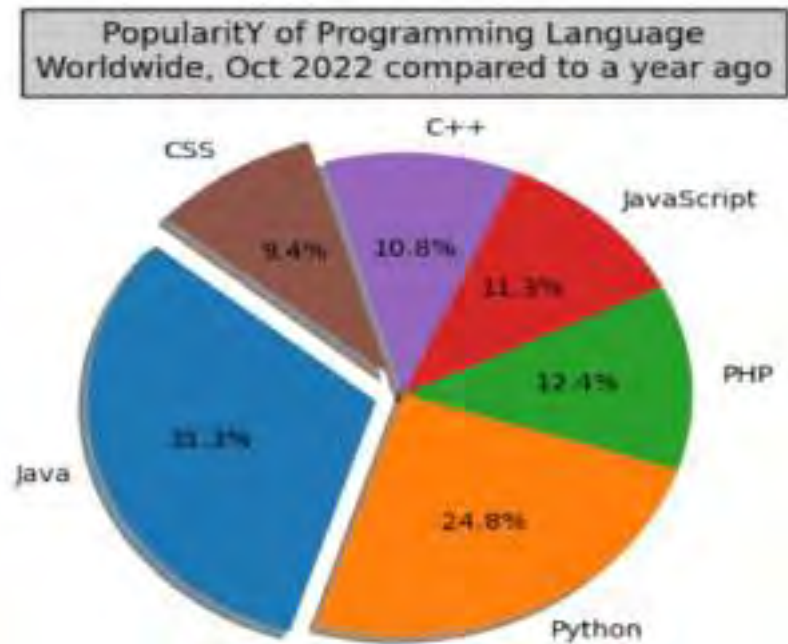
```

```

<!DOCTYPE html>
<html lang="en">
{% load static %}
<head>
  <meta charset="UTF-8">
  <title>Title</title>
  <link rel="stylesheet" href="{% static 'css/style.css' %}">
  <script src="{% static 'js/home.js' %}"></script>
</head>
<body>
  <h1>Welcome to home page</h1>
  <a href="{% url 'aboutusfile' %}">Go to aboutus page </a><br>
  
</body>
</html>

```

[Go to project page](#)



- **Bootstrap:**

In the context of Django, integrating Bootstrap means bringing in the Bootstrap front-end framework to improve the appearance and user interface of web applications. Bootstrap offers a collection of pre-designed elements and styles that simplify the process of building responsive and visually appealing web pages. This integration allows Django developers to create modern and user-friendly interfaces without needing to craft extensive custom design and layout code.

1. Setup Project: Create a Django project and app if you haven't already.
2. Static Files: Configure static file settings in settings.py.
3. Bootstrap Files: Download Bootstrap or use a CDN for CSS and optionally JavaScript.
4. Templates: Create HTML templates in your app's templates directory.
5. Apply Bootstrap: Use Bootstrap classes in your templates to style elements.
6. Add Components: Integrate Bootstrap components like forms, navigation bars, etc.
7. Customize (Optional): Customize styles with custom CSS if needed.

Here is the simple sample code for bootstrap attached as a figure below.





```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Title</title>
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/1.6.4/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>
  <h1>Welcome to about us page</h1>
  <hr href="#" id="underline" title="GO TO HOME PAGE"/><br>
  <table border="1" class="table table-bordered table-hover">
    <thead>
      <th>Header 1</th>
      <th>Header 2</th>
      <th>Header 3</th>
      <th>Header 4</th>
    </thead>
  </table>

```

## Week 2

7 August 2023

- **API in Django:**

In Django, an API (Application Programming Interface) is a mechanism that enables different software components to communicate. In web development, it typically involves exposing specific functions and data of a web application, allowing external systems to interact with and control the application remotely over the internet. This is often done through endpoints that handle requests and responses, facilitating actions like retrieving, creating, updating, and deleting data. There are specifically two types of API in Django.

**RESTful API:** A RESTful API in Django, using the Django REST framework, exposes your app's data and services to external systems. It follows HTTP methods (GET, POST, PUT, DELETE) for actions on resources. For example, you can create an API to list, create, update, and delete articles. Endpoints like `/articles/` and `/articles/<article_id>/` handle these actions.

**Internal Modular API:** An internal modular API in Django improves code organization by facilitating effective communication between different parts of the application. For instance, you could have a user management module communicating with an authentication module via well-defined internal APIs. This separation enhances maintainability and code reuse. These APIs serve distinct purposes: one for external interaction and the other for internal modularity, yet both create interfaces for components to communicate within a Django app.

- **Dictionaries in API:**

Dictionaries in Python are a collection of key-value pairs, where each key is unique and associated with a value. They are often used to store and manage data in a structured way. In the context of Django, you might use dictionaries for various purposes, such as passing data to templates, handling form data, or processing JSON data from APIs.

Here is the sample basic code for python dictionary usage in the below figure.

```

# curly bracket
# key (left) = value (right)
# to access value key is required.
mydata = {"Ahmedabad":100,"Surat":200,"Rajkot":300}
print(mydata["Rajkot"])
mydata1 = {"Ahmedabad":100,"Surat":[200,250,1],"Rajkot":300}
print(mydata1["Surat"][1])

mydata2 = {"Ahmedabad":[{"date":"5 Aug 2023","cases":15},
                        {"date":"6 Aug 2023","cases":25},
                        {"date":"7 Aug 2023","cases":35}],
           "Surat":[200,250,1],
           "Rajkot":300}
print(mydata2["Ahmedabad"][1]["date"])
print(mydata.keys())

```

```

C:\Users\srin\Documents\Internship\practice\Python\code\data\mydata.py:10: UserWarning: Your project's data directory is not writable. You may not be able to save your data.
  10
100
6 Aug 2023
dict_keys(['Ahmedabad', 'Surat', 'Rajkot'])
Program finished with exit code 0

```

- We are given some handfuls tasks on the different API links to learn more about working and integrating of API that I am attaching with name, output in below topics in form of figure as an e.g.

- **Different API Tasks:**

1. COVID.py

```

import requests

url = requests.get("https://data.covid19india.org/data.json")
mydata = url.json()

print(mydata.keys())
print(mydata["cases_time_series"][0]["date"])
print(len(mydata["cases_time_series"]))

```

```

"C:\Users\gurus\PycharmProjects\Internship practice 1\venv\Scripts\python.exe" "C:\Users\gurus\PycharmProjects\Internship practice 1\coin1.py"
dict_keys(['cases_time_series', 'statewise', 'total'])
30 January 2020
549
Process finished with exit code 0

```

## 2. Bitcoin.py

```

# pip install requests

import requests

url = requests.get("https://api.coindesk.com/v1/bpi/currentprice.json")
mydata = url.json()

print(type(mydata))
print(mydata["bpi"]["USD"]["rate"])
print(mydata.keys())

```

```

"C:\Users\gurus\PycharmProjects\Internship practice 1\venv\Scripts\python.exe" "C:\Users\gurus\PycharmProjects\Internship practice 1\Bitcoin.py"
dict_keys(['total', 'statewise', 'cases_time_series'])
Process finished with exit code 0

```

## Week 2

8 August 2023

- **API Integration in Webpages using Django Framework**

API integration in webpages using the Django framework involves incorporating external data and functionality into your web application by connecting to external APIs (Application Programming Interfaces). Django's robust capabilities allow developers to seamlessly interact with APIs, retrieve data, and display it on webpages. This integration enhances your website with dynamic content, such as real-time updates, third-party services, and data synchronization. By leveraging Django's built-in features and libraries, you can easily manage API requests, responses, and data processing, creating a richer and more interactive user experience.

```

<DOCTYPE html>

<html lang="en">
  <head>
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-1BpEPRhYONMVAFM8OQenqXyf1k7RQU7G3TjE60v4b1FQoZp6giTfPrVot/2" crossorigin="anonymous">
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.js" integrity="sha384-kwZmngYozRkrh0W4AVQJ6Z2/PiPKbt9vkY4IU5KpCRkbkUXWaqV7e2/PkRuY" crossorigin="anonymous">
    <meta charset="UTF-8">
    <title>Title</title>
  </head>
  <body>
    <div class="container">
      <div class="row">
        <div class="col">
          <div class="card">
            <div class="card-body">
              <div class="card-title">
                <h3>Card Title</h3>
              </div>
              <div class="card-text">
                <p>Some text</p>
              </div>
            </div>
          </div>
        </div>
      </div>
    </div>
  </body>
</html>

```

## Week 2

9 August 2023

- **Assignment 2** : Develop one news website with different pages of news categories .

```

<!-- HTML HEAD -->
<html lang="en">
  <head>
    <link href="https://www.jquery-ebooks.com/wordpress-5.9.4/" rel="stylesheet" integrity="sha384-188088474"
    <script src="https://www.jquery-ebooks.com/wordpress-5.9.4/js/jquery.min.js" integrity="sha384-188088474"
    <meta charset="UTF-8">
    <title>Title</title>
  </head>
  <body>
    <div class="row">
      <div class="col-md-12">
        <div class="row">
          <div class="col-md-3">
            <a href="#">Trending News</a>
          </div>
          <div class="col-md-3">
            <a href="#">Science News</a>
          </div>
          <div class="col-md-3">
            <a href="#">Entertainment News</a>
          </div>
          <div class="col-md-3">
            <a href="#">Sports News</a>
          </div>
        </div>
      </div>
    </div>
  </body>
</html>

```

```

from django.urls import path
from . import views

urlpatterns = [
    path("", views.index, name="index"),
    path("ScienceNews", views.ScienceNews, name="ScienceNews"),
    path("EntertainmentNews", views.EntertainmentNews, name="EntertainmentNews"),
    path("SportsNews", views.SportsNews, name="SportsNews"),
    path("TrendingNews", views.TrendingNews, name="TrendingNews")
]

```

```
def index(request):
    records = {}
    url = requests.get("https://inshorts.me/news/all?offset=0&limit=21")
    inshorts_data = url.json()
    records['sportsdata'] = inshorts_data
    return render(request, template_name='index.html', records)

# usage
def Sciencenews(request):
    records = {}
    url = requests.get("https://inshorts.me/news/topics/science")
    inshorts_data = url.json()
    records['sportdata'] = inshorts_data
    return render(request, template_name='Sciencenews.html', records)

# usage
def Entertainmentnews(request):
    records = {}
    url = requests.get("https://inshorts.me/news/topics/entertainment")
    inshorts_data = url.json()
    records['sportdata'] = inshorts_data
    return render(request, template_name='Entertainmentnews.html', records)

# usage
def Sportsnews(request):
    records = {}
    url = requests.get("https://inshorts.me/news/topics/sports")
```

## Week 2

10 August 2023

- **Conclusion :**

- These past 15 days of internship have been an enriching and dynamic experience. I am delighted to have had the opportunity to work with INFOLABZ and contribute to various projects during this time. As I conclude this initial phase of my internship, I want to take a moment to reflect on what I have learned and achieved.
- Throughout these 15 days, I've had the privilege of working alongside experienced professionals who have generously shared their knowledge and insights. I've gained exposure to Webpages using Django Framework, which has significantly expanded my skill set.
- During these 15 days, I encountered various challenges that required creative thinking and perseverance. Overcoming these challenges and achieving milestones and has boosted my confidence and reinforced my determination to excel.
- In conclusion, these 15 days have been transformative, educational, and inspiring. I am excited about what the future holds and am committed to making the most of this internship experience. Thank you for this incredible opportunity.



# **INTERNSHIP AT ARISHTI INFOLABS**

**AN INTERNSHIP REPORT**

*Submitted by*

**Shivani Sunilbhai Chauhan**

**200390107507**

*In partial fulfilment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**

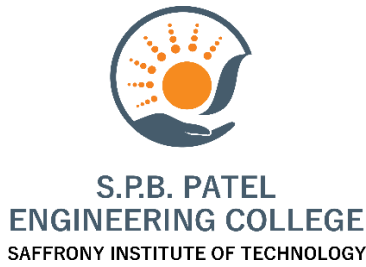


**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## S.P.B. Patel Engineering College

Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat

# CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Internship at Arishti Info lab** has been carried out by **Shivani Sunilbhai Chauhan** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate

Paste your Industry Internship certificate Scanned Copy here



ARISHTI INFO LABS

Arishti Info Labs Private Limited

[www.arishtilabs.com](http://www.arishtilabs.com)

[contact@arishti.com](mailto:contact@arishti.com)

+91-7990 285 133

Date: May 10, 2023

Ms. Shivani Chauhan

To Whomever It May Concern

This is to certify that **Ms. Shivani Chauhan**, student of **S.P.B Patel Engineering College** is working as a Frontend Developer Intern with **Arishti Info Labs Pvt. Ltd.** She is working under the guidance of Senior Developer Mr. Divyang Mistry on project virtual audit which is a small module of 'Dorje', which is our core product. She completed her 3 months on 10<sup>th</sup> of May 2023, out of 6 months of internship.



Divyang Mistry  
Guide Signature  
Arishti Info Labs



CIN: U72900GJ2020PTC113656

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**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Company/Industry Aristhi Info lab** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Divyang Mistry (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Shivani Chauhan**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

Virtual audit refers to an audit process that is conducted remotely, without the need for the auditor to be physically present at the location being audited. This type of audit is typically conducted using digital technologies such as video conferencing, screen sharing, and electronic document exchange.

Virtual audits have become increasingly popular in recent years, especially in light of the COVID-19 pandemic, which has made in-person audits more difficult and less safe. By conducting audits remotely, organizations can maintain business continuity, reduce travel costs, and improve overall efficiency.

Virtual audits can be conducted for a variety of purposes, including financial audits, operational audits, and compliance audits. While they may require some adjustments to traditional auditing procedures, such as ensuring the security of electronic documents and maintaining effective communication with auditees, virtual audits can be just as effective as in-person audits when conducted correctly.

## **Abstract**

*This report contains the work done by the author during his internship at **Arishti Info lab**. It shows the work I did in the company during my internship period. In the report, the author discusses the process of creating and steps of assembly of the web application. The author also discusses the structure of the company, all the departments and their work. It also explains what the author learned during this internship period.*

*Security experts at Arishti have years of experience in conducting security assessments on various industrial components. By providing customised services to analyse and understand your industrial processes and operational technologies. We seek security flaws on all levels starting from physical and network security to vendor-specific vulnerabilities in ICS components such as supervisory control and data acquisition (SCADA) systems, programmable logic controllers (PLCs) and other industrial systems. Providing you with information on the consequences of vulnerability exploitation and evaluating the effectiveness of implemented security measures enables you to plan further actions needed to fix flaws and improve security.*

*Our experts conduct internal penetration testing on agreed sets of systems and components to identify all potential vulnerabilities in an ICS environment. This testing includes:*

- 1. Analyse your network architecture to check specifically for proper network segmentation.*
- 2. Evaluate how resilient your network security is against attacks that might give attackers access to networks.*
- 3. Passively monitoring and analysing network traffic to determine if attackers can access sensitive information.*
- 4. Detection of vulnerable network services.*
- 5. Identifying access control weaknesses, such as identifying inadequate or missing firewall protection.*
- 6. Analyse the procedures for applying updates.*
- 7. Analyse your usage of counterfeit or third-party software.*
- 8. Reviewing passwords used to determine the use of commonly used or guessable passwords.*

Arishti can deliver in-depth vulnerability assessment and penetration testing services for industrial control systems, including testing live production environments cautiously if required. Capable of handling complex, large-scale OT networks in any ICS environment. We follow the 3-step process to assess the ICS security posture. First, we test the ICS environment Network, then IT systems are tested, and finally, we test selected ICS systems offline for vulnerabilities. Further, during the penetration testing phase, we simulate tactics attackers use to compromise ICS systems to find further vulnerabilities.

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## Abbreviations

QA	Quality Assurance
QC	Quality Control
CNC	Computerized Numerical Control.
VDC	Vertical device Center



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# Chapter 1. INTRODUCTION OF COMPANY

## 1.1 COMPANY PROFILE:

Arishti adopts the Sanskrit word meaning security or safety. We are a team of certified experts in the field of ICS (Industrial Control System), SCADA (Supervisory Control and Data Acquisition), OT (Operational Technology) and cybersecurity working towards safeguarding industrial civilizations from cyber-attacks. At Arishti, we work to instil trust in industrial society by solving mission-critical and cybersecurity issues. To ensure operational data integrity, we are the most trusted ICS and SCADA security partners to numerous industries.

Arishti Info Labs work under the aegis of National Forensic Sciences University – the world's first and only National Level institute dedicated to forensic, digital forensics, behavioural, cybersecurity, and allied sciences. With all contributions from the University and the commitment from Arishti, we want to revolutionise the cybersecurity landscape of Industries.



## 1.2 MISSION AND VISION OF THE COMPANY:

While working through various jobs, the founders Ronak Sutariya and Hardik Tarpara found that industrial operational technology networks are not geared toward defending against cyber threats due to the shortcomings in system design. Thus, Arishti Info Labs was founded with the mission to eliminate cyber threats for IIoT/ICS/SCADA in the industrial OT environment and safeguard the industrial civilization.

Due to the lack of resources and proper security control measures, industrial control systems and information have become easy targets for hackers. Arishti Info Labs works effectively and efficiently to protect large-scale OT networks from cyberattacks as the steps taken by OT devices vendors to secure their systems and information are not enough.

Arishti Info Labs was laid with the vision of becoming the leaders in defending OT networks in ICS and SCADA setup. For that vision to become true, Arishti employs expert ICS, SCADA, and OT practitioners who have ironclad proficiency at finding the system's vulnerability through extensive audits, defend systems before cyber incidence. Our work reflects the dedication and core values we espouse as a team and as individuals. And our values help us in our journey to become a leader by addressing the cybersecurity threat landscape.

## **Chapter 2. INTRODUCTION TO INTERNSHIP**

### **2.1 INTERNSHIP SUMMARY**

During my internship at Arishti, I worked as a Frontend Developer, as a front-end developer intern, I worked on a variety of projects utilizing HTML, CSS, and JavaScript in the Angular CLI. I was responsible for creating and modifying web pages, designing user interfaces, and implementing front-end features.

Developing responsive and accessible user interfaces using HTML and CSS. Creating dynamic web pages and interactions using JavaScript and Angular CLI, collaborating with back-end developers to integrate front-end functionality with server-side logic.

Troubleshooting and debugging code to ensure smooth performance across different browsers and devices. Conducting testing and quality assurance to ensure the functionality and usability of the web applications, Staying up-to-date with the latest trends and best practices in front-end development to improve the efficiency and effectiveness of my work.

Throughout my internship, I gained valuable experience in front-end development and learned how to effectively collaborate with other members of a development team. I also honed my technical skills in HTML, CSS, JavaScript, and Angular CLI, and gained a deeper understanding of web development principles and practices. Overall, my internship was a valuable learning experience and has prepared me for a successful career in front-end development.

As an intern, I used Angular CLI (Command Line Interface) to develop web applications using the Angular framework. Angular CLI is a command-line tool that helps streamline the process of creating and managing Angular projects.

Angular CLI to generate new projects, create new components, and run development and production builds. You may have also used Angular CLI to run tests and troubleshoot issues with your application. By using Angular CLI, you can streamline your development process and focus on building high-quality, scalable web applications.

## 2.2 PURPOSE

The purpose of my internship in front-end development is to gain practical experience and develop my skills in creating visually engaging and user-friendly websites and web applications using HTML, CSS, and JavaScript. Through your internship, i will have the opportunity to work alongside experienced developers and designers, learn about the latest web development technologies and trends, and apply your knowledge to real-world projects.

By the end of my internship, I should have a strong understanding of front-end development principles and practices, including how to develop responsive and accessible web pages, create interactive web experiences using JavaScript libraries and frameworks, and conduct testing and debugging to ensure optimal performance. I should also be able to work effectively as part of a development team, collaborating with designers, back-end developers, and project managers to deliver high-quality web applications that meet the client's requirements and specifications.

Overall, the purpose of my internship in front-end development is to prepare you for a successful career as a front-end developer by providing you with hands-on experience and practical skills that I can apply in the workplace.

The main purpose of front-end development is to provide users with a positive and seamless experience while using a web application or website. This involves creating a visually appealing and intuitive user interface that is optimized for different devices and screen sizes. Front-end developers are responsible for designing and implementing layouts, navigation, and interactive features to make the user experience smooth and enjoyable.

Another important purpose of front-end development is to ensure that the website or web application is accessible to all users, including those with disabilities. Front-end developers must adhere to accessibility guidelines and best practices to ensure that users can access and use the web application without any barriers.

## 2.3 OBJECTIVE

The objective of my internship in front-end development may vary depending on My personal goals and the goals of the organization. My internship should provide you with hands-on experience in front-end development and give you the opportunity to apply your knowledge to real-world projects.

I should aim to develop your skills in HTML, CSS, JavaScript, and other relevant technologies used in front-end development. Front-end development is a rapidly evolving field, and you should aim to learn about new tools and technologies used in the industry, such Angular CLI.

My internship should give you the opportunity to work with other developers, designers, and project managers to deliver high-quality web applications. As a front-end developer, you will face many technical challenges that require creative problem-solving skills. My internship should provide you with the opportunity to develop and refine these skills.

My internship should provide with the opportunity to work on projects that I can add to My portfolio and showcase to future employers.

Overall, the objective of My internship in front-end development is to gain practical experience and develop My skills in a real-world setting. By the end of My internship, I should have a better understanding of the field of front-end development and be better prepared for a career in this field.

## 2.4 SCOPE

The scope of My internship in front-end development will depend on the goals and expectations of My organization and My personal objectives. However, some common areas that may be included in the scope of your internship are:

1. **Development of web applications:** My internship may involve the development of web applications or websites using HTML, CSS, and JavaScript. I work on both new projects and existing projects, implementing new features or making updates and improvements.
2. **User experience design:** My internship may involve designing user interfaces and user experiences for web applications. I work with other designers and developers to create wireframes and mock-ups, and then implement those designs using front-end development technologies.
3. **Testing and debugging:** My internship may involve testing and debugging web applications to ensure that they function correctly and meet user needs. I work with other developers to identify and resolve technical issues.
4. **Collaboration with a team:** My internship may involve working with other developers, designers, and project managers to deliver high-quality web applications. I collaborate on code reviews, project planning, and problem-solving.
5. **Learning new technologies:** My internship may provide opportunities to learn new front-end development technologies such as Angular CLI. I also learn about back-end development technologies and how they interact with front-end development.
6. **Building a portfolio:** My internship may provide opportunities to work on projects that I can add to your portfolio and showcase to future employers.

## 2.5 PLATFORM USED IN PROJECT

Angular CLI is a command-line tool that is used for front-end development of web applications using the Angular framework. Angular CLI can be used on a variety of platforms, including:

1. Windows: Angular CLI can be installed on Windows and used with popular code editors such as Visual Studio Code, Atom, and Sublime Text.
2. macOS: Angular CLI can be installed on macOS and used with code editors such as Visual Studio Code, Atom, and Sublime Text.
3. Linux: Angular CLI can be installed on Linux distributions such as Ubuntu, Fedora, and CentOS, and used with code editors such as Visual Studio Code, Atom, and Sublime Text.
4. Cloud-based development environments: Angular CLI can also be used in cloud-based development environments such as AWS Cloud9 or Google Cloud Shell, which provide a virtualized development environment accessible from anywhere with an internet connection.

Overall, Angular CLI can be used on a variety of platforms and integrated with popular code editors and development environments, providing a powerful and flexible toolset for front-end development using the Angular framework.



## **Chapter 3. INTRODUCTION OF PROJECT**

### **3.1 ABOUT PROJECT**

My project is live project and my project name is Virtual-audit, Virtual audit refers to an audit process that is conducted remotely, without the need for the auditor to be physically present at the location being audited. This type of audit is typically conducted using questionnaires.

Communication is crucial in virtual audits. Auditors must communicate with clients, management, and other stakeholders through digital channels. Effective communication helps to build trust, identify potential issues, and ensure the audit runs smoothly.

Virtual audits can be conducted using questionnaires as one of the methods to gather information

Define the audit objective and scope: Before starting the audit, it is important to define the objective and scope of the audit. This will help in determining the type of questions to be included in the questionnaire.

### **3.2 WHAT VIRTUAL-AUDIT ACTUAL DO**

Virtual audits can be conducted for a variety of purposes, including financial audits, operational audits, and compliance audits. While they may require some adjustments to traditional auditing procedures, such as ensuring the security of electronic documents and maintaining effective communication with auditees, virtual audits can be just as effective as in-person audits when conducted correctly.

Throughout the virtual audit process, the audit team must maintain clear communication with the client and ensure that all data and information is kept secure and confidential.

The virtual audit process may differ from traditional on-site audits in terms of the use of technology and remote communication, but it follows similar principles and objectives. The ultimate goal of the virtual audit is to provide assurance that the client's financial statements and internal controls are reliable and free from material misstatements.

### **3.3 WHICH TYPE OF INDUSTRY USED VIRTUAL-AUDIT**

1. Financial services: Virtual audit can be used to audit financial statements, internal controls, and regulatory compliance in banks, insurance companies, and other financial institutions.
2. Healthcare: Virtual audit can be used to audit healthcare organizations for compliance with regulations such as HIPAA, as well as to assess the effectiveness of internal controls and financial reporting.
3. Manufacturing: Virtual audit can be used to audit manufacturing companies for compliance with regulations such as SOX, as well as to assess the effectiveness of internal controls and financial reporting.
4. Technology: Virtual audit can be used to audit technology companies for compliance with regulations such as GDPR, as well as to assess the effectiveness of internal controls and financial reporting.
5. Energy and utilities: Virtual audit can be used to audit energy and utilities companies for compliance with regulations such as FERC, as well as to assess the effectiveness of internal controls and financial reporting.
6. Retail and consumer goods: Virtual audit can be used to audit retail and consumer goods companies for compliance with regulations such as FCPA, as well as to assess the effectiveness of internal controls and financial reporting.

## **Chapter 4. VIRTUAL-AUDIT PROCESS**

### **4.1 WORKING**

Firstly, the audit team plans the audit by defining the scope, objectives, and risks of the audit. They also determine the resources required for the audit, such as specialized software and communication tools.

Next, the audit team communicates with the client to gather information and documents necessary for the audit. This communication can take place through various means such as email, video conferencing, or online collaboration tools.

Once the audit team has gathered the necessary information, they review and analyse it to assess the effectiveness of the client's internal controls and financial reporting. This can involve analysing financial records, policies, and procedures, as well as conducting tests and data analysis.

Throughout the virtual audit process, the audit team must maintain clear communication with the client to ensure that all information is accurate and complete. They must also ensure that all data and information is kept secure and confidential.

After completing the analysis and assessment, the audit team prepares a report summarizing their findings and recommendations for improvement. The report is shared with the client and any other stakeholders, such as regulators or investors, as required.

Overall, virtual audit allows for greater efficiency and flexibility in the audit process, while maintaining the same high standards of audit quality as traditional on-site audits. By utilizing technology to facilitate communication and data analysis, virtual audit can save time and resources, and provide valuable insights for clients.

## 4.2 IMPORTANCE OF VIRTUAL-AUDIT

Virtual audits are becoming increasingly important in today's digital age as they offer many benefits to organizations. Here are some of the key reasons why virtual audits are important:

- Improved efficiency: Virtual audits can save time and reduce the costs associated with an on-site audit. This is because virtual audits can be conducted remotely, without the need for auditors to travel to the site.
  - Increased accessibility: Virtual audits can provide auditors with access to remote or hard-to-reach locations that might otherwise be difficult to visit.
  - Greater flexibility: Virtual audits can be conducted at any time, from anywhere, which can be especially beneficial for companies that operate globally or have multiple locations.
  - Enhanced accuracy: Virtual audits allow auditors to examine records and data in real-time, which can improve the accuracy of the audit findings.
  - Improved data security: Virtual audits can help improve data security by using secure digital tools and technologies to conduct the audit.
  - Increased transparency: Virtual audits can be recorded and documented, providing a clear record of the audit process and findings.
  - Reduced environmental impact: Virtual audits reduce the carbon footprint associated with travel and transportation, making them a more environmentally friendly option.
- Overall, virtual audits are an important tool for organizations to assess their operations, risks, and controls in an efficient, secure, and transparent manner. By leveraging digital tools and technologies, virtual audits can help organizations achieve their audit objectives while reducing costs, saving time, and improving accuracy.

### **4.3 RULES OF VIRTUAL-AUDIT**

A virtual audit follows the same principles as an on-site audit, but it's conducted remotely. Here are some general rules to follow for a successful virtual audit:

1. **Communication:** Communication is crucial during a virtual audit. Ensure that you and the auditor have a clear understanding of the scope of the audit and the audit objectives.
2. **Technology:** Ensure that you have the right technology in place to support the virtual audit.
3. **Documentation:** Make sure that all relevant documents are accessible to the auditor. You may need to provide access to your document management system or create a secure folder for the auditor to access.
4. **Preparation:** Prepare thoroughly for the audit by conducting a self-assessment and identifying any potential gaps. Address any gaps before the audit to reduce the risk of findings.
5. **Cooperation:** Cooperate fully with the auditor throughout the audit process. Respond promptly to requests for information, be transparent about your processes, and provide access to relevant personnel.
6. **Follow-up:** Once the audit is complete, review the findings with the auditor and develop an action plan to address any issues identified. Follow up with the auditor to ensure that the corrective actions have been implemented.

## 4.4 PRINCIPLES OF VIRTUAL-AUDIT

Assuming you're referring to the principles of virtual learning or virtual education, here are some key principles that can be applied to virtual learning environments:

**Accessibility:** Ensure that all learners have equal access to learning materials, technology, and support services regardless of their physical location, abilities, or circumstances.

**Engagement:** Keep learners engaged and motivated by using a variety of interactive learning activities and methods that cater to different learning styles.

**Flexibility:** Allow learners to progress at their own pace and provide them with opportunities for self-directed learning. Accommodate different schedules and time zones.

**Collaboration:** Encourage collaboration among learners through discussion forums, group assignments, and peer-to-peer feedback. Foster a sense of community and belonging.

**Feedback:** Provide learners with timely and constructive feedback on their progress and performance. Use assessments and evaluation tools to measure learning outcomes.

**Quality:** Maintain high-quality standards for course design, delivery, and assessment. Continuously evaluate and improve the virtual learning environment to ensure that it meets the needs of learners.

**Support:** Provide learners with access to technical support, academic support, and counselling services as needed. Ensure that learners have the resources they need to succeed in the virtual learning environment.

## **Chapter 5. TECHNOGY USED IN VIRTUAL-AUDIT**

### Frontend Technologies

- HTML
- CSS
- JavaScript

### Backend Technologies

- .NET

### **5.1 FRONTEND TECHNOLOGIES USED IN VIRTUAL-AUDIT**

HTML and CSS can be used to create custom virtual audit questionnaires that auditors can use to gather information from clients. JavaScript can be used to add interactivity to the questionnaires, such as validation checks and conditional logic.

HTML and CSS can be used to create visually appealing audit reports that summarize audit findings and recommendations. JavaScript can be used to add interactive features to the reports, such as charts and graphs.

JavaScript can be used to write custom scripts that analyse audit data, such as financial statements or internal control data. This can help auditors identify potential risks or anomalies, and facilitate the audit process.

HTML, CSS, and JavaScript can be used to integrate virtual audit tools with audit management software, such as GRC (governance, risk, and compliance) platforms. This can help auditors manage and track audits more efficiently.

Overall, HTML, CSS, and JavaScript can be used in virtual audit to enhance the audit process and improve efficiency. By leveraging these technologies, auditors can create customized audit tools, develop visually appealing reports, analyse data more effectively, and integrate with other audit management software.

## 5.2 BACKEND TECHNOLOGIES USED IN VIRTUAL-AUDIT

.NET provides tools and libraries for working with databases, such as Microsoft SQL Server. In virtual audit, .NET can be used to develop custom database solutions to store and manage audit data.

.NET can be used to develop APIs (Application Programming Interfaces) that allow different systems and applications to communicate with each other. In virtual audit, .NET APIs can be used to integrate virtual audit tools with other audit management software, such as GRC platforms.

.NET provides tools and libraries for managing security, such as user authentication and authorization. In virtual audit, .NET can be used to ensure that audit data is kept secure and confidential.

.NET can be used to develop custom workflows for virtual audit processes, such as audit planning, information gathering, data analysis, and report preparation. These workflows can help auditors manage the audit process more efficiently and effectively.

Overall, .NET provides a robust and scalable backend framework that can be used in virtual audit to develop custom database solutions, APIs, security management, and workflow management. By leveraging .NET, virtual audit tools can be developed with greater efficiency and can offer enhanced functionality.



## 5.3 DYNAMIC PAGES CREATED IN VIRTUAL-AUDIT

To create dynamic pages in virtual audit using Angular, you can follow these steps:

**Define the page template:** Create a template for the dynamic page using HTML and CSS. This should include the basic layout and structure of the page, as well as any static elements that should be displayed on the page.

**Define the page component:** Create a new component in Angular to represent the dynamic page. This component should include the logic for any dynamic content that should be displayed on the page.

**Define the data model:** Define a data model to represent the dynamic content that should be displayed on the page. This may involve creating a new data type or using an existing data type from your application.

**Fetch data from the server:** Use Angular's HttpClient module to fetch data from the server. This may involve making a REST API call or using a web socket to retrieve real-time data.

**Bind data to the template:** Use Angular's data binding syntax to bind the fetched data to the template. This may involve using interpolation to display data directly in the template or using directives to display data conditionally or in a loop.

**Add interactivity:** Use Angular's event binding syntax to add interactivity to the dynamic page. This may involve adding event handlers to respond to user input or using animations to add visual interest.

**Test and deploy:** Test the dynamic page in a development environment to ensure that it is working as expected. Once you are satisfied with the results, deploy the page to your production environment.

By following these steps, you can create dynamic pages in virtual audit using Angular that can display real-time data and respond to user input, providing a more interactive and engaging experience for your users.

Dynamic programming is important in Angular for several reasons:

**Building responsive applications:** Angular uses dynamic programming to create applications that can respond to user input and update the display in real-time. This allows developers to build responsive, interactive applications that can provide a better user experience.

**Data binding:** Angular uses dynamic programming to bind data between the template and the component. This allows developers to create dynamic, data-driven user interfaces that can display real-time data and respond to user input.

**Reusability:** Angular's dynamic programming capabilities allow developers to create reusable components that can be used throughout the application. This helps to reduce development time and improve maintainability.

Separation of concerns: Angular's dynamic programming capabilities allow developers to separate the presentation layer from the business logic layer. This makes it easier to maintain and update the application, as changes can be made to one layer without affecting the other.

Code generation: Angular uses dynamic programming to generate code based on the application's configuration. This can help to reduce boilerplate code and make it easier to create complex applications.

Overall, dynamic programming is an important feature of Angular that allows developers to create responsive, interactive, and data-driven applications that can be maintained and updated more easily.

Dynamic web pages are important in Angular for several reasons:

Improved user experience: Dynamic web pages allow for the creation of interactive, engaging user interfaces that can respond to user input in real-time. This can result in a more engaging and satisfying user experience.

SEO: Dynamic web pages can be optimized for search engines by using Angular's server-side rendering capabilities. This means that search engines can crawl the dynamic content on the page and improve the page's visibility in search results.

Performance: Angular's dynamic web pages can be optimized for performance by using techniques such as lazy loading and Ahead-of-Time (AOT) compilation. This can result in faster load times and a smoother user experience.

Overall, dynamic web pages are important in Angular as they provide the tools necessary to create engaging, interactive user interfaces that can improve the user experience, optimize for search engines, and provide better performance.

## **Chapter 6. SECURITY AND CONFIDENTIALITY**

### **6.1 SECURITY IN VIRTUAL-AUDIT**

Virtual audits present unique security challenges that need to be addressed to ensure the confidentiality, integrity, and availability of audit information.

**Use secure communication channels:** Communication channels between auditors and auditees should be encrypted and authenticated to ensure that information exchanged during the audit is secure. The use of secure video conferencing tools and encrypted email is recommended.

**Control access to audit information:** Access to audit information should be restricted to authorized personnel only. This can be achieved by implementing access controls and requiring multi-factor authentication to access audit data.

**Protect data in transit:** Ensure that audit data is transmitted securely by using encryption technologies such as Secure Sockets Layer (SSL) or Transport Layer Security (TLS)

**Secure data at rest:** Audit data should be stored securely and protected by access controls and encryption technologies. Use of cloud-based storage with proper security measures in place can be a good option.

**Monitor audit activities:** Monitor all activities related to the virtual audit to detect any suspicious or unauthorized activities. This can be achieved by implementing an audit trail and using security information and event management (SIEM) tools.

**Conduct security assessments:** Regular security assessments should be conducted to identify and mitigate vulnerabilities in the virtual audit environment.

**Train employees:** Train employees on security best practices, including how to handle sensitive audit data, how to detect phishing attempts and other social engineering tactics, and how to identify and report suspicious activities.

Security is important in virtual audits for several reasons:

Protecting against unauthorized access: Virtual audits often involve the exchange of sensitive information between auditors and audited organizations. Security measures are necessary to prevent unauthorized access to this information and protect it from being stolen or compromised.

Ensuring data integrity: Security measures are necessary to ensure the integrity of the data being collected during the audit. This includes measures to prevent data tampering or alteration, as well as ensuring that the data is stored and transmitted securely.

Preventing cyber-attacks: Virtual audits are vulnerable to cyber-attacks, including phishing attacks, malware infections, and denial-of-service attacks. Security measures can help to prevent these attacks and minimize their impact if they do occur.

Protecting the audit process: Security measures are necessary to protect the audit process itself from being compromised or disrupted. This includes measures to prevent unauthorized changes to audit files, as well as ensuring that the audit process is conducted fairly and impartially.

Maintaining trust: Security is critical to maintaining the trust of both the audited organization and its stakeholders. If security is compromised during a virtual audit, it can damage the credibility of the audit process and undermine the relationship between the auditor and the audited organization.

Overall, security is essential in virtual audits to protect against unauthorized access, ensure data integrity, prevent cyber-attacks, protect the audit process, and maintain trust. Without security measures in place, virtual audits can be compromised and the effectiveness and credibility of the audit process can be undermined

## **6.2 CONFIDENTIALITY IN VIRTUAL-AUDIT**

Confidentiality is a crucial aspect of virtual audits, as it involves handling sensitive information related to the auditee's business operations, financial data, and other confidential information.

Use non-disclosure agreements: Ensure that auditors and auditees sign non-disclosure agreements (NDAs) that prohibit them from disclosing any confidential information related to the audit.

Secure data in transit: Ensure that audit data is transmitted securely by using encryption technologies such as Secure Sockets Layer (SSL) or Transport Layer Security (TLS).

Use secure collaboration tools: Use secure collaboration tools that provide end-to-end encryption for file sharing and collaboration.

Conduct security assessments: Regular security assessments should be conducted to identify and mitigate vulnerabilities in the virtual audit environment.

Confidentiality is important in virtual audits for several reasons:

Protecting sensitive information: Virtual audits often involve the collection and sharing of sensitive information about the audited organization, such as financial data, customer information, or proprietary technology. Confidentiality helps to ensure that this information is protected from unauthorized disclosure or use.

Maintaining trust: Confidentiality is critical to maintaining the trust of the audited organization and its stakeholders. If confidential information is mishandled or disclosed without authorization, it can damage the credibility of the audit process and undermine the relationship between the auditor and the audited organization.

Compliance with regulations: Many industries and jurisdictions have regulations or laws that require certain types of information to be kept confidential. Virtual audits must comply with these regulations to avoid legal liability and ensure that the audit process is conducted ethically and responsibly.

Protecting privacy: Confidentiality is important in virtual audits to protect the privacy of individuals whose personal information may be collected and used during the audit process. This includes employees, customers, and other stakeholders who have a right to privacy under many legal frameworks.

Ensuring fairness: Confidentiality is important in virtual audits to ensure that all parties are treated fairly and that the audit process is conducted without bias or discrimination. By keeping information confidential, auditors can avoid the appearance of impropriety or favouritism and ensure that the audit process is conducted objectively and impartially.

Overall, confidentiality is essential in virtual audits to protect sensitive information, maintain trust, comply with regulations, protect privacy, and ensure fairness. Without confidentiality, virtual audits can be compromised and the effectiveness and credibility of the audit process can be undermined.

## CHAPTER 7. IMPLEMENTATION

### 7.1 LOADING PAGE



Fig.1.1 Loading page

A virtual audit loading page typically refers to the initial screen or interface that appears when a virtual audit is launched.

Overall, the first loading page of a virtual audit is an important part of setting the stage for the audit and providing the auditee with the information they need to participate in the audit effectively.

The loading page that appears when accessing a virtual audit is important because it provides important information and sets the tone for the audit. Here are some reasons why the loading page is important:

**Confirmation:** The loading page confirms to the auditor and auditee that they have successfully accessed the virtual audit. This helps to avoid confusion or uncertainty about whether the audit has begun.

**Instructions:** The loading page can provide instructions or guidance to the auditee, such as how to navigate the virtual audit or what to expect during the process. This can help to ensure that the audit proceeds smoothly and that the auditee is prepared for what is expected of them.

**Security:** The loading page can provide information about the security of the virtual audit, such as the use of encryption or other security measures. This can help to reassure auditees that their data is being protected and handled responsibly.

**Branding:** The loading page can display branding or other visual elements that reflect the organization conducting the audit. This can help to reinforce the organization's identity and create a professional and consistent image.

**Professionalism:** Overall, the loading page sets the tone for the virtual audit and can contribute to its overall professionalism and effectiveness. A well-designed and informative loading page can help to ensure that the audit proceeds smoothly and that both auditors and auditees are prepared and engaged throughout the process.

In summary, the loading page that appears when accessing a virtual audit is important because it provides important information, instructions, and branding, as well as setting the tone for the audit and contributing to its overall professionalism and effectiveness.

## 7.2 ADD NEW ASSESSMENTS



Fig.1.2 Add New Assessments

The "New Assessment" button in a virtual audit is a feature that allows the audit team to add a new assessment or task to the audit process. This button is typically located within the virtual audit platform or software and is accessible to the audit team.

When the audit team clicks the "New Assessment" button, they are prompted to enter information about the new assessment, such as Assessment Name, Assessment Date, Facility Name, City or Site Name, State/Province/Region. They may also be able to assign the assessment to specific auditees or teams, depending on the virtual audit platform being used.



The "New Assessment" button can be useful in situations where the audit team identifies a new area of risk or concern during the audit process, or where changes to the audit scope or objectives require additional assessments to be completed. It allows the audit team to easily add new assessments to the audit process without having to disrupt the existing audit flow.

We click on "New Assessment" that put on table and list the Assessment Name, Assessment type, Last modified, primary Assessor, status and we also remove, import assessment

The "New Assessment" button in virtual audits is important because it allows auditors to create a new assessment for a particular audit or site. Here are some reasons why the New Assessment button is commonly used in virtual audits:

**Flexibility:** The New Assessment button allows auditors to create a new assessment based on the specific needs of the audit or site. This can be especially useful in cases where the previous assessment does not accurately reflect the current state of the audit or site.

**Customization:** By creating a new assessment, auditors can customize the questions, response options, and other parameters of the assessment to better suit the needs of the audit or site. This can help to ensure that the assessment is focused on the most important areas and can provide the most useful information to the auditor.

**Accuracy:** The New Assessment button can help to ensure that auditors are using the most up-to-date information and data in their assessments. This can help to ensure the accuracy and reliability of the audit process.

**Comparison:** By creating multiple assessments over time, auditors can compare the results and track changes or trends in the audit or site. This can provide valuable insights into the effectiveness of corrective actions or other interventions.

Overall, the New Assessment button is an important tool in virtual audits because it allows auditors to create customized, accurate, and flexible assessments that can provide valuable information about the audit or site.

# CHAPTER 8. QUESTIONNAIRES

## 8.1 QUESTIONNAIRES PAGE



Fig.2.1 Questionnaires Page

The questionnaires page in a virtual audit typically refers to a section of the virtual audit platform or software where the auditee can access and respond to the audit team's questionnaires. Questionnaires are a common tool used in audits to collect information and data from the auditee about their policies, procedures, and practices.

The questionnaires page may include a list of all the questionnaires that the auditee needs to complete as part of the audit process. Each questionnaire may have a title, a brief description.

Overall, the questionnaires page in a virtual audit is an important tool for collecting information and data from the auditee, and can help ensure that the audit team has a comprehensive understanding of the auditee's policies, procedures, and practices.

virtual audit platform to have different details and functions. This is because each icon represents a different feature or tool within the platform, designed to help facilitate the audit process.

Supplemental guidance icons in a virtual audit platform typically provide additional information or instructions related to specific audit criteria or requirements. These icons are designed to help auditors understand the context and purpose behind the audit criteria, and provide guidance on how to assess compliance with the criteria.

The purpose of supplemental guidance icons is to help auditors interpret the audit criteria more accurately and consistently, and to ensure that they have access to all the information they need to conduct a thorough and effective audit. By providing clear and concise guidance on specific audit criteria or requirements, these icons can help auditors save time, avoid misunderstandings, and produce high-quality audit reports.

Overall, the use of supplemental guidance icons in a virtual audit platform can enhance the efficiency, effectiveness, and accuracy of the audit process, and can help auditors deliver high-quality and value-added audit services to their clients.

The comment icon in a virtual audit platform serves as a tool for communication and collaboration between the audit team and the auditee. The purpose of the comment icon is to enable auditors and auditees to exchange information, share insights.

When the auditor clicks on the comment icon, they may be able to add comments or questions related to the specific audit criterion or question. This exchange of information can help the audit team gain a better understanding of the auditee's policies, procedures, and practices, and can help the auditee address any concerns or issues raised by the audit team.

Questionnaires are an important tool in virtual audits because they allow auditors to gather information from auditees in a structured and standardized way. With virtual audits, it can be challenging to obtain the same level of information and evidence as in-person audits. However, questionnaires can help to bridge this gap by providing a consistent method of gathering data and evidence.

Some of the benefits of using questionnaires in virtual audits include:

**Standardization:** Questionnaires provide a standardized set of questions that can be used to gather information from auditees. This ensures that all auditees are asked the same questions and that the information gathered is consistent.

**Efficiency:** Questionnaires can be sent to auditees in advance of the audit, allowing them time to prepare and gather the necessary information. This can save time during the audit process and allow auditors to focus on more complex or critical areas.

**Accuracy:** By using structured questions and answer options, questionnaires can help to ensure that auditees provide accurate and complete information. This can reduce the risk of errors and inconsistencies in the audit process.

**Documentation:** Questionnaires provide a written record of the information gathered during the audit, which can be used as evidence or reference for future audits.

Overall, questionnaires are an important tool in virtual audits because they provide a standardized, efficient, and accurate method of gathering information from auditees, helping to ensure the quality and effectiveness of the audit process.

## 8.2 GOALS IN VIRTUAL-AUDIT

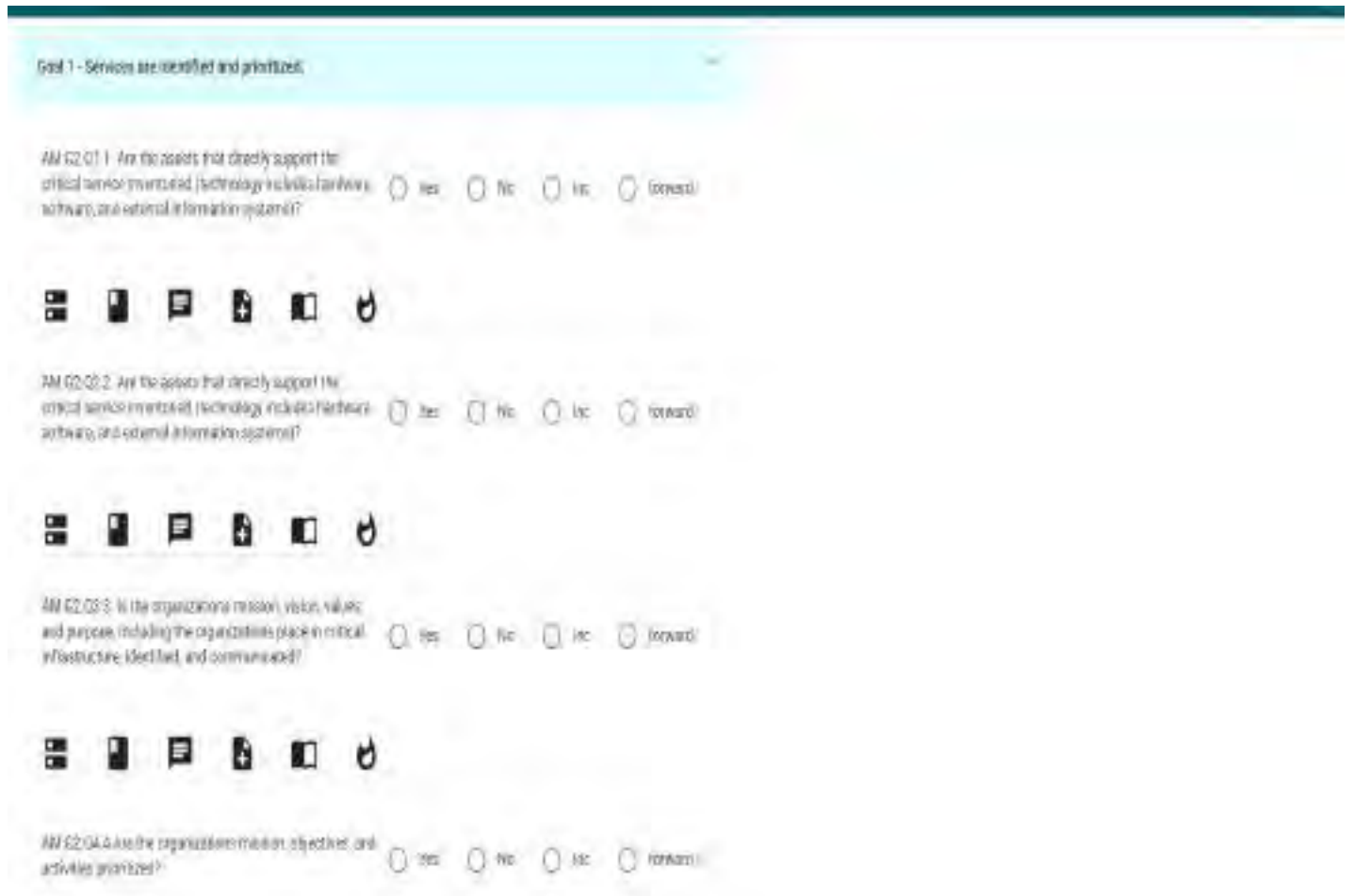


Fig.2.2 Goals In Virtual-Audit

In virtual-audit every goal have different questions, icon detail, and buttons. In a virtual audit platform, every goal typically has a set of questions, icon details, and buttons that are specific to that goal. These features are designed to help auditors assess compliance with the goal's requirements, and to facilitate communication and collaboration between the audit team and the auditee.

1. Questions: Each goal may have a set of questions that are designed to assess compliance with the goal's requirements. These questions may be organized into subcategories, such as policies, procedures, and practices, and may cover various aspects of the auditee's operations, such as information security, risk

management, or compliance management. By answering these questions, the auditee can provide the audit team with information about their level of compliance with the goal's requirements.

2. **Icon Details:** Each goal may also have specific icon details that provide additional information or instructions related to the goal's requirements. By clicking on these icons, auditors can access the information they need to understand the context and purpose behind the goal's requirements, and to assess compliance more accurately and consistently.

Overall, the questions, icon details, and buttons in a virtual audit platform are designed to provide auditors with the tools and information they need to assess compliance with the auditee's policies, procedures, and practices, and to ensure that the audit process is conducted efficiently, accurately, and in compliance with relevant standards and requirements.

Icons can be used in a virtual audit questionnaire to make it more visually appealing, intuitive and user-friendly. The use of icons can help the respondent to easily identify the purpose of each question and provide accurate and relevant information. Here are some common icons used in virtual audit questionnaires and their meaning:

**Comment icon:** The comment icon is typically used to indicate where the respondent can provide additional information or clarification related to a specific question. This could be used, for example, if the respondent wants to provide additional context to their response or elaborate on their answer.

**Add document icon:** The add document icon is used to indicate where the respondent can upload a document to support their response. This is particularly useful in situations where the respondent needs to provide evidence to support their answer or provide additional details that cannot be easily captured in the questionnaire.

**Add observation icon:** The add observation icon is used to indicate where the respondent can provide additional information related to an observation or finding made during the audit. This could be used, for example, if the respondent notices a deviation from the expected process or identifies an area of improvement.

By using these icons in the virtual audit questionnaire, the respondent can easily identify where they need to provide additional information or upload a document to support their response. The use of icons can also help to make the questionnaire more visually appealing and user-friendly, which can encourage the respondent to complete the questionnaire and provide accurate and useful information.

## CHAPTER 9. ICON DETAILS

### 9.1 SUPPLEMENTAL GUIDANCE ICON

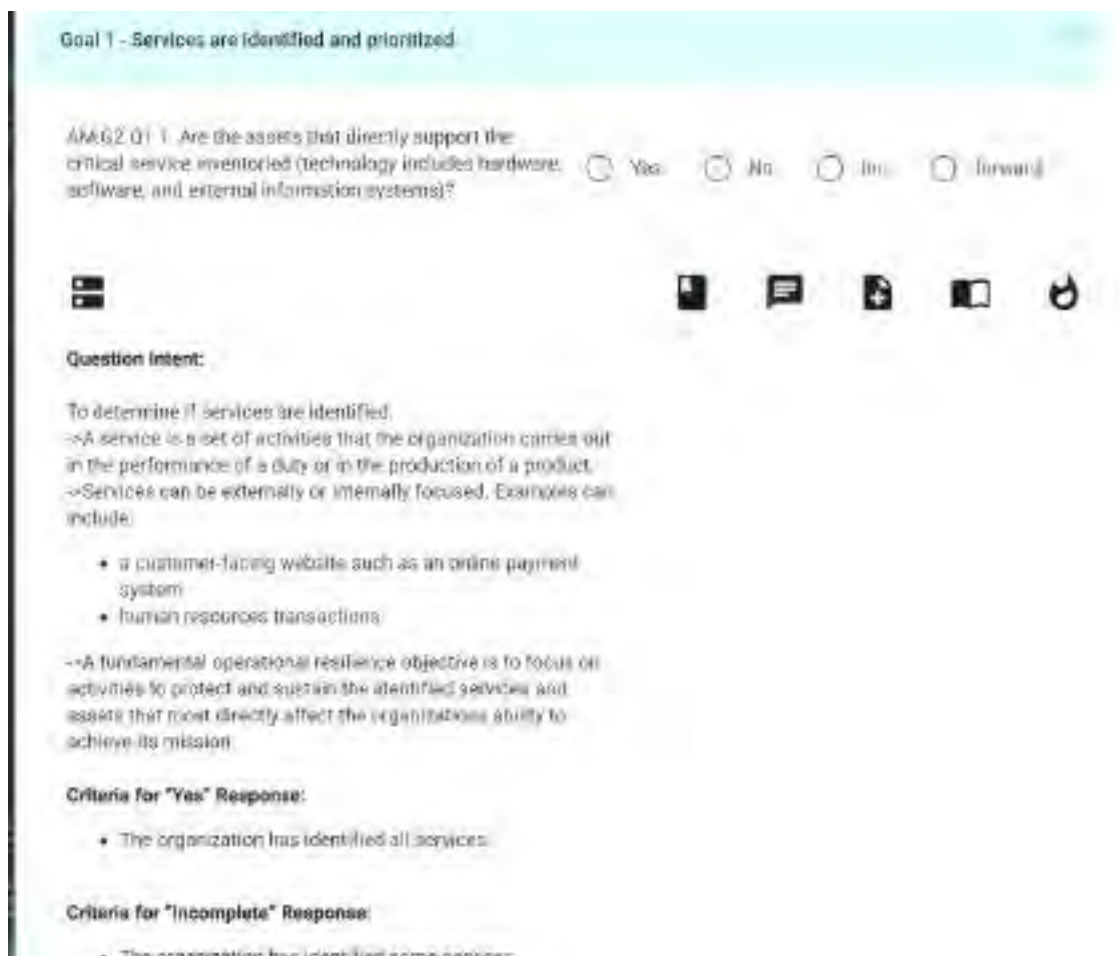


Fig.3.1 Supplemental Guidance icon

The first icon is Supplemental guidance icons, Supplemental guidance icons in a virtual audit platform typically provide additional information or instructions related to specific audit criteria or requirements. These icons are designed to help auditors understand the context and purpose behind the audit criteria, and provide guidance on how to assess compliance with the criteria.

The purpose of supplemental guidance icons is to help auditors interpret the audit criteria more accurately and consistently, and to ensure that they have access to all the information they need to

conduct a thorough and effective audit. By providing clear and concise guidance on specific audit criteria or requirements, these icons can help auditors save time, avoid misunderstandings, and produce high-quality audit reports.

Overall, the use of supplemental guidance icons in a virtual audit platform can enhance the efficiency, effectiveness, and accuracy of the audit process, and can help auditors deliver high-quality and value-added audit services to their clients.

## 9.2 COMMENT ICON

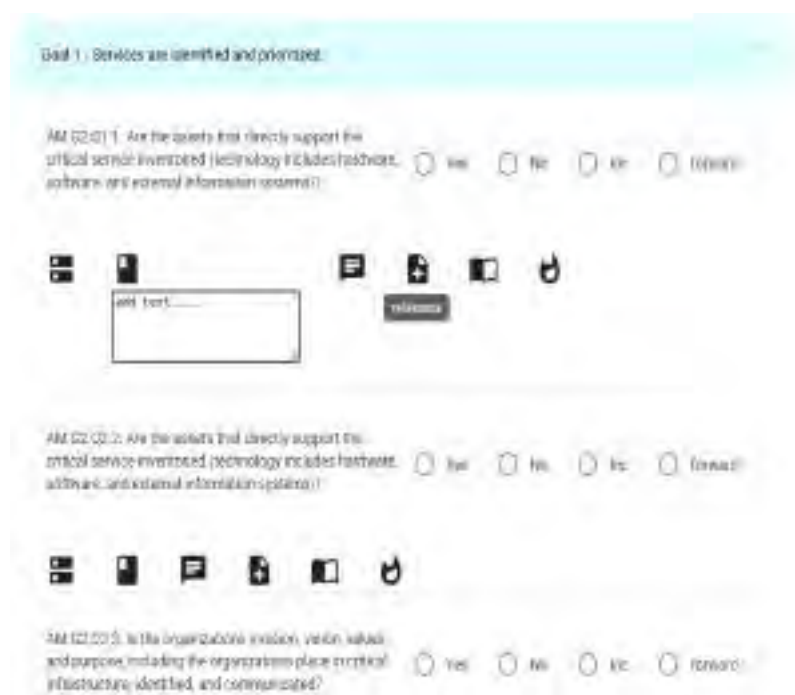


Fig.3.2 Comment Icon

The comment icon in a virtual audit platform serves as a tool for communication and collaboration between the audit team and the auditee. The purpose of the comment icon is to enable auditors and auditees to exchange information, share insights.

When the auditor clicks on the comment icon, they may be able to add comments or questions related to the specific audit criterion or question. This exchange of information can help the audit team gain a better understanding of the auditee's policies, procedures, and practices, and can help the auditee address any concerns or issues raised by the audit team.



The comment icon is important in virtual audit because it allows the respondent to provide additional information or clarification related to a specific question. This can be particularly useful when the question is complex, or when the respondent needs to provide more context to their response. By providing a comment, the respondent can explain their answer in more detail and help the auditor to better understand the situation.

Here are some key reasons why the comment icon is important in virtual audit:

**Provides additional context:** Sometimes, a question in a virtual audit questionnaire may not provide enough context for the respondent to provide a complete answer. By using the comment icon, the respondent can provide additional information or context that helps to clarify the question and provide a more accurate response.

**Clarifies ambiguous or vague questions:** Occasionally, questions in a virtual audit questionnaire may be ambiguous or vague, making it difficult for the respondent to understand what is being asked. By using the comment icon, the respondent can ask for clarification or provide suggestions for improving the question.

**Allows for additional information:** In some cases, the respondent may have additional information that is relevant to the question but cannot be easily captured in the questionnaire. By using the comment icon, the respondent can provide additional information or detail that helps to support their answer.

**Encourages engagement:** By using the comment icon, the respondent can engage with the virtual audit process and feel more involved in the audit. This can help to improve the quality of the responses and provide the auditor with a more comprehensive understanding of the situation.

Overall, the comment icon is an important feature in virtual audit because it allows the respondent to provide additional information and clarification, which helps to improve the accuracy and quality of the responses.

In virtual audit questionnaires, the use of Yes, No, and Incomplete buttons allows auditees to provide a quick and standardized response to each question. Here are some reasons why these buttons are commonly used in questionnaires:

Consistency: By using standardized response options such as Yes, No, and Incomplete, auditors can ensure that auditees are responding to each question in a consistent and structured manner. This makes it easier to compare responses across different auditees and ensure that all relevant information has been collected.

Clarity: The use of Yes, No, and Incomplete buttons makes it clear to auditees what kind of response is expected for each question. This reduces the risk of confusion or misinterpretation, which could lead to inaccurate or incomplete responses.

Efficiency: Providing standardized response options can help auditees to complete the questionnaire more quickly and easily, as they do not have to think of their own response or type out a full explanation. This can help to streamline the audit process and save time for both auditors and auditees.

Analysis: By using standardized response options, auditors can more easily analyze and compare the responses to each question. This can help to identify patterns, trends, or areas of concern, which can then be further investigated during the audit process.

Overall, the use of Yes, No, and Incomplete buttons in virtual audit questionnaires helps to provide a consistent, clear, efficient, and analysable method of gathering information from auditees.

### 9.3 ARTIFACT/ DOCUMENTS ICON

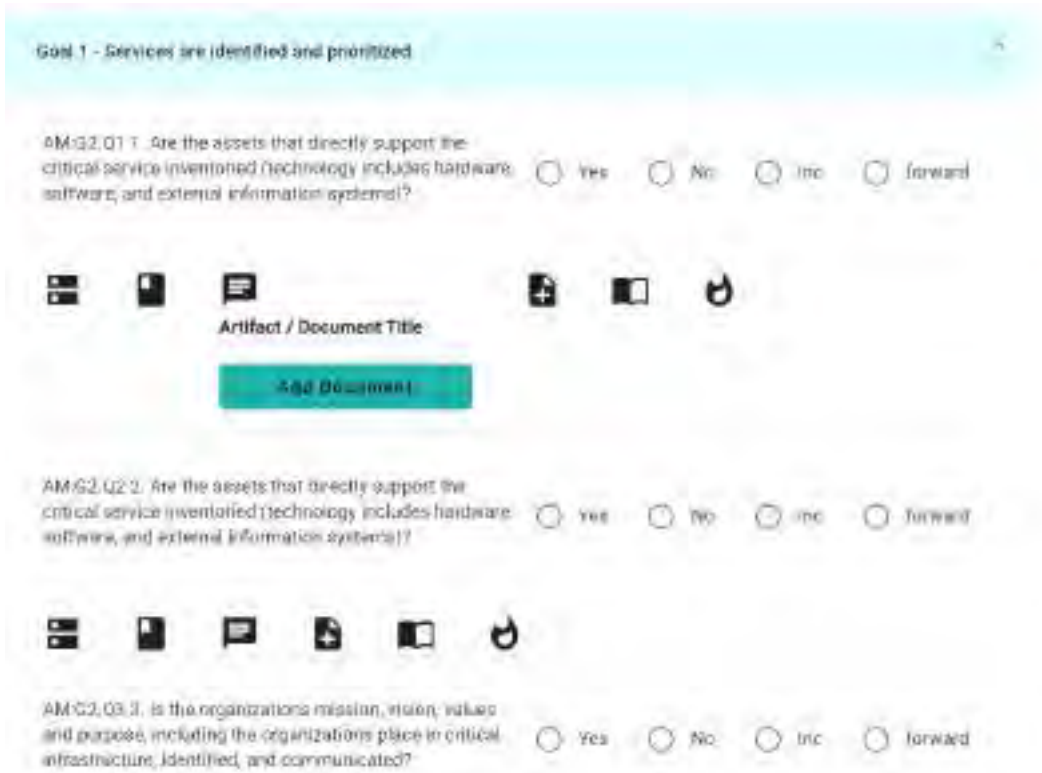


Fig.3.3 Artifact/Documents Icon

The document icon in a virtual audit platform is typically used to enable auditees to upload and share relevant documents with the audit team. This icon can help facilitate communication and collaboration between the audit team and the auditee, and can help ensure that the audit team has access to all the information they need to assess compliance with the auditee's policies, procedures, and practices.

When the auditee clicks on the document icon, they may be prompted to upload relevant documents, such as policies, procedures, contracts, or other relevant materials. These documents may be stored in the virtual audit platform, where they can be accessed by the audit team and used to support the audit process.

Overall, the document icon in a virtual audit platform can help facilitate communication and collaboration between the audit team and the auditee, and can help ensure that the audit process is conducted efficiently, accurately, and in compliance with relevant standards and requirements.

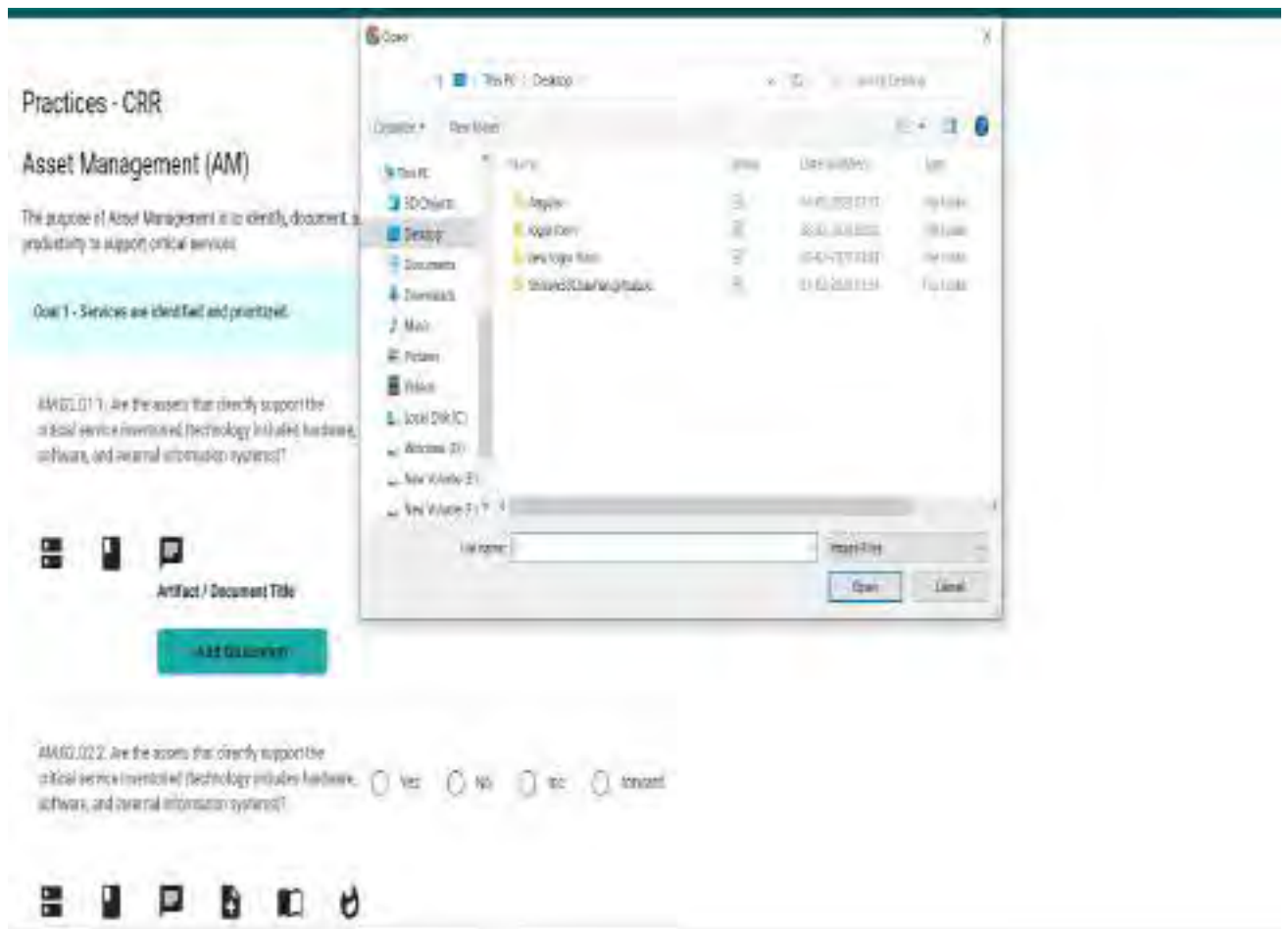


Fig.3.3 Artifact/Documents Icon

The use of document sharing and file folder access in virtual audits is essential for effective communication and collaboration between the auditor and the auditee.

During a virtual audit, the auditor will typically request access to specific documents and records to review and verify compliance with relevant standards or regulations. The auditee can then use document sharing tools or file folder access to provide the auditor with secure and controlled access to these documents.

This approach offers several benefits:

**Improved collaboration:** The auditor and auditee can work together to identify and resolve issues in real-time, which can help to streamline the audit process and reduce the risk of findings.

**Increased efficiency:** The use of document sharing tools and file folder access can significantly reduce the time and effort required to locate and provide access to relevant documents.

**Enhanced security:** The use of secure file sharing tools ensures that confidential and sensitive information is protected from unauthorized access or disclosure.

**Centralized documentation:** Using a centralized file folder for document sharing ensures that all relevant documents are in one place and can be easily accessed by both the auditor and the auditee.

In summary, the use of document sharing and file folder access in virtual audits is an effective way to facilitate communication, collaboration, and information sharing between the auditor and the auditee.



understanding of the context and purpose behind the audit criteria, and can assess compliance more accurately and consistently.

Overall, the reference icon in a virtual audit platform can help auditors better understand the purpose and scope of the audit criteria, and can help ensure that the audit process is conducted accurately and in compliance with relevant standards and requirements.

CERT-RMM (CERT Resilience Management Model) can be used as a reference model for virtual audit to assess the effectiveness of an organization's resilience management capabilities in a virtual environment. The model provides a structured and comprehensive approach to managing operational resilience, including people, processes, technology, and facilities.

In a virtual audit, the CERT-RMM model can be used as a framework to assess an organization's resilience management capabilities, including its ability to respond to disruptions, manage risks, and maintain business continuity in a virtual environment. The auditor can use the process areas and practices defined in CERT-RMM to identify areas where the organization may need to improve its resilience capabilities in a virtual environment.

For example, in the Operational Resilience Management (ORM) category of CERT-RMM, process areas such as Virtual Workforce Management and Virtual Infrastructure Management can be used to assess an organization's ability to manage its virtual workforce and virtual infrastructure effectively.

Similarly, the Incident Management and Response (IMR) category can be used to evaluate an organization's ability to detect, respond to, and recover from incidents in a virtual environment. The Business Continuity Management (BCM) category can be used to assess an organization's ability to maintain critical business functions and services in a virtual environment during disruptions.

In summary, CERT-RMM can be a useful reference model for virtual audits, providing a structured and comprehensive approach to assess an organization's resilience management capabilities in a virtual environment.

## 9.5 OBSERVATION ICON



Fig.3.5 Observation Icon

The observation icon in a virtual audit platform is typically used to enable auditors to record observations or findings related to the auditee's policies, procedures, and practices. This icon can help auditors document their assessments and findings, and can help ensure that the audit process is conducted accurately and consistently.

When the auditor clicks on the observation icon, they may be prompted to provide a description of their observation or finding, as well as any relevant evidence or documentation to support their assessment. This information may be recorded in the virtual audit platform, where it can be reviewed by the audit team and used to support the audit process.



Overall, the observation icon in a virtual audit platform can help auditors document their assessments and findings, and can help ensure that the audit process is conducted accurately, consistently, and in compliance with relevant standards and requirements.

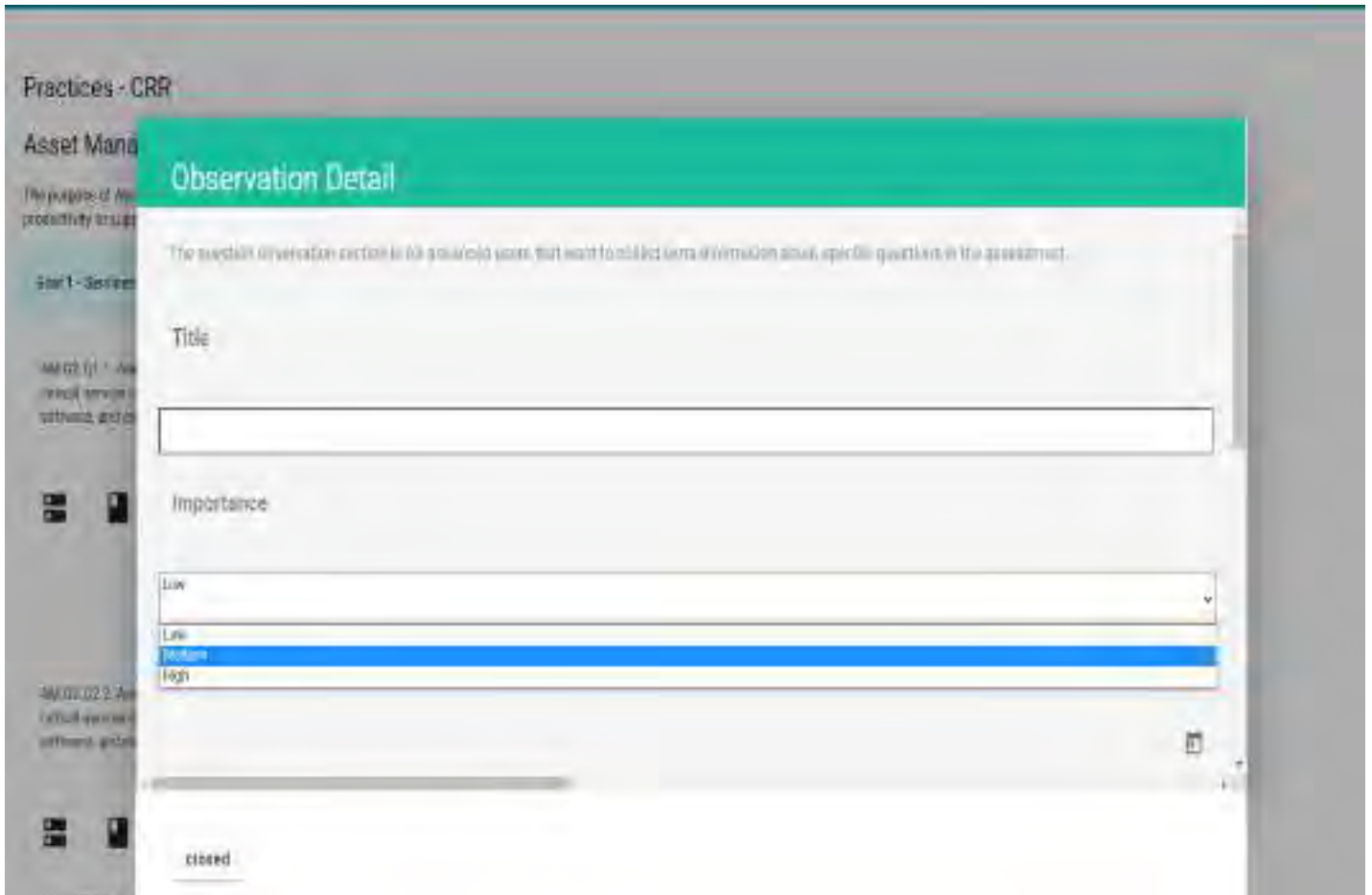


Fig.3.5 Reference Icon

Observation is an important aspect of an audit as it allows the auditor to gather evidence and assess the effectiveness of controls and processes in place. In a virtual audit, observation can be conducted using various tools and methods. Here are some details to consider when conducting observations in a virtual audit:

**Pre-planning:** Prior to the virtual audit, the auditor should clearly communicate the scope of the audit, the objectives of the observation, and the tools or methods that will be used for observation.

**Document review:** In addition to direct observation, the auditor can also review relevant documents and records to gain insight into the effectiveness of controls and processes. The auditee can provide access to these documents through secure file sharing tools or by providing read-only access to their systems.

**Follow-up:** After the observation is complete, the auditor should document their findings and provide feedback to the auditee. If any issues or concerns are identified, the auditor should work with the auditee to develop a plan for addressing these issues.

Overall, effective observation in a virtual audit requires clear communication, the use of appropriate tools and methods, and careful documentation and follow-up. By following these principles, auditors can gather reliable evidence and provide valuable insights into the effectiveness of controls and processes in a virtual environment.

In a virtual audit, the auditor may need to collect and analyse data to support their observations and findings. This data can be added to a table to provide a structured format for organizing and presenting the information.

Here are some steps to create a table for data collected during observations in a virtual audit:

**Define the scope and objectives of the observation:** Before collecting data, the auditor should define the scope and objectives of the observation. This will help ensure that the data collected is relevant to the audit objectives.

**Identify the data to be collected:** The auditor should identify the data that needs to be collected to support their observations. This may include information such as process steps, system usage, or transaction details.

**Choose a format for the table:** The auditor should choose a format for the table that will enable them to present the data in a clear and organized manner. This may include a spreadsheet, a database, or a table within the audit report.

**Define the table columns:** The auditor should define the columns for the table based on the data that needs to be collected. This may include columns such as process step, activity, control, issue, and recommendation.

Collect the data: The auditor should collect the data during the observation, using appropriate tools and methods such as video conferencing, screen sharing, or document review.

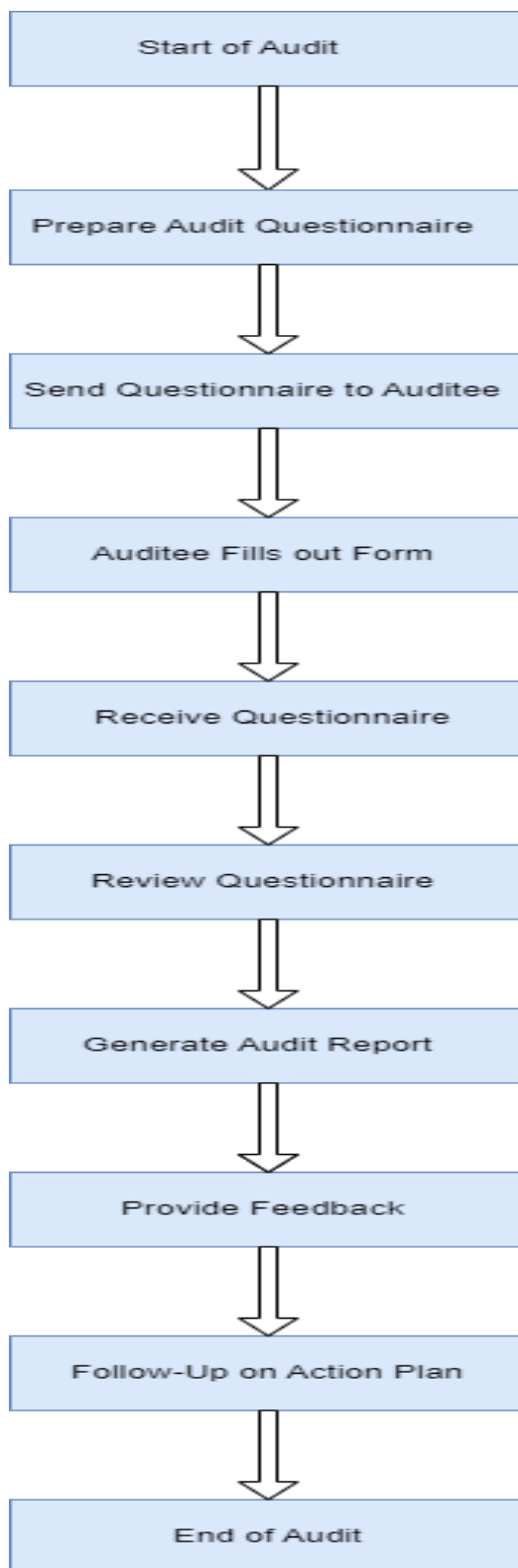
Populate the table: Once the data has been collected, the auditor should populate the table with the relevant information. This may involve entering the data manually, or importing it from other sources.

Analyze the data: The auditor should analyze the data to identify any issues or areas where improvements can be made. This may involve sorting and filtering the data, and applying data analysis techniques such as trend analysis or benchmarking.

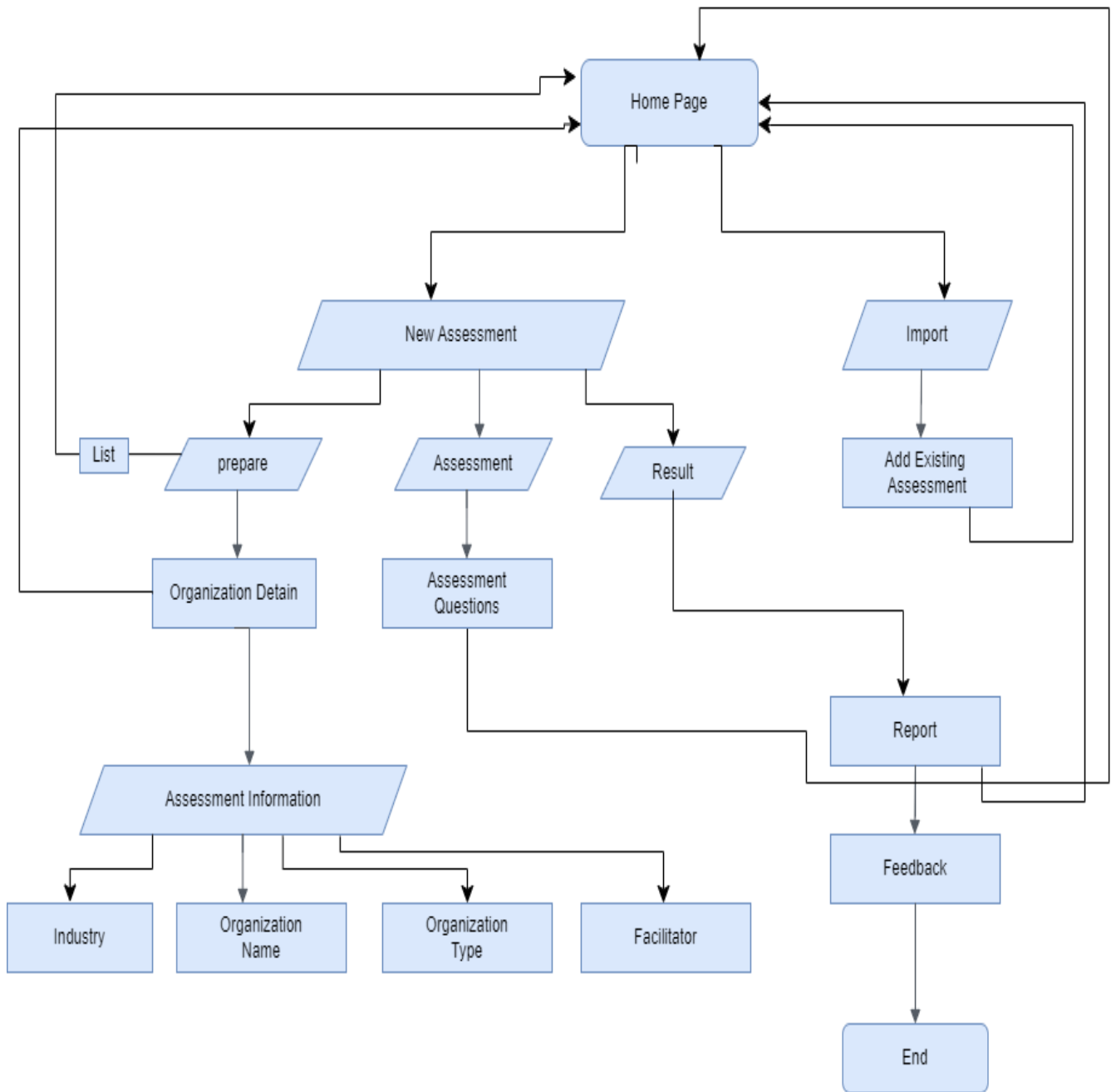
Present the findings: The auditor should present their findings in a clear and concise manner, using the table as a tool for organizing and presenting the data. This may involve including charts or graphs to highlight key trends or patterns.

By creating a table to organize and present the data collected during observations in a virtual audit, the auditor can provide a structured and comprehensive view of the organization's processes and controls, and identify areas where improvements can be made.

## **Activity Diagram**



**Use case Diagram**



**ANUXER 1**



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Annexure I

Enrollment no.

2003gpt04507

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Shivani Sunilbhai Chavhan

DIARY OF THE WEEK: Dt: 7/2/23 TO 6/2/23

DEPARTMENT: CE SEM: 8th

NAME OF THE ORGANISATION: Ashti Info Lab

NAME OF THE PLANT/SECTION/DEPARTMENT: Software developer

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyraj mistry

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Explore languages in detail which is used for developing application like, Python, C++, Java, PHP etc.
- learn about angular in deep and installation of angular and perform programs.
- explore gitHub CLI and learn to make repository.
- Try several commands in gitHub.



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TOTAL HOURS: 88

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date:

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure I

Enrollment no:

200390107507

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Shivani Samidhheri Chaturban

DIARY OF THE WEEK: Dt. 13/2/23 to 14/2/23

DEPARTMENT: Computer engineering SEM: 7th

NAME OF THE ORGANISATION: Arishti Info Labs Pvt Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: Web developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

DESCRIPTION OF THE WORK DONE IN BRIEF

- In ~~8th~~ this week I learn about angular like what is angular, How to use angular
- after I learn about angular components and module
- after that I study about how to setup angular environment
- then I create app using commands
- then I learn about angular templates
- and



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TOTAL HOURS: 5

[Signature]  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor

[Signature]

Date:

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date:

☑ Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure I

Enrollment no:

202190101501

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Shivani Sunilbhai Chaudhari

DIARY OF THE WEEK: Dt: 21/2/22 TO 4/3/22

DEPARTMENT: Computer Engineering SEM: 8th

NAME OF THE ORGANISATION: Azish Infra Lab

NAME OF THE PLANT/SECTION/DEPARTMENT: Web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Dipjyoti Prasad

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- In this week I create <sup>registration</sup> ~~login~~ page in Angular.
- the registration page elements is name, Emailid, password, radio button for gender, address etc.
- after that I put validations in this registration page.



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TOTAL HOURS: 88

[Signature]  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor

[Signature]

Date:

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date:

☉ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:

200392107507

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Shivani Samalbhara Chaudhary

DIARY OF THE WEEK: DE: 6/3/22 TO 11/3/22

DEPARTMENT: Computer Engineering SEM: 8th

NAME OF THE ORGANISATION: Anshu Info Lab

NAME OF THE PLANT/SECTION/DEPARTMENT: web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Dr. Jyoti K. Mishra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- In this week we started live project
- and that project name is virtual audit
- I do frontend part in this virtual audit project
- this week I ~~do~~ create the 1st and second webpage for virtual audit



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TOTAL HOURS: ----- 8 -----

*S. S. Patel*  
-----  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

*[Signature]*

Date:

*[Signature]*  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:

200241107507

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: વિક્રમ શિવમી સુવલ્લભાઈ ચંદ્રભાઈ

DIARY OF THE WEEK: Dt: 13/3/22 TO 19/3/22

DEPARTMENT: Computer Engineering SEM: 8th

NAME OF THE ORGANISATION: Arishti Info Lab

NAME OF THE PLANT/SECTION/DEPARTMENT: Web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

→ In this week I create a third webpage of virtual-audit

→ and in this webpage I create navbar, sidebar

→ and I put detail about virtual-audit



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TOTAL HOURS: 55

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date:

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

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Annexure I

Enrollment no:

200390103501

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Shivraj Sunilbhai Chaturhan

DIARY OF THE WEEK: Dt: 20/3/23 TO 25/3/23

DEPARTMENT: Computer engineering SEM: 5th

NAME OF THE ORGANISATION: Anshu Info Lab

NAME OF THE PLANT/SECTION/DEPARTMENT: Web Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Pratyak Mishra

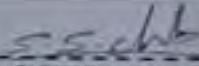
DESCRIPTION OF THE WORK DONE IN BRIEF

- In this week we learn about loops and execute the program
- we ~~are~~ create dynamic program in angular
- and using this dynamic way in virtual credit.

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TOTAL HOURS: \_\_\_\_\_

  
SIGNATURE OF STUDENT

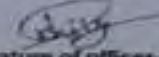
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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor



Date: 8/5/23

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of Dept. / Section / Plant



Date:

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Annexure I

Enrollment no.

200340102507

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: shirvani ramkailbhai chavhan

DIARY OF THE WEEK: Dt: 27/3/23 TO 31/3/23

DEPARTMENT: computer engineering SEM: 4th

NAME OF THE ORGANISATION: Aishvi Info Lab

NAME OF THE PLANT/SECTION/DEPARTMENT: web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Pratyaksh Mishra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- we create virtual audit in dynamic way
- ~~we~~ I create virtual - audit side bar in this week
- so ~~we~~ I create first home button so we ~~use~~ click on home button and go to home page.

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TOTAL HOURS: -----

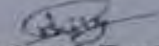
  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor



Date: 8/5/23

  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Grading of Work, for trainee may be given depending upon your judgement about  
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Signature

Enrollment no

20030407507

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Chirami Samilbhai Chauhan

DIARY OF THE WEEK: Dt: 2/3/23 TO 8/3/23

DEPARTMENT: Computer Engineering SEM: 5th

NAME OF THE ORGANISATION: Amishi Info Lab

NAME OF THE PLANT/SECTION/DEPARTMENT: Web Development

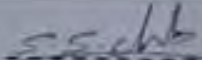
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyansu Mishra

DESCRIPTION OF THE WORK DONE IN BRIEF

- In another week I create expansion panel in sidebar.
- and ~~in~~ In this expansion panel we put dater in expansion panel
- but this dater put in JS because this is dynamic page.

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TOTAL HOURS -----

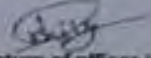
  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor



Date: 8/5/23

  
Signature of officer-in-charge  
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Answer to

Enrollment no

20230104502

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Shivani Sunilbhai Chavhan  
DIARY OF THE WEEK: DC: 10/4/23 TO 15/4/23  
DEPARTMENT: Computer Engineering SEM: 8th  
NAME OF THE ORGANISATION: Ashiti Info Tech  
NAME OF THE PLANT/SECTION/DEPARTMENT: web development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Dhruvraj Mishra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

In this week I create questionnaire page.

and this week we create different ~~expanded~~ expansion panel and put the different questions.

this questions is dynamic way questions.


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TOTAL HOURS: -----

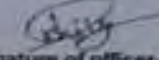
  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor



Date: 8/5/23

  
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Date:

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Annexure 1

Enrollment no.

10024010507

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Shivani Sunilbhai Chaturvedi  
DIARY OF THE WEEK: DC: 17/11/23 TO 23/11/23  
DEPARTMENT: computer engineering SEM: 8th  
NAME OF THE ORGANISATION: Arishi Info Lab  
NAME OF THE PLANT/SECTION/DEPARTMENT: web development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

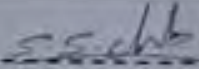
**DESCRIPTION OF THE WORK DONE IN BRIEF**

- In this week I create yes, No, incomplete button in this page.
- after ~~the~~ ~~create~~ dynamic button first I ~~create~~ create static yes, No, Inc button after create dynamic way.
- so we click in this button that show the values.

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TOTAL HOURS: -----

  
SIGNATURE OF STUDENT

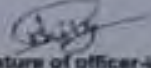
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Date: 8/5/23

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Date:

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Signature 1

Enrollment no:

200290102502

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Shivani Sumalbhai Chaudhary  
DIARY OF THE WEEK: Dt: 2/5/23 TO 6/5/23  
DEPARTMENT: Computer Engineering SEM: 8th  
NAME OF THE ORGANISATION: Amishi Info Lab  
NAME OF THE PLANT/SECTION/DEPARTMENT: web development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Dhruv Mishra


DESCRIPTION OF THE WORK DONE IN BRIEF

- In this week I create a questionnaire inside the expansion panel.
- that panel show the different question related to industry resources.
- this way I create dynamic web pages of virtual child using Angular CLI

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TOTAL HOURS: -----

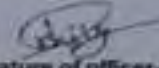
  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor



Date: 8/5/23

  
Signature of officer-in-charge  
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Date:

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Signature

Enrollment no.

20070107507

STUDENT'S WEEKLY RECORD OF INTERNSHIP

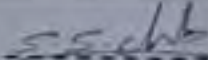
NAME OF STUDENT: Chirami Samilbhai Chaudhary  
DIARY OF THE WEEK: Dt: 2/3/23 TO 8/3/23  
DEPARTMENT: Computer Engineering SEM: 8th  
NAME OF THE ORGANISATION: Arishti Info Lab  
NAME OF THE PLANT/SECTION/DEPARTMENT: Web Development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

DESCRIPTION OF THE WORK DONE IN BRIEF

- In another week I create expansion panel in sidebar.
- and ~~in~~ In this expansion panel we put data in expansion panel
- but this data put in JS because this is dynamic page.

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TOTAL HOURS: -----

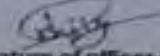
  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor



Date: 8/5/23

  
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# ANUXER 2



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Annexure 2

**Feedback Form by Industry expert**

Student Name: Shivam Sunilbhai Chankhan Date: \_\_\_\_\_  
 Work Supervisor: Mrs. Divyanshi Mishra Title: \_\_\_\_\_  
 Company/Organization: Asishti Info Labs Pvt. Ltd.  
 Enrollment No: 200390101507  
 Internship Address: Abp, Sec 2, Shivam 3 not B/h, Dada bhugwan, Mill Adalat, Gandhinagar, Gujarat  
 Dates of Internship: From 2 Feb-23 to 10 May-23

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters:	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives			✓	
Produces high quality work and accepts responsibility		✓		
Uses technical knowledge and expertise	✓			
Analyzes problems effectively	✓			
Communicates well and writes effectively		✓		

Overall performance of student intern (Needs improvement/ Satisfactory/Good/Excellent):

Good

Additional comments, if any:

Signature of Industry person with name and stamp:

*(Handwritten Signature)*



Signature of the Faculty Mentor:

## Website References

1. <https://www.w3schools.com/>
2. <https://tailwindcss.com/>
3. <https://jquery.com/>
4. <https://getbootstrap.com/>
5. <https://react.dev/>
6. <https://git-scm.com/>
7. <https://www.typescriptlang.org/>
8. <https://www.docker.com/>
9. <https://radixweb.com/>



**INTERNSHIP AT  
SCRIPT ALL DNA TECHNOLOGIES**

**AN INTERNSHIP REPORT**

*Submitted by*

**Chhaya Dineshbhai Timbadiya**

**19390107063**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**

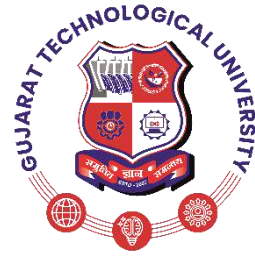
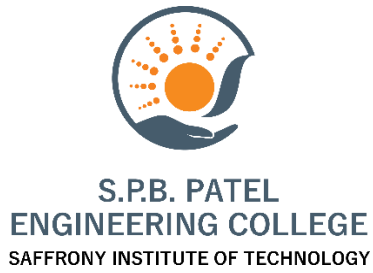


**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Script All DNA Technologies** has been carried out by **Chhaya Dineshbhai Timbadiya** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Script All DNA Technologies** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Mr. Hiren Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

Chhaya Dineshbhai Timbadiya

## ACKNOWLEDGMENT

I would like to express my deepest gratitude for the support and guidance I have received during my internship at **Script All DNA Technologies Pvt. Ltd.** I would like to extend my heartfelt thanks to **Mr. Hiren Patel** (Sr. Software Developer, Script All DNA Technologies Pvt. Ltd.) for their continuous support and motivation throughout my internship. Their mentorship and guidance played significant role in my growth and development.

I would also like to extend my sincere appreciation to **Mr. Mahesh Pipalia** (CEO, Script All DNA Technologies Pvt. Ltd.) for his enlightening sessions, which were incredibly insightful and enjoyable. His Leadership and vision have been great inspiration to me.

I am grateful to **Prof. Akshay Kansara** (HOD, Computer Engineering Dept.) for providing me a supportive and conducive learning environment. They were always available to answer my queries and provide me with the necessary guidance, I am deeply grateful for their unwavering support throughout my internship. Without their encouragement, guidance, and support, I would not have been able to succeed in my internship.

Finally, I would like to thank all who have contributed to the successful completion of my project directly or indirectly. The knowledge, experience, and inspiration I gained during my internship at Script All DNA Technologies Pvt. Ltd. will stay with me for a lifetime.

## ABSTRACT

*In today's fast-paced world, the need to transfer files from one system to another is a common occurrence. People need to transfer file on a daily basis, whether it's sharing document with colleges, sending photos to the friends or in organization share the documents to one employee to other employees. However, manual uploading and downloading tasks in the current system waste time and increase user workload. A new system is proposed to streamline file sharing, reduce manual work, and improve efficiency, leading to a significant reduction in user workload.*

*To overcome this problem a new system is developed which will allow the work of the user to be done seamlessly and in a precise way in which manual work of the user gets reduced as compared to the current system, the benefit of the new system is that it reduces the standard work of a user at much extent.*

*I have used the Python and Flask framework to achieve this idea and use MySQL for storing necessary transactions held during files uploading and downloading. I also used Electronjs to implement front end part of this desktop application.*

*By using this new system, the end user now can securely do file uploading and file downloading in windows.*

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## **ABBREVIATION**

<b>DNA</b>	<b>Deoxyribonucleic Acid</b>
<b>IT</b>	<b>Information Technology</b>
<b>RCM</b>	<b>Revenue Cycle Management</b>
<b>SHA</b>	<b>Secure Hashing Algorithm</b>
<b>API</b>	<b>Application Programming Interface</b>
<b>GUI</b>	<b>Graphical User Interface</b>
<b>RAM</b>	<b>Random Access Memory</b>
<b>ROM</b>	<b>Read Only Memory</b>
<b>IDE</b>	<b>Integrated Development Environment</b>
<b>SQL</b>	<b>Structured Query Language</b>
<b>QA</b>	<b>Quality Assurance</b>
<b>UX</b>	<b>User Experience</b>

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## CHAPTER 1: OVERVIEW OF ORGANIZATION

### 1.1. HISTORY



**Figure 1.1 Company Logo**

Script All DNA Technologies is a software solutions provider founded in 2015 by experienced professionals with the goal of delivering innovative and dependable software to clients around the world.

Initially starting as a small team of web and mobile application developers in Hyderabad, India, the company gradually expanded its services to include software testing and maintenance as well as custom software development for clients in different industries and regions.

With a track record of delivering high-quality software solutions that cater to the specific needs of clients, Script All DNA Technologies has grown to have a team of over 100 employees, including developers, designers, project managers, and quality assurance specialists.

The company has diversified its services to cater to clients in healthcare, education, agriculture, transportation and other industries. Script All DNA Technologies continues to grow and adapt to meet the evolving needs of its clients and the technology industry.

### 1.2. DIFFERENT PRODUCTS / SCOPE OF WORK

In a digitally changing world, Organization is constantly focusing on elevating the standard of care by introducing products that increase patient

access, reduce health system costs, improve results, and ultimately, deliver value. There are some products are as follows:

- **PracTrace**

It is a complete tele-medicine, cloud-based solution that offers web-based user interfaces as well as mobile applications for physicians and patients.

- **ViewDNA**

This product is a fully-integrated DICOM viewer that is designed to diagnose, retrieve, display, store, transmit, and print medical images.

- **PacsDNA**

It is a cloud-based solution, specially designed for a distributed workflow.

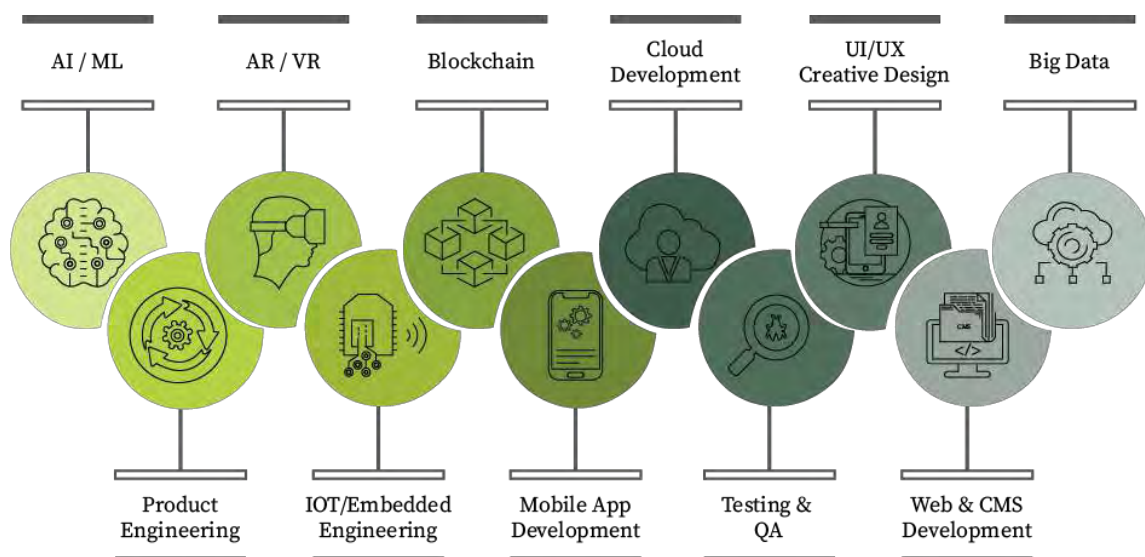
- **RadiologyDNA**

It optimizes the imaging process by integrating the various functions involved in managing patient information into one comprehensive system.

They believe in **Caring along with Curing** – that is why SDNA deliver the best through their finest practices and focused solutions.

### Scope of Work

- JavaScript
- Machine learning/AI
- Open-source web framework
- Big Data
- Cloud
- Mobile
- Smart Solutions
- Embedded Engineering
- Database
- Enterprise Web Application



**Figure 1.2 Scope of Work**

### 1.3. ORGANIZATION CHART

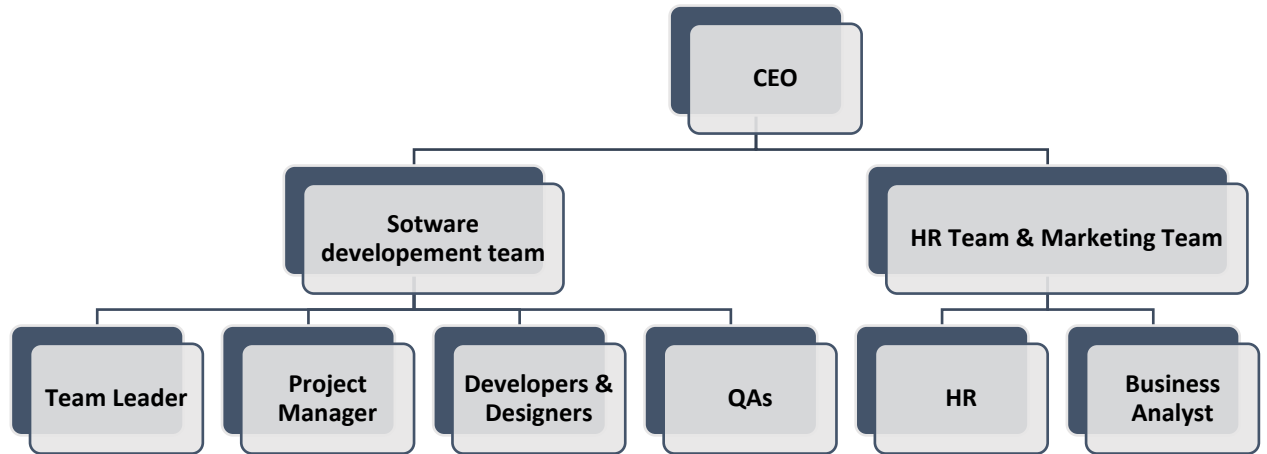


Figure 1.3 Organization Chart

## CHAPTER 2: DEPARTMENTAL WORK OVERVIEW

### 2.1. DETAIL OF EACH DEPARTMENT

**Software Development Department:** The software development department is responsible for designing, coding, testing, and maintaining software applications. They work closely with other departments or clients to understand requirements, create software architecture, write and test code, and provide ongoing maintenance and support. Their goal is to create high-quality software applications that meet the needs of the organization and its users.

**Design Department:** The Design department creates user-friendly and intuitive software interfaces that focus on the user's visual experience. They build a logical flow of interactions and create design solutions that are both aesthetically pleasing and functional. They work closely with developers to ensure that the design is implemented properly.

**Quality Assurance Department:** The Quality Assurance department is responsible for ensuring the quality of software products. They test software features and functionalities to identify bugs and defects. They work with developers to define corrective measures and ensure that the software development process meets quality standards.

**Business Analyst Department:** The Business Analysis department works with stakeholders to understand their needs and translate them into technical specifications. Their main responsibility is to gather, analyze, and document business requirements for software projects. They act as a bridge between the business and IT teams to ensure that software solutions meet the needs of the business.

**HR & Marketing Department:** The HR and Marketing teams in an IT company work closely together to ensure the company has the right talent and promote its products and services. HR manages human resources, while Marketing develops marketing strategies. Both teams collaborate on employer branding initiatives. Their collective efforts help drive the success of the organization.



## 2.2. THE TECHNICAL SPECIFICATIONS USED IN EACH DEPARTMENT

This project development, use different technologies for Frontend and Backend:

- At the backend of the project, Python and Flask web frameworks were used.
- Project's frontend has been built using the React JavaScript library and other libraries, which is widely used for building user interfaces.
- The database, MySQL has been used as the relational database management system. backend and frontend are connected to the MySQL database using APIs, allowing for efficient communication between the different layers of the application.
- For coding of backend PyCharm and for frontend VS Code is used.

## 2.3. SEQUENCE OF OPERATION FOR MANUFACTURING OF END PRODUCT

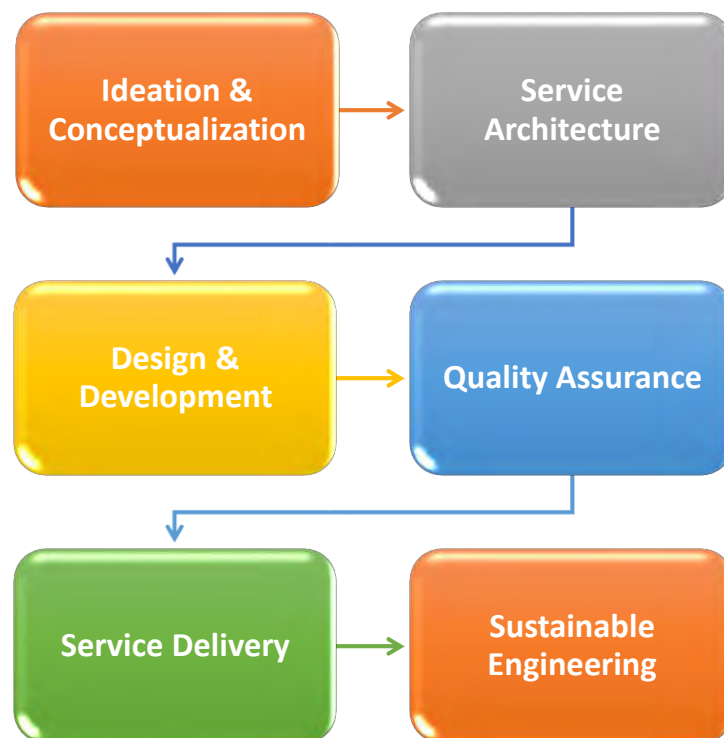


Figure 2.1 Operation for Manufacturing of Product

## 2.4. DETAILS ABOUT EACH STAGE OF PRODUCTION

### **Ideation & Conceptualization**

Ideate and conceptualize technological solutions based on client requirements and current market trends

### **Service Architecture**

Document key elements across infrastructure, networking, and data while ensuring mobility, access, and security

### **Design & Development**

Finalize design, manage logistics and team resources, and ensure development is completed within defined timeline

### **Quality Assurance**

Ensure quality through system testing, functional testing, and user acceptance testing

### **Service Delivery**

Deliver the final solution/service to client; support with required set-up and training

### **Sustainable Engineering**

Guarantee evolution and sustainability on different platforms, meeting new needs and software demand.

## **CHAPTER 3: INTRODUCTION TO INTERNSHIP AND PROJECT**

### **3.1. PROJECT / INTERNSHIP SUMMARY**

File sharing is a very significant aspect of data transfer, involving the sharing or provision of access to various resources like documents, multimedia, and computer programs. However, the current system has the problem of manual uploading and downloading tasks that waste time and increase user workload. To address this issue, a new system is proposed that streamlines file sharing, reducing manual work and resulting in improved efficiency and a significant reduction in user workload.

### **3.2. PURPOSE**

A new system is proposed to seamless and secure file sharing, reduce manual work, and improve efficiency, leading to a significant reduction in user workload.

To overcome problem in current system, a new system is developed which will allow the work of the user to be done seamlessly and in a precise way in which manual work of the user gets reduced as compared to the current system, the benefit of the new system is that it reduces the standard work of a user at much extent.

- Reduces the manual work of the user.
- Seamless upload and download just by right click service.
- Single upload- multiple downloads.
- Token authorization.
- Secure and seamless transmission.
- Ease of interaction.

### **3.3. OBJECTIVES**

- Copy the content or any file. So, anyone whom you want to share can download it. By implementing the file uploading service to the server.
- Paste the content by using valid token to seamlessly transfer the copy content.
- Shows the history of copy and paste to maintain the log of file upload and downloads respectively.
- Provide right click options for copy and paste the files to make easy file sharing
- Delete the file which is uploaded to the server to remove the file functionality for paste it.
- Compress the file so that user can select the multiple files for uploading which saves the user's time so it can upload all file from the one copy service by using different file compression algorithm.

### **3.4. SCOPE (WHAT IT CAN DO AND CAN'T DO)**

- It helps the user by reducing the manual work of users. It provides the Seamless upload and download just by right click service.
- Desktop-Only Availability for a System
- The windows user can use it, but it does not provide service for another operating system's user.
- Users can share and revoke the file or content.
- User can view who has accessed his data.

### **3.5. SCOPE TECHNOLOGY AND LITERATURE REVIEW**

The "PasteAnyWhere" project was built using a combination of technologies that include the Python-Flask Framework for the backend and ReactJS for the frontend. To store the data, the project uses the MySQL Database. By leveraging these technologies, the project is able to offer a secure and efficient file transfer.

**Technologies Used:**

**Flask Framework:** Flask is a Python-based micro web framework that is designed to be simple, lightweight, and flexible. It provides developers with the basic tools and libraries needed to build web applications quickly and easily.

**Django:** Django is a high-level web framework for Python that emphasizes rapid development, pragmatic design, and clean, reusable code. It includes tools for working with databases, managing user authentication, and building complex web applications.

**MySQL:** MySQL is an open-source relational database management system. It is a popular choice for web applications because of its scalability, performance, and ease of use.

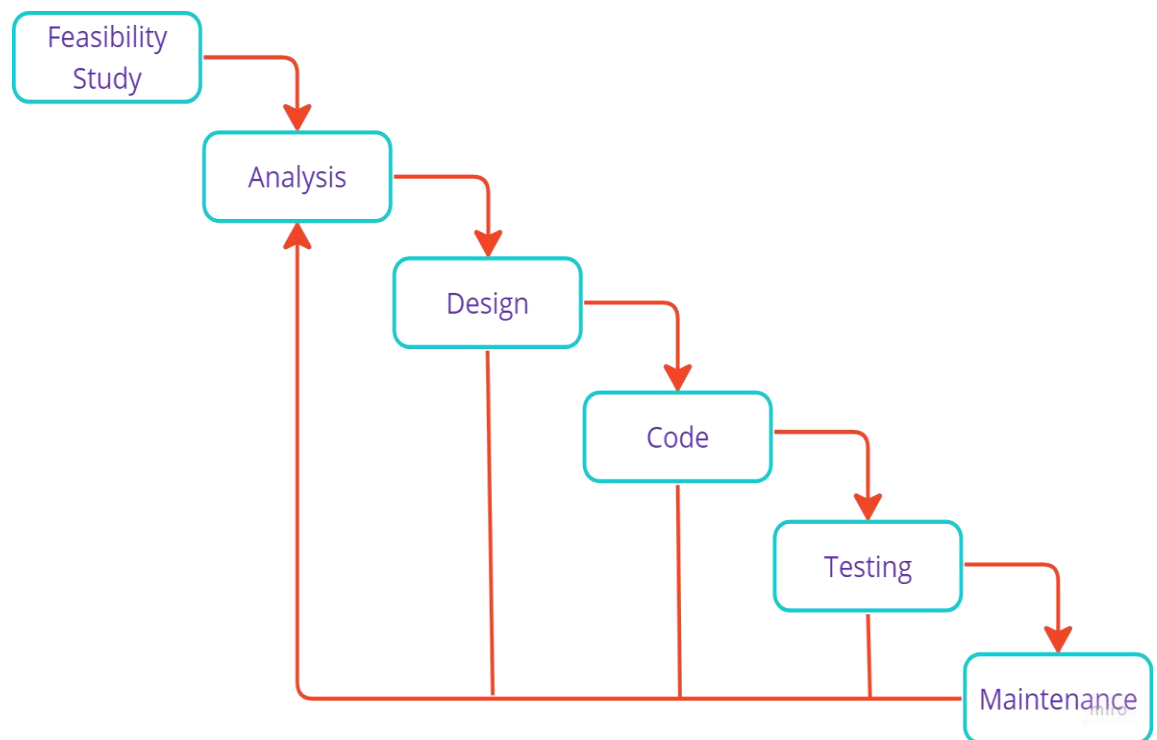
**Postman:** Postman is a collaboration platform for API development. It provides tools for designing, testing, and documenting APIs, as well as for monitoring their performance and security. It can be used to test APIs developed with any programming language, including Python with Flask or Django.

**PyCharm:** PyCharm is an Integrated Development Environment (IDE) for the Python programming language. It provides tools for code editing, debugging, and testing, as well as integration with version control systems and support for web development frameworks like Flask and Django.

### 3.6. PROJECT / INTERNSHIP PLANNING

Software development planning involves defining the project scope, identifying user requirements, selecting a development methodology, and creating a roadmap. Effective planning requires consideration of technical constraints, dependencies, and risks, and the creation of a detailed project schedule. Continual monitoring and adjustment of the plan is necessary, and effective communication, prioritization, and understanding of project goals is key to success.

### 3.6.1. Project Development Approach and Justification:



**Figure 3.1. Waterfall Diagram**

### 3.6.2. Project / Internship Effort and Time

Project planning is an integral component of project management that enables project managers to develop a clear roadmap for executing and monitoring project activities. This report highlights the essential steps involved in project planning and discusses the importance of having a detailed plan in place before commencing project implementation.

The internship learning and project completion requires a total effort of 600 hours, which will be distributed over a period of 12 weeks. This report emphasizes the significance of considering various factors when planning a project, including cost, duration, effort required, scheduling, manpower, resource allocation, and risk management.

The first step in project planning is to define the project's scope, which involves determining the project's goals, objectives, and deliverables. In the case of the internship learning and project completion, the scope involves developing a comprehensive plan that outlines the necessary activities such as development, testing, documentation, and revisions required.

### **Task Identification and Work Breakdown Structure**

Once the project scope is defined, the next step is to identify the different tasks required to complete the project and estimate their duration. These tasks are then grouped into a work breakdown structure, which provides a detailed overview of the project's different phases and milestones.

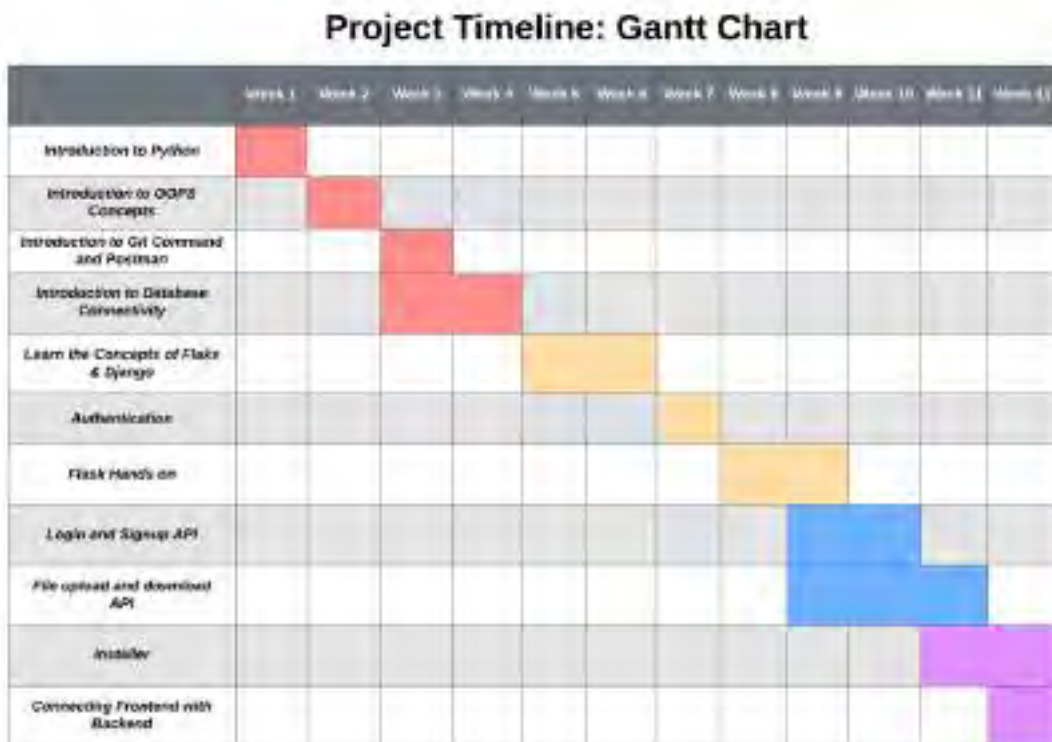
### **Factors to Consider in Project Planning**

Several factors need to be considered when planning a project, including cost, duration, effort required, scheduling, manpower, resource allocation, and risk management. Project managers need to take all these factors into account when developing a comprehensive plan that outlines the project's scope, objectives, and milestones.

### **Impact of Backend Technologies on Project Timeline**

One crucial factor that influences project timeline is the selection of backend technologies. Using established frameworks like Flask and Django can positively impact the overall timeline by streamlining development and reducing development time.

### 3.7. GANTT CHART





## **CHAPTER 4 – SYSTEM ANALYSIS**

### **4.1 STUDY OF CURRENT SYSTEM**

- During the time of internship, I was assigned to work on a project which is a desktop application for data transferring.
- I was assigned to implement the web application APIs for this desktop application. During the time of implementation, I have come across many other service providers which provide this functionality but there are some limitations which waste user's time.
- These systems generally employ standard features such as the use of the keyboard shortcuts ctrl-c for copying files and ctrl-v for pasting them but are limited to file transfers within a single device only.
- To overcome the limitations, a new file management system is being developed, which aims to offer a seamless and precise file management experience. The desktop application has the functionality to see the history of data transferring.

### **4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM**

The current system has lots of work to do like file uploading and then waiting for files to upload which makes an increase in manual work of users and wastes the user's time. And content doesn't upload seamlessly.

### **4.3 REQUIREMENTS OF NEW SYSTEM**

#### **4.3.1 Functional Requirements**

- Seamless upload and download.
- Compression
- End user authorization

#### **4.3.2 Nonfunctional Requirements**

- The system should be user-friendly.
- The system is reliable, accurate and specific.
- System uses appropriate Token.
- It provides easy to use GUI.

- Any authorized personnel can use the system.
- The system should run on backend services.

### 4.3.3 Hardware Requirements

Table 4.1 Hardware Requirements

Processor	Intel® Core™ i5 8250U(1.6 GHz base frequency, up to 3.4 GHz with Intel® Turbo Boost Technology, 6 MBcache, 4 cores)
RAM	8GB DDR4-2400 SDRAM
ROM	1TB 5400 rpm SATA

### 4.3.4 Software Requirements

Table 4.2 Software Requirements

Operating System	Windows
Database	MySQL
Framework	Flask
Programming Language	Python

## 4.4. SYSTEM FEASIBILITY

System feasibility refers to the process of evaluating whether a proposed information system is viable, practical, and worth pursuing. It involves assessing the technical, economic, operational, and schedule feasibility of the proposed system.

Technical Feasibility:

Technical feasibility is used to see if the project can be implemented on the available infrastructure, technology, and resources. To deployment on this project, we have done the checking feasibility. It connects with requirements of the hardware, software, and system.

Economical Feasibility:

Economic feasibility involves assessing the financial viability of the proposed system. It involves estimating the costs of developing, operating, and maintaining the system, as well as the expected benefits and returns on investment.

Operational Feasibility:

Operational feasibility needs to be done for testing the potential risk and benefits of the projects and it ensures that the project achieves its goal and objective.

Time Schedule Feasibility:

In time scheduling feasibility, project timeframe is decided also it estimates the time required to complete each task of the project.

#### **4.4.1 Does the system contribute to the overall objectives of the organization?**

The overall objective of the organization is to provide users with ready to use and functional solutions to the problem, so this project contributes to the overall objective of the organization.

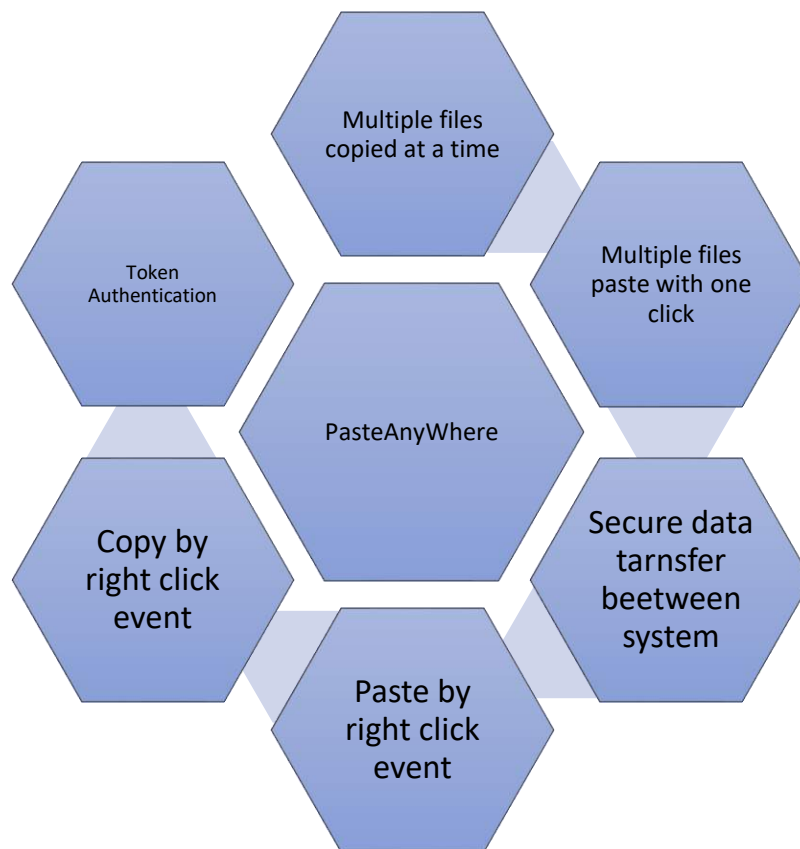
#### **4.4.2 Can the system be implemented using the current technology and within the given cost and schedule constraints?**

Systems can be implemented using current technologies as there is a lot of advanced technology available. Also, cost and schedule constraints are considered for this project.

#### **4.4.3 Can the system be integrated with other systems which are already in place?**

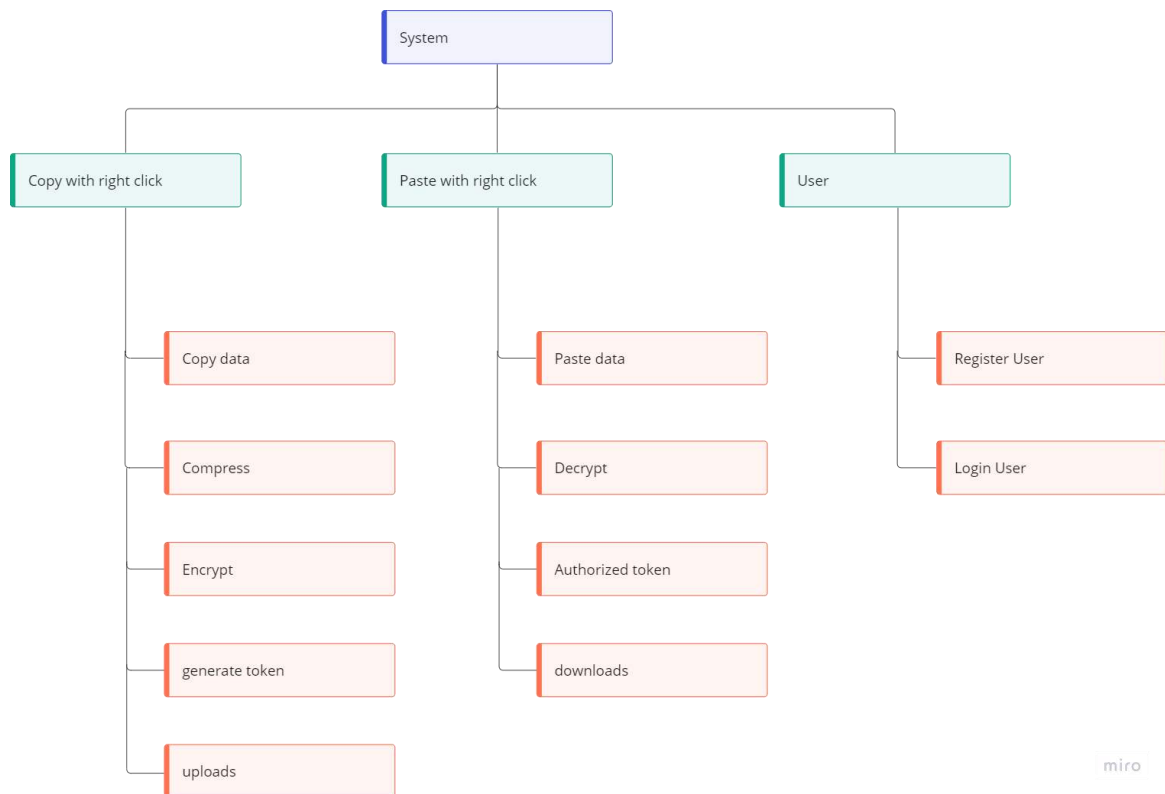
The system can be integrated with the other system for this can be done by having the proper requirements.

#### 4.5. FEATURES OF NEW SYSTEM



**Figure 4.1 Feature of new system**

#### 4.6. LIST OF MAIN MODULES



**Figure 4.2 List of Main Modules**

#### 4.7. SELECTION APPROACHES AND JUSTIFICATION

**Flask:** Flask is a micro web framework for building web applications with Python. It provides a simple and flexible approach to web development and is often used for small to medium-sized projects.

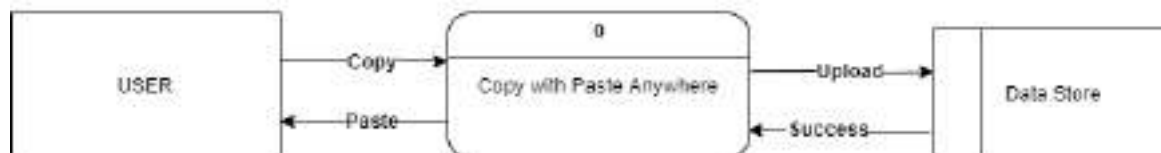
**Django:** Django is a high-level web framework for Python that emphasizes rapid development, pragmatic design, and clean, reusable code. It includes tools for working with databases, managing user authentication, and building complex web applications.

**MySQL:** MySQL is an open-source relational database management system. It is a popular choice for web applications because of its scalability, performance, and ease of use.

## CHAPTER 5.0 – SYSTEM DESIGN

### 5.1. SYSTEM DESIGN AND METHODOLOGY

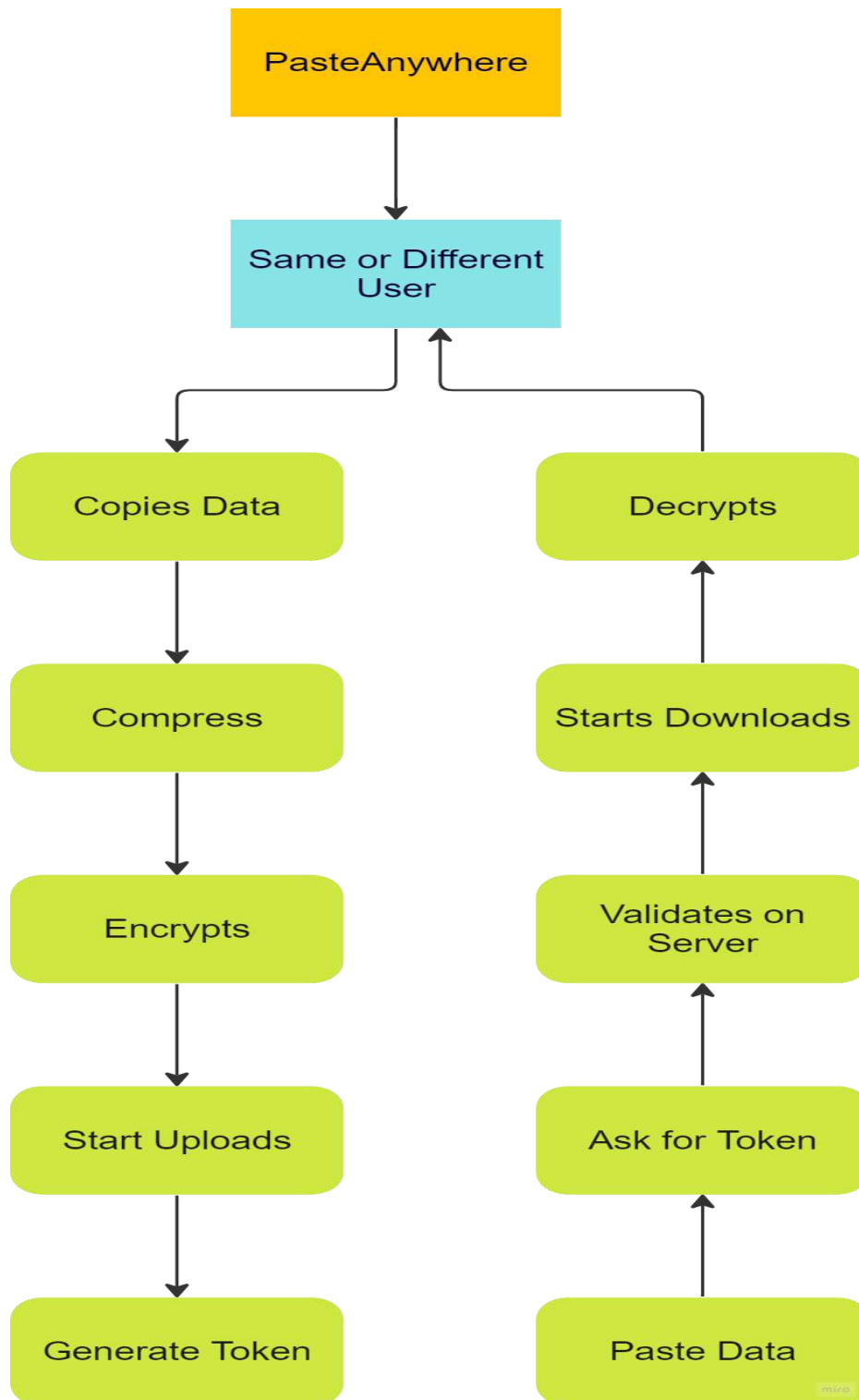
The system design plays a crucial role in application. The system designs contents all important modules, interfaces, and components and let the user experience the user-friendly environment. The new system contains four different phases, and the phases are user registration which allow application to add the new user.



**Figure 5.1 Copy Procedure diagram**



**Figure 5.2 Paste Procedure diagram**

**System Design Flow:****Figure 5.3 Procedure diagram**

### **System Methodology**

- After successfully downloading the software, to integrate with it the user first needs to sign up with his basic credentials, after the signup system creates a file that contains the unique username of the user.
- If the user uninstalls the software again, if user wants to install it if he knows the login credentials of his, he can get all his past record from that credential.
- Now the user can copy the required contents from the context menu, as soon as the user copies the data the required content gets uploaded on the server seamlessly and after the successful uploading of the data a unique token number is generated.
- Token id is one of the main requisites of the system for the required content to be pasted on the remote side which the user needs to share it with the remote user anyhow.
- For pasting the intended user can paste it by context menu with the unique token id shared by the copied user.

## **5.2. DATABASE DESIGN**

Creating a database is an essential part of application development, as it provides a structured way to store, organize, and retrieve data. A database in this system is used to store various types of data, such as users' information, file records, User's copy and paste history records, and to store token information.

A database is a critical component of application development, enabling us to build powerful and robust applications that can effectively manage and leverage large amounts of data in this system.



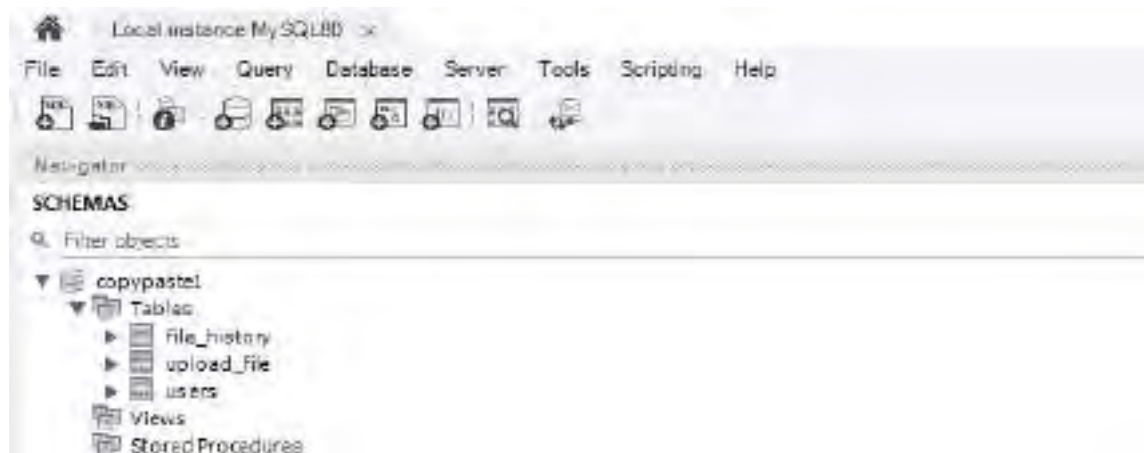


Figure 5.4 Database Snap (List of tables)

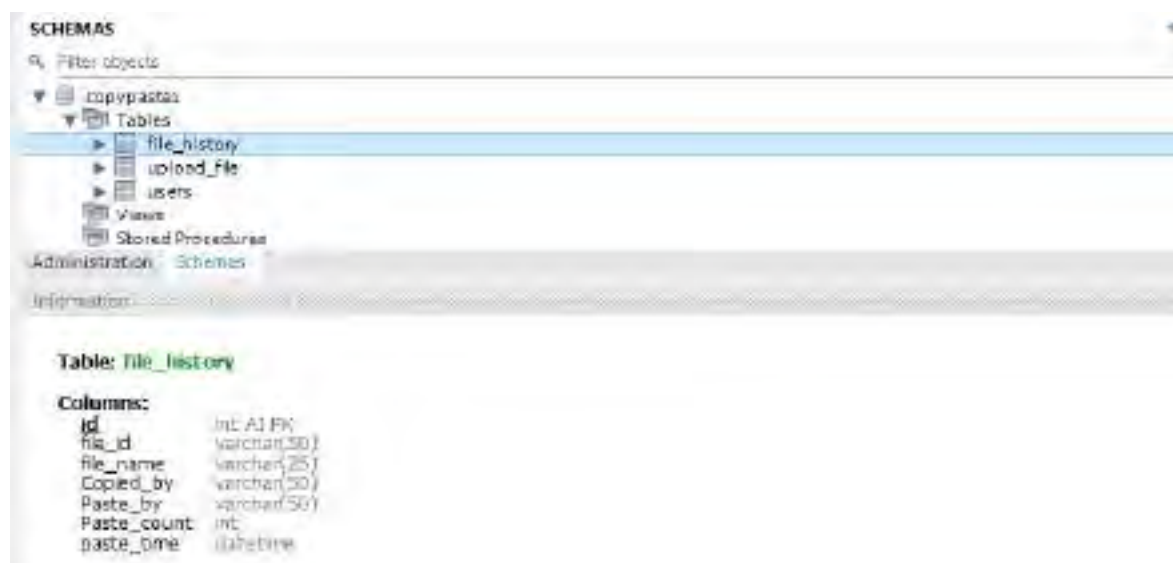


Figure 5.5 Database snap (Design of file)

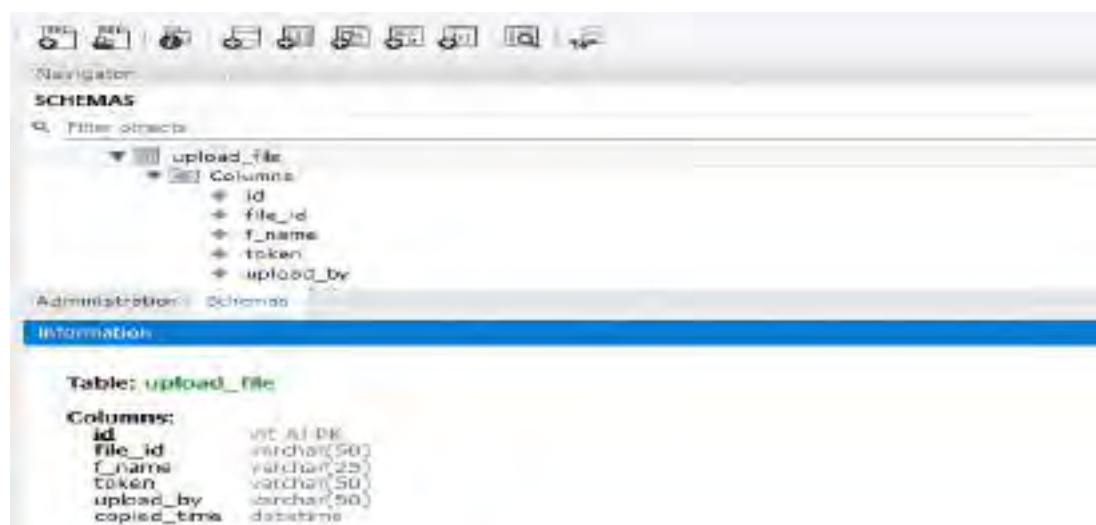


Figure 5.6 Database snap (Design of Copy)



Figure 5.7 Database Snap (Design of reset Password)



Figure 5.8 Database Snap (Design of user)

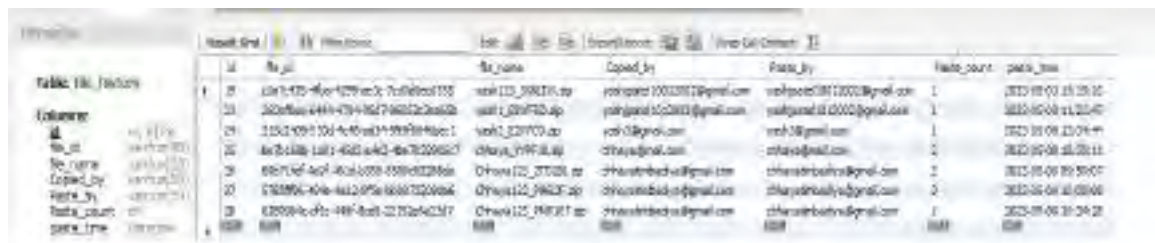


Figure 5.9 Database Snap (records of paste file)

id	public_id	name	email	password	address	contact
1	38b6d88-cdb1-4ecf-9a4d-112890a202f6	chhaya	chhaya@gmail.com	chhaya123	Adalg	7903283
2	c8946e1f2c3e-4402-9115-6d13b065e4f5	Bansi	bansid@gmail.com	bansid123	Adalg	123345
3	db14f3a-cd7b-4c71-8a25-f28ac947e1	Devik	devik@gmail.com	devik123	Adalg	123345
4	5ed18835-46ff-4808-e48b-d8681333a594	secondary	secondary@gmail.com	secondary	secondary	123456789
5	386781d7-2031-4a03-894b-f4e3855b6e80	Aayasha	aayasha@gmail.com	aayasha123	Arcadabad	17027894
6	0008992a801f-6d05-a2d4-91367a258f31	soff	soff@gmail.com	soff	soff	123456
7	58b0a8aa-953f-483a-e081-d17875d91175	Taha	taha@gmail.com	taha123	Susa	123456
8	a794f73e-5c7f-403a-873b-9296a18d30f4	gulab	gulab@gmail.com	gulab123	Susa	12345
9	5885cd11-8e91-4fae-eb73-154e1384e3c1	Chhaya123	chhaya123@gmail.com	chhaya	Adalg	123345
10	1b194d3c-c227-4902-9837-3068f7e2e8d1	yash	yash@gmail.com	yash	nelsare	9152448911

Figure 5.10 Database Snap (records of user table)

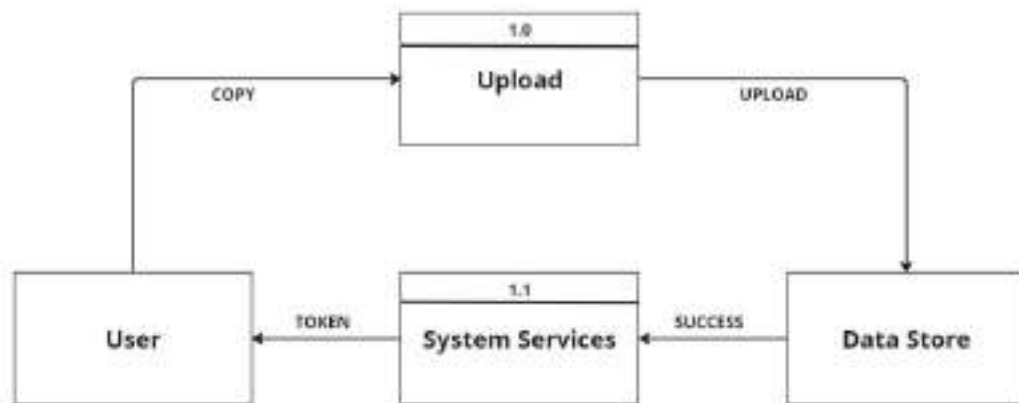
id	file_id	f_name	token	upload_by	upload_time
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25	315c2409-013d-4e4e-ae04-999188496e11	yash1_0271CD.ap	08185	vest3@gmail.com	2023-05-08 12:04:52
26	b0d1c174-1185-4059-b2b5-998425ca37f	yash1_0463F.ap	776UQW	yash3@gmail.com	2023-05-08 12:09:22
27	be7b1a0b-2651-46d2-e4e3-4e7032908c7	chhaya_198FJ0.ap	6...MUCW	chhaya@gmail.com	2023-05-08 17:17:57
28	a727078a-f1c4-4a97-8825-6c71162de438	chhaya_181ZL1.ap	7...zve	chhaya@gmail.com	2023-05-08 20:47:43
29	4127793-9953-4ec1-864c-c5e38e4e5ed	chhaya_NLX3F2.ap	5538W	chhaya@gmail.com	2023-05-08 20:47:46

Figure 5.11 Database snap (records of file table)

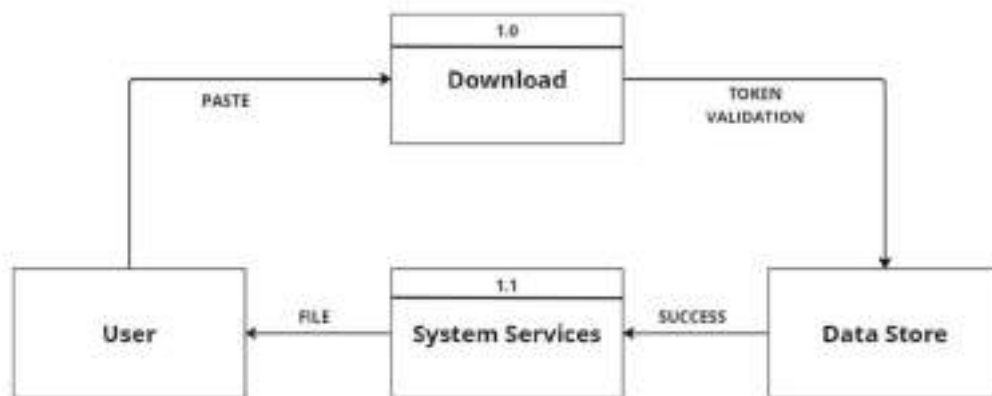
## 5.3. INPUT / OUTPUT AND INTERFACE DESIGN

### 5.3.1 Data Flow Diagram

- Copy Context diagram: Copied content by the user is first uploaded on the server then stored in storage. After successfully done storing it generates the token.
- To generate the file or content first enters the correct token after token validation it stores on local storage of user and starts downloading and generates the file or content.
- For multiple files the process is also the same.
- And this also can apply for both with right click functionality and without right click functionality.



**Figure 5.12 Data Flow Diagram (copy)**

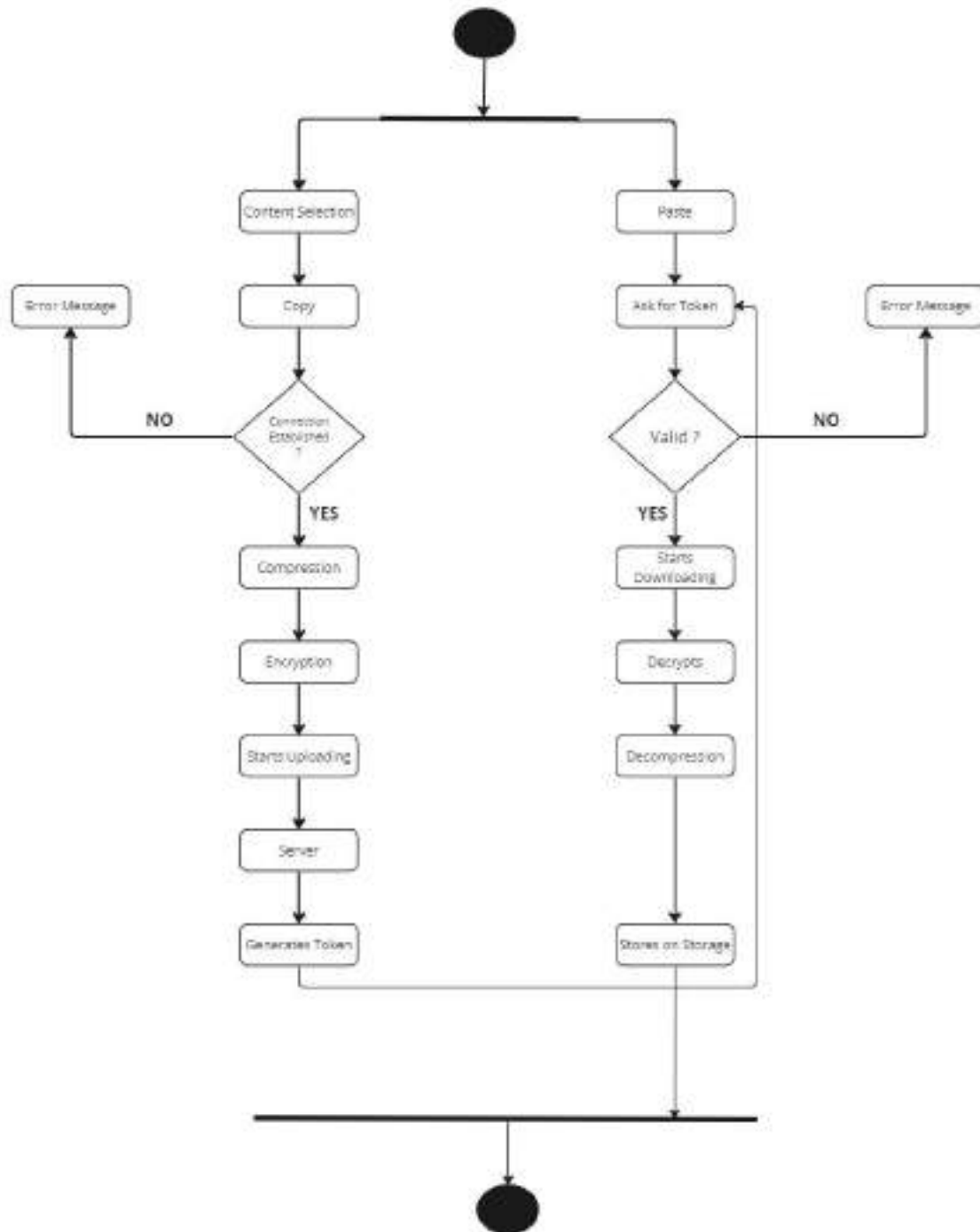


**Figure 5.13 Data Flow Diagram (paste)**

### 5.3.2. System Flow Diagram

- A system flow diagram is a visual representation of the flow of data or information through a system or process. It typically includes symbols and arrows that show how data moves through the system, including inputs, outputs, processing steps, storage, and controls.
- Creating a system flow diagram can help with understanding the system, identifying problems, communicating with stakeholders, and planning and estimation for projects.

- Overall, a system flow diagram is a helpful tool for understanding, designing, and communicating about complex systems or processes.



**Figure 5.13 System Flow Diagram**

### 5.3.3. Sequence Diagram

A sequence diagram is a type of UML diagram that shows the interactions between objects or components within a system or process. Sequence diagrams can be helpful in a project for understanding system behavior, identifying problems, designing the system, communicating with stakeholders, and testing the system. By visualizing the interactions between components concisely, sequence diagrams can help with understanding, designing, and communicating about complex systems or processes. Additionally, they can be used to identify potential problems or bottlenecks in the system and create test cases to ensure the system behaves correctly.

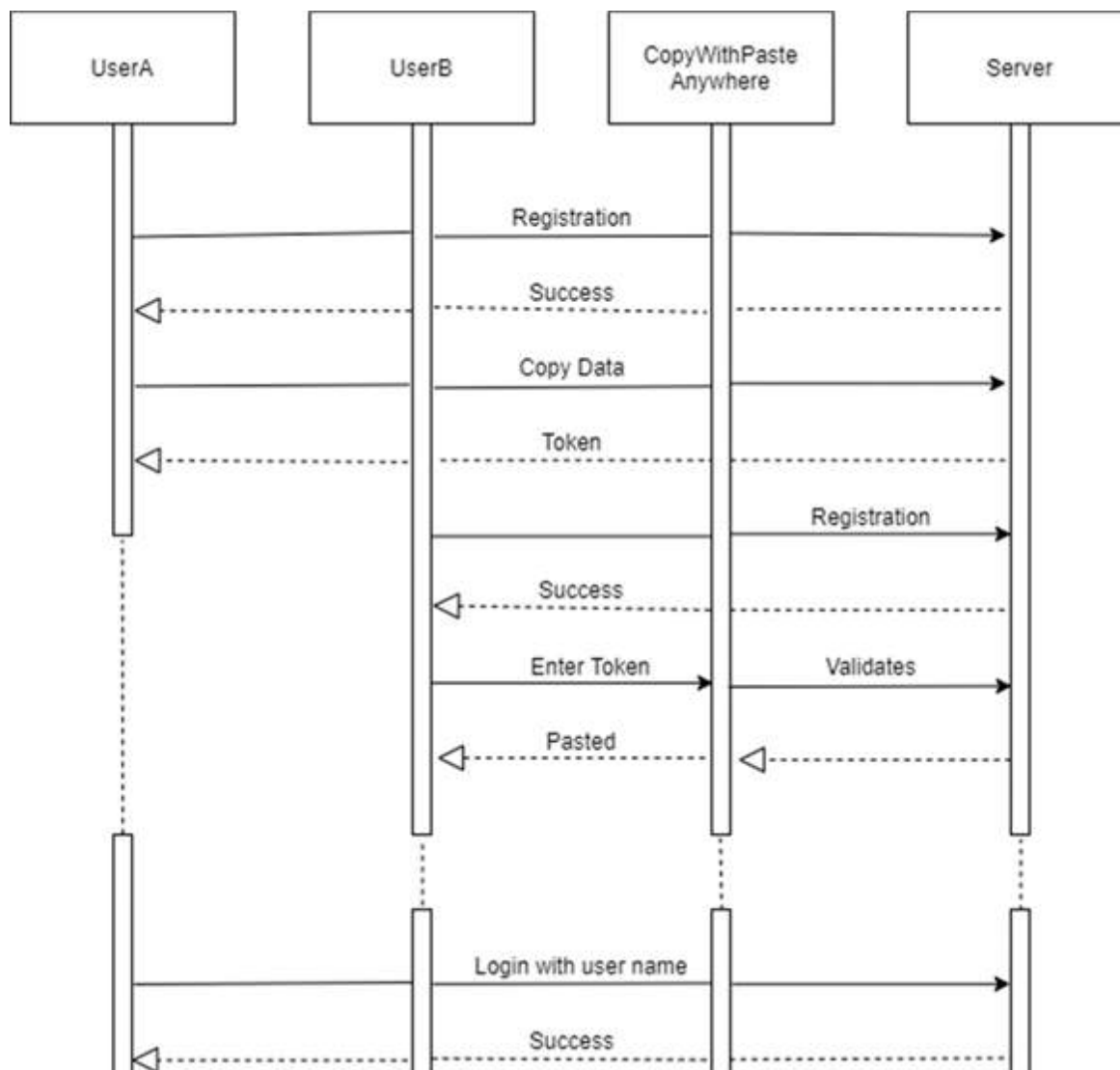


Figure 5.14 Sequence Diagram

## CHAPTER 6.0 – IMPLEMENTATION

### 6.1. IMPLEMENTATION PLATFORM

The next step after the completion of system design was to start implementing the ideas, layout, features, and functionalities of the system based on the requirements. The two main software that were used by us for the development of the system were:

**PyCharm 2022** – PyCharm is an Integrated Development Environment (IDE) for Python programming language, developed by JetBrains. It is designed to help developers write, test, and debug Python code more efficiently and effectively. PyCharm is a popular choice for Python developers due to its comprehensive features, excellent user interface, and seamless integration with other tools.

**MySQL Server 8.0.32** – It is a comprehensive data management and business intelligence platform. It is a software product with the primary function of storing and retrieving data as requested by other software applications.

**Postman** – It is a popular tool used for testing and debugging APIs. It provides a user-friendly interface to create requests, inspect responses, and automate tests. With Postman, you can easily test your API endpoints and ensure they are functioning as expected. It also supports various authentication methods, including OAuth, Basic Auth, and more.

Thus, PyCharm was used for coding and SQL server for managing the database of the system.

## 6.2. PROCESS SPECIFICATIONS

I have used Python language for development of the APIs for the application. And worked on library of the python like SQLAlchemy, Flask.

- An attractive and smooth user interface.
- User-friendly and easy to browse through.
- The functioning and features are the same as the desktop application.
- The buttons on the side panel provide easy access to related pages.
- The user identification and authentication maintain the privacy of the user.
- User working on desktop application was easily able to work on web application.

## 6.3. FINDINGS / RESULTS / OUTCOMES

After completing the backend development and testing the API in Postman, we handed over the API to the frontend intern to develop the user interface. The frontend intern used ReactJS to create a responsive and user-friendly website. Once the website was complete, they wrapped the code into an application, making it easily accessible to users.

To use the application, users can simply install it on their device, which is a quick and easy process. The installation process has been designed to be user-friendly and straightforward, ensuring that users can start using the application without any difficulties.

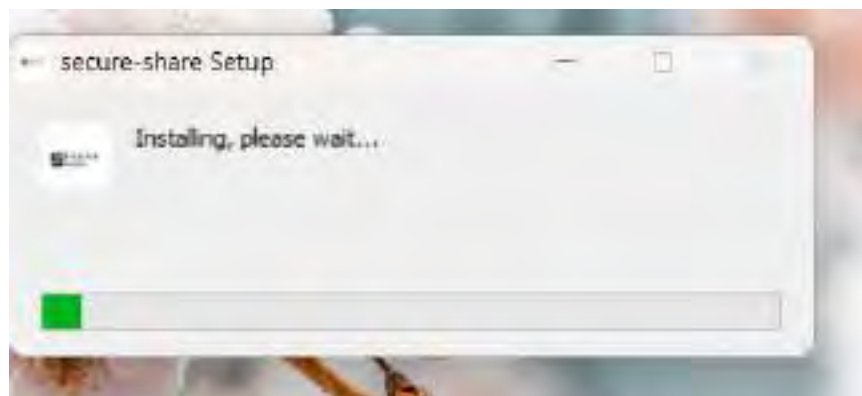


Here are some snapshot of application:



**Figure 6.1 Installation Snap 1**

While Installing It ask user to accept the License Agreement. After clicking on the I Agree option then only app will start getting installed.



**Figure 6.2 Installation Snap 2**

After Complete Installation User can see the signup page of Application.

**Signup page:**



**Figure 6.3 System Snap (User Registration)**

The next is to login the user which allows the authentication users to have access to the all the functionality of this desktop application.

Then after authenticate by the system now the user can easily perform the data transfer. The new system let the authenticate user to copy the content or any file then it generate authenticate token. The token is going to send through the mail.

For paste operation, user need to enter the token then the token going to validate by the system and it start the downloading the file.

Here are someother snapshots of the application:

### Login Page:



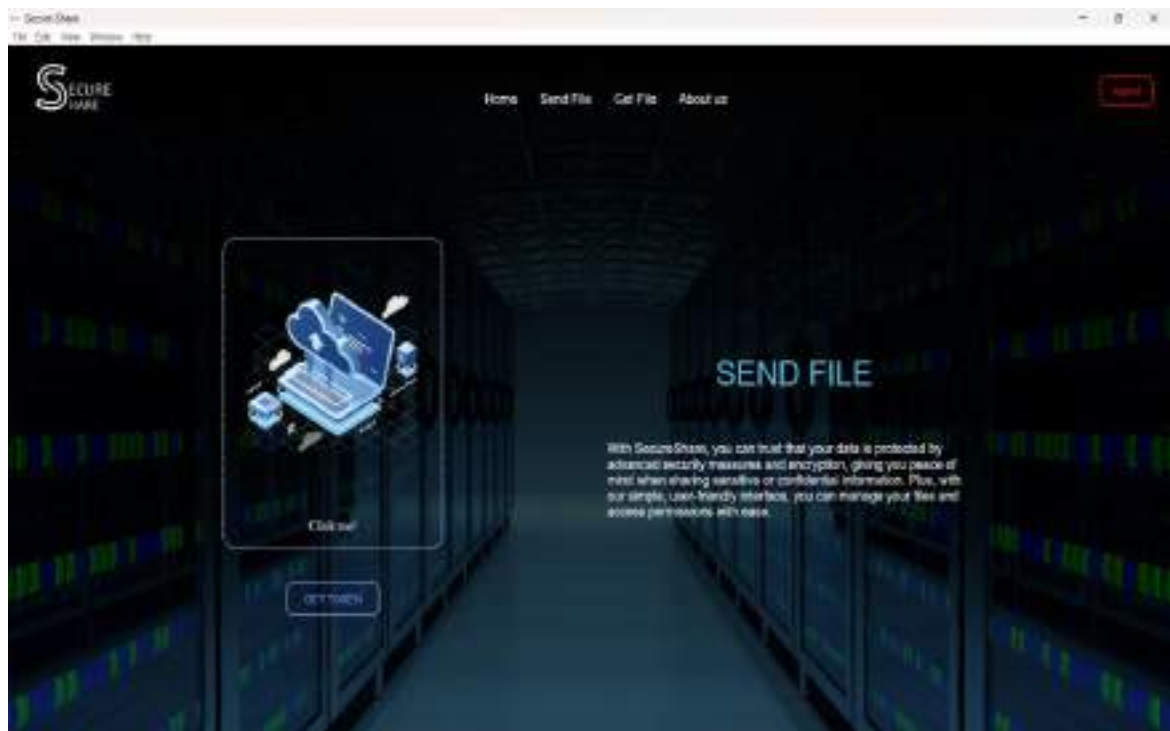
**Figure 6.4 System Snap (User Login)**

So, after providing Login Credential, user can Log in. After complete login User can view the home page.



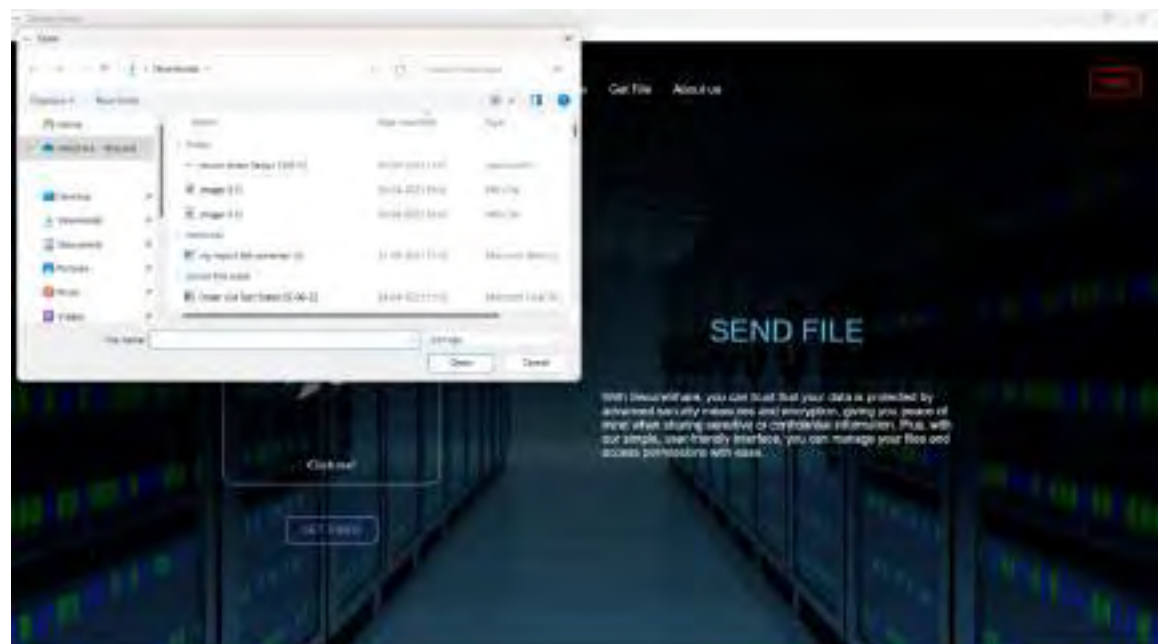
**Figure 6.5 Home page**

So here users can see the Send file page, Get file page, About us and logout. For uploading files User have to go Send file page by clicking on Navbar.



**Figure 6.6 Send File**

For uploading files User can select the file by clicking on the icon or they can drag the file into it. So, after clicking on it, it will allow us to select the file from our pc.



**Figure 6.7 File selection**

So, after selecting File, user click on **Get Token option** in order to generate token.





Figure 6.10 Get file

For Downloading Files user must provide token.so token is provided to user by email



Figure 6.11 Providing download credential

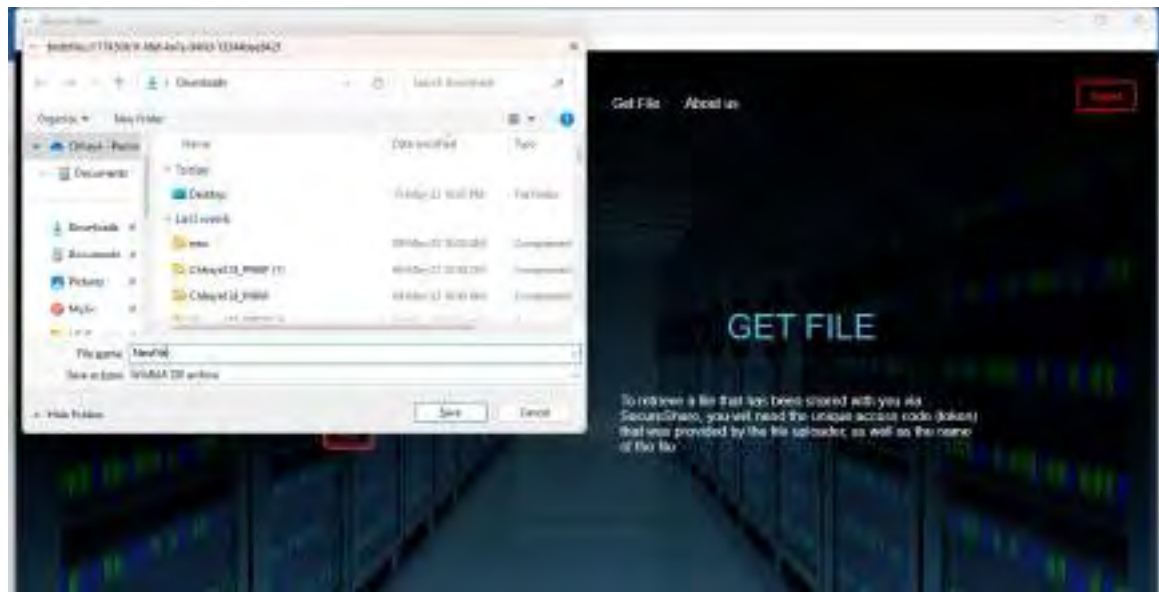


Figure 6.12 Download

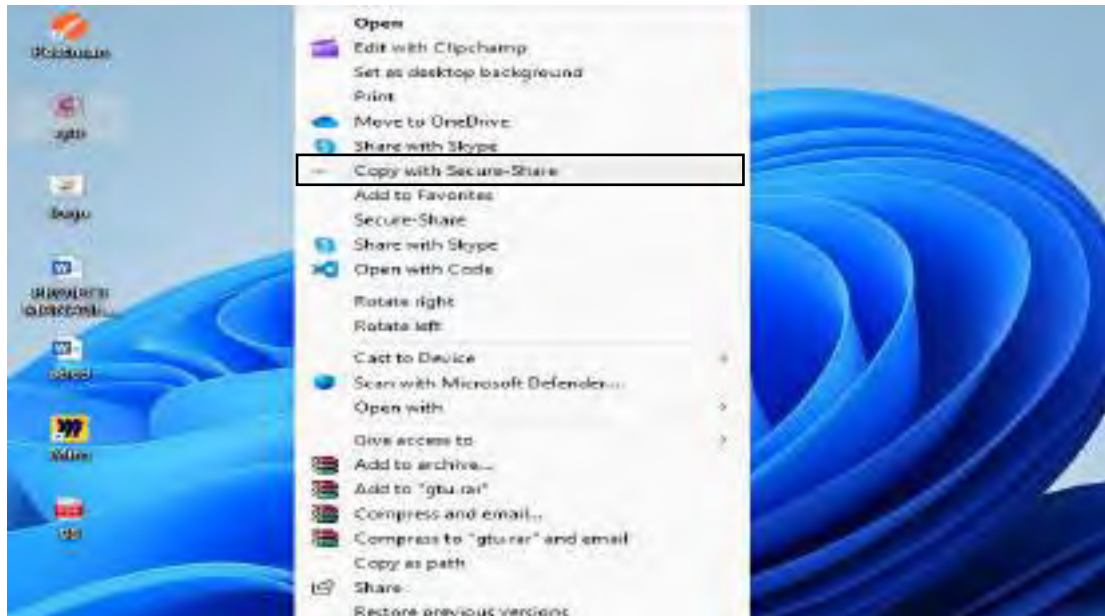
### About us page

It contains the information about the application.



Figure 6.13 About us

Also, Application Feature is accessible with right click option in context menu here are snapshot of that,



**Figure 6.14 Copy with Secure-Share**

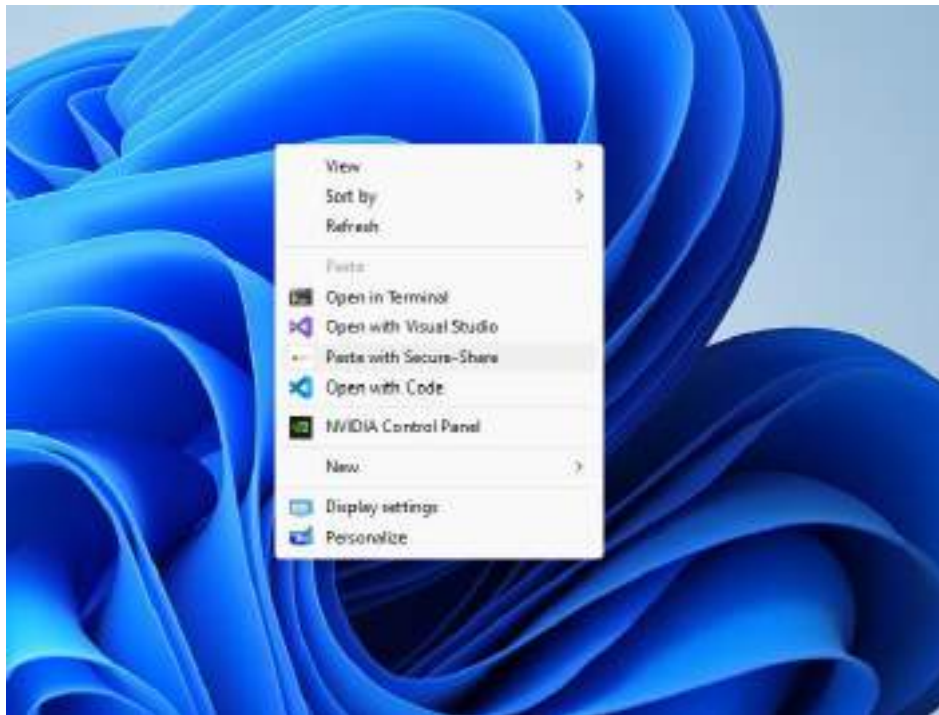
After Copy file with right click another window is open as shown below and user will get mail for the token.



**Figure 6.15 Token Window**



Click right and select the option “Paste with Secure-Share”,



**Figure 6.16 Paste with Secure-Share**

By clicking on it open the window for enter the token and it will download your system.



**Figure 6.17 Input Token Window**

Overall, the project was successfully completed, and the outcome is a robust and easy-to-use application that streamlines the process of transferring files between systems.

#### **6.4. RESULT ANALYSIS / COMPARISON / DELIBERATIONS**

By investing significant effort and time in designing and programming the software, and as a result, a fully functional system was created that meets the envisioned objectives. Thus, on comparison with the current desktop application, following features can be inferred about the desktop application created:

- An attractive and smooth user interface.
- User-friendly and easy to browse through.
- The functioning and features are the same as the desktop application.
- The buttons on the side panel provide easy access to related pages.
- The user identification and authentication maintain the privacy of the user.

## CHAPTER 7.0 – TESTING

### 7.1. TESTING PLAN/ STRATEGY

System testing is conducted on a complete integrated system to evaluate the system's compliance with its specified requirements. System testing tests the design and behavior of the system and the expectations of the customer. It is performed to test the system beyond the bounds mentioned in the Software Requirements Specification.

The company's testing strategy was quite distinctive and aggressive. It consisted of several different testing strategies to make sure that the system created is efficient and stands true to all the expectations of the user.

**Different testing strategies used are as follow:**

**Functionality Testing:** It is a type of testing that seeks to establish whether each application feature works as per the software requirements. Each function is compared to the corresponding requirement to ascertain whether its output is consistent with the end user's expectations.

**Usability Testing:** It is a type of testing method for measuring how easy and User-friendly a software is, carried out by a small focus group like the users of the system. It is also known as User Experience (UX) Testing. It tests how easily can a user navigate through the system.

**Interface Testing:** Three areas are tested here: Application, Database and Web Browser.

**Application:** Test requests are sent correctly to the Database and output at the clientside is displayed correctly.

**Web Server:** Test Web server is handling all application requests without any servicedenial.

**Database Server:** Make sure queries sent to the database give expected results.

**Database Testing:** Is a type of software testing that checks the schema, tables, triggers, etc. of the Database under test. It also checks data integrity and consistency. It checks whether the data entered in the web application is stored correctly in the database and vice versa.

## 7.2. TEST RESULTS AND ANALYSIS

### 7.2.1 Test Cases:

Test results and analysis refer to the process of evaluating the performance of a system or application against a set of predefined requirements or specifications.

Here are some test cases as shown below:

Table 7.1 Test Cases

TEST ID	MODULE	TEST CONDITION	EXPECTED OUTPUT	ACTUAL OUTPUT	REMARK
T001	Set up	Launch application	Register Form	Register Form	Success
T002	Registration	Correct User details Register	Home page	Home page	Success
T003	Registration	Incorrect Username and Password	Registration	Registration	Success
T003	Login	Blank Username and Password	Login	Login	Success
T004	Login	Correct Username and Password	Home page	Home page	Success
T005	Login	Incorrect Username and Password	Login	Login	Success
T006	Forgot password	Email	Send the reset mail	Send the reset mail	Success
T007	Reset Password	New Password	Store new password in dataset	Store new password in dataset	Success
T008	Send	Uploading single file	Sends email contains filename and token	Sends email contains filename and token	Success
T009	Send	Uploading multiple files	User will receive the	User will receive the	Success

			email contains filename and token	email contains filename and token	
T010	Get	Correct token	Downloads the file	Downloads the file	Success
T011	Get	Incorrect token	Unable to downloads the file	Unable to downloads the file	Success
T012	Get	Blank token	Unable to downloads the file	Unable to downloads the file	Success

The results of these tests were analyzed to identify any issues or areas that needed improvement. This process helped the development team to refine the system and ensure that it met the required specifications and performance standards.

## **CHAPTER 8.0 – CONCLUSION AND DISCUSSION**

### **8.1. OVERALL ANALYSIS OF INTERNSHIP / PROJECT VIABILITIES**

My internship experience has been instrumental in my professional development, as I have had the opportunity to expand my knowledge and skills both in technical and non-technical aspects. During my internship, I gained a deep understanding of the industry culture and the standard procedures followed in software development.

Moreover, the internship provided me with a comprehensive understanding of the efforts involved in creating high-quality software. Through hands-on experience, I got the opportunity to work with emerging programming languages such as Python and frameworks like Flask and Django. This has helped me to expand my technical expertise and stay up-to-date with the latest industry trends.

One of the most beneficial aspects of my internship was the continuous feedback and coaching I received throughout the development process. The valuable guidance provided by experienced professionals enabled me to create an efficient system that meets the requirements of the organization. Overall, my internship experience has been a significant contributor to my professional growth and prepared me for future career opportunities.

### **8.2. DATES OF CONTINUOUS EVALUATION (CE-I AND CE-II)**

Date of First **Continuous Evaluation (CE-I)** - 1: 18<sup>th</sup> March 2022

Date of Second **Continuous Evaluation (CE-II)** - 2: 9<sup>th</sup> May 2023

### 8.3. PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS

In the process of developing the desktop application, certain challenges were encountered that had to be addressed. The user feedback that we received highlighted some limitations of the system, including the potential for unauthorized access to token information, the length of time taken to complete the insertion process, and certain design flaws. However, these issues were carefully analyzed and resolved in a timely manner. This experience has provided valuable insights that will be useful in the future development of efficient and secure software systems.

### 8.4. SUMMARY OF INTERNSHIP / PROJECT WORK

I successfully developed a secure remote data transfer system called PasteAnywhere by putting in significant effort and time into the creation of the desktop application. The resulting application offers seamless interaction for users, who can use the right-click services provided by PasteAnywhere to transfer data easily and quickly. One of the key benefits of the system is that the end-user does not have access to the source user's computer, ensuring complete privacy and security. Additionally, users can view the services they have completed by accessing the Manage Services tab in the application.

### 8.5. LIMITATION AND FUTURE ENHANCEMENT

#### Limitations

Despite the successful development of PasteAnywhere, there are some limitations to the system that can be improved in the future. These include:

- ✚ The current version of the system only supports desktop devices, limiting the accessibility of the system for users on other devices.
- ✚ The insertion process can sometimes take a little longer to process completely.
- ✚ The system relies on token-based access, which may pose a security risk if the tokens are accessed by unauthorized individuals.
- ✚ The design of the system could be improved to enhance the user experience.

**Future Enhancements:**

To address these limitations, the following enhancements can be made in the future:

- ✚ Develop mobile applications for PasteAnywhere to extend the accessibility of the system to mobile users.
- ✚ Improve the insertion process to make it faster and more efficient.
- ✚ Implement additional security measures such as two-factor authentication to enhance the security of the system.
- ✚ Enhance the user interface and user experience of the system to make it more intuitive and user-friendly.



## REFERENCES

List of reference referred throughout the internship:

- <https://www.python.org/>
- <https://flask.palletsprojects.com/en/2.3.x/>
- <https://www.djangoproject.com/>
- <https://www.mysql.com/>
- <https://www.postman.com/>
- <https://nodejs.org/en>
- <https://www.electronjs.org/>
- <https://www.jetbrains.com/pycharm/features/>
- <https://stackoverflow.com/>
- <https://www.geeksforgeeks.org/>
- <https://scriptalldna.com/>

# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD.**

**AN INTERNSHIP REPORT**

*Submitted by*

**Joshi Chiragkumar P.**

**190390107014**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ, AHMEDABAD** has been carried out by **Joshi Chiragkumar P.** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Upashana Goswami

Prof. Akshay Kansara

Internal Guide

Head of Department

## Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

Date: 25 / 04 / 2023

### TO WHOM IT MAY CONCERN

This is to certify that Joshi ChiragKumar Pradipphai has successfully completed his internship in the field of Data Science from 23 January 2023 to 15 April 2023 (Total number of months: 12) under the guidance of Mr. Chintan Nagrocha.

His internship activities include work of data analysis, data visualization and machine learning. He had given his inputs in company's projects on machine learning and also helped as teaching assistant.

During the period of his internship program with us, he had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish him every success in his life and career.



Ms. Zama Smita,  
Human Resources Department,  
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Ahmedabad, Gujarat 380002

## PMMS Certificate



### **GUJARAT TECHNOLOGICAL UNIVERSITY**

**CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL  
B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023**

**Date of certificate generation : 10 May 2023 (16:04:28)**

This is to certify that, *Joshi Chiragkumar Pradipbhai* ( Enrolment Number - 190390107014 ) working on project entitled with *Internship at INFOLABZ IT SERVICES PVT LTD* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal:

Internship Project Report	Completed
---------------------------	-----------

Name of Student : *Joshi Chiragkumar Pradipbhai*

Name of Guide : *Miss. Upashana Goswami*

Signature of Student \_\_\_\_\_

\*Signature of Guide \_\_\_\_\_

**Disclaimer :-**

This is a computer generated copy and does not indicate that your data has been validated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship report submitted along with the Project **Internship at INFOLABZ, AHMEDABAD** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Mr.Chintan Nagrecha (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Joshi Chiragkumar P.**

\_\_\_\_\_

## **ACKNOWLEDGEMENT**

First of all I express my sincere gratitude for providing me with the opportunity to undergo internship training at Infolabz IT Services PVT. LTD. It has been an enriching experience for me, and I feel honored to have been a part of your organization.

During my internship, I was able to gain valuable insights and practical knowledge in my field of study. The training has helped me to enhance my skills and develop a deeper understanding of the industry. I am thankful for the support and guidance provided by my supervisor Mr. Chintan Nagrecha and the entire team, which has contributed significantly to my personal and professional growth. I am also thankful to Mrs. Zarna shah (HR) for giving us valuable training at their organization.

I am grateful for the exposure I received to the industry, the work culture, and the high professional standards upheld by your organization. The experience gained during the internship will undoubtedly help me in my future career endeavors.

I am also thankful to my internal guide Prof. Upashana Goswami and Head of Department Prof. Akshay Kansara who helped me to complete my internship successfully.

## **ABSTRACT**

This internship experience in the field of data analytics provided an opportunity to gain practical knowledge and hands-on experience in the industry. The internship involved working with a team of data analysts on real-world projects, including data cleaning, data visualization, and data modeling. The skills learned during the internship included using various data analytics tools such as Excel, SQL, Python, Power BI and Tableau and developing a deeper understanding of statistical analysis and data modeling techniques. The experience of working with large datasets and using machine learning algorithms has broadened the perspective on the potential of data analysis in various industries. The internship provided insights into the role of data analytics in decision-making processes and its importance in the success of organizations. The exposure to the work culture and professional standards of the industry has been an enriching experience, contributing to personal and professional growth. Overall, this internship has been a valuable experience in developing skills, knowledge, and practical experience in the field of data analytics.



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## ABBREVIATIONS

EDA	Exploratory Data Analysis
CBRS	Content-Based Recommender System
IR	Information Retrieval
TF	Term Frequency
IDF	Inverse Document Frequency
BoW	Bag-of-Words
DNN	Deep Neural Network
CNN	Convolutional Neural Network
NMF	Non-Negative Matrix Factorization
LDA	Latent Dirichlet Allocation
IBCF	Item-Based Collaborative Filtering
UBCF	User-Based Collaborative Filtering
UBCF	User-Based Collaborative Filtering

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Scanned attendance sheet if any	
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# CHAPTER 1 : INTRODUCTION

## 1.1 COMPANY PROFILE:



Fig 1.1: Company Logo

InfoLabz IT Services Pvt. Ltd is a technology company located at 405 Vraj Avenue, above SAM'S Pizza, near Commerce Six Road in Navrangpura, Ahmedabad, with a zip code of 380009. They can be reached via email at [info@infolabz.in](mailto:info@infolabz.in). Infolabz is an Indian information technology services, IT consulting, business services, and software development company headquartered in Ahmedabad India.

Since 2018, Infolabz is present on the international market as a supplier of innovative solutions, adding business value through technology implementation at a professional level. Focusing our activities on developing complex software products, Infolabz Technologies provides consistent results in emerging fields such as mobile and web-based custom business applications, e-commerce, e-payment, e-security, e-health, and enterprise & resource planning, entertainment, and the finance industry.

## 1.2 SCOPE OF WORK:

They offer website development and maintenance, social media marketing, API development, and Artificial Intelligence solutions as well as providing cross-platform mobile application development solutions using different frameworks.

## 1.3 ORGANIZATION CHART:

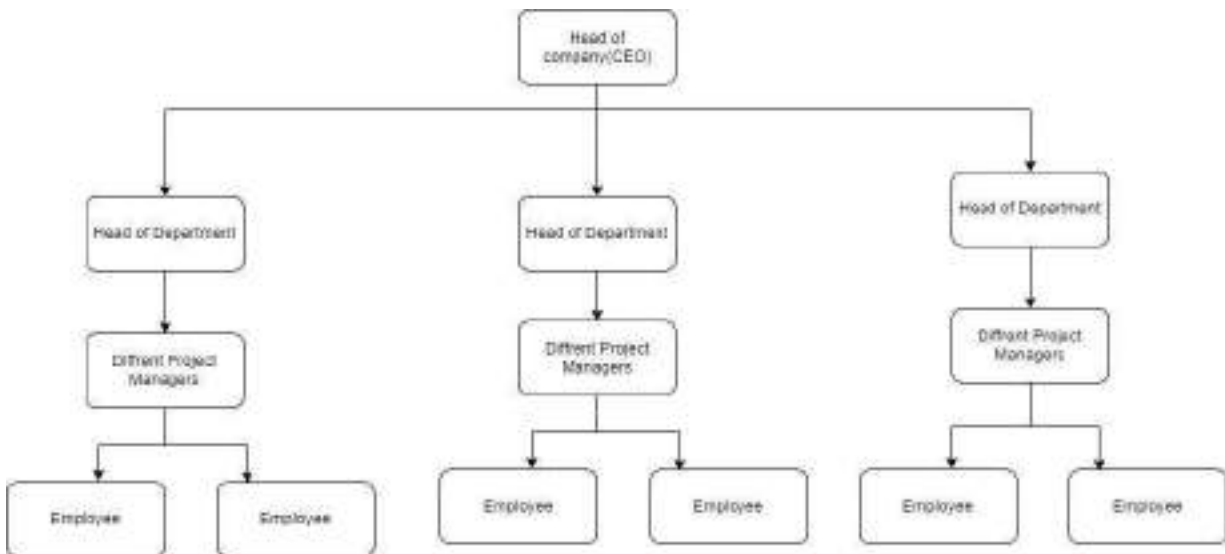


Fig 1.3: Employees Distribution Chart

1. CEO - The Chief Executive Officer (CEO) is the top executive in a company and responsible for making high-level decisions about the direction and strategy of the organization. The CEO is accountable to the board of directors and shareholders, and oversees all aspects of the business, including operations, finance, marketing, and human resources.
2. Head of Department - The Head of Department (HoD) is a senior manager responsible for leading a specific department within a company. They are responsible for overseeing the day-to-day operations of the department, managing a team of employees, setting goals and targets, and ensuring that the department meets its objectives. The HoD is also responsible for ensuring that the department operates within budget and complies with company policies and procedures.
3. Project Manager - A Project Manager (PM) is responsible for overseeing a specific project from start to finish. They are responsible for setting project goals,

developing a project plan, and managing resources, budgets, and timelines to ensure the project is completed on time and within budget. The PM is also responsible for managing risks, communicating with stakeholders, and ensuring that the project meets its objectives.

4. Employee - An employee is a person who works for a company in exchange for wages or salary. They are responsible for performing specific tasks or duties assigned to them by their supervisor or manager. Employees are expected to follow company policies and procedures, meet job performance expectations, and contribute to the overall success of the organization.

#### **1.4 CAPACITY OF COMPANY:**

More than 10 employees work in this company and about 20 interns work in the company generally used to hire dedicated software developers and support engineers.



## **CHAPTER 2 : OVERVIEW OF DEPARTEMENT**

### **2.1 VARIOUS DEVELOPMENT DEPARTMENTS:**

#### **Data Science Development Department:**

The Data Science Development department is responsible for utilizing data analytics and machine learning techniques to develop and deploy data science solutions that drive business value. This department consists of data scientists, machine learning engineers, and data engineers who work together to analyze large datasets, develop models, and provide insights. They use various tools and programming languages, such as Python, R, SQL, and machine learning libraries, to achieve their objectives. The team collaborates with other departments to understand their business needs and provide customized solutions. The Data Science Development department is essential for organizations that want to make data-driven decisions and gain a competitive edge in their respective markets.

#### **Website Development Department:**

The Website Development department is responsible for designing and developing websites that meet the organization's objectives. This department consists of web developers, web designers, and UX/UI designers who work together to create websites that are visually appealing, easy to navigate, and optimized for search engines. They use various web development tools and programming languages such as HTML, CSS, JavaScript, and content management systems like WordPress, Drupal, and Joomla. The team works closely with other departments such as marketing and IT to ensure that the website is aligned with the organization's goals and technical requirements. The Website Development department plays a critical role in enhancing the organization's online presence and improving user experience.

## **Backend development Department**

Backend development refers to the creation and maintenance of the back end of a website.

There are three components to the backend of a website

- 1) Servers share data and resources, distribute work and process computations.
- 2) An application is computer software designed to help the user perform specific tasks.
- 3) A database is used to store and organize data.

The Backend Development department is responsible for developing and maintaining the server-side of web applications, software, and databases. This department consists of backend developers, database administrators, and server administrators who work together to ensure the proper functioning of web applications. They use various programming languages such as Python, Ruby, Java, and frameworks like Django, Ruby on Rails, and Spring to create robust and scalable web applications. The team works closely with the frontend development team and other departments such as quality assurance, IT, and project management to ensure that the backend is integrated with other components of the application. The Backend Development department plays a crucial role in ensuring the functionality and performance of web applications.

### **2.2 SERVICES PROVIDE BY COMPANY:**

- Web Development
- App Development
- Data Science
- IOT

## **CHAPTER 3 : INTERNSHIP AND PROJECT**

### **3.1 INTERNSHIP SUMMARY:**

This Project is about how to get the developed recommendation system that will help users to improve their experience of personalized movies to reduce their time for finding movies and enhance their movie watching experience.

### **3.2 PURPOSE:**

Industry experience is often an important part of applying for full time positions. Gaining experience through internship can be helpful for our future scope. Similarly, my purpose was to gain experience and decide my career path so that I can have a clear path towards my goals. Also, I wanted to develop new skills and build a network with professionals.

### **3.3 OBJECTIVE:**

A motivated individual with in-depth knowledge of languages and development tools, seeking a position in a growth-oriented company where I can use my skills to the advantage of the company while having the scope to develop my own skills.

To work as a data science engineer applying my knowledge in the field of data science, machine learning, and data analytics to cater to the specific needs of the people. I wish to work in a team of motivated individuals who wish to work towards the advancement of the company.

### **3.4 TOOLS AND TECHNOLOGY:**

I used various Languages and technologies in this Internship which I mentioned below with the functions of each tool and library:

- 1) C:** c is an imperative procedural language, supporting structured programming, lexical variable scope and recursion, with a static type system. It was designed to be compiled to provide low-level access to memory and language constructs that map efficiently to machine instructions, all with minimal runtime support.

2) **Python:** Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems.

Some things include:

- Data analysis and machine learning
- Web development
- Automation or scripting
- Software testing and prototyping
- Everyday tasks

3) **Data analysis and machine learning:** Python has become a staple in data science, allowing data analysts and other professionals to use the language to conduct complex statistical calculations, create data visualizations, build machine learning algorithms, manipulate and analyze data, and complete other data-related tasks.

Python can build a wide range of different data visualizations, like line and bar graphs, pie charts, histograms, and 3D plots. Python also has a number of libraries that enable coders to write programs for data analysis and machine learning more quickly and efficiently, like TensorFlow and Keras.

4) **Automation or scripting :** If you find yourself performing a task repeatedly, you could work more efficiently by automating it with Python. Writing code used to build these automated processes is called scripting. In the coding world, automation can be used to check for errors across multiple files, convert files, execute simple math, and remove duplicates in data.

Python can even be used by relative beginners to automate simple tasks on the computer—such as renaming files, finding and downloading online content or sending emails or texts at desired intervals.

## **3.5 IMPLEMENTATION PLATFORM:**

### **3.5.1 Pycharm:**

PyCharm is an Integrated Development Environment (IDE) used for programming in Python. It is developed by JetBrains and provides developers with advanced tools to write, debug, and test code. PyCharm includes code analysis, error highlighting, code completion, and smart code navigation, making it easier to write and debug code. It also has a built-in terminal, version control support, and integration with popular frameworks like Django, Flask, and Pyramid. PyCharm has a user-friendly interface and is widely used by developers for Python development, making it one of the most popular Python IDEs.

### **3.5.2 Jupyter:**

Jupyter is a web-based interactive computing environment that supports multiple programming languages such as Python, R, and Julia. It provides a notebook interface to create and share documents containing live code, equations, visualizations, and narrative text. Jupyter promotes reproducible research and is popular in the field of data science for data exploration, visualization, and machine learning experimentation. It is often used in conjunction with other data science tools such as NumPy, Pandas, Matplotlib, and scikit-learn.

### **3.5.3 Tableau:**

Tableau is a data visualization and business intelligence software that allows users to connect, visualize and share data in a more interactive and engaging way. It has a user-friendly drag-and-drop interface that enables users to create a wide range of interactive charts, maps, dashboards, and reports, making it an ideal tool for data analysis, storytelling, and data-driven decision-making. Tableau supports a variety of data sources and allows users to collaborate and share insights easily. It has become a popular tool in the field of business intelligence and data analytics due to its ease of use and flexibility.

### **3.5.4 Powerbi:**

Power BI is a business analytics service provided by Microsoft that allows users to create interactive visualizations and business intelligence reports. It enables users to connect to a wide range of data sources, including Excel spreadsheets, cloud-based and on-premises data

sources, databases, and online services, among others.

Power BI provides users with a variety of tools for data analysis and visualization, including charts, tables, maps, and more. It allows users to create interactive reports and dashboards that can be shared and accessed from anywhere, on any device. Power BI also includes advanced features such as natural language processing and machine learning, which enable users to ask questions in plain language and receive insights in real-time. Additionally, it provides tools for data modeling, data transformation, and data cleaning, making it an end-to-end solution for business intelligence and data analytics.

In summary, Power BI is a powerful business intelligence and analytics tool that enables users to analyze data, create interactive visualizations, and share insights with others.

## CHAPTER 4 : PYTHON MODULE

### 4.1 Why Python

#### 1. Scalability

Python is a programming language that scales very fast. Among all available languages, Python is a leader in scaling. That means that Python has more and more possibilities. Python flexibility is super useful for any problem in-app development. Any problem can be solved easily with new updates that are coming. Saying that Python provides the best options for newbies because there are many ways to decide the same issue. Even if you have a team of non-Python programmers, who knows C++ +design patterns, Python will be better for them in terms of time needed to develop and verify code correctness. It happens fast because you don't spend your time to find memory leaks, work for compilation or segmentation faults.

#### 2. Libraries and Frameworks

Due to its popularity, Python has hundreds of different libraries and frameworks which is a great addition to your development process. They save a lot of manual time and can easily replace the whole solution. As a Data Scientist, you will find that many of these libraries will be focused on Data Analytics and Machine Learning. Also, there is a huge support for Big Data. I suppose there should be a strong pro why you need to learn Python as your first language.

Some of these libraries are given below:

- I. Pandas: It is great for data analysis and data handling. Pandas provides data manipulation control.
- II. NumPy: It is a free library for numerical computing. It provides high-level math functions along with data manipulations.
- III. SciPy: This library is related to scientific and technical computing. SciPy can be used for data optimization and modification, algebra, special functions, etc.

### 3. Web Development

To make your development process as easy as it is possible only, learn Python. There are a lot of Django and Flask libraries and frameworks that make your coding productive and speed up your work. If you compare PHP and Python, you can find that the same task can be created within a few hours of code via PHP. But with Python, it will take only a few minutes. Just take a look at the Reddit website — it was created with Python.

Here are Python's Full Stack frameworks for web development:

- I. Django
- II. Pyramid

And here are Python's micro-frameworks for web development:

- I. Flask
- II. Bottle
- III. CherryPy

### 4. Huge Community

Python has a powerful community. Anyone might think that it shouldn't be one of the main reasons why you need to select Python. But the truth is vice versa.

### 5. Automation

Using Python automation frameworks like PyUnit gives you a lot of advantages:



- No additional modules are required to install. They come with the box
- Even if you don't have a Python background you will find work with Unittest very comfortable. It is derivative and its working principle is similar to other xUnit frameworks.
- You can run singular experiments in a more straightforward way. You should simply indicate the names on the terminal. The output is compact too, making the structure adaptable with regards to executing test cases.
- The test reports are generated within milliseconds.

#### 5. Python Frameworks For Test Automation:

- I. Robot Framework
- II. unittest
- III. Pytest
- IV. Behave
- V. Lettuce

#### 6. Jobs and Growth

Python is a unique language that has powerful growth and opens multiple career opportunities for Data Scientists. If you learn Python you can consider multiple additional jobs you might want to make the switch to in the future:

- Python Developer
- Product Manager
- Educator
- Financial Advisors
- Data Journalist

# CHAPTER 5 : ASSIGNMENTS

## 5.1 Sales Exploratory Data analysis :

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

```
import warnings
warnings.filterwarnings('ignore')
```

```
data = pd.read_csv('/kaggle/input/supermarket-sales/supermarket_sales - Sheet1.csv')
```

Fig 5.1.1: Sales EDA Code

```
data.head()
```

	Invoice ID	Branch	City	Customer type	Gender	Product line	Unit price	Quantity	Tax 5%	Total	Date	Time	Payment	cost	gross margin percentage	gross income
0	750-67-8428	A	Yangon	Member	Female	Health and beauty	74.68	7	26.1415	548.9715	1/5/2019	13:08	Swallet	522.83	4.761905	26.14
1	226-31-3081	C	Naypyitaw	Normal	Female	Electronic accessories	15.28	5	3.8200	80.2200	3/9/2019	10:29	Cash	76.40	4.761905	3.82
2	651-41-3028	A	Yangon	Normal	Male	Home and lifestyle	46.33	7	16.2155	340.5255	3/3/2019	13:23	Credit card	324.31	4.761905	16.21
3	129-69-1176	A	Yangon	Member	Male	Health and beauty	58.22	8	23.2880	489.0480	1/27/2019	20:33	Swallet	465.76	4.761905	23.28
4	573-73-1910	A	Yangon	Normal	Male	Sports and travel	26.31	7	30.2085	634.3785	2/8/2019	10:57	Swallet	504.17	4.761905	30.20

Fig 5.1.2: Sales EDA Code

```
sns.countplot(data = data, x = 'Branch')
```

```
#AxesSubplot: xlabel='Branch', ylabel='count')
```

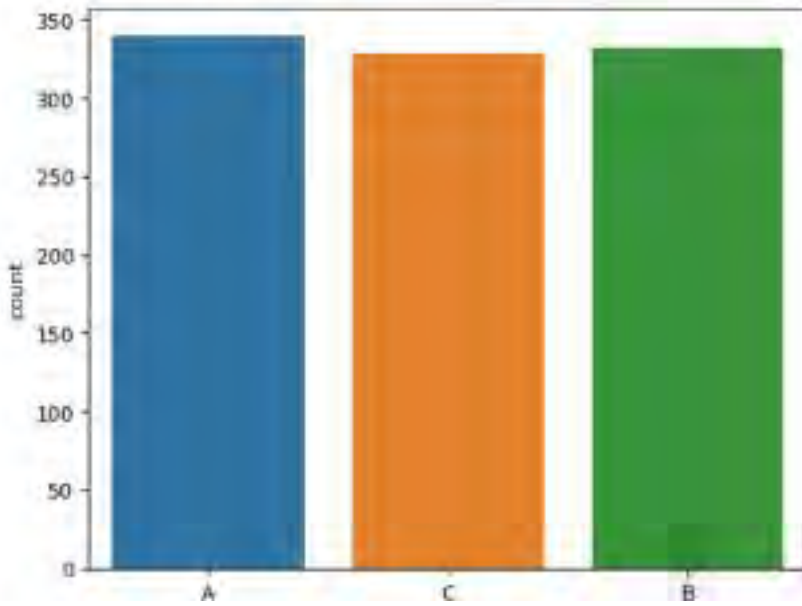


Fig 5.1.3: Sales EDA Code

```
data['Payment'].value_counts().plot(kind='pie', autopct='%1.2f%%')
```

```
#AxesSubplot: ylabel='Payment')
```

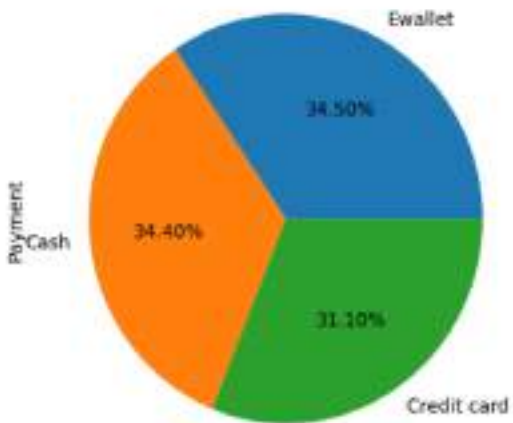


Fig 5.1.4: Sales EDA Code

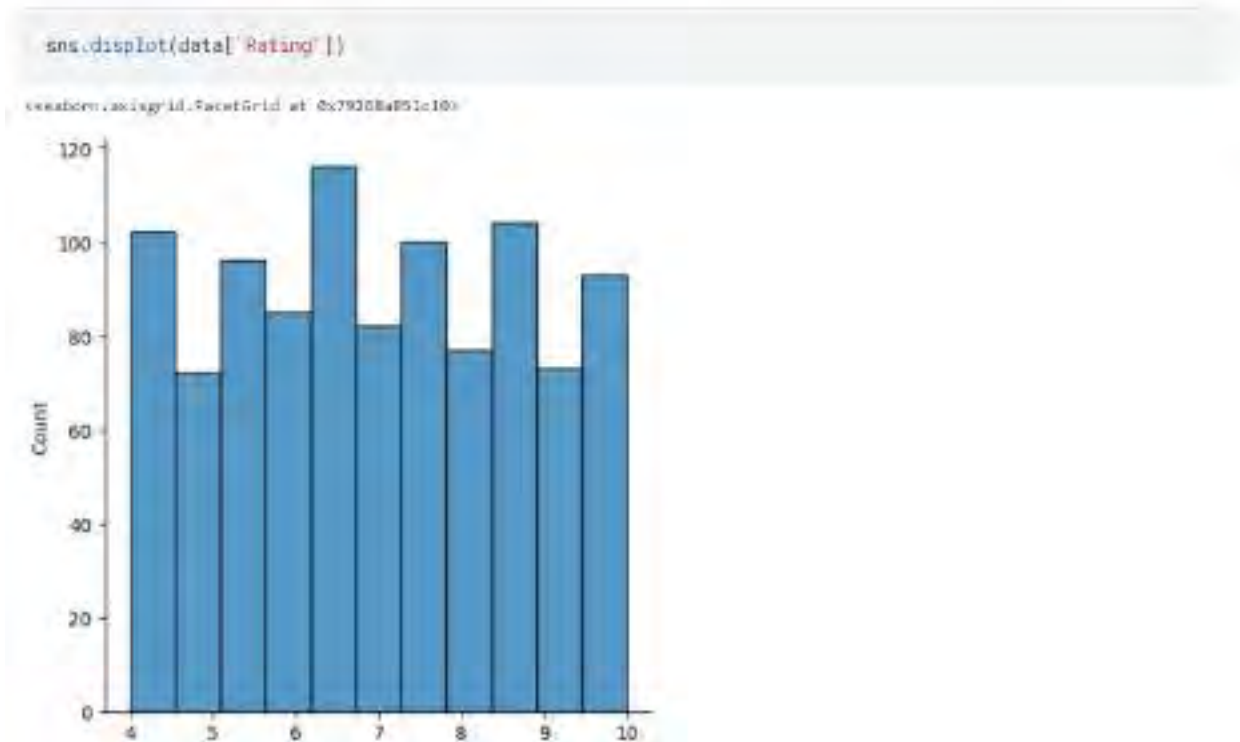


Fig 5.1.5: Sales EDA Code

In this project, we begin by adding several libraries to our development environment that enable us to work with the data effectively. Once we have set up the necessary infrastructure, we proceed to focus on data preprocessing, a crucial step in any data analysis project. During this stage, we employ a range of techniques such as data cleaning and data modification to prepare the raw data for analysis.

Once the data is preprocessed, we move on to the data visualization phase. This step involves creating graphical representations of the data to help us better understand patterns and trends. In this project, we specifically focus on creating a bar graph to visualize the sales record across different branches. This enables us to quickly identify which branches are performing well and which are not.

In addition to the bar graph, we also create a pie chart that displays the distribution of payment methods used by customers. This provides us with insights into which payment methods are popular among customers and which ones are not.

Lastly, we create a histogram to analyze the distribution of user ratings. By visualizing the data in this way, we can identify trends and patterns that would be difficult to discern through raw data

analysis alone. In summary, this project takes a comprehensive approach to data analysis, covering all aspects from data preprocessing to data visualization, in order to provide a thorough understanding of the dataset at hand.

## 5.2 Facebook Users Data :

```
import pandas as pd
df=pd.read_csv('/kaggle/input/facebook-users-by-country-data-cleaned/data.csv')
```

```
df.head()
```

	Name	Users	Facebook_Users%	Date_of_Data	Population
0	India	410.6M	29.16%	2021-08	1,428,627,663
1	United States	240M	70.59%	2020-12	339,390,563
2	Indonesia	170.5M	65.6%	2021-08	277,534,122
3	Brazil	139M	84.23%	2020-12	216,422,446
4	Philippines	91M	77.53%	2021-06	117,337,368

Fig 5.2.1: Facebook Users Data

```
df['Population'] = df['Population'].str.replace(',','')
df['Population'] = df['Population'].astype('float64')
```

```
def convert_to_numeric(value):
    if 'M' in value:
        N_value=value.replace('M','')
        N_value = pd.to_numeric(N_value)
        return float(N_value+1000000)
    elif 'K' in value:
        N_value=value.replace('K','')
        N_value = pd.to_numeric(N_value)
        return float(N_value+1000)
    else:
        return float(value)

df['Users'] = df['Users'].apply(lambda x: convert_to_numeric(x))
```

```
df['Facebook_Users%'] = df['Facebook_Users%'].str.replace('%','')
df['Facebook_Users%'] = df['Facebook_Users%'].astype('float').round(2)
```

Fig 5.2.2: Facebook Users Data

```
top_users_per
```

	Name	Users	Facebook_Users%	Date_of_Data	Population
224	Manama City	7931	154.25	2020-11	51810
44	United Arab Emirates	7050000.0	108.80	2021-01	9516671.0
96	Doha	2900000.0	108.05	2021-01	2716391.0
146	Brunei	461600.0	102.01	2021-06	452534.0
116	Bahrain	1500000.0	100.70	2021-01	1489500.0
72	Kuwait	420000.0	98.07	2021-03	4310108.0
170	Guam	141500.0	85.44	2020-12	172052.0
90	Georgia	5200000.0	86.42	2021-04	3728282.0
10	Taiwan	2090000.0	86.75	2021-08	23923276.0
181	Aruba	91000.0	85.62	2020-12	106277.0

Fig 5.2.3: Facebook Users Data

```
import matplotlib.pyplot as plt
import seaborn as sns
top_users_per1=top_users_per.set_index("Name")
top_users_per1["Facebook_Users%"].plot(kind='bar')
```

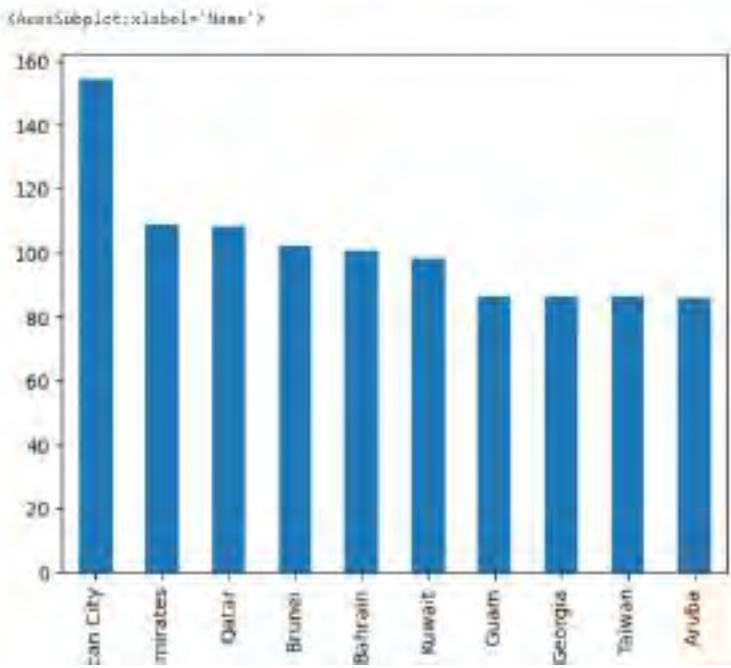


Fig 5.2.4: Facebook Users Data

```
top_users_per.plot(y=['Population','Users'], x= 'Name', kind = 'bar')
```

<AxesSubplot: xlabel='Name'>

Fig 5.2.5: Facebook Users Data

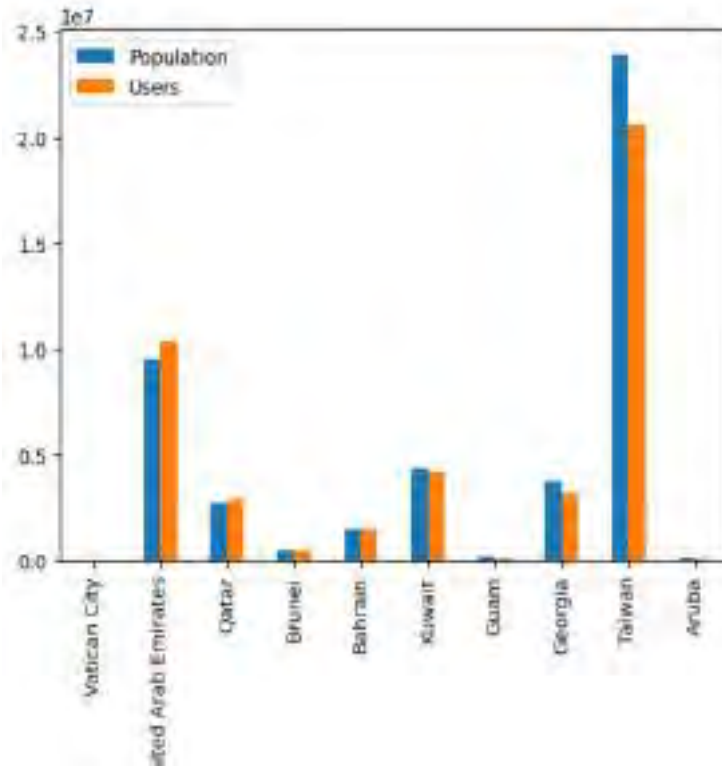


Fig 5.2.6: Facebook Users Data

```
top_users["Users"].plot(kind='pie')
```

<AxesSubplot: ylabel='Users'>

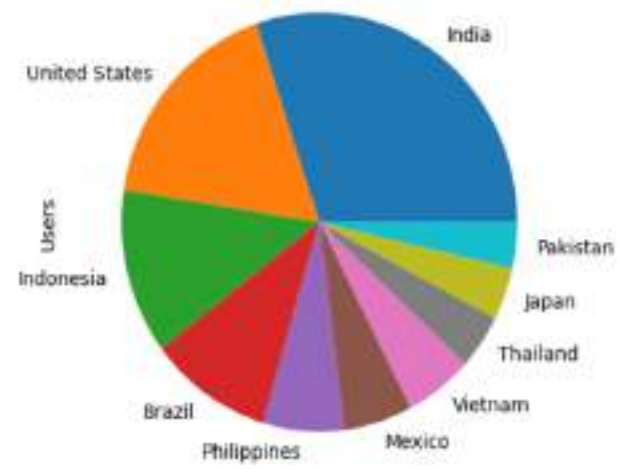


Fig 5.2.7: Facebook Users Data



In this project, we are analyzing Facebook user data by country. To begin with, we import the necessary libraries for data analysis and visualization. Once the libraries are imported, we explore the data to gain a better understanding of its structure and content.

During the exploration stage, we describe the various attributes and features of the data, such as the number of records, the number of columns, and the data types of the columns. This helps us understand the nature of the data we are working with and the types of analysis we can perform on it.

After this initial exploration, we proceed to convert object data to numeric data, which is necessary for performing certain types of data analysis. This process involves identifying columns with object data types and converting them to numeric data types using appropriate conversion techniques.

Once the data is converted to numeric format, we proceed to identify the top countries by user. This analysis involves grouping the data by country and counting the number of users from each country. We then create a bar graph to visualize this data, which provides us with a clear understanding of the countries with the highest number of Facebook users.

In addition to identifying the top countries by user, we also create a graph that compares the population of each country to the number of Facebook users. This provides us with a more nuanced view of the data, as we can see how user numbers compare to the population of each country.

Overall, this project takes a comprehensive approach to data analysis, covering all aspects from initial data exploration to advanced data visualization techniques. By leveraging the latest technologies and tools, we can gain valuable insights into the data and make informed decisions based on our analysis.

### 5.3 Walmart Analytical Dashboard :

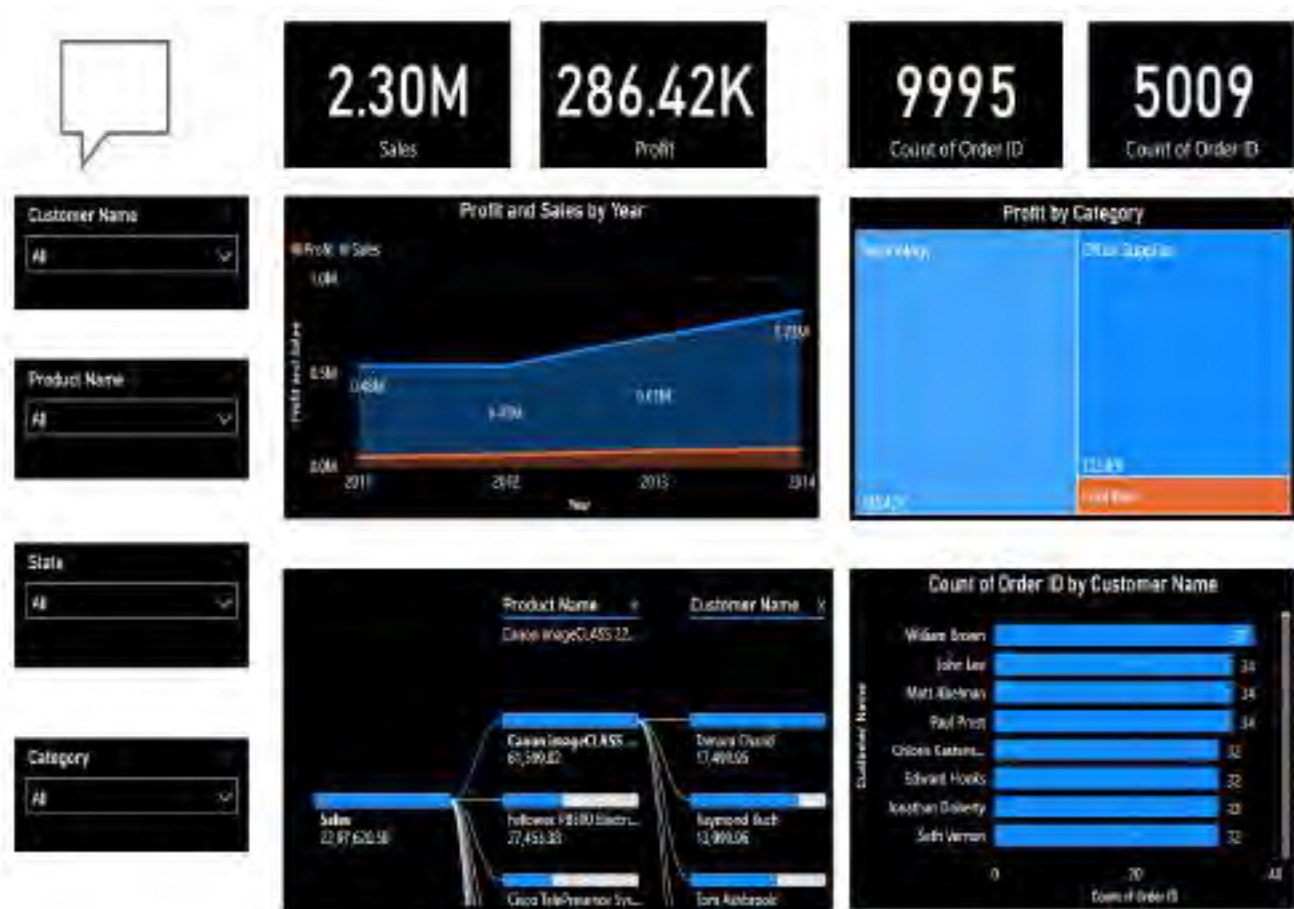


Fig 5.3: Walmart Analytical Dashboard

In this project, we are undertaking the development of an interactive dashboard to provide us with a comprehensive view of our business operations. The main objective of this dashboard is to help us gain a better understanding of how smoothly our work is going and to identify which products and clients are the most valuable for our business.

To achieve this, we are implementing a range of features that enable us to track critical metrics such as total sales, total profit, profit by year, profit by sales, profit by category, and orders by customer. By analyzing these metrics, we can identify areas of our business that are performing well and areas that require improvement.

Moreover, we are utilizing data visualization techniques to create a decomposition tree that helps us better understand our sales and profit data. This visual representation of the data enables us to quickly identify patterns and trends that might otherwise be difficult to discern.

Overall, this interactive dashboard provides us with a powerful tool for monitoring our business operations and making informed decisions based on real-time data. By leveraging the latest data analysis and visualization technologies, we can gain valuable insights into our business performance, identify opportunities for growth, and optimize our operations to ensure long-term success.

## 5.4 Covid Dataset:

```
In [1]: import pandas as pd
import matplotlib.pyplot as plt
from sklearn import linear_model

df = pd.read_csv('data.csv')
print(df)
df.describe()
plt.xlabel('price')
plt.ylabel('area')
plt.scatter(df.area,df.price,color='r')
plt.show()

reg = linear_model.LinearRegression()
reg.fit(df[['area']],df[['price']])
print(reg.predict([[800]]))

print(reg.coef_)
print(reg.intercept_)
print(reg.intercept_ + reg.coef_ * 100)

{'cases_time_series': [{'dailyconfirmed': '1', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '30 January 2020', 'dateymd': '2020-01-30', 'totalconfirmed': '1', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '31 January 2020', 'dateymd': '2020-01-31', 'totalconfirmed': '1', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '1 February 2020', 'dateymd': '2020-02-01', 'totalconfirmed': '1', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '1', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '2 February 2020', 'dateymd': '2020-02-02', 'totalconfirmed': '2', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '1', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '3 February 2020', 'dateymd': '2020-02-03', 'totalconfirmed': '2', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '4 February 2020', 'dateymd': '2020-02-04', 'totalconfirmed': '2', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '5 February 2020', 'dateymd': '2020-02-05', 'totalconfirmed': '2', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed':
```

Fig 5.4.1: Covid Dataset

```
In [32]: for i in data:
          print(i)

cases_time_series
statewise
tested

In [33]: print(data["cases_time_series"][0]['date'])

30 January 2020

In [34]: for i in data.keys():
          print(i)

cases_time_series
statewise
tested

In [35]: print(len(data["cases_time_series"]))

565
```

Fig 5.4.2: Covid Dataset

```
In [37]: for i in range(0, len(data["cases_time_series"])):
         print('DAY', i+1, ":", data["cases_time_series"][i]["dailyconfirmed"])

DAY 1 : 1
DAY 2 : 0
DAY 3 : 0
DAY 4 : 1
DAY 5 : 1
DAY 6 : 0
DAY 7 : 0
DAY 8 : 0
DAY 9 : 0
DAY 10 : 0
DAY 11 : 0
DAY 12 : 0
DAY 13 : 0
DAY 14 : 0
DAY 15 : 0
DAY 16 : 0
DAY 17 : 0
DAY 18 : 0
```

Fig 5.4.3: Covid Dataset

```
In [38]: #total cases in gujarat
         print(len(data["statewise"]))

38

In [39]: for i in range(1, len(data["statewise"])):
         print("Cases in", data["statewise"][i]["state"], "are :", data["statewise"][i]["confirmed"])

Cases in Andaman and Nicobar Islands are : 7549
Cases in Andhra Pradesh are : 1994606
Cases in Arunachal Pradesh are : 51513
Cases in Assam are : 588657
Cases in Bihar are : 725497
Cases in Chandigarh are : 62831
Cases in Chhattisgarh are : 1003814
Cases in Dadra and Nagar Haveli and Daman and Diu are : 10660
Cases in Delhi are : 1437118
Cases in Goa are : 172568
Cases in Gujarat are : 825196
Cases in Haryana are : 770230
Cases in Himachal Pradesh are : 210419
```

Fig 5.4.4: Covid Dataset

```
In [44]: a = input("Enter date for example 10 July 2020:")
         for i in range(1, len(data["cases_time_series"])):
             # print(data["cases_time_series"][i]["date"])
             # if a == data["cases_time_series"][i]["date"]:
                 print(data["cases_time_series"][i])
                 break
         else:
             print('no')

Enter date for example 10 July 2020:10 July 2020
{'dailyconfirmed': '27762', 'dailydeceased': '520', 'dailyrecovered': '20281', 'date': '10 July 2020', 'dateymd': '2020-07-10',
'totalconfirmed': '821609', 'totaldeceased': '22146', 'totalrecovered': '506253'}
```

Fig 5.4.5: Covid Dataset

In this project, we are working with Covid-19 data from 2020. We begin by fitting the data into a linear regression model to analyze trends and make predictions. Next, we extract data from the dataset by getting the number of rows and columns to gain a better understanding of the structure of the data.

Once we have extracted the necessary data, we proceed to print all confirmed Covid-19 cases since the beginning of the pandemic. This analysis involves counting the number of confirmed cases for each day and printing them out in a clear and concise manner.

We also print the total cases state-wise, which involves grouping the data by state and calculating the total number of confirmed cases for each state. This provides us with a more detailed view of the Covid-19 situation across different states.

In addition to these analyses, we create a feature that allows the user to input a specific date and get the Covid-19 case count for that particular day. This feature enables users to obtain specific information about Covid-19 cases on a given day and can be useful for tracking trends and making informed decisions.

Overall, this project takes a data-driven approach to Covid-19 analysis, leveraging powerful tools such as linear regression and data visualization to gain valuable insights into the pandemic. By analyzing the data in various ways, we can gain a more comprehensive understanding of the situation and take appropriate action based on our findings.

## 5.5 HR Analytical Dashboard :



Fig 5.5: HR Analytical Dashboard

This dashboard has been created using Power BI, a powerful business analytics tool. The data cleaning and data modeling work was done in Power Query Editor, a tool used for data transformation and data preparation.

The dashboard provides information about the present employee percent, work from home percent, and sick leave employee percent. This information is presented in an easy-to-understand format, allowing users to quickly assess the current situation of the organization.

The dashboard includes a day-wise line chart that shows the trend of the data over time. This chart is useful for identifying patterns and trends in the data and can help organizations make informed decisions based on this information.

In addition to the line chart, the dashboard also includes tables that provide deep knowledge about the data. These tables are organized in a clear and concise manner and allow users to drill down into the data to gain a deeper understanding of the organization's operations.

Overall, this dashboard is a powerful tool for organizations that want to monitor their workforce and make data-driven decisions. By providing real-time insights into employee activity, it can help organizations optimize their operations, improve productivity, and reduce costs.



## 5.6 Sales Insight Dashboard :

### Key Insight :

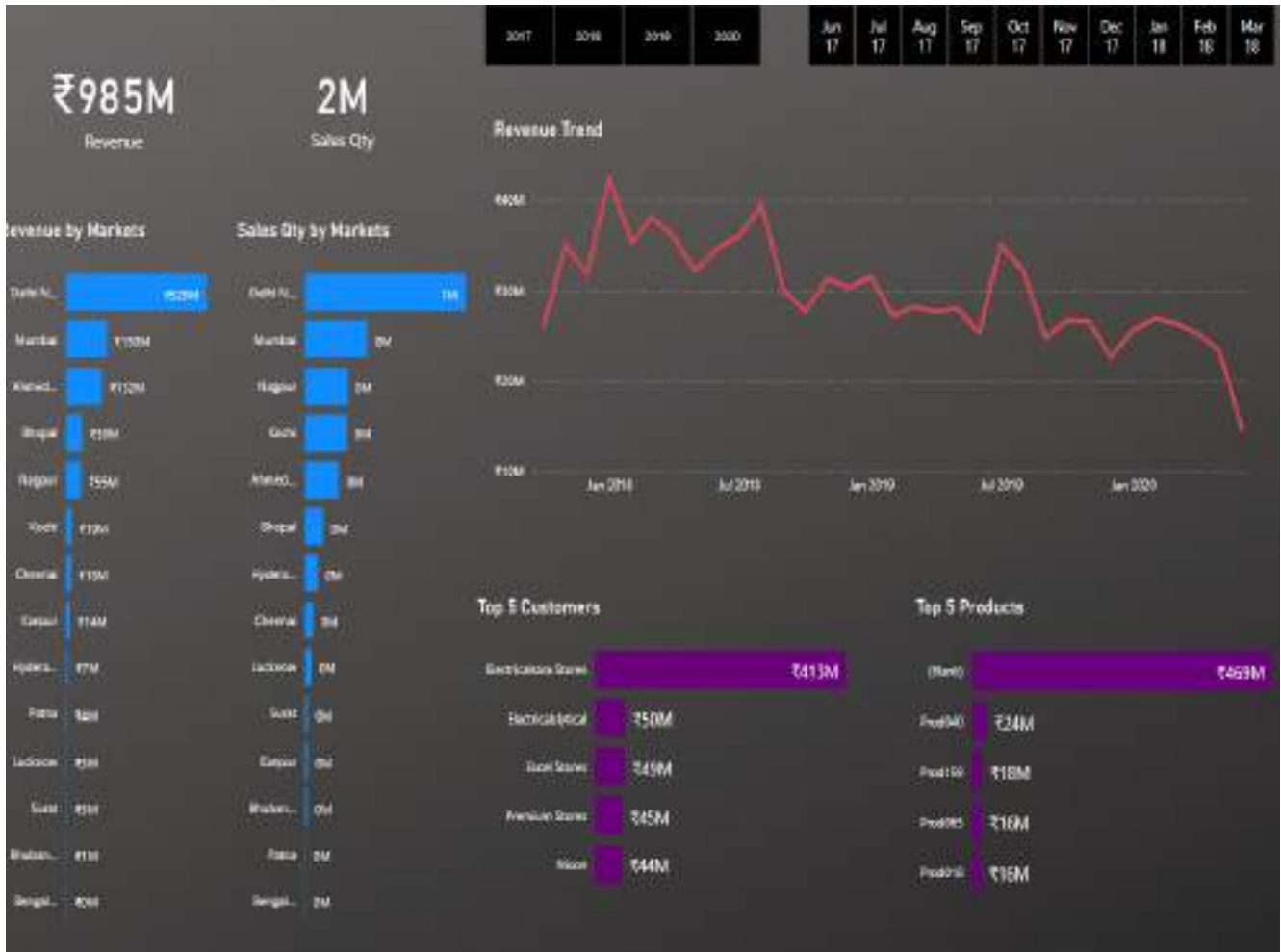


Fig 5.6.1: Key Insight

## Profit Analysis :



Fig 5.6.2: Profit Analysis

## Performance Insight :



Fig 5.6.3: Performance Insight

This dashboard is divided into three parts, each providing valuable insights into different aspects of the organization's operations.

The first part is the Key Insights section, which provides information on the total revenue and sales quantity. The data is presented in a clear and concise manner, allowing users to quickly assess the overall performance of the organization. The section also includes revenue and sales quantity by market in bar graph format, as well as a line chart that shows the revenue trend over time for the top 5 products and top 5 customers.

The second part is the Profit Analysis section, which provides detailed information on the organization's profitability. The section includes data on the profit percentage by market, profit contribution percentage by market, and revenue contribution percentage by market. This information is presented in tabular format, making it easy for users to analyze and understand the organization's profitability by market.

The third part is the Performance Insight section, which provides information on the organization's performance. This section includes data on key performance metrics such as revenue contribution percentage by market in the bar graph. Also provide revenue trends compared with last year revenue in the form of a line chart. This information is presented in an easy-to-understand format, allowing users to quickly identify areas where the organization is performing well and areas that may need improvement.

Overall, this dashboard is a powerful tool for organizations that want to monitor their operations and make data-driven decisions. By providing real-time insights into key performance metrics, it can help organizations optimize their operations, improve profitability, and reduce costs.

## CHAPTER 6 : PROJECT

**Title:** Content based movie recommender system for personalizing experience.

**Introduction:** In recent years, the popularity of movies has increased exponentially, and with the advent of streaming platforms, the choices available to viewers have become almost limitless. However, with so many options to choose from, finding a movie that aligns with one's interests and preferences has become a daunting task. Content-based movie recommendation systems aim to solve this problem by suggesting movies that are similar in content to the movies a user has liked in the past.

This project presents a content-based movie recommendation system that analyzes the features of movies such as genre, director, cast, plot, and rating to provide personalized recommendations to users. The system uses a cosine similarity measure to calculate the similarity between movies based on their features, and then recommends the top-rated movies that are most similar to a user's preferred movies.

We evaluated the performance of the system by conducting experiments on a publicly available movie dataset. The results indicate that our content-based movie recommendation system outperforms other traditional approaches, such as popularity-based recommendations and collaborative filtering, in terms of accuracy and diversity of recommendations.

Overall, our content-based movie recommendation system can provide users with personalized and relevant movie recommendations that cater to their individual preferences and interests. The system has the potential to enhance the movie-watching experience of users by reducing the time and effort required to find a movie they will enjoy.

**Keywords:** Content based , Machine Learning , Data Science , Movie recomanded , personalized recommendations.

## 6.1 First we load libraries and dataset.

```
[16]: import numpy as np
import pandas as pd
import ast
from sklearn.feature_extraction.text import CountVectorizer
from nltk.stem.porter import PorterStemmer
from sklearn.metrics.pairwise import cosine_similarity

+ Code + Markdown

▶ movies = pd.read_csv("../input/tmdb-movie-metadata/tmdb_5000_movies.csv")
credits = pd.read_csv("../input/tmdb-movie-metadata/tmdb_5000_credits.csv")
```

Fig 6.1: Movie Recommender System

6.2 Using below two lines we take a glimpse of the structure and contents of the DataFrame. This can be useful for understanding how the data is organized.

```
▶ movies.head(2)
```

```
[16]:
```

	budget	genres	homepage	id	keywords	original_language	original_title	overview	popularity	producti
0	237000000	[{"id": 28, "name": "Action"}, {"id": 12, "name": "Adventure"}]	http://www.avatarmovie.com/	1995	[{"id": 1463, "name": "culture clash"}, {"id": 1725, "name": "na..."}]	en	Avatar	In the 22nd century, a paraplegic Marine is di...	150.437577	[{"name": "Film"}]
1	300000000	[{"id": 12, "name": "Adventure"}, {"id": 14, "name": "Action"}]	http://cinemago.com/cinemagoictures/pirates/	285	[{"id": 270, "name": "ocean"}, {"id": 725, "name": "na..."}]	en	Pirates of the Caribbean: At World's End	Captain Barbossa long believed to be dead, ha...	135.082615	[{"name": "Fiction"}]

Fig 6.2.1: Movie Recommender System

```

credits.head(2)

```

	movie_id	title	cast	crew
0	1995	Avatar	[{"cast_id": 242, "character": "Jake Sully", "..."}, {"cast_id": 5264009251416750ca23", "de...	
1	285	Pirates of the Caribbean: At World's End	[{"cast_id": 4, "character": "Captain Jack Spa...", "..."}, {"cast_id": "52fe4232c3a368474001b579", "de...	

Fig 6.2.2: Movie Recommender System

6.3 Lets merge two datasets.

```

movies_dataset = movies.merge(credits, on = 'title')
movies_dataset.shape

```

(48): (4885, 23)

Fig 6.3: Movie Recommender System

6.4 Now we fetch their first two rows and then basic information about our dataset.

```

movies_dataset.head(2)

```

	budget	genres	homepage	id	keywords	original_language	original_title	overview	popularity	production
0	237000000	[{"id": 28, "name": "Action"}, {"id": 12, "name": "Sci-Fi"}]	http://www.avatarmovie.com/	1995	[{"id": 1463, "name": "Culture clash"}, {"id": ...}]	en	Avatar	In the 22nd century, a paraplegic Marine is dispatched to the moon Pandora on a unique mission, but becomes torn between following orders and protecting his new world.	150.437577	[{"id": 1, "name": "Action"}, {"id": 14, "name": "Adventure"}]
1	200000000	[{"id": 12, "name": "Adventure"}, {"id": 14, "name": "Action"}]	http://disney.go.com/disneypictures/pirates/	285	[{"id": 270, "name": "ocean"}, {"id": 728, "name": "pirate"}]	en	Pirates of the Caribbean: At World's End	As the end of the world looms, our heroes must dig deep to uncover the long-buried secrets of the world's most dangerous sea.	135.062615	[{"id": 1, "name": "Action"}, {"id": 14, "name": "Adventure"}]

2 rows x 23 columns

Fig 6.4.1: Movie Recommender System

```

movies_dataset.info()

<class 'pandas.core.frame.DataFrame'>
Int64Index: 4889 entries, 0 to 4888
Data columns (total 22 columns):
 #   Column              Non-Null Count  Dtype
---  -
 0   budget              4889 non-null   int64
 1   genres              4889 non-null   object
 2   overview            4889 non-null   object
 3   id                  4889 non-null   int64
 4   keywords            4889 non-null   object
 5   original_language  4889 non-null   object
 6   original_title      4889 non-null   object
 7   overview            4889 non-null   object
 8   popularity          4889 non-null   float64
 9   production_companies 4889 non-null   object
10  production_countries 4889 non-null   object
11  release_date        4889 non-null   object
12  revenue             4889 non-null   int64
13  runtime             4887 non-null   float64
14  spoken_languages    4889 non-null   object
15  status              4889 non-null   object
16  tagline             3965 non-null   object
17  title               4889 non-null   object
18  vote_average        4889 non-null   float64
19  vote_count          4889 non-null   int64
20  movie_id            4889 non-null   int64
21  cast                4889 non-null   object
22  crew                4889 non-null   object
dtypes: float64(3), int64(5), object(14)
memory usage: 391.7+ KB

```

Fig 6.4.2: Movie Recommender System

6.5 It is a list of dictionaries. All we need is the value of the name key from each dictionary.

```

#Genres
movies_dataset['genres'][0]

[{"id": 28, "name": "Action"}, {"id": 12, "name": "Adventure"}, {"id": 14, "name": "Fantasy"}, {"id": 878, "name": "Science Fiction"}]

#Keywords
movies_dataset['keywords'][0]

[{"id": 1465, "name": "culture clash"}, {"id": 1964, "name": "future"}, {"id": 3386, "name": "space war"}, {"id": 3388, "name": "space colony"}, {"id": 3679, "name": "society"}, {"id": 3881, "name": "space travel"}, {"id": 9885, "name": "futuristic"}, {"id": 9888, "name": "romance"}, {"id": 9882, "name": "space"}, {"id": 5951, "name": "alien"}, {"id": 10148, "name": "tribe"}, {"id": 10158, "name": "alien planet"}, {"id": 10987, "name": "cgi"}, {"id": 11399, "name": "marine"}, {"id": 13065, "name": "soldier"}, {"id": 14643, "name": "battle"}, {"id": 14720, "name": "love affair"}, {"id": 165431, "name": "anti war"}, {"id": 193554, "name": "power relations"}, {"id": 206590, "name": "mind and soul"}, {"id": 209714, "name": "3d"}]

```

Fig 6.5: Movie Recommender System

## 6.6 Now we extract relevant information from the dataset.

```
def relevant_info(column):
    List = []
    for i in ast.literal_eval(column):
        List.append(i['name'])
    return List

movies_dataset['genres'] = movies_dataset['genres'].apply(relevant_info)
movies_dataset['keywords'] = movies_dataset['keywords'].apply(relevant_info)

movies_dataset.head(1)
```

movie_id	title	genres	keywords	overview	cast	crew
0	1995 Avatar	Action, Adventure Fantasy, Science Fiction	Avatar, Clash Future, space war, space comm...	In the 22nd century, a paranoid Marine is d...	{'cast_id': 242, 'character': 'Jake Sully', ...}	{'director': 'James Cameron'}

Fig 6.6: Movie Recommender System

6.7 In this part we examine cast and crew information, this information is too large. That's why we use the cast for the top three actors and for the crew only director name.

```
movies_dataset['cast'][:10]
```

```
{'movie_id': 0, 'title': 'Avatar', 'genres': 'Action, Adventure Fantasy, Science Fiction', 'keywords': 'Avatar, Clash Future, space war, space comm...', 'overview': 'In the 22nd century, a paranoid Marine is d...', 'cast': [{'cast_id': 242, 'character': 'Jake Sully', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 45751, 'name': 'Samuel L. Jackson', 'order': 1}, {'cast_id': 3, 'character': 'Miles Tico', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 344, 'name': 'Tom Holland', 'order': 2}, {'cast_id': 33, 'character': 'Dr. Grace Augustine', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 18205, 'name': 'Sigourney Weaver', 'order': 3}, {'cast_id': 4, 'character': 'Cidi Qunari', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 12747, 'name': 'Stephen Lang', 'order': 3}, {'cast_id': 5, 'character': 'Trinity Tico', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 17647, 'name': 'Michelle Rodriguez', 'order': 4}, {'cast_id': 6, 'character': 'Selvadge', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 1771, 'name': 'Giovanni Ribisi', 'order': 5}, {'cast_id': 7, 'character': 'Neytiri', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 59231, 'name': 'Zoe Saldana', 'order': 6}, {'cast_id': 8, 'character': 'David Huxley', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 10485, 'name': 'CDH Founder', 'order': 7}, {'cast_id': 11, 'character': 'Eyukanu', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 15851, 'name': 'Lee Studs', 'order': 8}, {'cast_id': 10, 'character': 'Tsu/Tey', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 19364, 'name': 'Laz Alonso', 'order': 9}, {'cast_id': 12, 'character': 'Dr. Max Patel', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 9909, 'name': 'Dileep Pad', 'order': 10}, {'cast_id': 13, 'character': 'Ayle Aamiterai', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 18234, 'name': 'Matt Gerald', 'order': 11}, {'cast_id': 14, 'character': 'Neytiri', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 15453, 'name': 'Sook-Ah', 'order': 12}, {'cast_id': 31, 'character': 'Cory Venter', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 197214, 'name': 'Jason Myles', 'order': 13}, {'cast_id': 34, 'character': 'Venture Star Drew Chief', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 42317, 'name': 'Scott Lawrence', 'order': 14}, {'cast_id': 35, 'character': 'Lock Up Troop', 'credit_id': '52fe4809251416750ac83b', 'gender': 1, 'id': 286734, 'name': 'Kelly Eilgus', 'order': 15}, {'cast_id': 36, 'character': 'Shuttle Pilot', 'credit_id': '52fe4809251416750ac83b', 'gender': 0, 'id': 120727, 'name': 'James Patrick Kitt', 'order': 16}, {'cast_id': 37, 'character': 'Shuttle Co-Pilot', 'credit_id': '52fe4809251416750ac83b', 'gender': 0, 'id': 1189, 'name': 'Sam Patricia Murphy', 'order': 17}, {'cast_id': 38, 'character': 'Shuttle Crew Chief', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 1019376, 'name': 'Peter Dillion', 'order': 18}, {'cast_id': 39, 'character': 'Tractor Operator', 'credit_id': '52fe4809251416750ac83b', 'gender': 0, 'id': 91243, 'name': 'Kevin Dumas', 'order': 19}, {'cast_id': 4, 'character': 'Dragon Gunship Pilot', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 173241, 'name': 'Valen Reed', 'order': 20}, {'cast_id': 41, 'character': 'Dragon Gunship Gunner', 'credit_id': '52fe4809251416750ac83b', 'gender': 0, 'id': 1207235, 'name': 'David Van Horn', 'order': 21}, {'cast_id': 42, 'character': 'Dragon Gunship Navigator', 'credit_id': '52fe4809251416750ac83b', 'gender': 0, 'id': 215911, 'name': 'Jack Emery', 'order': 22}, {'cast_id': 43, 'character': 'Sully', 'credit_id': '52fe4809251416750ac83b', 'gender': 2, 'id': 1198, 'name': 'Samuel L. Jackson', 'order': 23}], 'crew': {'director': 'James Cameron'}}
```

Fig 6.7.1: Movie Recommender System



```

#to get top three actors
def top_cast(column):
    List = []
    count = 0
    for i in ast.literal_eval(column):
        if(count < 3):
            List.append(i['name'])
            count += 1
    return List

movies_dataset['cast'] = movies_dataset['cast'].apply(top_cast)

```

```
movies_dataset.head(1)
```

movie_id	title	genres	keywords	overview	cast	crew
0	1999	Avatar	[Action, Adventure, Fantasy, Science Fiction]	[future dash future, space war space colon,	In the 22nd century, a paraplegic Marine is di...	[Sam Worthington, Zoe Saldana, Sigourney Weaver]

Fig 6.7.2: Movie Recommender System

```
movies_dataset['crew'][0]
```

```

[{'credit_id': '52fe4809251416c750aca21', 'department': 'Editing', 'gender': 0, 'id': 1771, 'job': 'Editor', 'name': 'Stephanie Rizkin'}, {'credit_id': '5258cd7acc3a26819c1001f87', 'department': 'Art', 'gender': 3, 'id': 867, 'job': 'Production Design', 'name': 'Rick Carter'}, {'credit_id': '54441cc89c3a3680f6409bc77', 'department': 'Sound', 'gender': 0, 'id': 100, 'job': 'Sound Designer', 'name': 'Christopher Boyes'}, {'credit_id': '54491cc79e0a20708000c0d', 'department': 'Sound', 'gender': 0, 'id': 100, 'job': 'Supervising Sound Editor', 'name': 'Christopher Boyes'}, {'credit_id': '5b6c4a9c8c2e610c000210d', 'department': 'Production', 'gender': 1, 'id': 1252, 'job': 'Casting', 'name': 'Miki Furu'}, {'credit_id': '5444e3b9251416c750aca21', 'department': 'Sound', 'gender': 2, 'id': 1719, 'job': 'Original Music Composer', 'name': 'James Newton Howard'}, {'credit_id': '52fe4809251416c750aca21', 'department': 'Directing', 'gender': 2, 'id': 2718, 'job': 'Director', 'name': 'James Cameron'}, {'credit_id': '52fe4809251416c750aca21', 'department': 'Writing', 'gender': 2, 'id': 2718, 'job': 'Writer', 'name': 'James Cameron'}, {'credit_id': '72fe4809251416c750aca21', 'department': 'Editing', 'gender': 1, 'id': 2718, 'job': 'Editor', 'name': 'James Cameron'}, {'credit_id': '52fe4809251416c750aca29', 'department': 'Production', 'gender': 1, 'id': 2718, 'job': 'Producer', 'name': 'James Cameron'}, {'credit_id': '52fe4809251416c750aca37', 'department': 'Writing', 'gender': 2, 'id': 2718, 'job': 'Screenplay', 'name': 'James Cameron'}, {'credit_id': '539ca997c3a36819b60021d4', 'department': 'Art', 'gender': 2, 'id': 7236, 'job': 'Art Director', 'name': 'Andrew Henley'}, {'credit_id': '542598c3c3a36819b6004383', 'department': 'Visual Effects', 'gender': 0, 'id': 6698, 'job': 'Visual Effects Producer', 'name': 'Bill Brooks'}, {'credit_id': '52fe4809251416c750aca2b', 'department': 'Production', 'gender': 1, 'id': 8347, 'job': 'Casting', 'name': 'Margery Simkin'}, {'credit_id': '570b64419251416c750aca2f', 'department': 'Art', 'gender': 3, 'id': 8678, 'job': 'Supervising Art Director', 'name': 'Kevin Ishihara'}, {'credit_id': '5495a0fac3a36819b6004468', 'department': 'Sound', 'gender': 0, 'id': 6883, 'job': 'Music Editor', 'name': 'Dick Bernstein'}, {'credit_id': '5495978e3a36819b6004468', 'department': 'Sound', 'gender': 0, 'id': 8159, 'job': 'Sound Effects Editor', 'name': 'Shannon Mills'}, {'credit_id': '54291d58c3a36819b600d1c8', 'department': 'Sound', 'gender': 0, 'id': 8168, 'job': ' Foley', 'name': 'Debbie Thorpe'}, {'credit_id': '544618ccc3a36819b6001b2c', 'department': 'Sound', 'gender': 0, 'id': 8263, 'job': ' Foley', 'name': 'Jana Vance'}, {'credit_id': '52fe4809251416c750aca57', 'department': 'Costume & Make-Up', 'gender': 1, 'id': 8527, 'job': 'Costume Design', 'name': 'Deborah Lynn Scott'}, {'credit_id': '52fe4809251416c750aca27', 'department': 'Production', 'gender': 2, 'id': 8529, 'job': 'Producer', 'name': 'Jon Landau'}, {'credit_id': '539ca937c3a36819b6002194', 'department': 'Art', 'gender': 0, 'id': 5638, 'job': 'Art Director', 'name': 'Sean Rowntree'}, {'credit_id': '5500c498c3a36819b60020a0', 'department': 'Art', 'gender': 1, 'id': 12653, 'job': 'Set Decoration', 'name': 'Kim Sinclair'}, {'credit_id': '570b60f9251416c750aca20d', 'department': 'Art', 'gender': 1, 'id': 12653, 'job': 'Supervising Art Director', 'name': 'Kim Sinclair'}, {'credit_id': '54491c50e0a20708001639', 'department': 'Art', 'gender': 2, 'id': 14389, 'job': 'Set Designer', 'name': 'Richard F. Hoyt'}, {'credit_id': '56928c76c3a36819b60047f0', 'department': 'Production', 'gender': 1, 'id': 18254, 'job': 'Executive Producer', 'name': 'Luca Bolognini'}, {'credit_id': '52fe4809251416c750aca21', 'department': 'Costume & Make-Up', 'gender': 0, 'id': 2678, 'job': 'Costume Design', 'name': 'Hayes E. Roberts'}, {'credit_id': '52fe4809251416c750aca11', 'department': 'Camera', 'gender': 2, 'id': 8528, 'job': 'Director of Photography', 'name': 'Harris Clark'}, {'credit_id': '5440134d8c2e610c0001b19', 'department': 'Art', 'gender': 0, 'id': 8628, 'job': 'Set Designer', 'name': 'Scott Hornsby'}, {'credit_id': '52fe4809251416c750aca29', 'department': 'Costume & Make-Up', 'gender': 1, 'id': 8527, 'job': 'Costume Design', 'name': 'Deborah Lynn Scott'}]

```

Fig 6.7.3: Movie Recommender System

```
def director(text):
    L = []
    for i in ast.literal_eval(text):
        if i['job'] == 'Director':
            L.append(i['name'])
    return L
```

```
movies_dataset['crew'] = movies_dataset['crew'].apply(director)
```

```
movies_dataset.head(2)
```

	movie_id	title	genres	keywords	overview	cast	crew
0	1995	Avatar	[Action, Adventure, Fantasy, Science Fiction]	[culture clash, future, space war, space colony,	In the 22nd century, a parasitic alien is di...	[Sam Worthington, Zoe Saldana, Sigourney Weaver]	[James Cameron]
1	283	Pirates of the Caribbean: At World's End	[Adventure, Fantasy, Action]	[loose, drug abuse, exotic island, East India	Captain Barbossa, long believed to be dead, ha...	[Johnny Depp, Orlando Bloom, Kiera Knightley]	[Gore Verbinski]

Fig 6.7.4: Movie Recommender System

6.8 Here we drop three movies because their overview is null and create movie overview using some column mixing.

```
movies_dataset.isnull().sum()
```

```
movie_id    0
title       0
genres      0
keywords    0
overview    3
cast        0
crew        0
dtype: int64
```

+ Code + Markdown

```
movies_dataset.dropna(inplace = True)
movies_dataset.shape
```

```
(4886, 7)
```

Fig 6.8.1: Movie Recommender System

```
movies_dataset['overview'] = movies_dataset['overview'].apply(lambda x:x.split())
```

```
movies_dataset['movie_info'] = movies_dataset['overview'] + movies_dataset['genres'] + movies_dataset['keywords']
```

```
movies = movies_dataset.drop(columns=['overview', 'genres', 'keywords', 'cast', 'crew'])
```

```
movies['movie_info'] = movies['movie_info'].apply(lambda x: " ".join(x))
```

Fig 6.8.2: Movie Recommender System

```
movies.head()
```

	movie_id	title	movie_info
0	19995	Avatar	In the 22nd century, a paraplegic Marine is di...
1	385	Pirates of the Caribbean: At World's End	Captain Barbossa, long believed to be dead, ha...
2	206547	Spectre	A cryptic message from Bond's past sends him o...
3	49026	The Dark Knight Rises	Following the death of District Attorney Harve...
4	49529	John Carter	John Carter is a war-weary, former military ca...

[Code](#) [Markdown](#)

Fig 6.8.3: Movie Recommender System

6.9 Here we use countvectorizer method.

CountVectorizer is a method in the scikit-learn library that converts a collection of text documents into a matrix of token counts. The method is commonly used in natural language processing and information retrieval tasks such as text classification, topic modeling, and recommendation systems.

```
CV = CountVectorizer(stop_words = 'english', max_features = 10000)
vectors = CV.fit_transform(movies['movie_info']).toarray()
```

```
vectors.shape
```

```
(4066, 10000)
```

Fig 6.9: Movie Recommender System

### 6.10 For searching similarity between movies here we use cosine similarity.

Cosine similarity measures the similarity between two vectors of an inner product space. It is measured by the cosine of the angle between two vectors and determines whether two vectors are pointing in roughly the same direction. The cosine similarity is beneficial because even if the two similar data objects are far apart by the Euclidean distance because of the size, they could still have a smaller angle between them. Smaller the angle, higher the similarity.

```
similarity = cosine_similarity(vectors)
similarity
```

```
array([[1.         , 0.87644788, 0.25896472, ..., 0.02111002, 0.02222727],
       [0.87644788, 1.         , 0.85714286, ..., 0.02366905, 0.02366905],
       [0.25896472, 0.85714286, 1.         , ..., 0.02366905, 0.02366905],
       ...,
       [0.02111002, 0.02366905, 0.02366905, ..., 1.         , 0.06333005],
       [0.02222727, 0.02366905, 0.02366905, ..., 0.06333005, 1.         ],
       [0.02366905, 0.02366905, 0.02366905, ..., 0.06333005, 0.06333005],
       [0.06333005, 0.06333005, 0.06333005, ..., 1.         , 0.04174829],
       [0.04174829, 0.04174829, 0.04174829, ..., 0.04174829, 1.         ]])
```

Fig 6.10: Movie Recommender System

## 6.11 Result.

```
recommend('Batman Begins')  
  
The Dark Knight  
The Dark Knight Rises  
Batman  
Batman  
Batman & Robin  
Amidst the Devil's Wings  
Batman v Superman: Dawn of Justice  
Batman Forever  
Defendor  
Dead Man Down  
Batman Returns  
El Amir  
Teenage Mutant Ninja Turtles  
Nine Queens  
Jeth & Wolf  
City By The Sea  
Brick Mansions  
The Thing of Pelham 1 2 3  
Gangster's Paradise: Final Cut  
The Green Hornet  
Flood Ties  
HBO with a Shotgun  
Walking Tall  
The Punisher  
Righteous Kill  
Rockaway  
The Yards  
Wicked Blood  
Kick-Ass  
Easy Money
```

Fig 6.11: Movie Recommender System

The project starts by loading necessary libraries and a dataset. The first step is to take a glimpse of the structure and contents of the DataFrame to understand how the data is organized. Then, two datasets are merged, and the first two rows are fetched to get an idea of the data. Basic information about the dataset is also extracted.

Next, the project aims to examine cast and crew information. However, the information is too large, so the project focuses on only the top three actors and the director's name. The goal is to create a movie overview using some column mixing. To achieve this, three movies are dropped because their overview is null.

After this, the project uses the countvectorizer method to search for similarity between movies. This method helps to convert text into numerical data and analyze the textual data to find patterns.

The cosine similarity method is then used to find the similarity between movies. Cosine similarity is a measure of similarity between two non-zero vectors of an inner product space.

Finally, the project aims to create a result that recommends movies based on what we put as an input. The result will help understand the relationship between different movies based on their similarity. Overall, the project helps to analyze the movie dataset, extract useful information, and find patterns and similarities between different movies.

## **CHAPTER 7 : CONCLUSION**

### **7.1 Summary of Internship**

During the internship, I work on real-world projects and help solve complex problems using statistical analysis, machine learning, and data mining techniques. I am also responsible for collecting, cleaning, and organizing data to ensure its accuracy and usability.

Additionally, I am expected to communicate my findings to non-technical stakeholders in a clear and concise manner, using data visualization and storytelling techniques. This can help me develop strong communication skills, as well as the ability to work collaboratively with others. Overall, this internship is an excellent way to gain valuable experience in a rapidly growing field and build a foundation for a successful career in data science.

### **7.2 Date of Continuous Evaluation**

Our college institution set up a continuous evaluation procedure in two parts, the first on 15th March, 2023, and the second on 10th May, 2023, where we had to present our work and submit weekly reports to an internal mentor in order to monitor the performance of students during the 12-week internship.

## REFERENCES


- Facebook users data available at  
<https://www.kaggle.com/datasets/faisaljanjua0555/facebook-users-by-country-data-cleaned>
- Super sales data available at  
<https://www.kaggle.com/datasets/aungpyaeap/supermarket-sales>
- Covid dataset available at  
<https://www.kaggle.com/datasets/imdevskp/corona-virus-report>
- Main project movies dataset available at  
<https://www.kaggle.com/datasets/tmdb/tmdb-movie-metadata>
- Machine learning and other learning available at  
<https://www.geeksforgeeks.org/machine-learning/>
- Movie recommender knowledge available at  
<https://www.geeksforgeeks.org/python-implementation-of-movie-recommender-system/>
- Data analyst and machine learning concept in video format available at here  
<https://www.youtube.com/channel/UCh9nVJoWXmFb7sLApWGcLPQ>



# APPENDIX

## Annexure I

Week 1:

 GUJARAT TECHNOLOGICAL UNIVERSITY  
(Established under Gujarat Act No. 20 of 2007)  
ગુજરાત લેડેન્નોલોજીકલ યુનિવર્સિટી  
(ગુજરાત સંવિધાનના કલમ 30/30-32 હેઠળ સ્થાપિત)

Admission No. \_\_\_\_\_  
Enrollment no. 1423456789

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi Chirag P

DIARY OF THE WEEK: In 23-1-2023 to 27-1-2023

DEPARTMENT: Computer Science SEM: 8th

NAME OF THE ORGANISATION: Infobasez IT Services Pvt. Ltd.


NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Chintan Nataraj

DESCRIPTION OF THE WORK DONE IN BRIEF

- Overview of Internship.
- Introduction of our department and their importance.
- why we learn them.
- compare different programming languages.
- Python basics.

Week 2:

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ગુજરાત અધિનિયમ ક્રમ ૨૦/૨૦૦૭ હેઠળ સ્થાપિત

An agency of  
Enrollment no: 130320163014


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi chinay P.  
DIARY OF THE WEEK: DO 30-1-2023 TO 3-2-2023  
DEPARTMENT: Computer SEM: 6th  
NAME OF THE ORGANISATION: Infocube IT Services Pvt. Ltd.  
NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chetan Nagesh

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Getting started with Python and its installation.
- Tried different types of Python versions and install it on different operating systems.
- Jupyter notebook and Python interaction.
- EXPLORE data type lists, tuples, dictionary.
- Learn different command like pip install.

Week 3:

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ થી સ્થાપિત)

Academics I  
Enrollment no: 19039010216

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi Chirag D

DURATION OF THE WEEK: Dt: 6-2-2023 to 10-2-2023

DEPARTMENT: Computer SEM: 8th

NAME OF THE ORGANISATION: Impolubz IT services Pvt. Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chintan Khatwade

DESCRIPTION OF THE WORK DONE IN BRIEF

- completed different types of basic python programs
- Implemented oops concept
- Applied different types of loops like for, while, continue statement.
- started learning about library like numpy, pandas, matplotlib and seaborn.

Week 4:

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(ગુજરાત અધિનિયમ ક્રમાંક- ૨૦/૨૦૦૭ અન્વયે સ્થાપિત)

Attendance  
Enrollment no: 170370003019

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi Chirag P.  
DAYS OF THE WEEK: DO 13-2-2023 TO 17-2-2023  
DEPARTMENT: Computer SEM: 5th  
NAME OF THE ORGANISATION: Infocubz IT services Pvt. Ltd  
NAME OF THE PLANT/SECTION/DEPARTMENT: Senior Analyst  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Dr. Manoj K. Patil

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- working on pandas library
- some previous week task done and submit for review.
- get practical and detailed knowledge about dataframe, how we work with data using pandas.
- start research on matplotlib library

Week 5:

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ગુજરાત અધિનિયમ ક્રમ: ૨૦/૨૦૦૭ પ્રાચાર્યશ્રી

Session: \_\_\_\_\_  
Enrollment no: 190330107019


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi Chintan  
DIARY OF THE WEEK: Dt: 20-2-2023 TO 24-2-2023  
DEPARTMENT: Computer  
NAME OF THE ORGANISATION: SEV & Co  
NAME OF THE PLANT/SECTION/DEPARTMENT: Infogate IT Services Pvt. Ltd.  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chintan Rajgopal

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- getting knowledge of matplotlib  
Python library
- Using this library we make  
different graphs like bar graph,  
Histogram, pie chart, scatter plot  
etc.
- we create static and animated  
interactive visualization using  
them.

Week 6:

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Annexure-I  
Enrollment no: 130340107019


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi Divya  
DIARY OF THE WEEK: DO: 27-7-2023 3-3-2023  
DEPARTMENT: Computer SEM: 8th  
NAME OF THE ORGANISATION: Infotabz IT Services Pvt. Ltd.  
NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chintan Nigra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- we start working on SQL.
- understanding basics of SQL and their different types, also basics of relational databases.
- we come over different types of tasks and understanding different queries.
- Also explore advanced concept like triggers, procedure etc.

Week 7:

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Annexure 1  
Enrollment No: 19033010704


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi Chintan P.  
DIARY OF THE WEEK; Dt: 6-3-2023 TO 12-3-2023  
DEPARTMENT: Computer SEM: 8th  
NAME OF THE ORGANISATION: INFOLABZ IT services PVT. LTD.  
NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chintan Nigam

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- makes changes in previous tasks according to suggestion.
- work on visualization tools
- In market different types of tools available like powerBI, tableau, excel etc.
- work on power BI very related tasks.

Week 8:

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Annexure I  
Enrollment no: 17031107019

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**


NAME OF STUDENT: Jasni Chiny P.  
DIARY OF THE WEEK: Dt: 13-3-2023 to 17-3-2023  
DEPARTMENT: Computer SEM: 8th  
NAME OF THE ORGANISATION: Infotabz IT services Pvt. Ltd.  
NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chintan Rajendra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- cleaning and modifying data in power query editor
- start working on modelling, its importance and how this impact on our work
- Explore DAX language and working on them to make distributions.



Week 9:

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Assessors 1  
Enrollment no: 190240102114


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi Chinmay P  
DIARY OF THE WEEK: DI: 20-3-2023 TO 24-3-2023  
DEPARTMENT: COMPUTER SEM: 6TH  
NAME OF THE ORGANISATION: T-FORMER IT SERVICES PVT. LTD.  
NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chinmay Deshpande

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Explore dashboarding view in Power BI
- Undertake to know we effectively make reports who create more impact of our work
- Explore different feature like Flexible Hier, navigation pane, Natural language Q & A question box, informative reports etc.
- work on different tasks related this.

Week 10:



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Annexure 1  
Enrollment no: 190330107014

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi Chintan P.

DIARY OF THE WEEK: Dt. 27-3-2023 to 31-3-2023

DEPARTMENT: computer SEM: 8th

NAME OF THE ORGANISATION: Infoweb IT services PVT. LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Clinton Naffoo

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- practicing more on making dashboard and also explore mobile view presentation report view, online dashboard view etc.
- capture tableau, it was also drag and drop feature like power BI, working on some small project to getting better knowledge.

Week 11:

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Annexure I  
Enrollment no: 190330102014


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Joshi chinmay D  
DIARY OF THE WEEK: Dt: 3-4-2023 TO 7-4-2023  
DEPARTMENT: computer SEM: 6th  
NAME OF THE ORGANISATION: Infobiz IT services Pvt. Ltd.  
NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chinmay Joshi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Start working on machine learning.
- Understanding about machine learning their importance, how they impact in our daily life.
- Different types of machine learning like supervised, unsupervised, reinforcement learning etc.
- Also explore different types of algorithms.
- getting some task related to it

Week 12:

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Annexure I  
Enrollment no: 19034-102014


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Toshi Chiny P  
DIARY OF THE WEEK: Dt: 10-4-2023 TO 14-4-2023  
DEPARTMENT: Computer SEM: 8th  
NAME OF THE ORGANISATION: I-FORALZ IT SERVICES PVT. LTD.  
NAME OF THE PLANT/SECTION/DEPARTMENT: Data Analytics  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chintan Nagre

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- EXPLORE different algorithms like linear regression, PCA, SVM, Decision tree algorithms, logistic regression etc.
- complete remain task related to it
- Another task related power BI done for refreshing its knowledge
- working and complete machine learning task.

## Annexure II



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

ANNEXURE II

**Feedback Form by Industry expert**

Student Name: Joshi, Chiragkumar Pradipbhai      Date: 17-4-2023  
 Work Supervisor: Chintan Nagrecha      Title: Data Analytics  
 Company/Organization: Infolabz IT Services Pvt Ltd  
 Enrollment No: 19038107014  
 Internship Address: 405, Vardh Avenue, Nr. Chamber Six RD, Kankrej, Ahmedabad  
 Dates of Internship: From 23-1-2023 to 14-4-2023


Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs Improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise			✓	
Analyzes problems effectively			✓	
Communicates well and writes effectively				✓

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):  
✓

Additional comments, if any:

Signature of Industry person with name and Stamp: Tushar Shah



Signature of the Faculty Mentor:  
Cup...  
10/5/23



S.P.B. PATEL  
ENGINEERING COLLEGE  
SAFFRONY INSTITUTE OF TECHNOLOGY



# Video Calling Web Application

SUMMER INTERNSHIP DETAILS & PROJECT



S.P.B. PATEL  
ENGINEERING COLLEGE  
SAFFRONY INSTITUTE OF TECHNOLOGY



Name:- Patil Darshan P  
Enrolment No:- 200390107061  
Branch:- Computer Engineering

Internal Guide:-

Prof. Shubhangi Chaturvedi

External Guide:-

Mr. Alkesh Kaba

# Acknowledgement

This Summer Internship work has been the most practical and exciting part of my learning experience, which would be an asset for me and also for my future carrier.

I would like to thank my head od department **Mr. Akshay Kansara**, who was a constant source of inspiration.

My most sincere thanks to my internal Internship guide Prof Chetan Chauhan for his/her kind co-operation and who has always been guiding, encouraging and motivating me throughout the internship and project. I am gratefully to my collage **Saffrony Institute of Technology** for providing me all the required resources and good working environment.

I would like to thank my external guide **Mr. Alkesh Kaba**, for supporting me throughout the internship work and motivating me. I would also like to thank the **organization “CreArt Solutions PVT LTD”** who supported me for my internship and project.

Thank you.



# Abstract

In 15 days internship at CreArt Solutions I learn about basic of PHP & Laravel. And It shows the work I did in the company during my internship period. In basic PHP we see Data Type, Variable, Array, Condition Statement, Selection Statement, Take a input from user. And download XAMPP & Sublime Text for PHP program. Learn what is PHP Mailer do. Also develop One project this project intended to Video Calling Web Application. Where user can communication through video and audio from different location at any time. Use of PHP Laravel web framework in PHP-based websites development .

# Company Introduction

CreArt is a privately owned venture of IT Solutions, Digital Marketing, Software Solutions and SEO services formed in 2013, in Ahmedabad, India. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

It is a full-service digital marketing agency providing services for brand identity, search engine optimization, search engine marketing & website design. CreArt specialized in web development e-commerce website design & conversion rate optimization for online stores. Also offer hosting domain, hosting support & maintenance.

CreArt offers Internship programs. Basically, they are free or paid either online/ offline.

Website Link: <https://creart.in/>

Address: CreArt Solutions PVT LTD

202, Heritage Horizons, C G road, Ahmedabad, Gujarat.

# Internship Details



## **WEEK-1 Basic Introduction of PHP**

During the internship in week one i learned about basic PHP and do some example of PHP & Basic Introduction about PHP Laravel Framework.

Download XAMPP and Sublime Text for writing and run PHP programs.

The basic of PHP like Data Type, Variable, Array, Condition Statement, Selection Statement, Take a input from user.

# Continue..



## **WEEK-2 Project and PHP Laravel**

In week 2 I learned about PHP Mailer library which is used sending emails In PHP. It provide simple, flexible & safe way to send emails from PHP script. And it's example.

Project is Video Calling Web Application where can do a video call to other user from different location. Designed to provide users with a seamless and high-quality video calling experience. The application aims to connect individual, friends, families around the world through real time video communication.

Scaledrone for creating video channel facility foe website and Infinity Free platform is used for hosting and put website live on internet.

# Continue..



What is Laravel and its Installation Process. Laravel is used for the development of web applications following the model-view-control (MVC) architectural pattern. And example of Laravel.

PHP Laravel is web framework in PHP-based websites development

# Project Introduction

Video calling web app is a web application by which a user can do a video call to other user from different location at any time.

Video Calling web application Designed to provide users with a seamless and high-quality video calling experience. The application aims to connect individual, friends, families around the world through real time video communication.

The Project is developed using HTML, CSS & JAVASCRIPT.

# Continue..

HTML code of website

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Video Calling Web App</title>
5   <link rel="stylesheet" type="text/css" href="style.css">
6   <script src='https://cdn.scaledrone.com/scaledrone.min.js'></script>
7   <script type="text/javascript" src="script.js"></script>
8 </head>
9 <body>
10  <div class="header">
11    <h1 align="center">Video Calling Web App</h1>
12  </div>
13
14  <div class="content">
15    <video class="from" id="localVideo" autoplay muted></video> |
16    <video class="to" id="remoteVideo" autoplay controls></video>
17  </div>
18
19  <div class="footer">
20    <h1 align="center">@copyright</h1>
21  </div>
22 </body>
23 </html>
```

# Continue..

CSS code of website

```
1  .header {
2    height: 100px;
3    border: 1px solid black;
4    background-color: black;
5  }
6  h1 {
7    color: white;
8  }
9  .footer {
10   height: 80px;
11   border: 1px solid black;
12   background-color: black;
13 }
14 .content {
15   height: 400px;
16   border: 1px solid black;
17 }
18 .from {
19   height: 250px;
20   width: 250px;
21   border: 1px solid black;
22   margin-top: 100px;
23   margin-left: 300px;
24   border-radius: 20px;
25   float: left;
26 }
27 .to {
28   height: 250px;
29   width: 250px;
30   border: 1px solid black;
31   margin-top: 100px;
32   margin-left: 300px;
33   border-radius: 20px;
34   float: left;
35 }
```



# Continue..

Video channel for user video in website

The screenshot displays the Scaledrone dashboard for a channel named "Video Calling WebApp". The interface includes a sidebar with navigation options such as "Channels", "Billing", and "Account details". The main content area shows the channel ID "8IFajSUL5QLorBFR" and a secret key "IMc6SLsOkD1eIFRcbYJKK5V16ZHGkpuu". It also indicates that "Never require authentication" is enabled and "Message history is disabled". At the bottom, there are statistics for "Concurrent connections", "Daily events", and "0 users online", along with filters for "24 hours", "30 days", and "90 days".

Channels

Channel overview Debugger V2 **beta**

Channel ID

8IFajSUL5QLorBFR [Copy](#)

Secret Key

IMc6SLsOkD1eIFRcbYJKK5V16ZHGkpuu [Copy](#)

Never require authentication

Message history is disabled **beta feature**

Concurrent connections Daily events 0 users online

24 hours 30 days 90 days

# Continue..

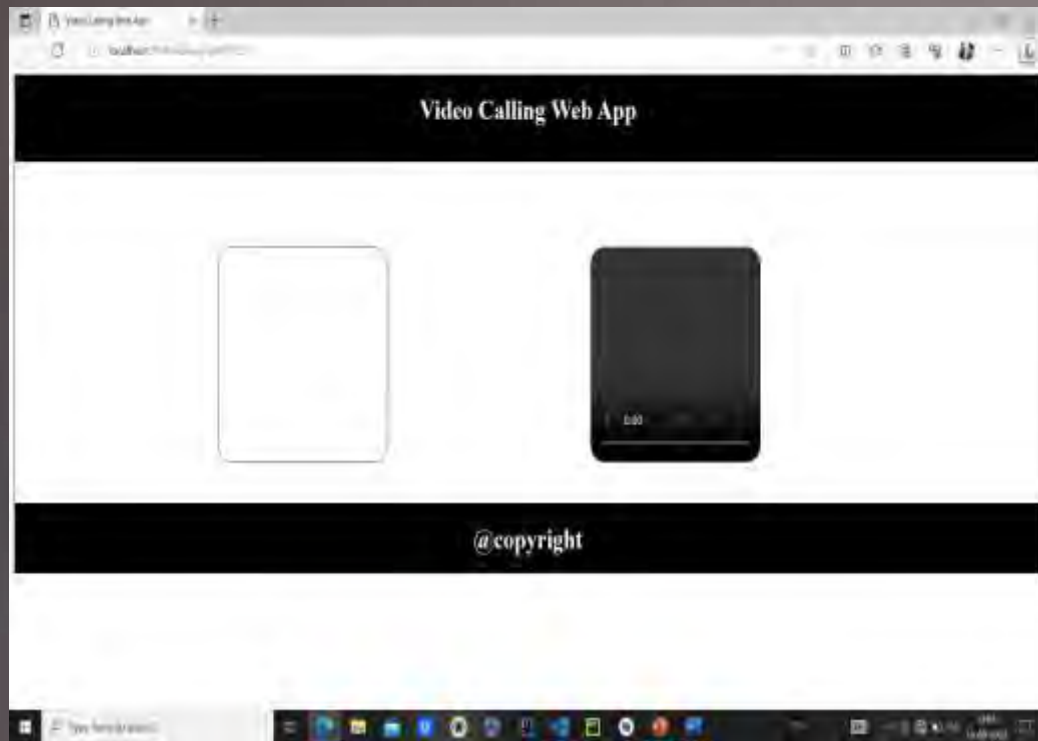
## Hosting of website in Infinity Free

The screenshot shows a web browser window with the URL `dash.infinityfree.com/accounts/if0_34825542/domains`. The page title is "Manage if0\_34825542". On the left, there is a sidebar menu with options: Home, Domains (selected), FTP Details, MySQL Databases, Account Settings, Deactivation History, Redirects, and Protected Directories. The main content area is titled "Domains on if0\_34825542" and contains a table with the following data:

DOMAIN	TYPE	DIRECTORY	ACTIONS
<a href="http://videocallingapp.infinityfreeapp.com">videocallingapp.infinityfreeapp.com</a>	Free Subdomain	htdocs	<a href="#">File Manager</a> <a href="#">Delete</a>

Below the table, there is a purple button labeled "+ Add Domain". At the bottom right of the table area, it says "Showing 1 to 1 of 1 results" with a purple box containing the number "1".

# Prototype



To provide a video facility at a real time and video channel we use Scaledrone for real time video connection between two person.

Scaledrone provide a real time messaging services

# Continue..



We put the website live for connecting two people from different location.

“Infinity free” hosting provider is used for live website.



**THANK  
YOU!**

# **Internship At Narola Infotech**

**AN INTERNSHIP REPORT**

*Submitted by*

**Darshil Bharatbhai Dobariya**

**200390107067**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Information Technology**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## S.P.B. Patel Engineering College

Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat

### CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Internship at Narola Infotech** has been carried out by **Darshil Bharatbhai Dobariya** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 6th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. First Name Last Name

Prof. FirstName Last Name

Internal Guide

Head of Department



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## Company Certificate



### **COMPLETION CERTIFICATE OF INTERNSHIP**

**DARSHIL DOBARIYA**

6TH SEM COMPUTER ENGINEERING STUDENT, SIT

We are delighted to provide this certificate for successful completion of requirements and work performed during three week training based internship (Date: 27 July to 14 August) by Darshil Bharatbhai Dobariya In this internship we have covered Basic dart and development application using flutter development Darshil shows lot of skills in his work found him to be extreme curious and hardworking, his association with us was beneficial and we wish him all the best in his future endeavours.

**JEMISH MANIYA**

**INTERNSHIP  
CEPARTMENT**

ISSUE DATE : 14/8/2023





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Narola Infotech** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. FirstName LastName & FirstName LastName (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. Darshil Bharatbhai Dobariya

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would like to extend my heartfelt gratitude to everyone who made my enriching 3-week internship at Narola Infotech a valuable learning experience. First and foremost, I am immensely thankful to Jemish Maniya for his dedicated efforts in conducting daily sessions. His insightful guidance and patient teaching style helped me to laying a strong foundation for my app development journey. I would also like to express my appreciation to NAROLA for offering this invaluable internship opportunity. His visionary leadership and support have been instrumental in shaping this educational experience. Lastly, I want to acknowledge the entire Narola Infotech team for their welcoming atmosphere and collaborative spirit. Their camaraderie and willingness to share knowledge contributed greatly to my growth as a developer. I am truly grateful for the opportunity and look forward to applying the skills and insights gained during this internship in my future endeavours.

## **Abstract**

During my internship at Narola Infotech, I gained valuable experience and knowledge in the field of Android app development. Throughout this internship, my primary focus was on learning dart.

I was exposed to real-world projects and tasks that allowed me to understand the practical application of flutter development. Additionally, I had the opportunity to collaborate with experienced developers who provided guidance and insights into best practices within the industry.

Through hands-on experience and mentorship, I enhanced my coding skills, problem-solving abilities, and understanding of App development workflows. This internship not only introduced me to the world of flutter development but also provided me with a solid foundation to pursue a career in App development. I am grateful for the knowledge and experience gained during my time at Narola Infotech, which is used for me to explore flutter for android and ios development.

# COMPANY PROFILE

Narola info. is a privately owned venture of IT Services and IT Consultants formed in 2006 and headquarters of the Narola info. is in Surat. Narola info. believe in bringing Business, People and Technology together in the way forward. Main aim of . Narola info. is to help students lacking basic skills by offering hands-on learning through live projects and real-world examples.

Narola info. understand the importance of practical experience for aspiring tech professionals. That's why Narola info. internship program offers hands-on learning, where students work on real projects under the guidance of experienced mentors.

Narola info.team consists of industry experts who are dedicated to equipping interns with the knowledge and skills needed to succeed in their careers. Narola info. foster an inclusive and supportive environment that encourages learning, growth, and creativity.

Company work on following type project:

- UI/UX Design
- Web Development
- Android App Development
- Data Science
- AI & Machine Learning
- flutter

## MISSION AND VISION OF THE COMPANY:

Narola Infotech. is committed to creating a resistant future by bringing together business, people, and technology. We believe that by working together, we can create innovative solutions that solve real-world problems.

We envision a world where everyone has access to the tools and technologies they need to succeed. We believe that technology can be a force for good, and we are committed to using our skills and expertise to make a positive impact on the world.

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	- flutter and android & x-code environment setup	
	- learn dart for flutter	
	- Dart data types and variables	
	- what are functions and their uses in dart	

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## Week 1

### • **Basic Information About Internship & Company:**

Narola Info. is a privately owned venture of IT Services and IT Consultants formed in 2006 and headquarters of the Narola Info. is in Surat. Narola Info. believe in bringing Business, People and Technology together in the way forward. Main aim of Narola Info. is to help students lacking basic skills by offering hands-on learning through live projects and real-world examples.

Narola Info. understand the importance of practical experience for aspiring tech professionals. That's why Narola Info. internship program offers hands-on learning, where students work on real projects under the guidance of experienced mentors.

This is my 3 Weeks offline and online internship at Narola Infotech. Narola Info.team shares information about company and our project, and timing. Our project is to build Calculator and Tic Tac Toe game App.

Narola Info. shares task of android development through mail and that task must be required to complete for the completion of the internship.

Company work on following type project:

- UI/UX Design
- Web/CMS/Shopify Development
- Mobile App Development
- SEO & Social-media
- AR/VR Development
- AI & Machine Learning
- Flutter App

### • **what is flutter and flutter architecture?**

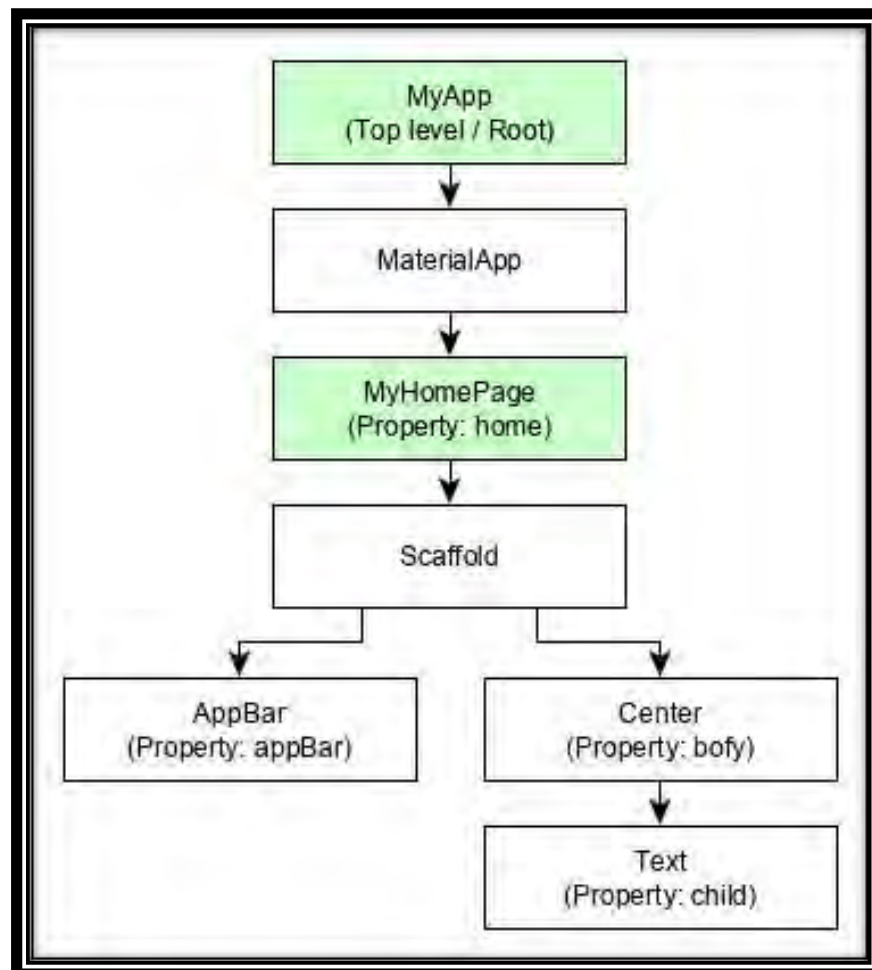
Flutter is an open source framework developed and supported by Google. Frontend and full-stack developers use Flutter to build an application's user interface (UI) for multiple platforms with a single codebase.

When Flutter launched in 2018, it mainly supported mobile app development. Flutter now supports application development on six platforms: iOS, Android, the web, Windows, MacOS, and Linux.

Flutter uses the open-source programming language Dart, which was also developed by Google. Dart is optimized for building UIs, and many of Dart's strengths are used in Flutter.

The Flutter architecture mainly comprises of four components.

1. Flutter Engine
2. Foundation Library
3. Widgets
4. Design Specific Widgets





- flutter and android studio installation

Step 1: Download Flutter SDK. ...

Step 2: Extract the Files. ...

Step 3: Update Path Variable for Windows PowerShell. ...

Step 4: Confirm Installed Tools for Running Flutter. ...

Step 5: Download and Install Android Studio. ...

Step 6: Install Visual Studio (Optional)

```
| - | Chrome - develop for the web
  + Chrome at /Applications/Google Chrome.app/Contents/MacOS/Google Chrome

| - | Android Studio (Version 2022.2)
  + Android Studio at /Applications/Android Studio.app/Contents
  + Flutter plugin can be installed from:
    ^ https://plugins.jetbrains.com/plugin/9212-flutter
  + Dart plugin can be installed from:
    ^ https://plugins.jetbrains.com/plugin/6351-dart
  + Java version OpenJDK Runtime Environment (build
    17.0.6+0-17.0.6b802.4-9586694)

| - | VS Code (Version 1.78.2)
  + VS Code at /Users/Darshildobariya/Downloads/Visual Studio
    Code.app/Contents
  + Flutter extension can be installed from:
    ^ https://marketplace.visualstudio.com/items?itemName=Dart-Code.flutter

| - | Connected device (3 available)
  + I14 S (mobile) * 8585A515-ACC3-426C-B45A-DDF95AF9EB27 * ios *
    com.apple.CoreSimulator.SimRuntime.iOS-16-4 (simulator)
  + macOS (desktop) * macos * darwin-arm64 *
    macOS 13.5 22G74 darwin-arm64
  + Chrome (web) * chrome * web-javascript *
    Google Chrome 115.0.5799.170

| - | Network resources
  + All expected network resources are available.

( Doctor found issues in 1 category.
darshildobariya@Darshils-MacBook-Air ~ %
```

## •learn dart for flutter

Dart is an open-source general-purpose programming language. It is originally developed by Google. Dart is an object-oriented language with C-style syntax. It supports programming concepts like interfaces, classes, unlike other programming languages Dart doesn't support arrays. Dart collections can be used to replicate data structures such as arrays, generics, and optional typing.

### • Dart data types and variables

- Numbers
- Strings
- Booleans
- Lists
- Sets
- Maps
- HashMap

➤ Map and HashMap:-

```
void main() {
  var map_name = {
    'key1': 'value1',
    'key2': 2,
    'key 3': 3.0,
    'key4': true
  };

  // map_name['key1'] = 'deep'; replace value of key 1
  map_name['key5'] = "gaurav";

  print(map_name);
  print(map_name['key2']);

  var mapName = Map();
  mapName['Name'] = 'darshil';
  mapName['key5'] = 5;
```

```
mapName['avg.rating'] = 3.0;

print(mapName);

print(mapName.isNotEmpty);
print(mapName.isEmpty);
print(mapName.length);
print(mapName.keys);
print(mapName.values);
print(mapName.containsKey('Name'));
print(mapName.containsValue(false));
print(mapName.remove('avg.rating'));

print(mapName);
}
```

- **what are functions and their uses in dart**

Functions are the building blocks of readable, maintainable, and reusable code. A function is a set of statements to perform a specific task. Functions organize the program into logical blocks of code.

Basically, there are four types of function in Dart.

There are as follows:

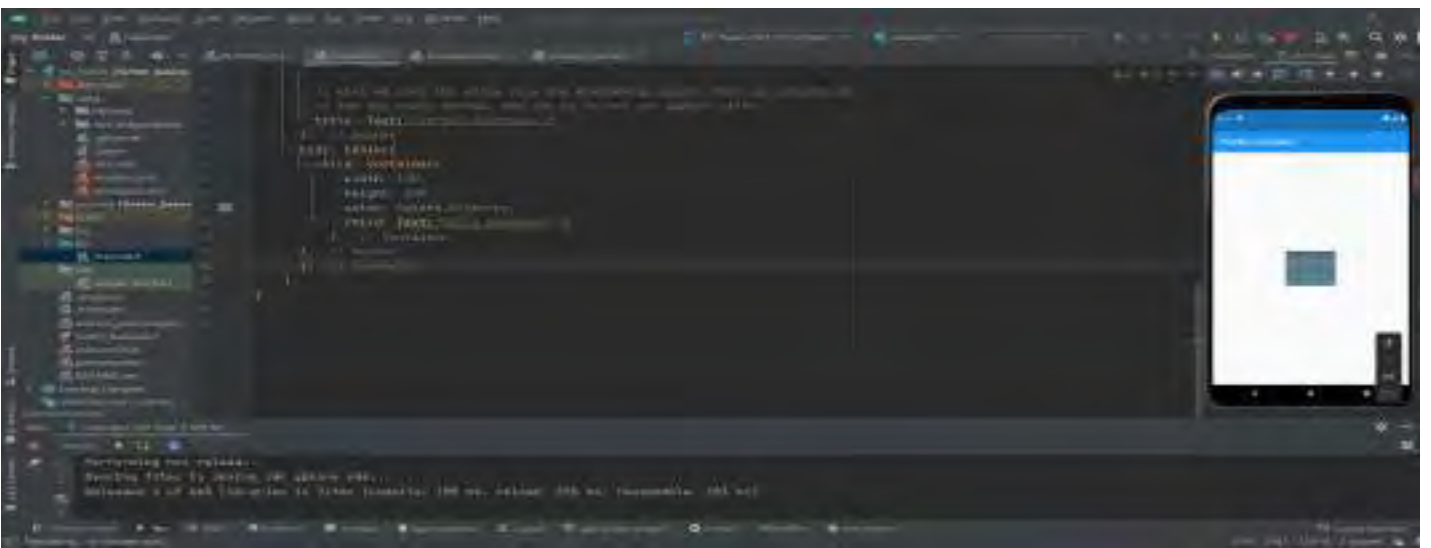
1. No arguments and no return type
2. with arguments and no return type
3. no arguments and return type
4. with arguments and with return type

## Week 2

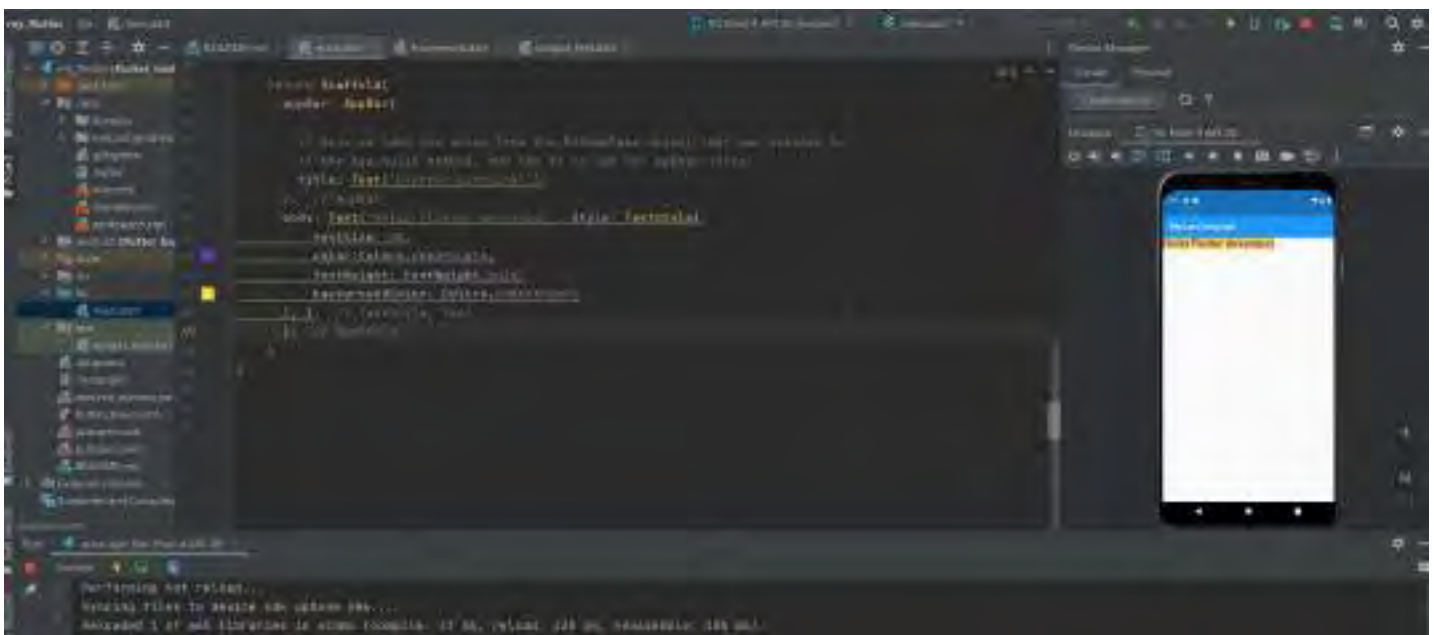
- **Learn about flutter widget**

Flutter widgets are built using a modern framework that takes inspiration from React. The central idea is that you build your UI out of widgets. Widgets describe what their view should look like given their current configuration and state.

➤ Container:-



➤ Text and style widget:

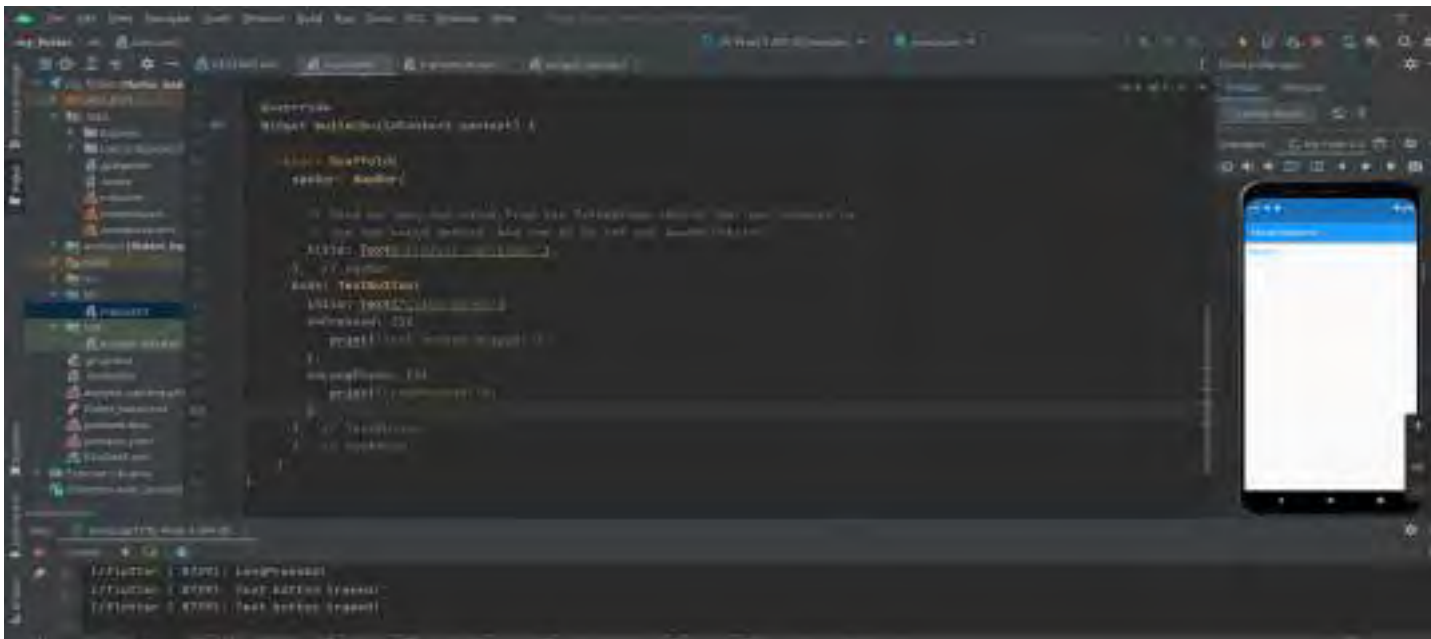


➤ Button:

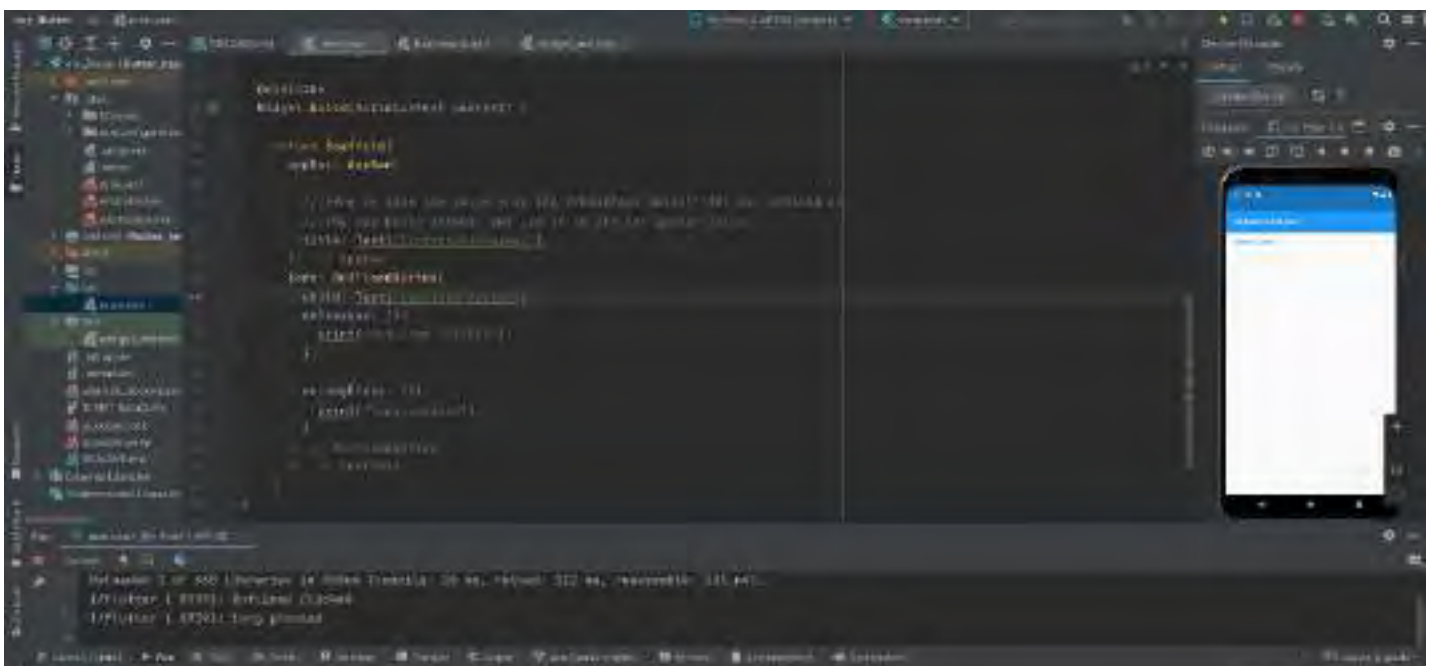
Types of button in flutter:

1. Text Button
2. Outlined Button
3. Elevated Button

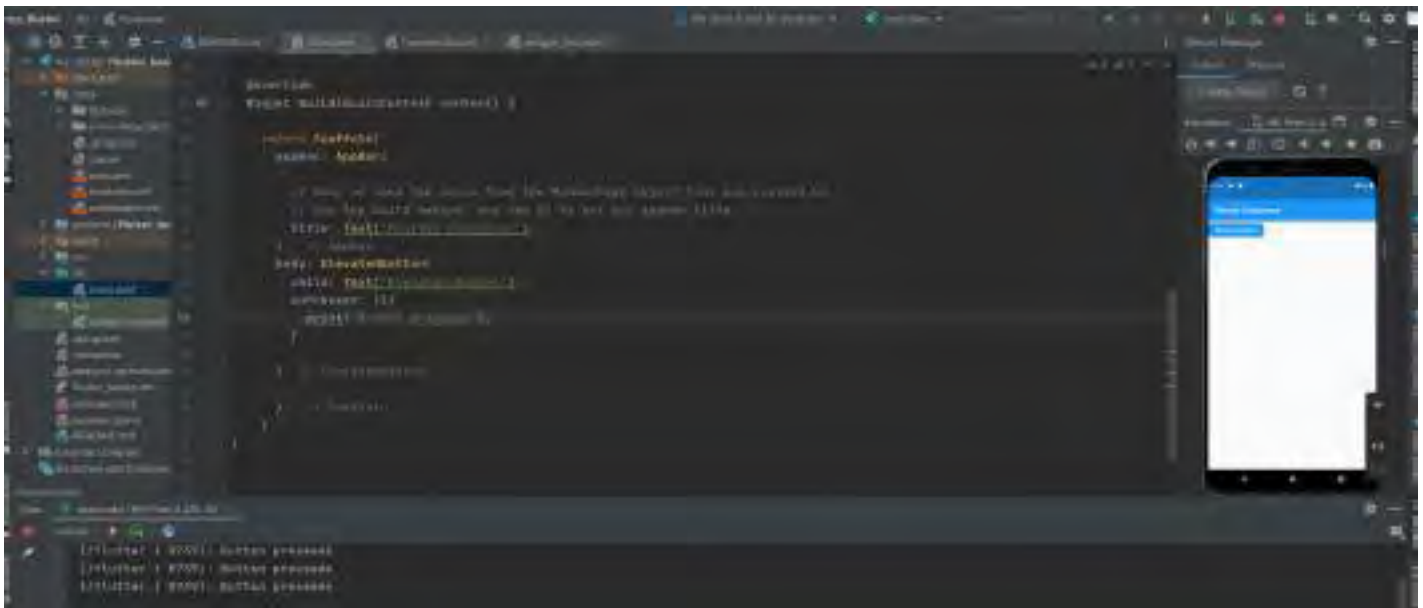
1. Text Button:-



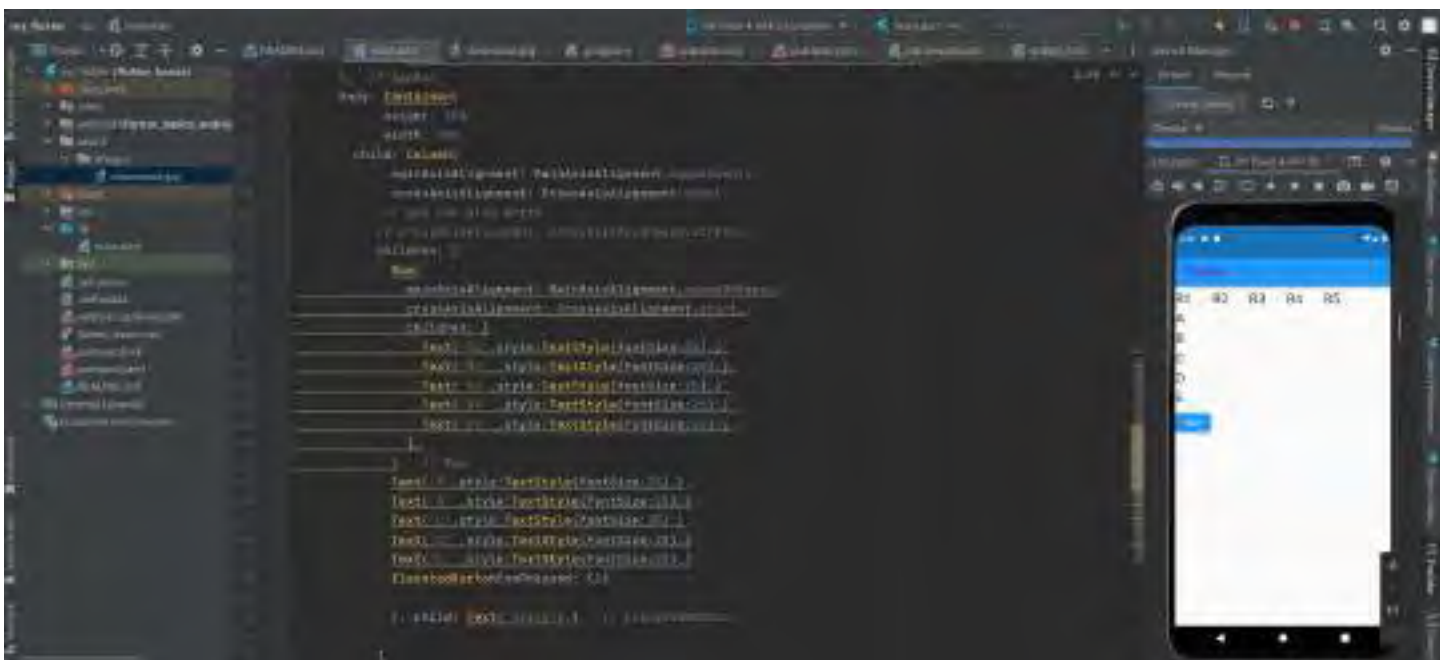
2. Outlined Button:



### 3. Elevated Button



➤ Rows and columns:



## Week 3

- **Create Calculator app**

After I clear dart language and basic of flutter than after my task is create a live project for a better understanding so I create two application.

- i) Calculator
- ii) Tic Tac Toe game

These two apps are user friendly and also a easy to use to create this calculator app I learn to understand a user interface and than logic part also flutter is ios and android device OS so I learn these thing very effectively and create this app.

➤ Create a main.dart file:

```
import 'package:flutter/material.dart';
import 'home_page.dart';
void main() => runApp(new MyApp());

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return new MaterialApp(
      title: "Calculator App",
      theme: new ThemeData(primarySwatch:
Colors.red),
      home: new HomePage(),
    );
  }
}
```

- In this file we import a package and also give home page.dart file to impliments a calculator.

➤ Create home\_page.dart file

```
import 'package:flutter/material.dart';

class HomePage extends StatefulWidget {
  @override
  State createState() => new HomePageState();
}
```

```

class HomePageState extends State<HomePage> {
  var num1 = 0, num2 = 0, sum = 0;

  final TextEditingController t1 = new TextEditingController(text:
"0");
  final TextEditingController t2 = new TextEditingController(text:
"0");

  void doAddition() {
    setState(() {
      num1 = int.parse(t1.text);
      num2 = int.parse(t2.text);
      sum = num1 + num2;
    });
  }

  void doSub() {
    setState(() {
      num1 = int.parse(t1.text);
      num2 = int.parse(t2.text);
      sum = num1 - num2;
    });
  }

  void doMul() {
    setState(() {
      num1 = int.parse(t1.text);
      num2 = int.parse(t2.text);
      sum = num1 * num2;
    });
  }

  void doDiv() {
    setState(() {
      num1 = int.parse(t1.text);
      num2 = int.parse(t2.text);
      sum = num1 ~/ num2;
    });
  }

  void doClear() {
    setState(() {
      t1.text = "0";
      t2.text = "0";
    });
  }

  @override
  Widget build(BuildContext context) {
    return new Scaffold(
      appBar: new AppBar(
        title: new Text("Calculator"),
      ),
      body: new Container(
        padding: const EdgeInsets.all(40.0),
        child: new Column(
          mainAxisAlignment: MainAxisAlignment.center,
          children: <Widget>[
            new Text(
              "Output : $sum",

```



```

        style: new TextStyle(
            fontSize: 20.0,
            fontWeight: FontWeight.bold,
            color: Colors.purple),
    ),
    new TextField(
        keyboardType: TextInputType.number,
        decoration: new InputDecoration(hintText: "Enter
Number 1"),
        controller: t1,
    ),
    new TextField(
        keyboardType: TextInputType.number,
        decoration: new InputDecoration(hintText: "Enter
Number 2"),
        controller: t2,
    ),
    new Padding(
        padding: const EdgeInsets.only(top: 20.0),
    ),
    new Row(
        mainAxisAlignment: MainAxisAlignment.spaceEvenly,
        children: <Widget>[
            new MaterialButton(
                child: new Text("+"),
                color: Colors.greenAccent,
                onPressed: doAddition,
            ),
            new MaterialButton(
                child: new Text("-"),
                color: Colors.greenAccent,
                onPressed: doSub,
            ),
        ],
    ),
    new Padding(
        padding: const EdgeInsets.only(top: 20.0),
    ),
    new Row(
        mainAxisAlignment: MainAxisAlignment.spaceEvenly,
        children: <Widget>[
            new MaterialButton(
                child: new Text("*"),
                color: Colors.greenAccent,
                onPressed: doMul,
            ),
            new MaterialButton(
                child: new Text("/"),
                color: Colors.greenAccent,
                onPressed: doDiv,
            ),
        ],
    ),
    new Padding(
        padding: const EdgeInsets.only(top: 20.0),
    ),
    new Row(
        mainAxisAlignment: MainAxisAlignment.center,
        children: <Widget>[
            new MaterialButton(
                child: new Text("Clear"),

```

```
color: Colors.greenAccent,
onPressed: doClear,
),
),
),
),
);
}
```

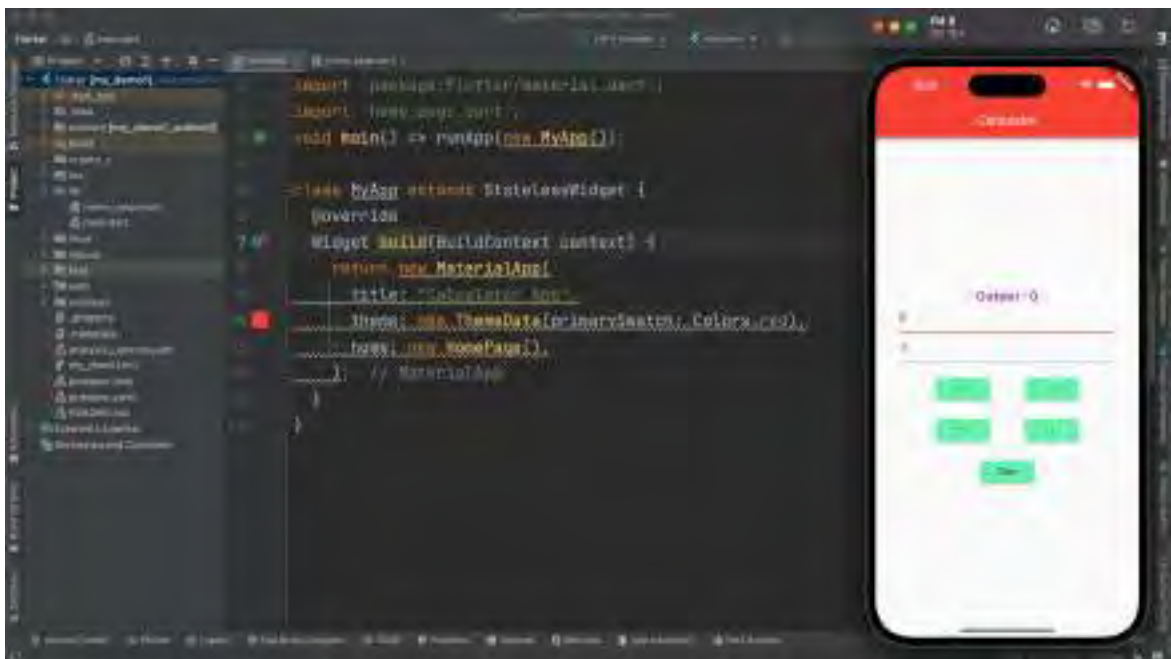


Fig: Basic main dart page

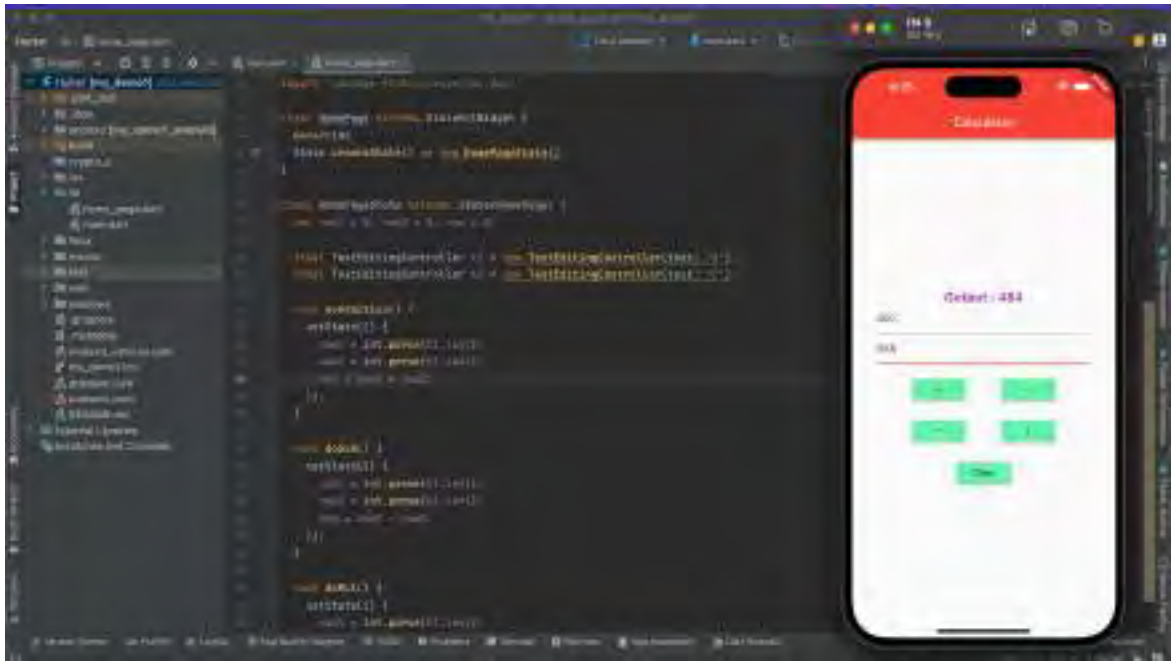


Fig : Home page dart file with simulator

- **Create Tic Tac Toe game**

Another task in practical is to create a tic tac toe game so I create this using dart language

In this there are four pages

- Main.dart
- Home\_page.dart
- Game\_button.dart
- Custom\_dialog.dart

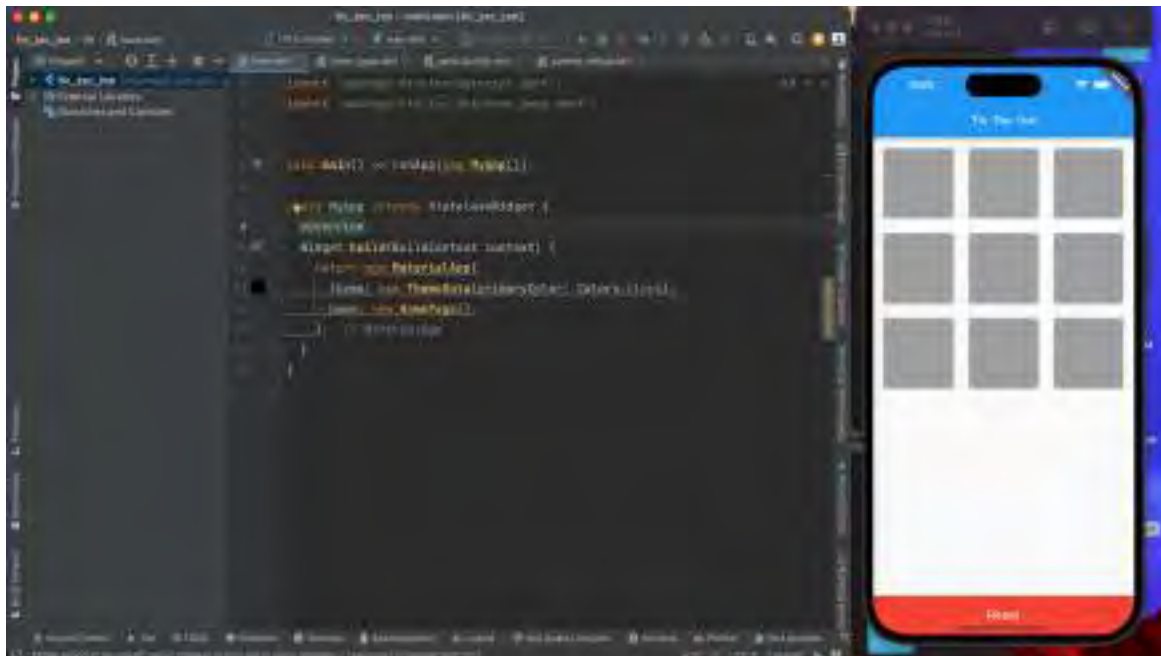


Fig : Home page dart file with simulator

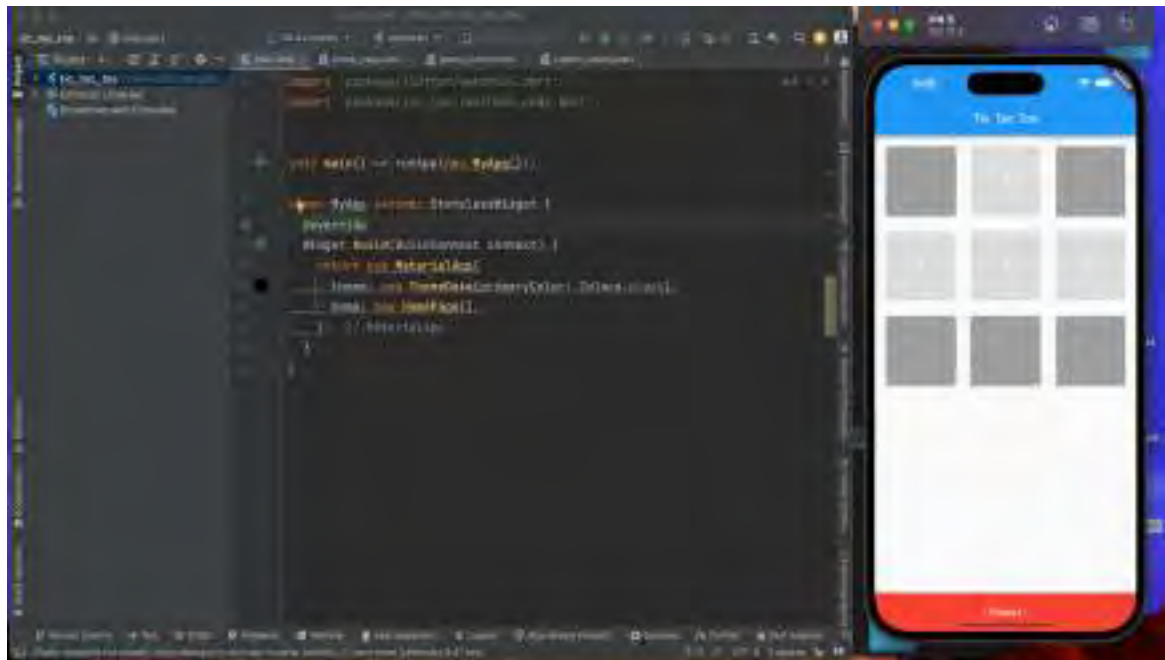


Fig : In simulator two player play

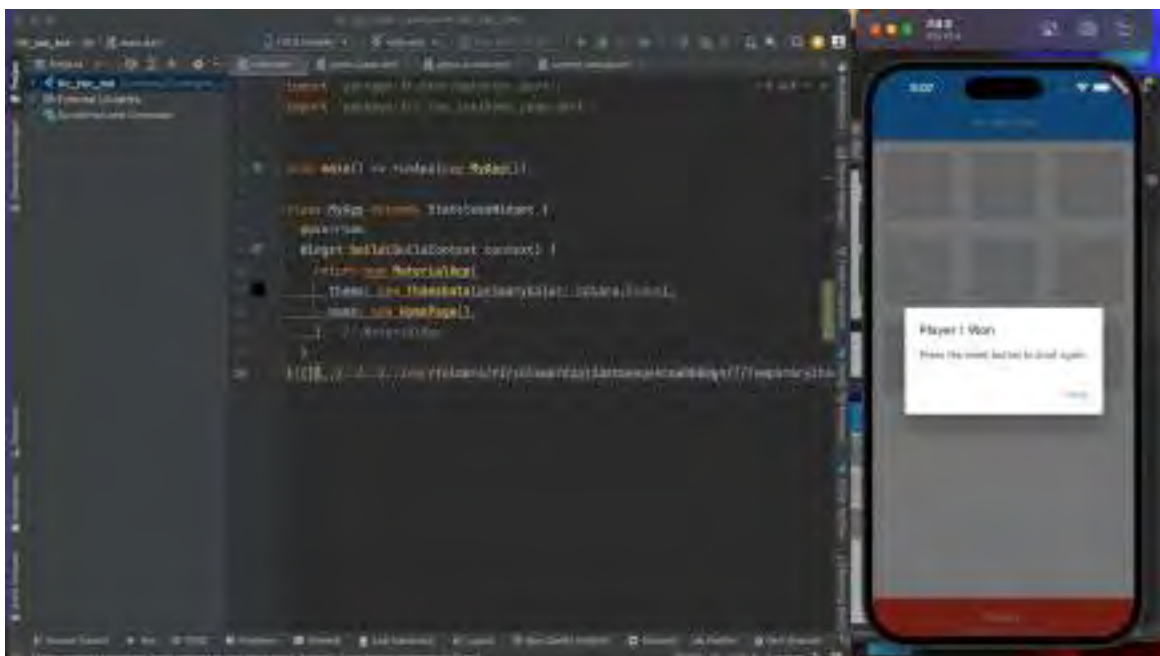


Fig : Player 1 won

## Conclusion

My two-week internship at Narola Infotech has been an invaluable experience that has expanded my knowledge and skills in the realm of Flutter development. Throughout this journey, I have had the privilege of immersing myself in a dynamic and collaborative environment, working alongside talented professionals who are passionate about their craft.

During my time at Narola Infotech, I delved deep into the intricacies of Flutter, gaining hands-on experience in designing, implementing, and optimizing Phone Application. The mentorship provided by the experienced developers was instrumental in my learning process, as they patiently guided me through real-world projects and challenges. I was exposed to the latest industry practices, coding standards, and development methodologies, all of which have significantly enhanced my technical acumen.

Moreover, the internship allowed me to witness firsthand the importance of effective communication and teamwork in a professional setting. This experience not only improved my technical skills but also bolstered my soft skills, which are equally vital for success in any professional setting.

I am profoundly grateful for the opportunity to learn and grow at Narola Infotech. The exposure to real-world projects, the guidance from skilled mentors, and the supportive work culture have combined to create an enriching and transformative experience. As I move forward in my journey, I am excited to apply the knowledge and skills I have gained here to future endeavors, and I am confident that this internship has laid a strong foundation for my career in Flutter development.

In closing, I extend my sincere gratitude to the entire team at Narola Infotech for their warm welcome, guidance, and support. This internship has been a stepping stone towards my professional aspirations, and I am eager to continue my journey of growth and learning in the world of web development.

# **INTERNSHIP AT FALCON CYBER TECH**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Dasharath Chaudhary**

**190390107002**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May 2023**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at FALCON CYBER TECH** has been carried out by **Chaudhary Dasharath Trikamabhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Prof. Upashana Goswami

Internal Guide

Sign

Prof. Akshay Kansara

Head of Department





# Falcon Cyber Tech

Address:- 208,Aagam Emporio, UM Rd, Vesu, Surat, Gujarat 395007

Phone Number:- +91 261 4899990 | +91 8200049689

E-mail Address:-contact@falconcybertech.com

01000110 01100001 01101100 01100011 01101111 01101110 00100000 01000011 01111001 01100010 01100101 01110010 00100000 01010100 01100101 01100011 01101000

Date:24/04/2023

## Sub: Certificate of Completion of Internship

We are glad to inform you that Mr. Dasharath Chaudhary from SAFFRONY INSTITUTE OF TECHNOLOGY, has successfully completed his internship at Falcon Cyber Tech from 30 Jan 2023 – 24 April 2023.

During his internship, he was exposed to various activities in Vulnerability Assessment and Penetration Testing and Network Security Challenges as an Associate IT Security Engineer Intern.

We found him extremely inquisitive and hard working. he was very much interested to learn the functions of VAPT and also willing to put his best effort and get in depth of subject to understand it better.

His association with us was very fruitful and we wish him all the best in his future endeavours.

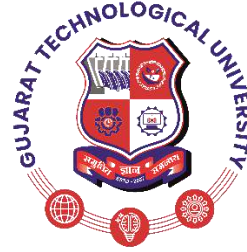
Shivang Patel

Founder & Owner.

01000110 01100001 01101100 01100011 01101111 01101110 00100000 01000011 01111001 01100010 01100101 01110010 00100000 01010100 01100101 01100011 01101000



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship report submitted along with the entitled **Internship at Falcon Cyber Tech** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Shivang Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

Dasharath Chaudhary

\_\_\_\_\_



# GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL  
B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 04 May 2023 (11:44:45)

This is to certify that, *Chaudhary Dasharath Trikamabhai* ( Enrolment Number - 190390107002 ) working on project entitled with *Internship at Falcon Cyber Tech from Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student: Chaudhary Dasharath  
Trikamabhai

Name of Guide: Mrs. Upasana Goswami

Signature of Student: \_\_\_\_\_

\*Signature of Guide: \_\_\_\_\_

#### Disclaimer :

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.

## **ACKNOWLEDGMENT**

I would like to express my sincere gratitude to the falcon cyber tech founder & owner who give me the opportunity to complete my internship at Falcon Cyber Tech at this highly esteemed organization.

I am grateful to Mr. Shivang Patel for his valuable suggestion and advice throughout the internship.

The guidance and support received from my classmates and faculties pro. Meet Jani and Pro. Upashana Goswami and hod prof. Akshay Kansara and all members who contributed with me to the completion of my internship. Also thank Saffrony Institute of Technology for guidance complete my internship. I am grateful to all of them for their constant support and guidance either directly or indirectly towards the completion of my internship.

Dasharath Chaudhary

190390107002

## **ABSTRACT**

*This report contains my VAPT work done during my internship at Falcon Cyber Tech. It shows the work I did in the company during my internship period. The main objective of this internship is to identify common network threats and define prevented threats. During Vulnerability Assessment we found weak points in the system and in penetration testing we purposed how to keep our system secure from hackers and stop possible attacks in these projects. so, we study about Network core concept and identify vulnerability and define penetration in these internships. This Report gives an overview of VAPT and describes the different processes and methodologies of vulnerability assessment and penetration testing.*

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## Abbreviations

VRRP	Virtual routing redundancy Protocol
GPRS	General Packet Radio Service
EDGE	Enhanced Data rates for GSM Evolution
HSPA	High speed network access
CHE	Certified Ethical Hacker

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# CHAPTER 1. INTRODUCTION

## 1.1 COMPANY

### 1.1.1 Overview:

- Falcon Cyber Tech is a cybersecurity consulting and training company that was established in 2017 by Mr. Shivang Patel in Surat. The company specializes in a wide range of cybersecurity fields, including Vulnerability Assessment and Penetration Testing (VAPT), penetration testing, and other areas of cybersecurity.
- Falcon Cyber Tech provides its clients with a comprehensive range of cybersecurity services to help identify and mitigate risks. The company offers cybersecurity assessments, penetration testing, security audits, and incident response services. These services are designed to identify and address vulnerabilities in an organization's systems, applications, and networks.
- Overall, Falcon Cyber Tech is a reliable and trustworthy cybersecurity consulting and training company that can help organizations safeguard their digital assets and protect against cyber threats. The company's technical expertise and in-depth knowledge of the cybersecurity landscape make them a valuable partner for any organization seeking to enhance their security posture.

### 1.1.2 Mission and Vision of Company

- Falcon Cyber Tech's vision is to become a leading global provider of cybersecurity services that exceed its clients' expectations and provide the most effective and efficient cybersecurity solutions. Providing businesses & individuals with IT security services, cyber security awareness & training, incident and log analysis. They have an evolving rich experience in this field with more than 6+ years of core experience in cyber security consulting and performed security assessments for web applications/networks/mobile apps & log analysis for private as well as government clients and provided them with accurate analysis and help clients to secure their IT assets & sensitive data from cyber-attacks.
- Falcon Cyber Tech is committed to providing its clients with high-quality cybersecurity consulting and training services that help protect their digital assets

and data against cyber threats. The company's mission is to continuously improve its services by keeping up with the latest trends and technologies in the cybersecurity industry. Falcon Cyber Tech achieves this mission by providing comprehensive, accurate, and timely services, including vulnerability assessment and penetration testing (VAPT), security audits, incident response, data recovery, CEH training, and more. The company's services are designed to identify and mitigate risks, protect against cyber-attacks, and ensure compliance with regulatory standards.

### 1.1.3 Service

- Vulnerability Assessment
- Network Security & Firewall
- Data Management & Backup Solution
- Penetration Testing
- Security Audit

### 1.1.4 Contact Detail:

Company name:

Falcon Cyber Tech

Emil id:

[contact@falconcybertech.com](mailto:contact@falconcybertech.com)

Web link:

<https://falconcybertech.com>

Contact no:

+91 82000 49689, +91 26148 99990

Address:

S/F-8, 2nd Floor, Agam Emporio, Vesu, Surat - 395007 (J h Ambani High School)

## 1.1 INTERSHIP

### 1.2.1 Overview:

- In this modern time all of the persons are using the facility of internet. security is one of the major issues faced by everyone.
- To avoid these threats, we proposed a solution named vulnerability assessment and penetration testing (VAPT).
- So, we study about network core concept and network security for identify vulnerability and define penetration testing.
- vulnerability assessment we find weak point of the system and in penetration testing we proposed how to keep our system secure from hackers and stop possible attacks in this project.
- We study about different usable testing open-source software to scan and find vulnerability.
- This internship gives the best overview of VAPT and describes the different process and methodology of Vulnerability Assessment and Penetration Testing.

### 1.2.2 Objective:

- The main objective of this project is to identify common network threats and define prevent threats.
- Vulnerability Assessment and Penetration Testing (VAPT) are both security services that focus on identifying vulnerabilities in the network, server and system infrastructure. Both the services serve a different purpose and are carried out to achieve different but complimentary goals.
- Vulnerability Assessment focuses on internal organizational security, while Penetration Testing focuses on external real-world risk.

### 1.2.3 Feature:

1. In these internship report provides different types resources.
  - a. Information gathering, scanning, testing and exploitation depending documentation
  - b. Different types tools and there use with task wise documentation
  - c. Reports
2. How to secure your system and make safe from Malique's environment.

3. Find your system weakness and make strong security.
4. Improve your system security with using different tools



## CHAPTER 2 NETWORK CORE CONCEPT

### 2.1 INTRODUCTION:

#### 2.1.1 Overview

"A Computer Network is defined as a set of two or more computers that are linked together with the purpose of communicating, exchanging, sharing or distributing data, files and resources."

- Computer Network is a group of computers connected with each other through wires, optical fibers or optical links so that various devices can interact with each other through a network.
- The aim of the computer network is the sharing of resources among various devices.
- The computers on a network may be linked through cables, telephone lines, radio waves, satellites, or infrared light beams.

#### 2.1.2 Feature:

A list Of Computer network features is given below.

- Communication speed
- File sharing
- Back up and roll back is easy
- Software and Hardware sharing
- Security
- Scalability
- Reliability

#### 2.1.3 Architecture of Computer Network

- Computer Network Architecture is defined as the physical and logical design of the software, hardware, protocols, and media of the transmission of data. Simply we can say that how computers are organized and how tasks are allocated to the computer.
- The two types of network architectures are used

- Peer-To-Peer network
- Client/Server network

### **Peer-To-Peer network**

- Peer-To-Peer network is a network in which all the computers are linked together with equal privilege and responsibilities for processing the data.
- Peer-To-Peer network is useful for small environments, usually up to 10 computers.
- Peer-To-Peer network has no dedicated server.
- Special permissions are assigned to each computer for sharing the resources, but this can lead to a problem if the computer with the resource is down.



Figure 2.1 Peer -to -Peer Network Model

#### Advantages:

- It is less costly as it does not contain any dedicated server.
- If one computer stops working but, other computers will not stop working.
- It is easy to set up and maintain as each computer manages itself.

Disadvantages:

- In the case of Peer-To-Peer network, it does not contain the centralized system. Therefore, it cannot back up the data as the data is different in different locations.
- It has a security issue as the device is managed itself.

### Client/Server network

- Client/Server network is a network model designed for the end users called clients, to access the resources such as songs, video, etc. from a central computer known as Server.
- The central controller is known as a server while all other computers in the network are called clients.
- A server performs all the major operations such as security and network management.
- A server is responsible for managing all the resources such as files, directories, printer, etc.
- All the clients communicate with each other through a server. For example, if client1 wants to send some data to client 2, then it first sends the request to the server for the permission. The server sends the response to the client 1 to initiate its communication with the client 2.



Figure 2.2 Client/Server Network Model

Advantages:

- A Client/Server network contains the centralized system. Therefore, we can back up the data easily.

- A Client/Server network has a dedicated server that improves the overall performance of the whole system.
- Security is better in Client/Server network as a single server administers the shared resources.
- It also increases the speed of the sharing resources.

Disadvantages:

- Client/Server network is expensive as it requires the server with large memory.
- A server has a Network Operating System (NOS) to provide the resources to the clients, but the cost of NOS is very high.
- It requires a dedicated network administrator to manage all the resources.

## 2.2 TYPES OF NETWORKS

- A computer network is a group of computers linked to each other that enables the computer to communicate with another computer and share their resources, data, and applications.
- A computer network can be categorized by their size. A computer network is mainly of four types:
  - 1) LAN (Local Area Network)
  - 2) PAN (Personal Area Network)
  - 3) MAN (Metropolitan Area Network)
  - 4) WAN (Wide Area Network)

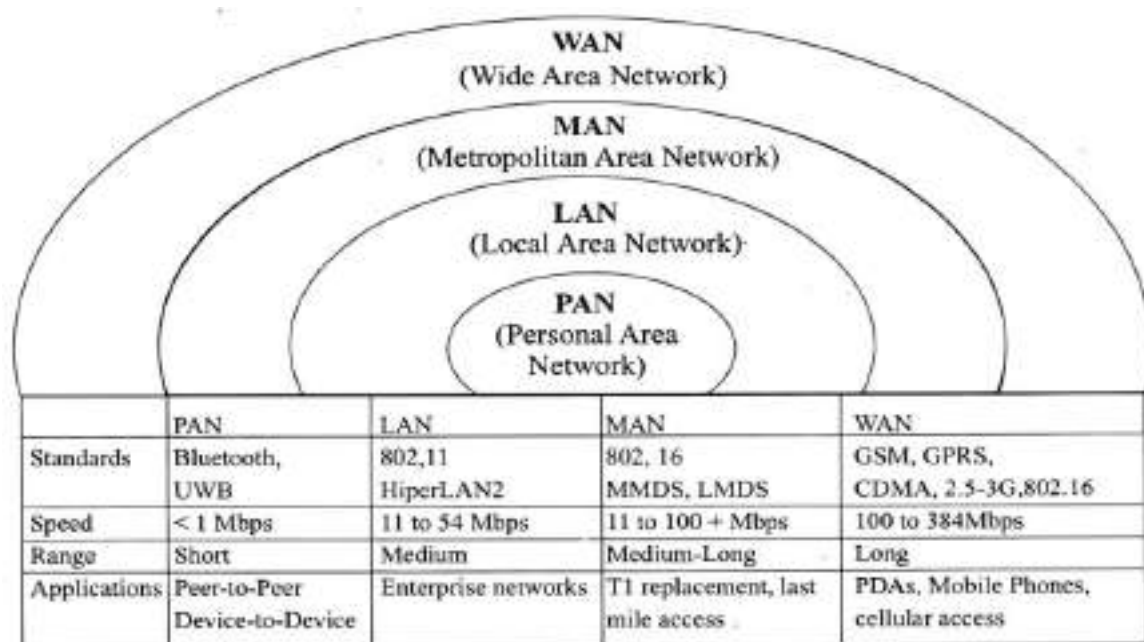


Figure 2.3 Network Types and Their Specification

### Local Area Network (LAN)

#### Introduction:

- Local Area Network (LAN) is a group of computer and peripheral devices which are connected in a limited area such as school, laboratory, home, and office building.

- It is a widely useful network for sharing resources like files, printers, games, and other application.
- The simplest type of LAN network is to connect computers and a printer in someone's home or office. In general, LAN will be used as one type of transmission medium.
- It is a network which consists of less than 5000 interconnected devices across several buildings.

**Characteristics:**

- It is a private network, so an outside regulatory body never controls it.
- LAN operates at a relatively higher speed compared to other WAN systems.
- There are various kinds of media access control methods like token ring and ethernet.

**Advantages:**

- Computer resources like hard-disks, DVD-ROM, and printers can share local area networks. This significantly reduces the cost of hardware purchases.
- You can use the same software over the network instead of purchasing the licensed software for each client in the network.
- Data of all network users can be stored on a single hard disk of the server computer.
- You can easily transfer data and messages over networked computers.
- It will be easy to manage data at only one place, which makes data more secure.
- Local Area Network offers the facility to share a single internet connection among all the LAN users.

**Disadvantages:**

- LAN will indeed save cost because of shared computer resources, but the initial cost of installing Local Area Networks is quite high.
- The LAN admin can check personal data files of every LAN user, so it does not offer good privacy.
- Unauthorized users can access critical data of an organization in case LAN admin is not able to secure centralized data repository.

- Local Area Network requires a constant LAN administration as there are issues related to software setup and hardware failures

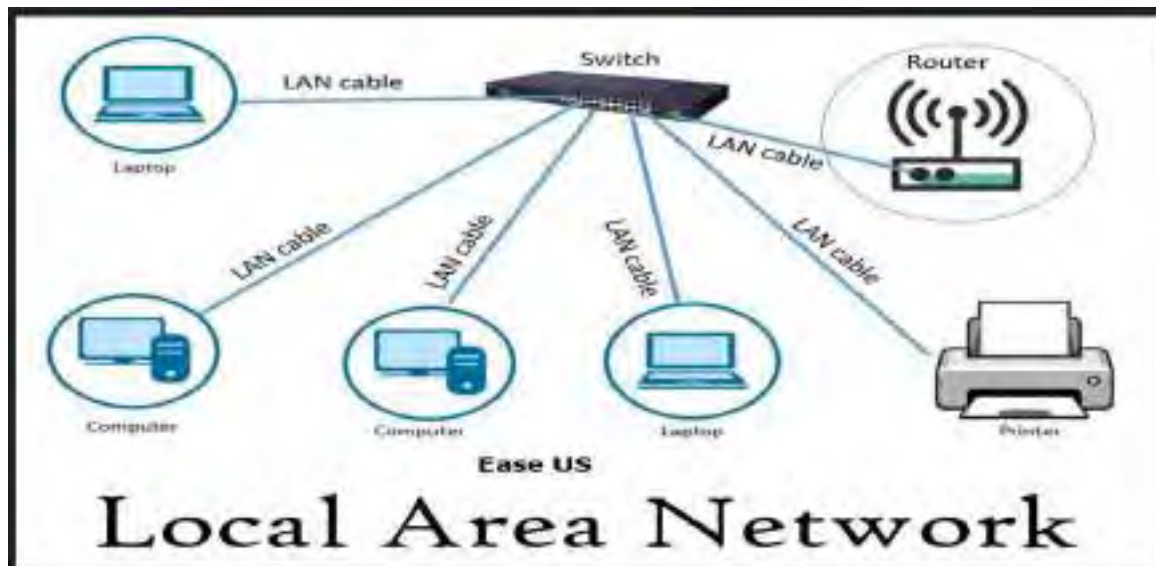


Figure 2.4 Local Area Network Model

## Personal Area Network (PAN)

### Introduction:

- PAN (Personal Area Network) is a computer network formed around a person.
- It generally consists of a computer, mobile, or personal digital assistant.
- PAN can be used for establishing communication among these personal devices for connecting to a digital network and the internet.

### Characteristics:

- It is mostly personal devices network equipped within a limited area.
- Allows you to handle the interconnection of IT devices at the surrounding of a single user.
- PAN includes mobile devices, tablet, and laptop.
- It can be wirelessly connected to the internet called WPAN.
- Appliances use for PAN: cordless mice, keyboards, and Bluetooth systems

**Advantages:**

- PAN networks are relatively secure and safe
- It offers only short-range solution up to ten meters
- Strictly restricted to a small area

**Disadvantages:**

- It may establish a bad connection to other networks at the same radio bands.
- Distance limits

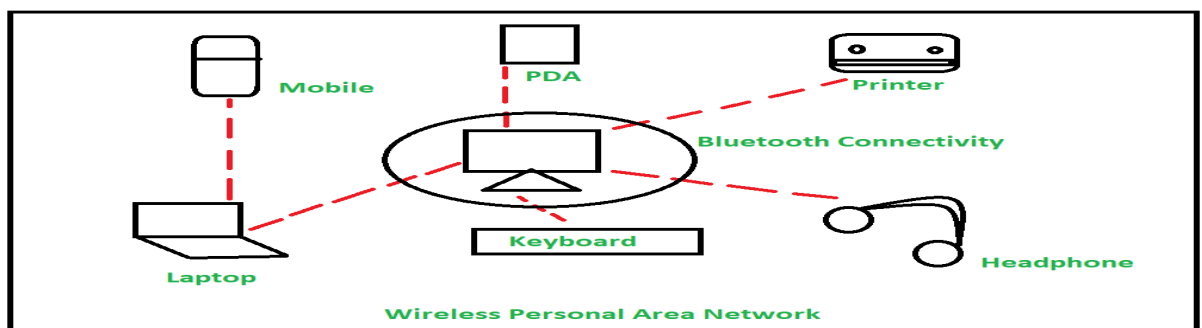


Figure 2.5 Personal Area Network Modal

**Metropolitan Area Network (MAN)****Introduction:**

- Metropolitan Area Network or MAN is consisting of a computer network across an entire city, college campus, or a small region.
- This type of network is large than a LAN, which is mostly limited to a single building or site.
- Depending upon the type of configuration, this type of network allows you to cover an area from several miles to tens of miles.

**Characteristics:**

- It mostly covers towns and cities in a maximum 50 km range
- Mostly used medium is optical fibers, cables
- Data rates adequate for distributed computing applications



**Advantages:**

- It offers fast communication using high-speed carriers, like fiber optic cables.
- It provides excellent support for an extensive size network and greater access to WANs.
- The dual bus in MAN network provides support to transmit data in both directions concurrently.
- A MAN network mostly includes some areas of a city or an entire city.

**Disadvantages:**

- You need more cable to establish MAN connection from one place to another.
- In MAN network it is tough to make the system secure from hackers



Figure 2.6 Metropolitan Area Network Model

**Wide Area Network (WAN)****Introduction:**

- WAN (Wide Area Network) is another important computer network that which is spread across a large geographical area.
- WAN network system could be a connection of a LAN which connects with other LAN's using telephone lines and radio waves.
- It is mostly limited to an enterprise or an organization.

**Characteristics:**

- The software files will be shared among all the users; therefore, all can access to the latest files.
- Any organization can form its global integrated network using WAN.

**Advantages:**

- WAN helps you to cover a larger geographical area. Therefore, business offices situated at longer distances can easily communicate.
- Contains devices like mobile phones, laptop, tablet, computers, gaming consoles, etc.
- WLAN connections work using radio transmitters and receivers built into client devices

**Disadvantages:**

- The initial setup cost of investment is very high.
- It is difficult to maintain the WAN network.
- You need skilled technicians and network administrators.
- There are more errors and issues because of the wide coverage and the use of different technologies.
- It requires more time to resolve issues because of the involvement of multiple wired and wireless technologies.
- Offers lower security compared to other types of networks in compute



Figure 2.7 Wide Area Network Modal

## 2.3 NETWORK COMPONENT

The key parts that are required to install a network are included in the components of the computer network. From simple to complex there are numerous types of networks in Computer networks. The components that we need to install for a network mainly depend upon the type of Network.

### components of a Computer Network:

- Network Interface Card (NIC)
- HUB
- Switch
- Repeater
- Router
- Modem
- Server
- Bridge



Figure 2.8 Network Component topology

### Network Interface Card (NIC)

- NIC mainly provide the physical interface between computer and cabling. NIC prepares data, sends the data, and controls the flow of data. It can also receive and translate the data into bytes for the CPU to understand.

- NIC is a hardware component that is mainly used to connect one computer with another on a Network.
- The main role of NIC is to move the serial signals on the network cables or media into parallel data streams inside the PCs.
- Transfer rate supported by NIC is 10Mb/s,100 Mb/s ,1000 Mb/s.
- Two or more NIC's are used in the server in order to split the load.
- The main job of NIC is controlling access to the media.
- NIC can be wired or wireless. In wired NIC, there are cables and connectors that act as a medium to transfer data. While in the wireless card, the connection is generally made using an antenna that uses radio-wave technology

## **HUB**

- Hubs are those devices that are used to link several computers together. Hubs repeat one signal that comes in on one port and then copies it to other ports.
- A network hub is basically a centralized distribution point for all the data transmission in a network.
- Hub is a passive device.
- The hub receives the data and then rebroadcasts the data to other computers that are connected to it. Hub mainly does not know the destination of a received data packet. Thus, it is required to send copies of data packets to all the hub connections.
- Also, Hubs consumes more bandwidth on the network and thus limits the amount of communication.
- One disadvantage of using hubs is that they do not have the intelligence to find out the best path for the data packets which then leads to inefficiencies and wastage.

## **Switch**

- Switch mainly resembles a Hub. It is a layer-2 device and it is used for the intelligent forwarding of messages. By intelligent we mean the decision-making ability of the switch. As hub works in the way by sending data to all ports on the device, whereas the switch sends the data to only that port that is connected with the destination device.

- The switch is a network component and is mainly used to connect the segments of the network.
- The switch is more intelligent than the network hub.
- Mainly Switches are capable of inspecting the data packets as soon as they are received, then determine the source and destination of that packet, and then forward it appropriately.
- Switch differs from the hub as it also contains ports of different speeds.
- Before forwarding the data to the ports switch performs the error checking and this feature makes the switch efficient.
- As the switch delivers the message to the connected device it was intended for, thus it conserves the bandwidth of the network and offers better performance than the hub.
- The most important feature of the switch is that it supports unicast (one to one), multicast (one to many), and broadcast (one to all) communications.
- The switch makes use of MAC address in order to send data packets to the selected destination ports.

### **Repeater**

- The repeater is a Physical layer device. As the name suggests, the repeater is mainly used to regenerate the signal over the same network and it mainly regenerates before the signal gets corrupted or weak.
- They are incorporated into the networks in order to extend the coverage area. Repeaters can connect signals by making the use of different types of cables.
- Repeaters are cost-effective.
- Repeaters are very easy to install, and after their installation, they can easily extend the coverage area of the network.
- But there is a problem with repeaters and it is they cannot those networks that are not of the same type.
- Repeaters do not help to reduce the traffic in the network.

### **Router**

- The repeater is a Physical layer device. As the name suggests, the repeater is mainly used to regenerate the signal over the same network and it mainly regenerates before the signal gets corrupted or weak.

- They are incorporated into the networks in order to extend the coverage area. Repeaters can connect signals by making the use of different types of cables.
- Repeaters are cost-effective.
- Repeaters are very easy to install, and after their installation, they can easily extend the coverage area of the network.
- But there is a problem with repeaters and it is they cannot those networks that are not of the same type.
- Repeaters do not help to reduce the traffic in the network.

### **Modem**

- The modem is basically a hardware component that mainly allows a computer or any other device like a router, switch to connect to the Internet. A modem is basically a shorthand form of Modulator-Demodulator.
- One of the most important functions of the modem is to convert analog signals into digital signals and vice versa. Also, this device is a combination of two devices: modulator and demodulator. The modulator mainly converts the digital data into analog data at the time when the data is being sent by the computer.
- The demodulator basically converts the analog data signals into digital data at the time when it is being received by the computer.

### **Server**

- A Server is basically a computer that serves the data to other devices. The server may serve data to other devices or computers over a local area network or on a Wide area network with the help of the Internet. There can be virtual servers, proxy servers, application servers, web servers, database servers, file servers, and many more.
- Thus, servers are mainly used to serve the requests of other devices. It can be hardware or software.

### **Bridge**

- It is another important component of the computer network. The bridge is also a layer-2(that is data link layer device). A bridge is mainly used to connect two or more local area networks together. These are mainly used as they help in the fast transferring of the data.

- But these are not versatile like routers.
- Thus, Bridge can mainly transfer the data between different protocols (i.e., a Token Ring and Ethernet network) and operates at the data link layer or level 2 of the OSI (Open Systems Interconnection) networking reference model as told above.
- Bridges are further divided into two:
  - **Local bridge:** These are ordinary bridges.
  - **Remote bridges:** These are mainly used to connect networks that are at a distance from each other. Generally Wide Area Network is provided between two bridges.

## 2.4 NETWORK BASIC CONCEPT

### 2.4.1 Protocols

#### Introduction:

- Protocol is a system of rules (set of rules) that allows two or more entities of a communications system to transmit information via any kind of variation of a physical quantity.

#### Protocol used Default Network services:

- Dynamic Host Configuration Protocol (DHCP)
- Simple Network Management Protocol
- Domain Name System (DNS)
- Directory services
- e-Mail
- File sharing
- Instant messaging
- Online game
- Printing
- File server
- Voice over IP
- Video on demand
- Video telephony
- World Wide Web
- Time service
- Wireless sensor network
- Distributed file system

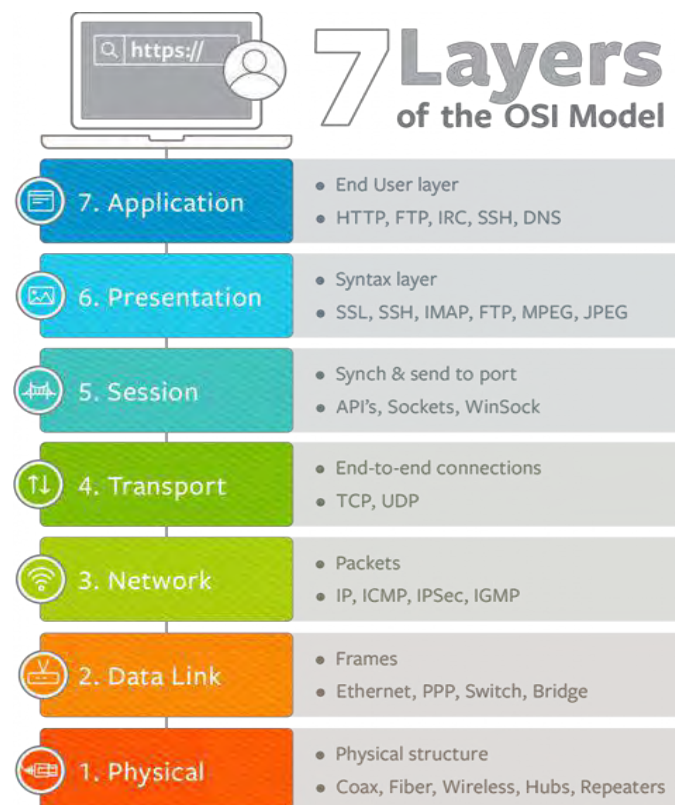


Figure 2.9 OSI Layer Used Protocol Model



## 2.4.2 Ports

### Introduction:

- In computer networking, a port or port number is a number assigned to uniquely identify a connection endpoint and to direct data to a specific service.
- At the software level, within an operating system, a port is a logical construct that identifies a specific process or a type of network service.
- A port at the software level is identified for each transport protocol and address combination by the port number assigned to it.
- The most common transport protocols that use port are the Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP)
- Total list of ports is 65535

### Popular used port:

- in this figure show mostly used protocol in networking service.

Table 2.1 Most Used ports and Protocols List

Number of ports	Protocol
20	File Transfer Protocol (FTP) Data Transfer
21	File Transfer Protocol (FTP) Command Control
22	Secure Shell (SSH) Secure Login
23	Telnet remote login service, unencrypted text messages
25	Simple Mail Transfer Protocol (SMTP) email delivery
53	Domain Name System (DNS) service
67,68	Dynamic Host Configuration Protocol (DHCP)
80	Hypertext Transfer Protocol (HTTP)used in the World Wide Web
110	Post Office Protocol (POP3)
119	Network News Transfer Protocol (NNTP)
123	Network Time Protocol (NTP)
143	Internet Message Access Protocol (IMAP) Management of digital mail
161	Simple Network Management Protocol (SNMP)
194	Internet Relay Chat (IRC)
443	HTTP Secure (HTTPS) HTTP over TLS/SSL
546,547	DHCPv6 IPv6 version of DHCP

**List of port doc:**

[https://en.wikipedia.org/wiki/List\\_of\\_TCP\\_and\\_UDP\\_port\\_number](https://en.wikipedia.org/wiki/List_of_TCP_and_UDP_port_number)

**2.4.3 TCP UDP Port****2.4.3.1 TCP:****Introduction:**

- The Transmission Control Protocol (TCP) is one of the main protocols of the Internet protocol suite.
- It originated in the initial network implementation in which it complemented the Internet Protocol (IP).
- TCP provides reliable, ordered, and error-checked delivery of a stream of octets (bytes) between applications running on hosts communicating via an IP network.
- Major internet applications such as the World Wide Web, email, remote administration, and file transfer rely on TCP, which is part of the Transport Layer of the TCP/IP suite.
- SSL/TLS often runs on top of TCP.
- TCP is connection-oriented, and a connection between client and server is established before data can be sent.
- there are vulnerabilities in TCP, including denial of service, connection hijacking, TCP veto, and reset attack.

**Working mechanism:**

- TCP port are using 3 ways to connection establish those show in figure.
- A connection progresses through a series of states during its lifetime.
- The states are:
- LISTEN, SYN-SENT, SYNRECEIVED, ESTABLISHED, FIN-WAIT-1, FIN-WAIT-2, CLOSE-WAIT, CLOSING, LAST-ACK, TIME-WAIT, and the fictional state CLOSED.
- Briefly the meanings of the states are:
- LISTEN represents waiting for a connection request from any remote TCP and port.

- SYN-SENT represents waiting for a matching connection request after having sent a connection request.
- SYN-RECEIVED represents waiting for a confirming connection request acknowledgment after having both received and sent a connection request.
- ESTABLISHED represents an open connection, data received can be delivered to the user. The normal state for the data transfer phase of the connection.
- FIN-WAIT-1 represents waiting for a connection termination request from the remote TCP, or an acknowledgment of the connection termination request previously sent.
- FIN-WAIT-2 represents waiting for a connection termination request from the remote TCP.
- CLOSE-WAIT represents waiting for a connection termination request from the local user.
- CLOSING represents waiting for a connection termination request acknowledgment from the remote TCP.
- LAST-ACK represents waiting for an acknowledgment of the connection termination request previously sent to the remote TCP (which includes an acknowledgment of its connection termination request).
- TIME-WAIT represents waiting for enough time to pass to be sure the remote TCP received the acknowledgment of its connection termination request.
- CLOSED represents no connection state at all.
- A TCP connection progresses from one state to another in response to events.
- The events are the user calls, OPEN, SEND, RECEIVE, CLOSE, ABORT, and STATUS;
- the incoming segments, particularly those containing the SYN, ACK, RST and FIN flags; and timeouts.

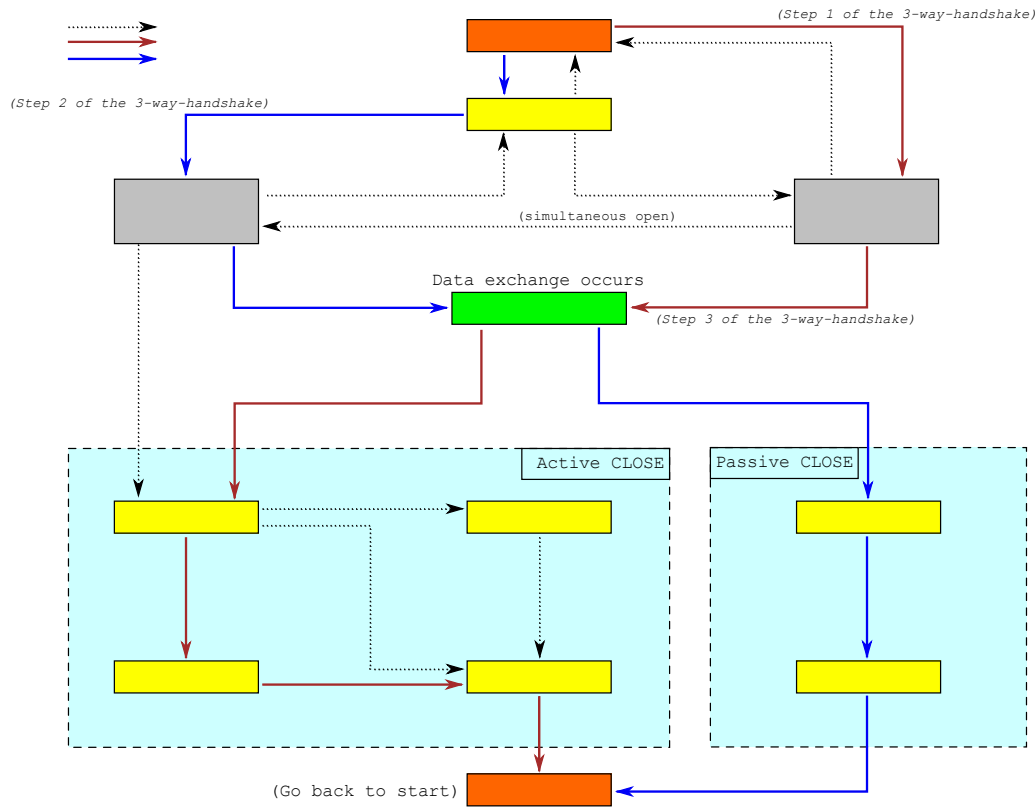


Figure 2.10 Tcp Working Mechanism Chart

### 2.4.3.2 UDP

#### Introduction:

- In computer networking, the User Datagram Protocol (UDP) is one of the core communication protocols of the Internet protocol suite used to send messages (transported as datagrams in packets) to other hosts on an Internet Protocol (IP) network.
- Within an IP network, UDP does not require prior communication to set up communication channels or data paths.
- UDP uses a simple connectionless communication model with a minimum of protocol mechanisms.
- UDP provides checksums for data integrity, and port numbers for addressing different functions at the source and destination of the datagram. It has no handshaking dialogues, and thus exposes the user's program to any unreliability of the underlying network

- there is no guarantee of delivery, ordering, or duplicate protection. If error-correction facilities are needed at the network interface level, an application may instead use Transmission Control Protocol (TCP) or Stream Control Transmission Protocol (SCTP) which are designed for this purpose.
- UDP is suitable for purposes where error checking and correction are either not necessary or are performed in the application;
- Time-sensitive applications often use UDP because dropping packets is preferable to waiting for packets delayed due to retransmission, which may not be an option in a real-time system.
- The protocol was designed by David P. Reed in 1980 and formally defined in RFC 768.

### Working mechanism

- In UDP protocol, numbers are used to distinguish the different processes on a server and client.
- The client generates the processes that need services while the server generates the processes that provide services.
- The queues are available for both the processes,
- two queues for each process. The first queue is the incoming queue that receives the messages, and the second one is the outgoing queue that sends the messages.
- The queues functions when the process is running. If the process is terminated then the queue will also get destroyed.
- UDP handles the sending and receiving of the UDP packets with the help of the following components:
  - 1. Input queue:**  
The UDP packets uses a set of queues for each process.
  - 2. Input module:**  
This module takes the user datagram from the IP, and then it finds the information from the control block table of the same port. If it finds the entry in the control block table with the same port as the user datagram, it enqueues the data.
  - 3. Control Block Module:**  
It manages the control block table.

#### 4. Control Block Table:

The control block table contains the entry of open ports.

#### 5. Output module:

The output module creates and sends the user datagram.

- Several processes want to use the services of UDP. The UDP multiplexes and demultiplexes the processes so that the multiple processes can run on a single host.

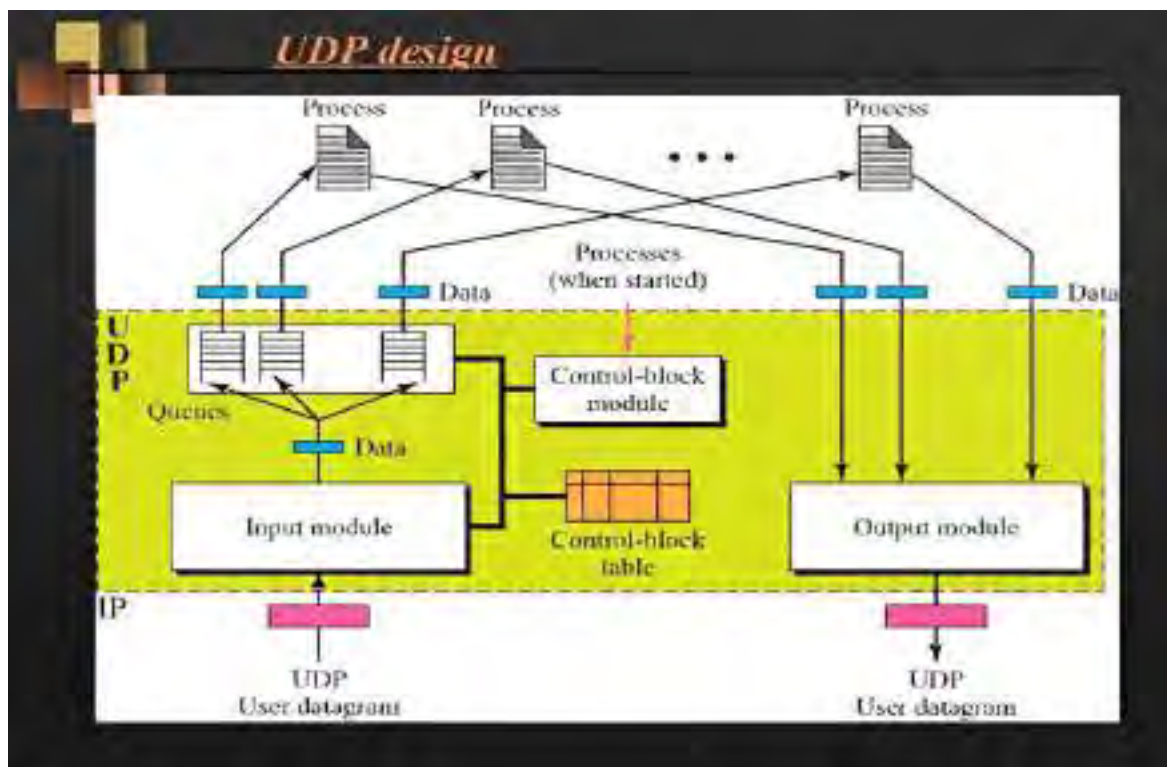


Figure 2.11 Udp Working Mechanism

#### 2.4.3.3 TCP/UDP port:

##### Introduction:

- TCP and UDP port numbers used by protocols for operation of network applications.
- The Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP) only need one port for duplex, bidirectional traffic.
- They usually use port numbers that match the services of the corresponding TCP or UDP implementation, if they exist.

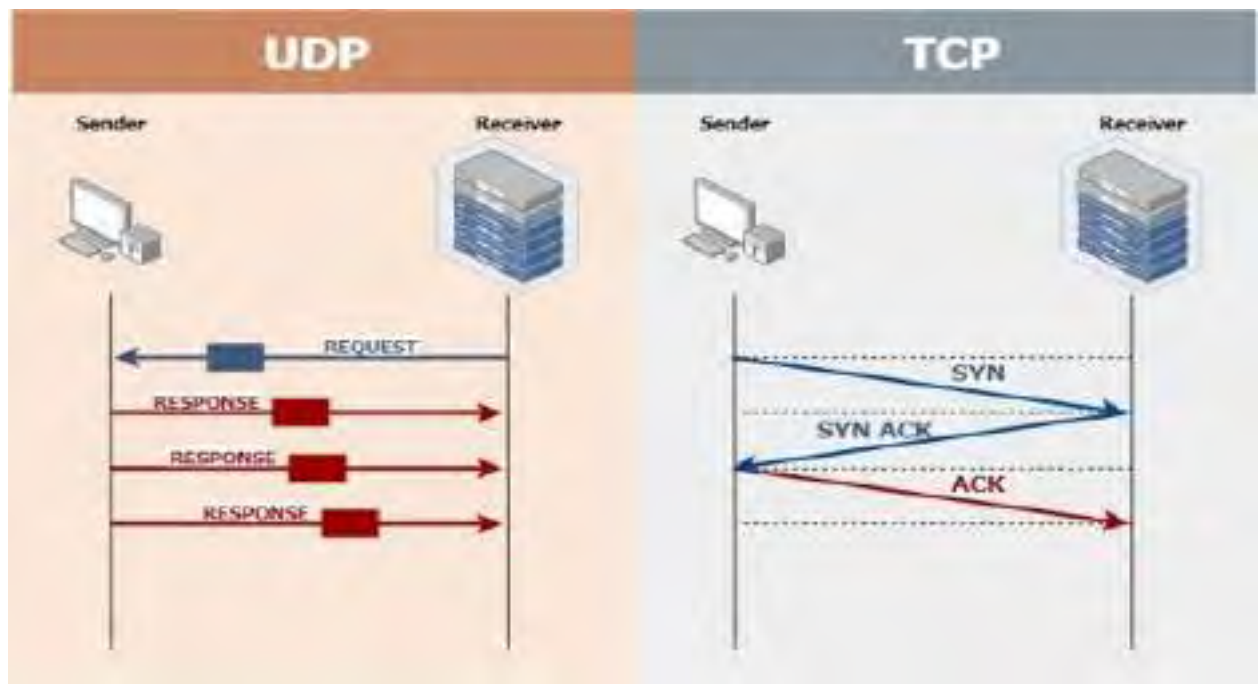


Figure 2.12 Tcp & Udp Working Mechanism Chart

### TCP/UDP port list:

Link: [https://en.wikipedia.org/wiki/List\\_of\\_TCP\\_and\\_UDP\\_port\\_numbers](https://en.wikipedia.org/wiki/List_of_TCP_and_UDP_port_numbers)

### 2.4.4 3-Way Handshake:

#### Connection establishment

- Before a client attempts to connect with a server, the server must first bind to and listen at a port to open it up for connections: this is called a passive open.
- Once the passive open is established, a client may establish a connection by initiating an active open using the three-way (or 3-step) handshake:
  - SYN: The active open is performed by the client sending a SYN to the server. The client sets the segment's sequence number to a random value A.
  - SYN-ACK: In response, the server replies with a SYN-ACK. The acknowledgment number is set to one more than the received sequence number i.e. A+1, and the sequence number that the server chooses for the packet is another random number, B.
  - ACK: Finally, the client sends an ACK back to the server. The sequence number is set to the received acknowledgment value i.e.

A+1, and the acknowledgment number is set to one more than the received sequence number i.e., B+1.

- Steps 1 and 2 establish and acknowledge the sequence number for one direction.
- Steps 2 and 3 establish and acknowledge the sequence number for the other direction.

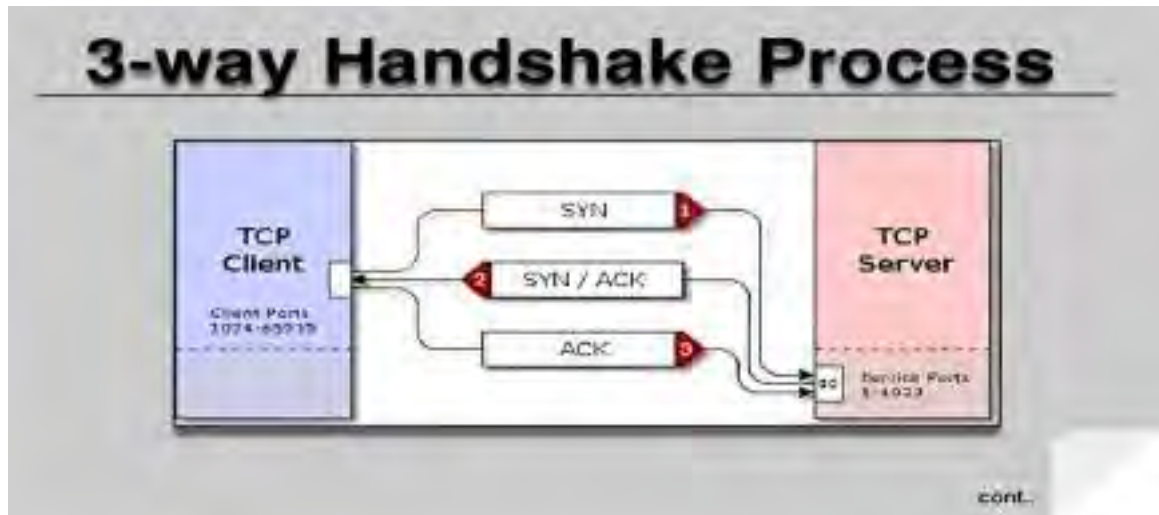


Figure 2.13 3-Way Hand Shack Model

## 2.4.5 Network Fiber

### Introduction:

- Network Fiber is a network cable commonly called fiber internet or simply “fiber” is a broadband connection that can reach speeds of up to 940 Megabits per second (Mbps), with low lag time.
- As an example, this is how long it would take, on average, to download a large media file (6.5 GB) by internet type:

<b>Dial-up</b>	11 days
<b>DSL</b>	1 - 14 hours
<b>Cable</b>	1 minute - 14 hours
<b>Fiber</b>	About 1 minute



**Network speed Table:**

Table 2.2 Network Fiber Speed &amp; Technology

Generation	icon	Technology	Maximum download speed	Typical download speed
2G	G	GPRS	0.1Mbit/s	<0.1Mbit/s
	E	EDGE	0.3Mbit/s	0.1Mbit/s
	3G	3G (Basic)	0.3Mbit/s	0.1Mbit/s
3G	H	HSPA	7.2Mbit/s	1.5Mbit/s
	H+	HSPA+	21Mbit/s	4Mbit/s
	H+	DC-HSPA+	42Mbit/s	8Mbit/s
4G	4G	LTE Category 4	150Mbit/s	15Mbit/s
	4G+	LTE-Advanced Cat6	300Mbit/s	30Mbit/s
4G+	4G+	LTE-Advanced Cat9	450Mbit/s	45Mbit/s
	4G+	LTE-Advanced Cat12	600Mbit/s	60Mbit/s
	4G+	LTE-Advanced Cat16	979Mbit/s	90Mbit/s
5G	5G	5G	1000-10000Mbit/s (1-10Gbit/s)	150-200Mbit/s

**2.4.6 Topology****Introduction:**

- Topology defines the structure of the network of how all the components are interconnected to each other.
- There are two types of topologies: physical and logical topology.

**Types of network topologies:**

- a. Bus Topology : CSMA (Carrier Sense Multiple Access), Ethernet LAN, cable television networks.
- b. Ring Topology : Token passing, local area network (LAN), cable television networks
- c. Mesh Topology : Network implementation. internet backbone
- d. Tree Topology : computers, printers, and FAX
- e. Star Topology : Ethernet network
- f. Hybrid Topology : University campus network

## 2.5 TASK

### 2.5.1 Introduction of GNS3

- GNS3 is open source, free software allows you to run a small topology consisting of only a few devices on your laptop, to those that have many devices hosted on multiple servers or even hosted in the cloud.
- GNS3 is used by hundreds of thousands of network engineers worldwide to emulate, configure, test and troubleshoot virtual and real networks.
- It is actively developed and supported and has a growing community of over 800,000 members.
- By joining the GNS3 community you will be joining fellow students, network engineers, architects and others that have downloaded GNS3 over 10 million times to date.
- GNS3 is used in companies all over the world including Fortune 500 companies.
- GNS3 does not only support Cisco devices. Cisco is often discussed because that is what most network engineers are interested in learning about.
- However, many other commercial and open-source vendors are supported today in GNS3.
- GNS3 has allowed network engineers to virtualize real hardware devices for over 10 years.
- Originally only emulating Cisco devices using software called Dynamics, GNS3 has now evolved and supports many devices from multiple network vendors including Cisco virtual switches, Cisco ASAs, Brocade VRouters, Cumulus Linux switches, Docker instances, HPE VSRs, multiple Linux appliances and many others.

#### Uses:

- **Graphical User Interface (GUI):**  
GNS3 provides a user-friendly graphical interface for creating and configuring network devices and connections. The GUI makes it easy to design complex network topologies using virtual devices, and allows users to quickly and easily visualize their network configurations.

- **Protocol Support:**

GNS3 supports a variety of network protocols, including TCP/IP, MPLS, OSPF, BGP, and VLANs. This allows users to simulate and test different network protocols and configurations, and provides a powerful tool for network troubleshooting and optimization.
- **Flexibility:**

GNS3 is an open-source network simulation tool that provides a lot of flexibility to users. It integrates with virtualization platforms such as VirtualBox and VMware, allowing users to create virtual machines and connect them to their network topologies. This makes it easy to simulate end-to-end network services and test network configurations before deploying them in a production environment.
- **Realistic Simulation:**

GNS3 provides a realistic simulation of network devices and protocols, allowing users to test network configurations and protocols in a real-world environment. This makes it easy to troubleshoot network problems and optimize network performance.
- **Integration with Virtualization Platforms:**

GNS3 integrates with virtualization platforms such as VirtualBox and VMware, allowing users to create virtual machines and connect them to their network topologies. This makes it easy to simulate end-to-end network services and test network configurations before deploying them in a production environment.
- **Packet Capture and Analysis:**

GNS3 includes tools for capturing and analyzing network packets, making it easy to troubleshoot network problems and analyse network performance. The packet capture and analysis features can help identify bottlenecks, monitor traffic patterns, and optimize network performance.
- **Network Monitoring:**

GNS3 includes a network monitoring tool that allows users to monitor network traffic and device performance in real-time. This provides a powerful tool for network troubleshooting and optimization, and can help identify potential issues before they impact network performance.

- **Community Support:**

GNS3 has a large community of users who provide support and contribute to its development. The community includes network engineers, researchers, and developers, and provides a wealth of resources and support for users of all levels.

- **Network Security Testing:**

GNS3 includes tools for simulating network attacks, allowing users to test their network security configurations and identify vulnerabilities. This provides a powerful tool for network security testing and helps ensure that network configurations are secure and reliable

### 2.5.3 CREATING TOPOLOGY IN GNS3

Some different type of network topologies configured in GNS3

#### 1. CLOUD NETWORK CONNECTION

- Connect router and cloud using LAN interface

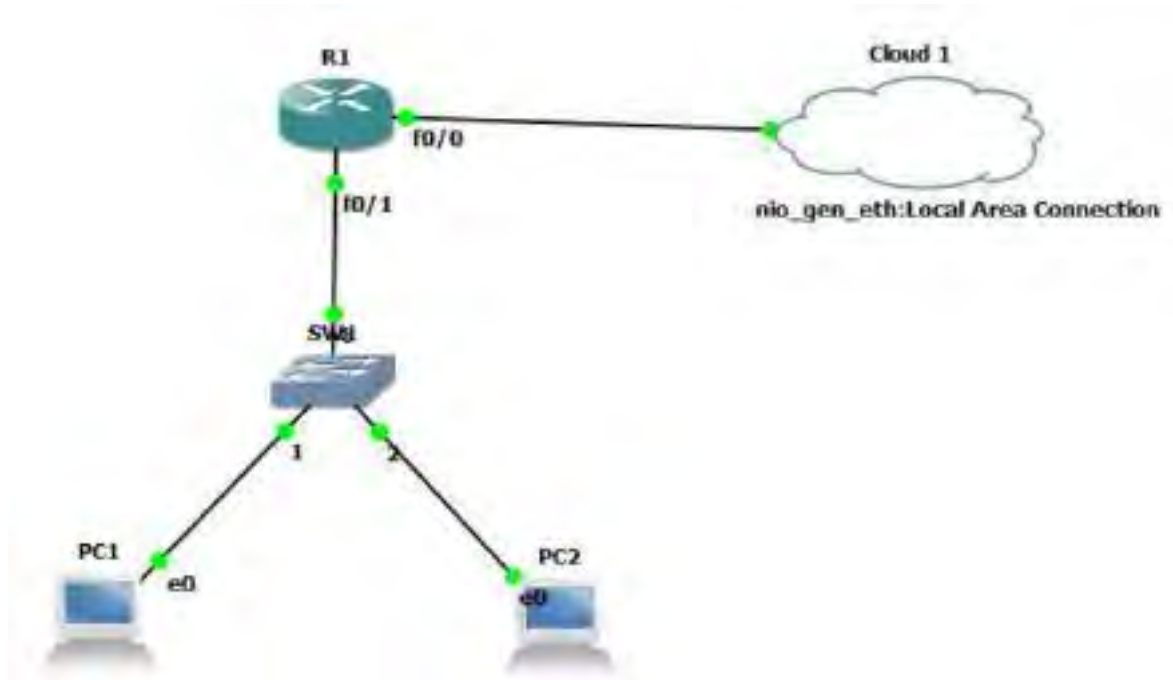


Figure 2.15 Cloud Network topology

## 2.RIP NETWORK TOPOLOGY:

- Routing Information Protocol (RIP) connected multiple router topology for RIP loopback routing.

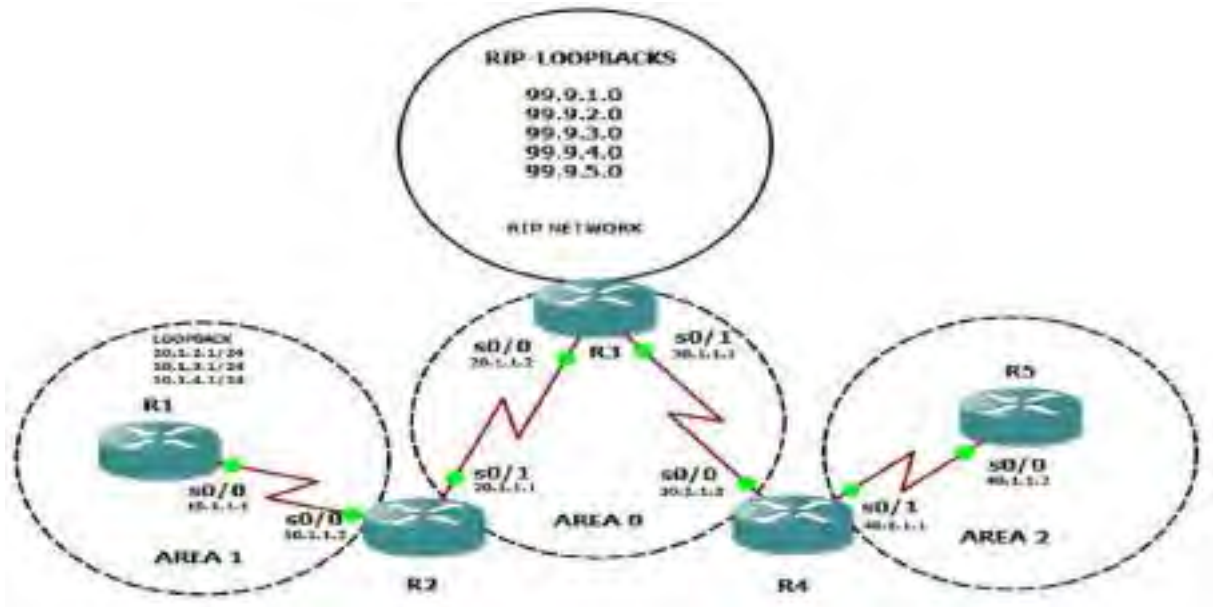


Figure 2.16 RIP Network Topology

## 3.BASIC MTLIROUTER VLAN TOPOLOGY:

- connector multi router for use combine multi router exchange resources and network data transfer.

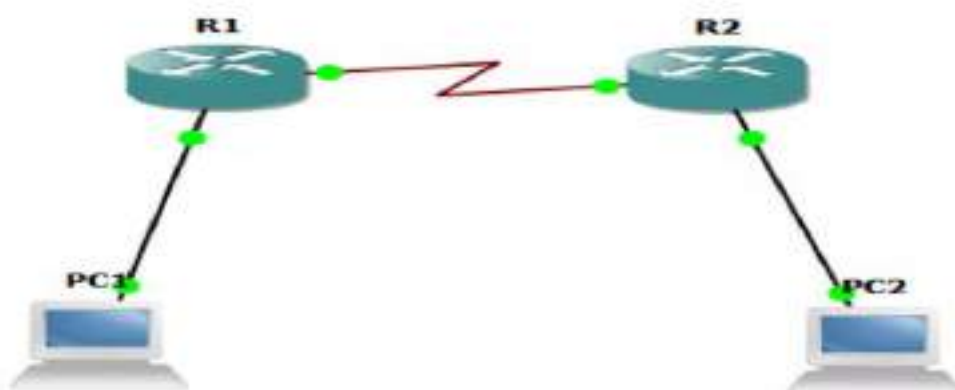


Figure 2.17 Basic Multi-Router Topology

#### 4.VRRP TOPOLOGY

- VRRP topology mean virtual routing redundancy protocol topology.
- We can use GNS3 to host VRRP instead of HSRP (Hot Standby Router Protocol) that is only available in Cisco devices.
- VRRP is a protocol used to create a virtual gateway to provide redundancy to allow network flow if one of the routes is down or for load balancing.
- VRRP is open standard protocol, where the hello timer is 1 sec and hold time is 3 sec compares to 3 sec hello timer and 10 sec hold time in HSRP.
- To host VRRP in Gns3

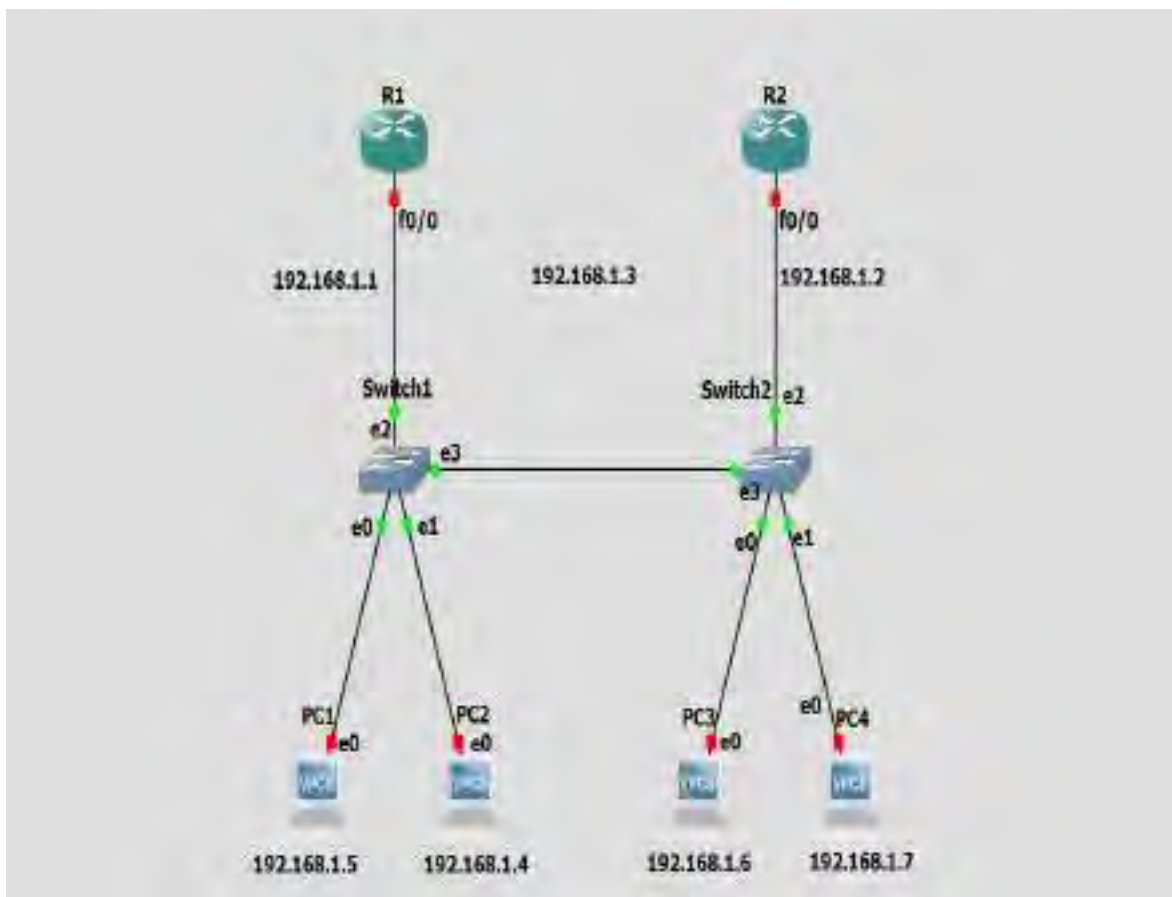


Figure 2.18 VRRP Network Topology

- Use will first need to import routers then created a basic connection between VPCS and router through switches as show in the below.

- Then configure the router and VPCS with respective Ips and Gateways addresses as show in the image above.
- Configure the router 1 to create a VRRP by command VRRP 1 with IP address 192.168.1.3 and perform similar configuration on router 2 with IP address 192.168.1.3. this is to create a virtual gateway for routers.

```

GNS3 console  R1 x  R2 x
% Invalid input detected at '^' marker.
GW2#show ip int br | exc on
Interface                IP-Address      OK? Method Status  Prot
-----                -
local
FastEthernet0/0          192.168.1.2     YES NVRAM  up      up
loopback0                0.0.0.0         YES NVRAM  up      up
GW2#sh vrrp
FastEthernet0/0 - Group 1
  State is Master
  Virtual IP address is 192.168.1.3
  Virtual MAC address is 0000.5e00.0101
  Advertisement interval is 1.000 sec
  Preemption enabled
  Priority is 100
  Master Router is 192.168.1.2 (local), priority is 100
  Master advertisement interval is 1.000 sec
  Master Down interval is 3.609 sec
GW2#

```

Figure 2.19 Router Console

- As seen above the router 2 is master and router 1 is backup as any one of the routers go down other one becomes master and passes data through the network gateway 192.168.1.3.

## 5. SETTING UP PFSense FIREWALL ON GNS3 TPOLOGY

- **PfSense** is an open-source firewall distribution based on FreeBSD.
- It was designed to be a powerful, easy-to-use, and affordable solution for protecting networks from external threats.
- PfSense offers a wide range of security features, including firewalling, VPN, routing, and more.

- It is an ideal solution for small to medium-sized businesses that require a secure network but do not have the resources to invest in expensive commercial firewall solutions.
  - Integrating PfSense Firewall in Router and making a topology. To use PfSense firewall on GNS3, you need to first download the PfSense virtual machine image from the PfSense website.
  - Once you have the image, you can import it into GNS3 and configure it as a virtual device.
- To import the PfSense image into GNS3, follow these steps:
    1. Open GNS3 web UI and click on "add a node" then on "new templet" in the top menu bar.
    2. Then select install from GNS3 servers.
    3. Click on the enter a name for the PfSense VM and select the PfSense image file you downloaded earlier.
    4. Follow the prompts to configure the VM, including the amount of memory and number of network interfaces.
    5. Once the node is created, drag it onto the GNS3 canvas and connect it to other devices in your network topology.
    6. Configure the PfSense firewall as you would with a physical firewall, including setting up firewall rules, VPNs, and other security features.



Figure 2.20 Firewall PF Sense installation Appliance types





- Now pinging to check the connection.



Figure 2.23 Ping plugs using PfSense in GNS3 Server

## CHAPTER 3 NETWORK SECURITY

### 3.1 INTRODUCTION

- Network security is any activity designed to protect the usability and integrity of your network and data.
- It includes both hardware and software technologies
  - It targets a variety of threats
  - It stops them from entering or spreading on your network
  - Effective network security manages access to the network



Figure 3.1 Network Security

## 3.2 NETWORK SECURITY TYPE

➤ There are many types of security types in security

- **Firewalls:**

Firewalls put up a barrier between your trusted internal network and untrusted outside networks, such as the Internet. They use a set of defined rules to allow or block traffic. A firewall can be hardware, software, or both. Cisco offers unified threat management (UTM) devices and threat-focused next-generation firewalls

- **Email Security:**

Email gateways are the number one threat vector for a security breach. Attackers use personal information and social engineering tactics to build sophisticated phishing campaigns to deceive recipients and send them to sites serving up malware. An email security application blocks incoming attacks and controls outbound messages to prevent the loss of sensitive data

- **Anti-virus and anti-malware software**

"Malware," short for "malicious software," includes viruses, worms, Trojans, ransomware, and spyware. Sometimes malware will infect a network but lie dormant for days or even weeks. The best antimalware programs not only scan for malware upon entry, but also continuously track files afterward to find anomalies, remove malware, and fix damage

- **Network segmentation**

Software-defined segmentation puts network traffic into different classifications and makes enforcing security policies easier. Ideally, the classifications are based on endpoint identity, not mere IP addresses. You can assign access rights based on role, location, and more so that the right level of access is given to the right people and suspicious devices are contained and remediated.

- **Access control**

Not every user should have access to your network. To keep out potential attackers, you need to recognize each user and each device. Then you can enforce your security policies. You can block noncompliant endpoint devices or give them only limited access. This process is network access control (NAC).

- **VPN**

A virtual private network encrypts the connection from an endpoint to a network, often over the Internet. Typically, a remote-access VPN uses IPsec or Secure Sockets Layer to authenticate the communication between device and network.

- **Behavioral analytics**

To detect abnormal network behavior, you must know what normal behavior looks like. Behavioral analytics tools automatically discern activities that deviate from the norm. Your security team can then better identify indicators of compromise that pose a potential problem and quickly remediate threats

- **Wireless Security**

Wireless networks are not as secure as wired ones. Without stringent security measures, installing a wireless LAN can be like putting Ethernet ports everywhere, including the parking lot. To prevent an exploit from taking hold, you need products specifically designed to protect a wireless network.

- **Web Security**

A web security solution will control your staff's web use, block web-based threats, and deny access to malicious websites. It will protect your web gateway on site or in the cloud. "Web security" also refers to the steps you take to protect your own website.

- **Security information and event management**

SIEM products pull together the information that your security staff needs to identify and respond to threats. These products come in various forms, including physical and virtual appliances and server software.

- **Mobile device security**

Cybercriminals are increasingly targeting mobile devices and apps. Within the next 3 years, 90 percent of IT organizations may support corporate applications on personal mobile devices. Of course, you need to control which devices can access your network. You will also need to configure their connections to keep network traffic private.

- **Intrusion Prevention Systems**

An intrusion prevention system (IPS) scans network traffic to actively block attacks. Cisco Next-Generation IPS (NGIPS) appliances do this by correlating huge amounts of global threat intelligence to not only block malicious activity but also track the progression of suspect files and malware across the network to prevent the spread of outbreaks and reinfection.

- **Data loss prevention**

Organizations must make sure that their staff does not send sensitive information outside the network. Data loss prevention, or DLP, technologies can stop people from uploading, forwarding, or even printing critical information in an unsafe manner.

### 3.3 TASK

#### Firewall:

- In computing, a firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.
- A firewall typically establishes a barrier between a trusted network and an untrusted network, such as the Internet.

#### Working mechanism:

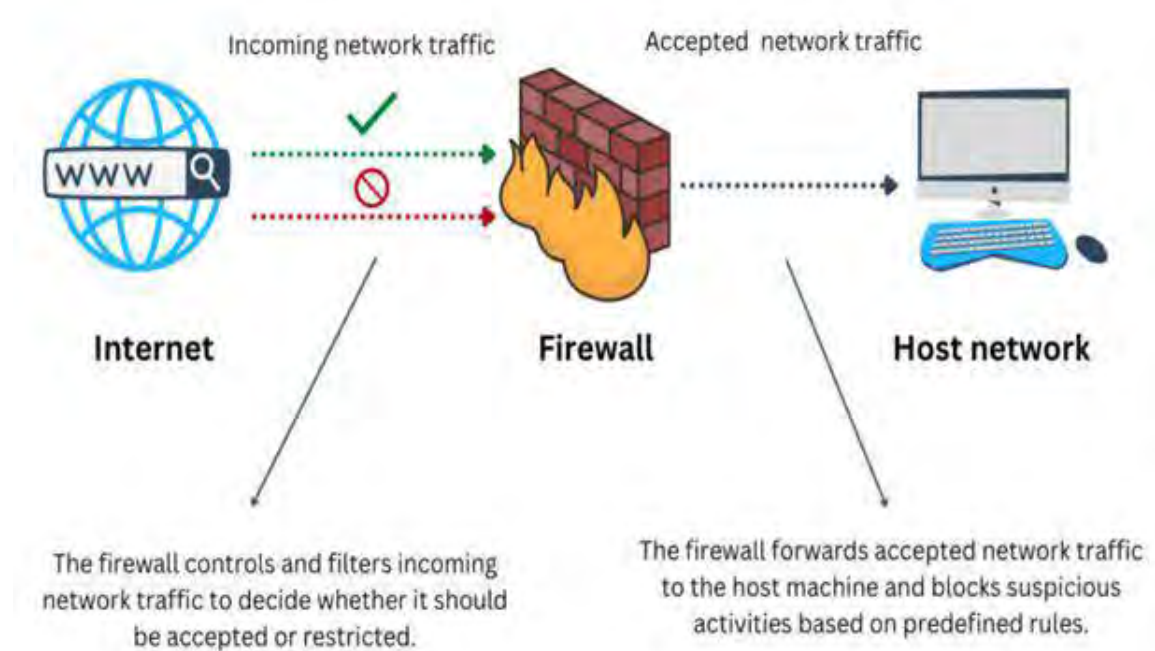


Figure 3.2 Firewall Working Mechanism

#### Feature:

- Protection from unauthorized access:
  - ✓ Firewalls can be set up to restrict incoming traffic from particular IP addresses or networks, preventing hackers or other malicious attackers from easily accessing a network or system.
  - ✓ Protection from unwanted access.
- Prevention of malware and other threats:

- ✓ Firewalls can be set up to block traffic linked to known malware or other security concerns, assisting in the defense against these kinds of attacks.
- Control of network access:
  - ✓ By limiting access to specified individuals or groups for particular servers or applications, firewalls can be used to restrict access to particular network resources or services.
- Monitoring of network activity:
  - ✓ Firewalls can be set up to record and keep track of all network activity.
  - ✓ This information is essential for identifying and looking into security problems and other kinds of shady behavior.
- Regulation compliance:
  - ✓ Many industries are bound by rules that demand the usage of firewalls or other security measures.
  - ✓ Organizations can comply with these rules and prevent any fines or penalties by using a firewall.
- Network segmentation:
  - ✓ By using firewalls to split up a bigger network into smaller subnets, the attack surface is reduced and the security level is raised.

### Opensource Firewall Tools

- i. Iptables
- ii. PfSense
- iii. IPFire
- iv. NetDefender
- v. ClearOS

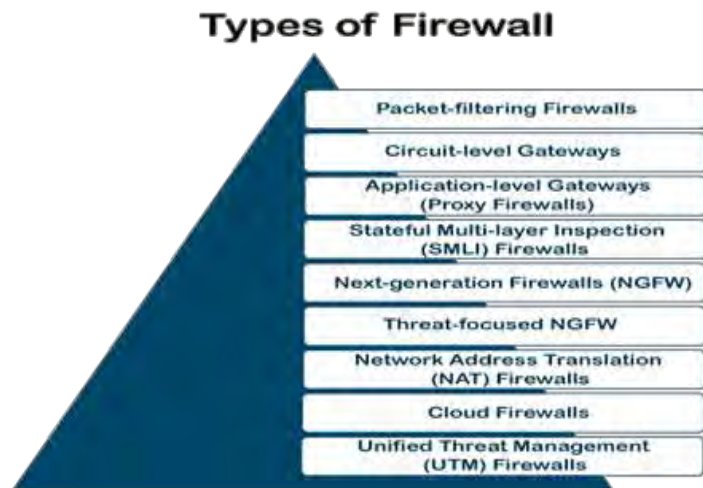


Figure 3.3 Types of Firewalls



### 3.3.1. Iptables:

#### Introduction:

- iptables is a firewall program for Linux. It will monitor traffic from and to your server using tables. These tables contain sets of rules, called chains, that will filter incoming and outgoing data packets.
- Linux-based operating systems are very secure by themselves. So secure that you don't have to install an antivirus to protect your PC from malware and viruses as they ask for approval in the form of a password for every application and program to run.
- However, in a world that revolves around the internet, with millions of cookies, trackers, spam emails, and phishing attempts, you must only learn to take better precautions. That is exactly what iptables is used for.
- Using iptables, you can perform different tasks like blocking cookies from a specific website, stopping spam mail coming to your account, blocking a specific user, or a group of people over a network and so many more things to improve your security.

#### Features:

- listing the contents of the packet filter ruleset
- adding/removing/modifying rules in the packet filter ruleset
- listing/zeroing per-rule counters of the packet filter ruleset

#### Flow Chart:

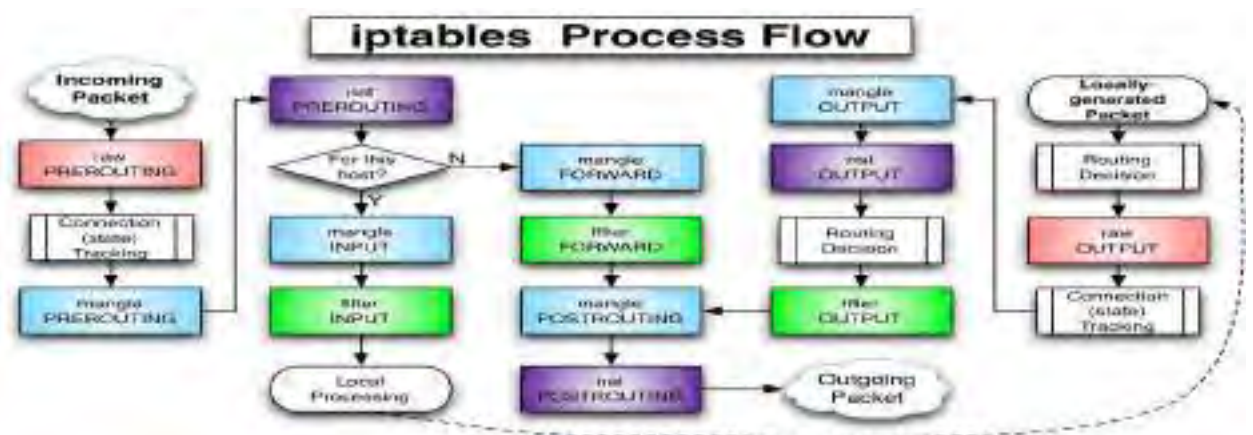


Figure 3.4 Iptables Flow Chart

### Basic iptables options

- F Flush all the rules.
- L List all the rules.
- p the protocol of the packet. Example tcp, udp, icmp
- dport specify port number.
- s source address
- d destination address
- A chain
- j responses
- D delete the rule

### Task:

- Create rules for incoming and outgoing Ip using `-s` command and checking statuses rules set via command `-L -v -n`.

```

desharath@desharath-VirtualBox:~$ sudo iptables -A INPUT -s 33.45.45.44 -j DROP
desharath@desharath-VirtualBox:~$ iptables -t nat -L -v -n
iptables v1.8.7 (nf_tables): Could not fetch rule set generation id: Permission
denied (you must be root)

desharath@desharath-VirtualBox:~$ sudo iptables -t nat -L -v -n
Chain PREROUTING (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target    prot opt in     out    source
Chain INPUT (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target    prot opt in     out    source
Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target    prot opt in     out    source
Chain POSTROUTING (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target    prot opt in     out    source

```

Figure 3.5 Chart Iptables Rules Creating and showing Result

- Checking rules and there working chaining russet

```
dasharath@dasharath-VirtualBox:~$ sudo iptables -L -v -n
Chain INPUT (policy DROP 304 packets, 25065 bytes)
 pkts bytes target     prot opt in     out     source         destination
    0     0 DROP      all  --  *      *        33.45.45.44    0.0.0.0/0

Chain FORWARD (policy DROP 0 packets, 0 bytes)
 pkts bytes target     prot opt in     out     source         destination

Chain OUTPUT (policy ACCEPT 254 packets, 22130 bytes)
 pkts bytes target     prot opt in     out     source         destination

dasharath@dasharath-VirtualBox:~$ sudo iptables -A INPUT -p tcp -s 33.45.45.44 -j DROP
dasharath@dasharath-VirtualBox:~$ sudo iptables -L -v -n
Chain INPUT (policy DROP 396 packets, 32967 bytes)
 pkts bytes target     prot opt in     out     source         destination
    0     0 DROP      all  --  *      *        33.45.45.44    0.0.0.0/0
    0     0 DROP      tcp  --  *      *        33.45.45.44    0.0.0.0/0

Chain FORWARD (policy DROP 0 packets, 0 bytes)
 pkts bytes target     prot opt in     out     source         destination

Chain OUTPUT (policy ACCEPT 328 packets, 27948 bytes)
 pkts bytes target     prot opt in     out     source         destination
```

Figure 3.6 Iptables Ruleset Checking

- Delate applied rules using -F and -X command

```
dasharath@dasharath-VirtualBox:~$ sudo iptables -F
dasharath@dasharath-VirtualBox:~$ sudo iptables -X
dasharath@dasharath-VirtualBox:~$ sudo iptables -L -v -n
Chain INPUT (policy ACCEPT 3620 packets, 2161K bytes)
 pkts bytes target     prot opt in     out     source         destination

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
 pkts bytes target     prot opt in     out     source         destination

Chain OUTPUT (policy ACCEPT 2321 packets, 622K bytes)
 pkts bytes target     prot opt in     out     source         destination

dasharath@dasharath-VirtualBox:~$
```

Figure 3.7 Iptables rues Delating

### 3.3.2. PfSense firewall:

#### Introduction:

- PfSense is a firewall/router computer software distribution based on FreeBSD.
- The open source PfSense Community Edition (CE) and PfSense Plus is installed on a physical computer or a virtual machine to make a dedicated firewall/router for a network.
- It can be configured and upgraded through a web-based interface, and requires no knowledge of the underlying FreeBSD system to manage.

#### Working mechanism

- Firewall working Different types interfaces show in figure.

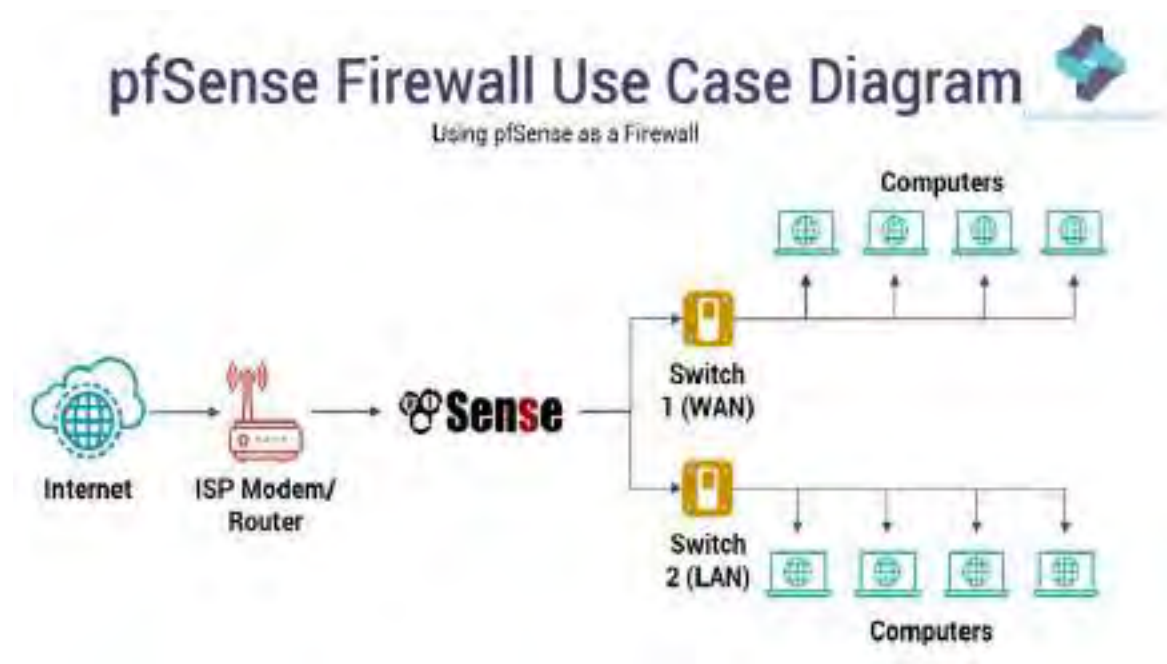


Figure 3.8 PfSense Working Mechanism

#### Feature:

- Attack Prevention
- IDS/IPS
- Proxy and Content Filtering
- Network Services
- Configuration Mgmt.
- User Authentication Mgmt.
- System Security Mgmt.
- Resilience/Reliability Mgmt.
- System Reporting/Monitoring

**Task:**

- Dashboard: PfSense firewall show dashboard like that running firewall proses.

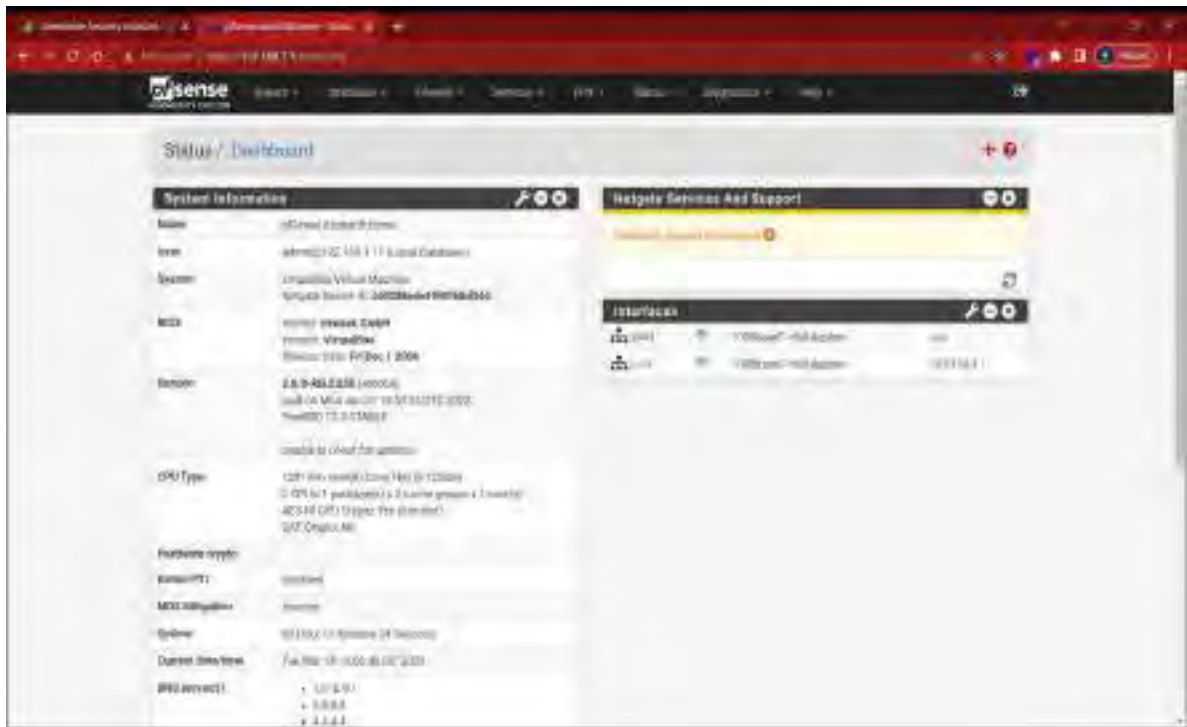


Figure 3.9 PfSense firewall web Dashboard view

- Services: PfSense firewall services are available are shown in figure types.



Figure 3.10 PfSense firewall Services list

- Install snort and configuration setup:

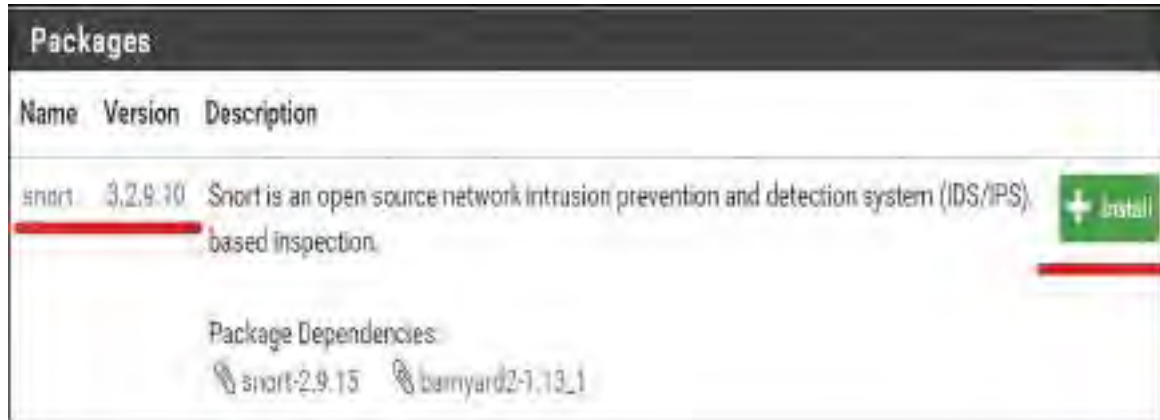


Figure 3.11 Snort Installation Page

- Configuring WAN and LAN interface for firewall



Figure 3.12 WAN & LAN Interface Configuration in Snort Services

# CHAPTER 4 INFORMATION GATHERING

## 4.1 INTRODUCTION

- In cybersecurity, an information-gathering mission is the act of gathering information on a possible target.
- Reconnaissance, also known as "information gathering", refers to the process of collecting information about a target or potential target.
- This can include information about the target's physical characteristics, location, and activities, as well as information about the people and organizations associated with the target.
- Reconnaissance can be conducted in a variety of ways, including through physical surveillance, online research, or by using specialized tools and techniques.
- The goal of reconnaissance is typically to gain a better understanding of its target's capabilities and vulnerabilities and to plan and execute future operations accord.
- This might be done as part of penetration testing, network security monitoring, or other cybersecurity courses.
- When obtaining information about possible targets, cybercriminals use many of the same approaches.
- This is why it is critical to become acquainted with the technologies used in this stage so that you can detect and prevent any unwanted information collecting on your network.
- When executing any sort of cybersecurity operation, information collecting is required since it provides the user with additional knowledge about target systems and networks, allowing them to make an informed decision about how to proceed with their attack vector.
- To finish an information-gathering activity, you must first decide what type of information you want to collect about a target system.
- Kali Linux, parrot Linux and many more platform provide tools and guidance for information gathering.

## 4.2 TYPES

Information gathering define three majeure parts.

1. **Foot printing**
2. **Scanning**
3. **Enumeration**

### 4.2.1 Foot Printing

#### Introduction:

- Foot printing is the technique to collect as much information as possible about the targeted network/victim/system. It helps hackers in various ways to intrude on an organization's system.
- This technique also determines the security postures of the target.
- Foot printing can be active as well as passive. Passive foot printing /pseudonymous foot printing involves collecting data without the owner knowing that hackers gather their data.
- In contrast, active footprints are created when personal data gets released consciously and intentionally or by the owner's direct contact.
- Other tensorizing measured 3 categories
  1. Open-Source Foot printing.
  2. Network-based Foot printing.
  3. DNS Interrogation.

#### Opensource foot printing

- This type of foot printing is the safest, holding all legal limitations, and hackers can do it without fear because it is legal and, hence, coined the term Open-source.
- Examples of this type include: finding someone's email address and phone numbers, scanning IP through automated tools, searching for age, DOB, house address, etc.
- Most companies provide information about themselves on their official website without knowing that hackers can take advantage of it.



### Network based foot printing

- Using this foot printing category, hackers can retrieve information such as user name, information within a group, shared data among individuals, network services, etc.

### DNS interrogation

- After gathering the information from the different areas using various techniques, the hacker usually queries the DNS using pre-existing tools.
- Many freeware tools are available online to perform DNS interrogation.

## 4.2.2 Scanning

### Introduction:

- Scanning is another essential step, which is necessary, and it refers to the package of techniques and procedures used to identify hosts, ports, and various services within a network.
- Network scanning is one of the components of intelligence gathering and information retrieving mechanism an attacker used to create an overview scenario of the target organization (target organization: means the group of people or organization which falls in the prey of the Hacker).
- Vulnerability scanning is performed by pen-testers to detect the possibility of network security attacks.
- This technique led hackers to identify vulnerabilities such as missing patches, unnecessary services, weak authentication, or weak encryption algorithms.
- So, a pen-tester and ethical hacker list down all such vulnerabilities found in an organization's network.
- Scanning measured three category types
  1. Network Scanning
  2. Port Scanning
  3. Vulnerability Scanning

## Network Scanning

### Introduction:

- To discover live hosts/computer, IP address, and open ports of the victim.
- To discover services that are running on a host computer.
- To discover the Operating System and system architecture of the target.
- To discover and deal with vulnerabilities in Live hosts.

### Methodology

- Hackers and Pen-testers check for Live systems.
- Check for open ports (The technique is called Port Scanning, which will be discussed below)
- Scanning beyond IDS (Intrusion Detection System)
- Banner Grabbing: is the method for obtaining information regarding the targeted system on a network and services running on its open ports. Telnet and ID Serve are the tools used mainly to perform a Banner-grabbing attack. This information may be used by intruders/hackers to portray the lists of applicable exploits.
- Scan for vulnerability
- Prepare Proxies

## Port Scanning

### Introduction:

- It is a conventional technique used by penetration testers and hackers to search for open doors from which hackers can access any organization's system.
- During this scan, hackers need to find out those live hosts, firewalls installed, operating systems used, different devices attached to the system, and the targeted organization's topology.
- Once the Hacker fetches the victim organization's IP address by scanning TCP and UDP ports, the Hacker maps this organization's network under his/her grab.
- Nmap is a tool to perform port scanning.
- Scanning techniques mainly used:

1. **SYN Scan:** SYN scan or stealth doesn't complete the TCP three-way handshake technique. A hacker sends an SYN packet to the victim, and if an SYN/ACK frame is received back, then the target would complete the connection, and the port is in a position to listen. If an RST is retrieved from the target, it is assumed that the port is closed or not activated. SYN stealth scan is advantageous because a few IDS systems log this as an attack or connection attempt.
2. **XMAS Scan:** MAS scan sends a packet which contains URG (urgent), FIN (finish) and PSH (push) flags. If there is an open port, there will be no response; but the target responds with an RST/ACK packet if the port is closed. (RST=reset).
3. **FIN Scan:** FIN scan is similar to an XMAS scan except that it sends a packet with just the FIN (finish) flag and no URG or PSH flags. FIN scan receives the same response and has the same limitations as XMAS scans.
4. **IDLE Scan:** IDLE scan uses a spoofed/hoax IP to send the SYN packet to the target by determining the port scan response and IP header sequence number. Depending on the response of the scan, the port is determined, whether open or closed.
5. **Inverse TCP Flag Scan:** Here, the attacker sends TCP probe packets with a TCP flag (FIN, URG PSH) or no flags. If there is no response, it indicates that the port is open, and RST means it is closed.
6. **ACK Flag Probe Scan:** Here, the attacker sends TCP probe packets where an ACK flag is set to a remote device, analyzing the header information (TTL and WINDOW field). The RST packet signifies whether the port is open or closed. This scan is also used to check the target's/victim's filtering system.

## Vulnerability Scanning

### Introduction:

- It is the proactive identification of the system's vulnerabilities within a network in an automated manner to determine whether the system can be exploited or threatened.
- In this case, the computer should have to be connected to the internet.

**Scanning Tools:****➤ Nmap:**

- Nmap extract information such as live hosts on the network, services, type of packet filters/firewalls, operating systems, and OS versions.
- Zan Map is another very powerful Graphical user interface (GUI) tool to detect the type of OS, OS version, ping sweep, port scanning, etc.
- Nikto, wp scene, and another more types tool are working like Nmap.

**➤ Super scan:**

- Super Scan is another powerful tool developed by MacAfee, which is a TCP port scanner, also used for pinging.

**➤ Wireshark and Omni peak** are two powerful and famous tools that listen to network traffic and act as network analyzers.**➤** Names of other famous PCs tools are Advanced Port Scanner, Net Tools, Mega Ping, Cur Ports, PRTG Network Monitor, Soft Perfect Network Scanner, Network Inventory Explorer, etc.**➤** There are various other scanners available free and inbuilt in Kali Linux OS.**➤** Tools and software that are used in mobiles as scanners include the names such as **Omit Network Scanner, Fing, IP network Scanner, Port Droid network Analysis, Panm IP Scanner, Nessus Vulnerability Scanner, Shadow Sec Scanner**, etc.**4.2.3 Enumeration****Introduction:**

- Enumeration is defined as a process which establishes an active connection to the target hosts to discover potential attack vectors in the system, and the same can be used for further exploitation of the system.

**Gather information:**

- Usernames, group names
- Hostnames
- Network shares and services
- IP tables and routing tables

- Service settings and audit configurations
- Application and banners
- SNMP and DNS details

**Enumeration types:**

1. NetBIOS enumeration
2. SNMP enumeration
3. LDAP enumeration
4. NTP enumeration
5. SMTP enumeration
6. DNS enumeration
7. Windows enumeration
8. UNIX/Linux enumeration

**Tools:**

1. Dump sec
2. Gat Acct
3. NBT scan
4. Nat
5. NBT Dump
6. Share Enum
7. NBT Enum
8. Net cat
9. Sid2user and user2sid

## 4.3 TOOLS

- There are many tools and technology available for information gathering. information Gathering most popular platform. Are
- Kali Linux, parrot Linux: those are providing most powerful tools for information gathering and many more.

### Tools & technology:

#### 1.Google dork

- Google dorking also named Google dorking, is a hacker technique that uses Google Search and other Google applications to find security holes in the configuration and computer code that websites are using.
- In this method use different types method to search in google to find need types document to another resource and easily find information.

#### 2.Who is

- Whois is a widely used Internet record listing that identifies who owns a domain and how to get in contact with them.
- The Internet Corporation for Assigned Names and Numbers (ICANN) regulates domain name registration and ownership.
- Whois records have proven to be extremely useful and have developed into an essential resource for maintaining the integrity of the domain name registration and website ownership process.

#### 3.netcraft

- Net craft is an Internet services company based in Bath which provides Internet data mining, defenses against fraud and phishing, web application security testing, and automated penetration testing.
- Clients include many of the world's leading Internet infrastructure and financial companies, and in particular, net craft's anti-phishing services are very widely licensed, ultimately protecting hundreds of millions of people.

#### 4.ip2location

- IP2Location is a non-intrusive IP location lookup technology that retrieves geolocation information with no explicit permission required from users. All you need is your client's IP address.

- It works for all IP addresses including IPv4 and IPv6 in one database or API. Simple and no extra cost required for IP location lookup.

### **5.Way back Machine**

- The Way back Machine is a digital archive of the World Wide Web founded by the Internet Archive, a nonprofit based in San Francisco, California.
- Created in 1996 and launched to the public in 2001, it allows the user to go "back in time" and see how websites looked in the past.
- Its founders, Brewster Kahle and Bruce Gillet, developed the Way back Machine to provide "universal access to all knowledge" by preserving archived copies of defunct web pages

### **6.dnschaker.org**

- Check DNS information about the target

### **7.ping**

- By using ping, you can determine whether a target is communicable with your system or not, or find out if the target has ipv4 or ipv6.

## 4.4 TASKS

### 4.4.1 Nmap

- Nmap (Network Mapper) is a network scanner created by Gordon Lyon (also known by his pseudonym *Fyodor Vaskevitch*).
- Nmap is used to discover hosts and services on a computer network by sending packets and analyzing the responses.
- Nmap provides a number of features for probing computer networks, including host discovery service and operating system detection.
- These features are extensible by scripts that provide more advanced service detection, vulnerability detection, and other features.
- Nmap started as a Linux utility and was ported to other systems including Windows, macOS, and BSD.
- it is most popular on Linux, followed by Windows.

#### Typical uses of Nmap:

- Auditing the security of a device or firewall by identifying the network connections which can be made to, or through it.
- Identifying open ports on a target host in preparation for auditing.
- Network inventory, network mapping, maintenance and asset management.
- Auditing the security of a network by identifying new servers.
- Generating traffic to hosts on a network, response analysis and response time measurement.
- Finding and exploiting vulnerabilities in a network.
- DNS queries and subdomain search

#### Features:

- Fast scan  
(*Nmap -F [target]*).
- Port scanning
- Enumerating the open ports on target hosts.
- Version detection
- Interrogating network services on remote devices to determine application name and version number.



- Ping Scan
- Check host by sending ping requests.
- Scriptable interaction with the target using Nmap Scripting Engine (NSE) and Lua programming language.
- Host discovery
- Identifying hosts on a network.
- Nmap can provide further information on targets, including reverse DNS names, device types, and MAC addresses

### 1.Fast scene

- Scanning host fast using command -T4 with version service sinning using -sV.

```

dasharath@dasharath-VirtualBox: -
dasharath@dasharath-VirtualBox:~$ nmap -F -T4 -sV 45.33.32.156
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-12 05:29 IST
Nmap scan report for scanne.nmap.org (45.33.32.156)
Host is up (0.24s latency).
Not shown: 95 filtered tcp ports (no-response)
PORT      STATE SERVICE      VERSION
21/tcp    open  tcpwrapped
22/tcp    open  ssh          OpenSSH 6.6.1p1 Ubuntu 2ubuntu2.13 (Ubuntu Linux; protocol 2.0)
80/tcp    open  http         Apache httpd 2.4.7 ((Ubuntu))
554/tcp   open  rtsp?
1723/tcp  open  tcpwrapped
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

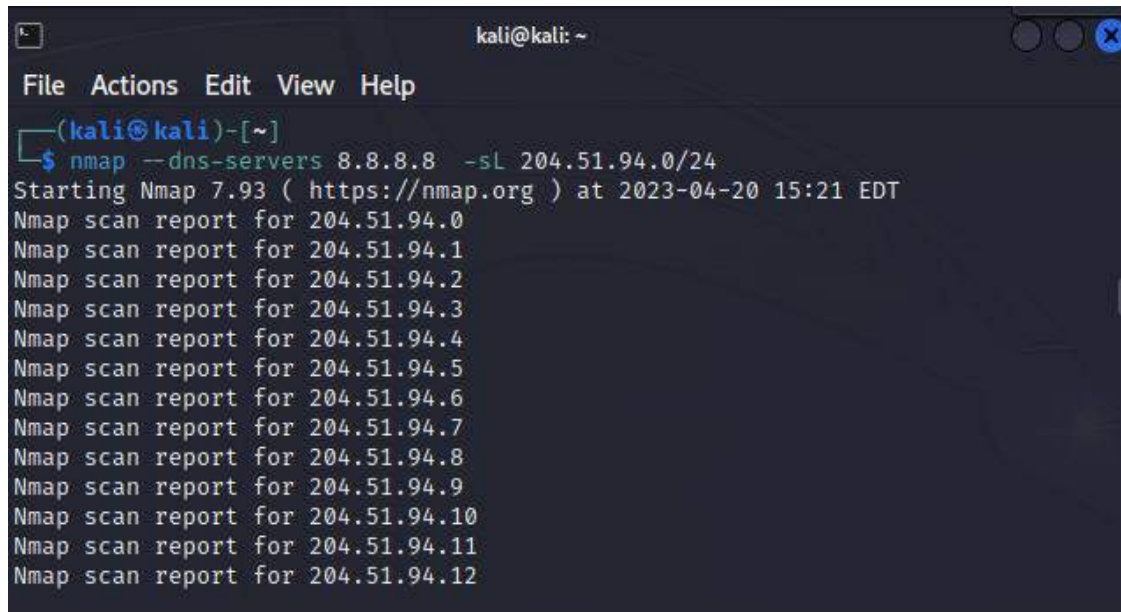
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 105.38 seconds
dasharath@dasharath-VirtualBox:~$

```

Figure 4.1 Nmap Fast Scanning Result

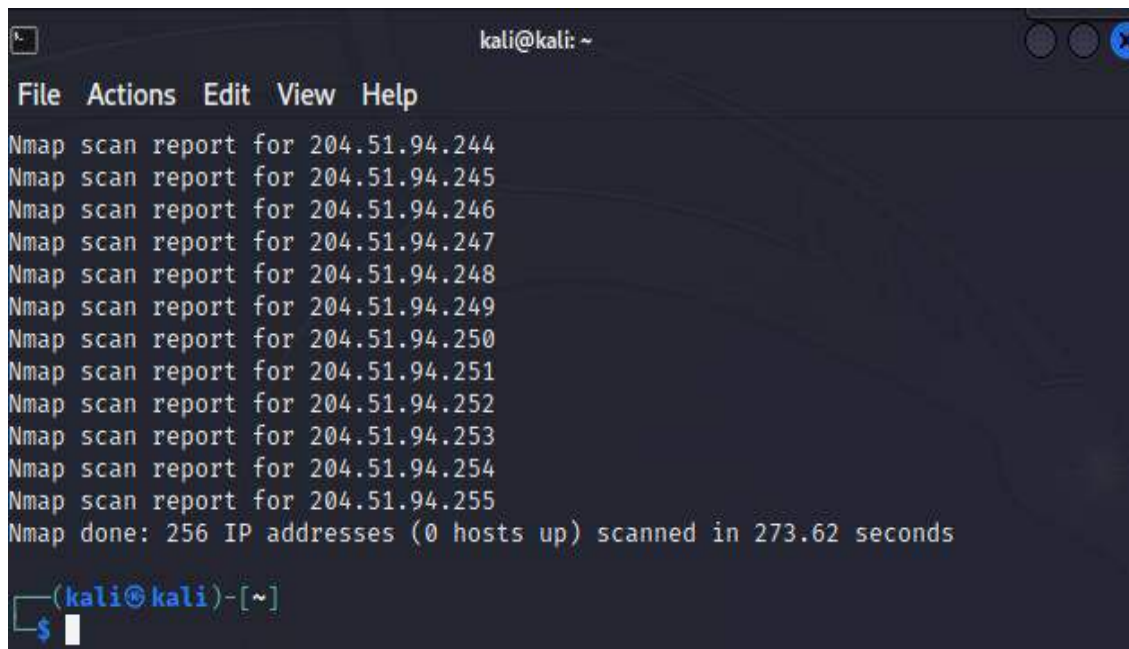
## 2.dns scene

- Dns scanning using --dns-servers and -sL command in Nmap.



```
kali@kali: ~  
File Actions Edit View Help  
(kali@kali)-[~]  
└─$ nmap --dns-servers 8.8.8.8 -sL 204.51.94.0/24  
Starting Nmap 7.93 ( https://nmap.org ) at 2023-04-20 15:21 EDT  
Nmap scan report for 204.51.94.0  
Nmap scan report for 204.51.94.1  
Nmap scan report for 204.51.94.2  
Nmap scan report for 204.51.94.3  
Nmap scan report for 204.51.94.4  
Nmap scan report for 204.51.94.5  
Nmap scan report for 204.51.94.6  
Nmap scan report for 204.51.94.7  
Nmap scan report for 204.51.94.8  
Nmap scan report for 204.51.94.9  
Nmap scan report for 204.51.94.10  
Nmap scan report for 204.51.94.11  
Nmap scan report for 204.51.94.12
```

Figure 4.2 DNS Result First part result scanning via Nmap

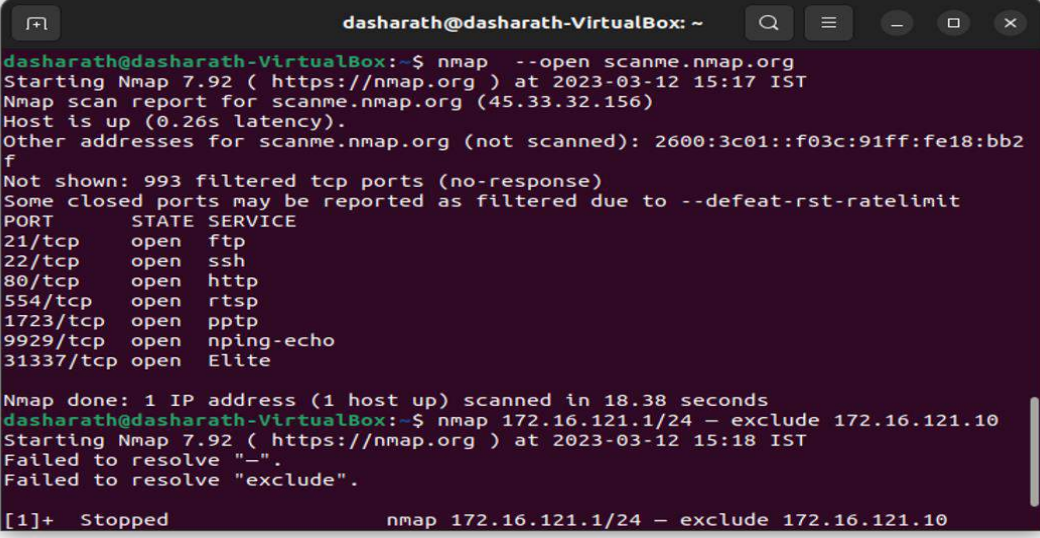


```
kali@kali: ~  
File Actions Edit View Help  
Nmap scan report for 204.51.94.244  
Nmap scan report for 204.51.94.245  
Nmap scan report for 204.51.94.246  
Nmap scan report for 204.51.94.247  
Nmap scan report for 204.51.94.248  
Nmap scan report for 204.51.94.249  
Nmap scan report for 204.51.94.250  
Nmap scan report for 204.51.94.251  
Nmap scan report for 204.51.94.252  
Nmap scan report for 204.51.94.253  
Nmap scan report for 204.51.94.254  
Nmap scan report for 204.51.94.255  
Nmap done: 256 IP addresses (0 hosts up) scanned in 273.62 seconds  
  
(kali@kali)-[~]  
└─$
```

Figure 4.3 DNS Result Last part Result Scanning via Nmap

### 3. TCP open host scene

- Scanning TCP open all host using --open command.



```

dasharath@dasharath-VirtualBox: ~
dasharath@dasharath-VirtualBox:~$ nmap --open scanme.nmap.org
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-12 15:17 IST
Nmap scan report for scanme.nmap.org (45.33.32.156)
Host is up (0.26s latency).
Other addresses for scanme.nmap.org (not scanned): 2600:3c01::f03c:91ff:fe18:bb2f
Not shown: 993 filtered tcp ports (no-response)
Some closed ports may be reported as filtered due to --defeat-rst-ratelimit
PORT      STATE SERVICE
21/tcp    open  ftp
22/tcp    open  ssh
80/tcp    open  http
554/tcp   open  rtsp
1723/tcp  open  pptp
9929/tcp  open  nping-echo
31337/tcp open  Elite

Nmap done: 1 IP address (1 host up) scanned in 18.38 seconds
dasharath@dasharath-VirtualBox:~$ nmap 172.16.121.1/24 --exclude 172.16.121.10
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-12 15:18 IST
Failed to resolve "-".
Failed to resolve "exclude".

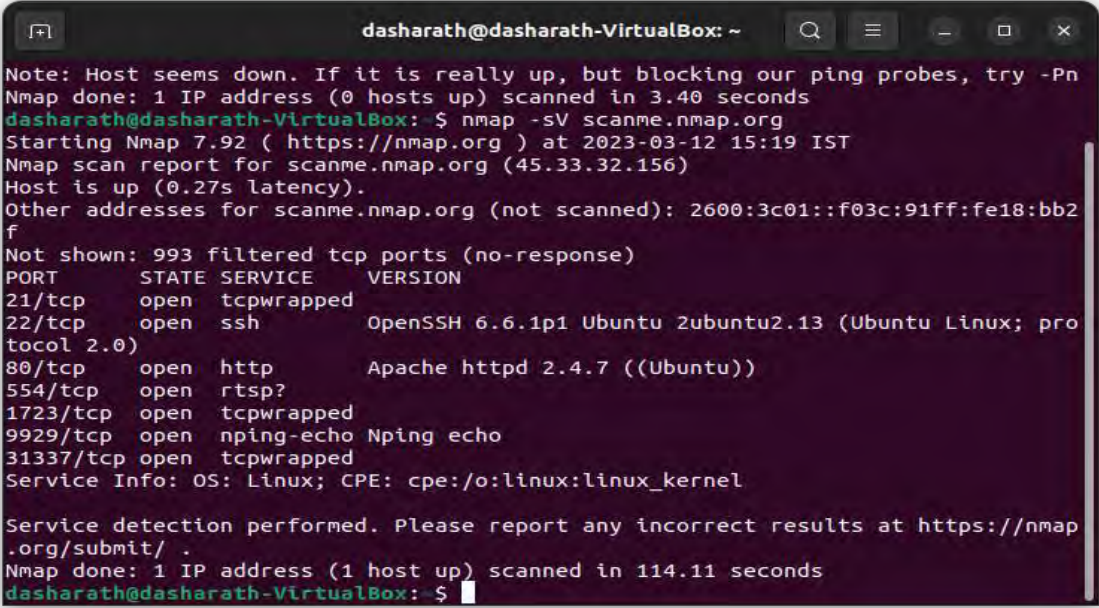
[1]+  Stopped                  nmap 172.16.121.1/24 --exclude 172.16.121.10

```

Figure 4.4 Nmap Open Tcp Port Scanning

### 4. Version scene

- Scanning host services with version via -sV command.



```

dasharath@dasharath-VirtualBox: ~
Note: Host seems down. If it is really up, but blocking our ping probes, try -Pn
Nmap done: 1 IP address (0 hosts up) scanned in 3.40 seconds
dasharath@dasharath-VirtualBox:~$ nmap -sV scanme.nmap.org
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-12 15:19 IST
Nmap scan report for scanme.nmap.org (45.33.32.156)
Host is up (0.27s latency).
Other addresses for scanme.nmap.org (not scanned): 2600:3c01::f03c:91ff:fe18:bb2f
Not shown: 993 filtered tcp ports (no-response)
PORT      STATE SERVICE      VERSION
21/tcp    open  tcpwrapped
22/tcp    open  ssh          OpenSSH 6.6.1p1 Ubuntu 2ubuntu2.13 (Ubuntu Linux; protocol 2.0)
80/tcp    open  http         Apache httpd 2.4.7 ((Ubuntu))
554/tcp   open  rtsp?
1723/tcp  open  tcpwrapped
9929/tcp  open  nping-echo   Nping echo
31337/tcp open  tcpwrapped
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 114.11 seconds
dasharath@dasharath-VirtualBox:~$

```

Figure 4.5 Nmap Service & Version Scanning

## 5. TCP /UDP port scene

- Scanning host all tcp and udp port via -sT & -sU command.

```

dasharath@dasharath-VirtualBox:~$ sudo nmap -sT -sU drop.org.in
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-12 16:15 IST
Stats: 0:18:21 elapsed; 0 hosts completed (1 up), 1 undergoing UDP Scan
UDP Scan Timing: About 77.50% done; ETC: 16:39 (0:05:10 remaining)
Nmap scan report for drop.org.in (103.152.79.223)
Host is up (0.021s latency).
rDNS record for 103.152.79.223: servers.ultraspeedserver.com
Not shown: 999 open|filtered udp ports (no-response), 988 filtered tcp ports (no-response)
PORT      STATE SERVICE
21/tcp    open  ftp
53/tcp    open  domain
80/tcp    open  http
110/tcp   open  pop3
143/tcp   open  imap
443/tcp   open  https
465/tcp   open  smtps
554/tcp   open  rtsp
587/tcp   open  submission
993/tcp   open  lnaps
995/tcp   open  pop3s
1723/tcp  open  pptp
53/udp    open  domain

Nmap done: 1 IP address (1 host up) scanned in 1688.97 seconds

```

Figure 4.6 Nmap Tcp & Udp Port Scanning Result

## 6. port scan all

- Scanning host all port via \*p in fast -T4 command.

```

dasharath@dasharath-VirtualBox:~$ sudo nmap -T4 -p* drop.org.in
[sudo] password for dasharath:
Starting Nmap 7.92 ( https://nmap.org ) at 2023-03-12 17:43 IST
Nmap scan report for drop.org.in (103.152.79.223)
Host is up (0.044s latency).
rDNS record for 103.152.79.223: servers.ultraspeedserver.com
Not shown: 8320 filtered tcp ports (no-response)
PORT      STATE SERVICE
20/tcp    closed ftp-data
21/tcp    open  ftp
22/tcp    closed ssh
53/tcp    open  domain
80/tcp    open  http
110/tcp   open  pop3
143/tcp   open  imap
443/tcp   open  https
465/tcp   open  smtps
554/tcp   open  rtsp
587/tcp   open  submission
993/tcp   open  lnaps
995/tcp   open  pop3s
1723/tcp  open  pptp
2077/tcp  open  tcrnagt
2078/tcp  open  tpcsrvr
2079/tcp  open  idwara-router
2080/tcp  open  autodesk-alm
2082/tcp  open  infowave
2083/tcp  open  radsec
2086/tcp  open  gnuinet
2087/tcp  open  ell
2095/tcp  open  nbx-ser
2096/tcp  open  nbx-dir
8443/tcp  closed https-alt

Nmap done: 1 IP address (1 host up) scanned in 396.13 seconds

```

Figure 4.7 All Port Scanning Nmap Result

## CHAPTER 5 VULNERABILITY ASSESSMENT

### 5.1 INTRODUCTION

- Vulnerability refers to "the quality or state of being exposed to the possibility of being attacked or harmed, either physically or emotionally."
- A window of vulnerability (WOV) is a time frame within which defensive measures are diminished, compromised, or lacking.
- The understanding of social and environmental vulnerability, as a methodological approach, involves the analysis of the risks and assets of disadvantaged groups, such as the elderly.
- The approach of vulnerability in itself brings great expectations of social policy and gerontological planning. Types of vulnerability include social, cognitive, environmental, emotional or military.
- In relation to hazards and disasters, vulnerability is a concept that links the relationship that people have with their environment to social forces and institutions and the cultural values that sustain and contest them.
- "The concept of vulnerability expresses the multi-dimensionality of disasters by focusing attention on the totality of relationships in a given social situation which constitute a condition that, in combination with environmental forces, produces a disaster".
- It is also the extent to which changes could harm a system, or to which the community can be affected by the impact of a hazard or exposed to the possibility of being attacked or harmed, either physically or emotionally.
- Within the body of literature related to vulnerability, one major research stream includes the methodology behind said research, namely measuring and assessing indicators of vulnerability.
- These include external sudden shocks and continued stresses and internal indicators, such as defenselessness or inability to cope with incapacities. Vulnerability research covers a complex, multidisciplinary field including development and poverty studies, public health, climate studies, studies, engineering, geography, political ecology, and disaster risk management.
- This research is of importance and interest for organizations trying to reduce vulnerability—especially as related to poverty and other Millennium Development Goals. Many institutions are conducting interdisciplinary research on vulnerability.
- A forum that brings many of the current researchers on vulnerability together is the Expert Working Group (EWG). Researchers are currently working to refine definitions of "vulnerability", measurement and assessment methods, and effective communication of research to decision makers.

## 5.2 TYPES:

- Depending on the area of the infrastructure under review a vulnerability assessment can be classified into their types

### **Internal scanning:**

- This is performed inside the boundaries of a network infrastructure and strengthens applications and other resources from internal attacks, rogue or unhappy employees, and threat actors who have penetrated network perimeters.

### **External scanning:**

- This approach operates as if the scanner was outside an organization.
- It performs as a threat actor to identify vulnerabilities inside the perimeter -- for example, firewalls; internal applications; web apps; data ports, especially open and underutilized ports; and network elements.

### **Authenticated scanning:**

- In authenticated scanning, a tester logs in as a legitimate user and examines vulnerabilities from a trusted user's perspective.

### **Unauthenticated scanning:**

- In unauthenticated scanning, an unauthenticated tester examines the infrastructure as an intruder, which can identify additional risks and vulnerabilities.

### **Assessment scanning:**

- This fundamental scanning activity provides a view and analysis of the infrastructure.

### **Discovery scanning:**

- Discovery scanning is perhaps the primary role of any scanner. It aims to discover situations that present risks and threats to the organization.

### **Compliance scanning:**

- This form of scanning determines if an infrastructure is compliant with standards, policies, regulations and other rule-based requirements.

### **Host-based scanning:**

- These scanners assess local systems and servers and their OS configurations -- along with additional supported hosts -- to identify vulnerabilities.

**Network scanning:**

- Network scanning works alongside port scanners to check for weak or questionable passwords.
- It also performs limited pen testing without disrupting network operations and exploits identified vulnerabilities to pinpoint attack vectors and other anomalies without affecting system and network performance.

**Web application scanning:**

- This examines public-facing web applications for potential vulnerabilities.

**Port scanning:**

- Port scanning looks for open ports in network servers by sending connection requests, which are then monitored to determine their activity.
- Port scanners are also used by threat actors to gain unauthorized access by identifying open or underutilized ports.

**Database scanning:**

- This technique probes databases to unearth any suspicious activity.
- Source code vulnerability scanning.
- Regular examination of source code helps testers identify potential anomalies.
- Consider vulnerability scanning software that applies anomaly data gathered by NIST.
- Cloud scanners examine the organization's cloud-based environment to identify potential anomalies, such as improper configuration of cloud settings and controls, problems with access control and authentication, and possible overlapping conflicts with other cloud users.

## 5.3 METHODOLOGY

- Vulnerability assessment methodology defined measure defend three 3 types:

### **Black box** network vulnerability testing

- This method, your security team attempts to infiltrate your cyber defenses from the outside just as a hacker might.
- Without having any administrative privileges or account passwords, the team attempts to exploit public IP addresses, firewalls, and anything located in your demilitarized zone (DMZ) with that goal in mind.

### **White box** vulnerability testing

- On the opposite side of the coin, white box testing involves your team being given all of the privileges that authorized users have to conduct a thorough analysis of the entire network, including file servers and databases.
- Their job is to scan the whole internal environment for vulnerabilities and use tools to assess the security of the stored information and machine configuration.

### **Gray box** vulnerability assessments

- It is incorporate some of both white and black-box methods.
- This type of analysis is done if security team experts receive specific intelligence about a network, such as a user login details but do not have full access to the entire environment.
- Which network vulnerability tests and methodologies you choose depends on your business's objectives, financial resources, and level of threat risk.

### **Method:**

- Vulnerability Assessment use 5 step to assessment vulnerability.

### **1.Asset discovery**

- First, you need to decide what you want to scan, which isn't always as simple as it sounds.
- One of the most common cyber security challenges facing organizations is a lack of visibility into their digital infrastructure and its connected devices.



- Some reasons for this include:
  - ✓ Mobile Devices: Smartphones, laptops, and similar devices are designed to disconnect and reconnect frequently from the office, as well as employee's homes and often other remote locations.
  - ✓ IoT Devices: IoT devices are part of the corporate infrastructure but may be connected primarily to mobile networks.
  - ✓ Cloud-Based Infrastructure: Cloud services providers make it easy to spin up new servers as needed without IT involvement.
- We'd all love to work in an organization that was perfectly organized, but the reality is often messier.
- It can be hard simply to keep track of what different teams are putting online, or changing, at any given point.
- This lack of visibility is problematic because it's difficult to secure what you can't see.
- Luckily, the discovery aspect of this process can be largely automated. For example, some modern vulnerability assessment tools can perform discovery on public-facing systems and connect directly to cloud providers to identify cloud-based infrastructure.

## **2.Asset Prioritization**

- Once you know what you've got, the next question is whether you can afford to run a vulnerability assessment on all of it.
- In a perfect world, you would be running a vulnerability assessment regularly on all of your systems.
- However, vendors often charge per-asset, so prioritization can help where budgets can't cover every asset the company owns.
- Some examples of where you may wish to prioritize are:
  - ✓ Internet-facing servers
  - ✓ Customer-facing applications
  - ✓ Databases containing sensitive information
- It's worth noting that the two of the most common vectors for untargeted or mass attacks are:
  - ✓ Internet facing systems

- Employee laptops (via phishing attacks) So if you can't afford anything else, at least try to get these covered, in the same order.

### 3.Vulnerability Scanning

- Vulnerability scanners are designed to identify known security weaknesses and provide guidance on how to fix them.
- Because these vulnerabilities are commonly publicly reported, there is a lot of information available about vulnerable software.
- Vulnerability scanners use this information to identify vulnerable devices and software in an organization's infrastructure.
- The scanner initially sends probes to systems to identify:
  - ✓ Open ports & running services
  - ✓ Software versions
  - ✓ Configuration settings
- Based on this information, the scanner can often identify many known vulnerabilities in the system being tested.
- In addition, the scanner sends specific probes to identify individual vulnerabilities which can only be tested by sending a safe exploit that proves the weakness is present.
- These types of probes may identify common vulnerabilities such as 'Command Injection' or 'cross-site scripting (XSS)', or the use of default usernames and passwords for a system.
- Depending on the infrastructure that you're scanning (and particularly how expansive any websites are), the vulnerability scan may take anywhere from a few minutes to a few hours.

### 4.Result analysis & remediation

- After the vulnerability scan is complete, the scanner provides an assessment report.
- When reading and developing remediation plans based on this report, you should consider the following:
- **Severity:** A vulnerability scanner should label a potential vulnerability based upon its severity. When planning for remediation, focus on the most severe

vulnerabilities first, but avoid ignoring the rest forever. It's not uncommon for hackers to chain several mild vulnerabilities to create an exploit.

- **Vulnerability Exposure:** Remembering the prioritization above - not all vulnerabilities are on public-facing systems. Internet-facing systems are more likely to be exploited by any random attacker scanning the internet, making them a higher priority for remediation.
- In most cases, there is a publicly released patch to correct a detected vulnerability, but it can often require a configuration change or other workaround too.
- After applying a fix, it's also a good idea to rescan the system to ensure the fix was applied correctly. If it isn't, the system may still be vulnerable to exploitation.

### **5.continuous security**

- A vulnerability scan provides a point in time snapshot of the vulnerabilities present in an organization's digital infrastructure.
- However, new deployments, configuration changes, newly discovered vulnerabilities, and other factors can quickly make the organization vulnerable again.
- For this reason, you must make vulnerability management a continuous process rather than a one-time exercise.
- Since many vulnerabilities are introduced when software is developed, the most progressive software development companies integrate automated vulnerability assessments into their continuous integration and deployment (CI/CD) pipelines.
- This allows them to identify and fix vulnerabilities before software is released, avoiding the potential for exploitation and the need to develop and ship patches for vulnerable code.

## 5.4 TOOLS

- Vulnerability Scanning Tools can help you to detect vulnerabilities in applications in various ways. There are various types of vulnerability scanners available. They can be paid, open-source, or free.
- Vulnerability Scanning most used tools are:
  - **Acunetix** (paid)
  - **Intruder** (paid)
  - **Nessus** (free)
  - **OpenVAS** (free)
  - **Nexpose** (trial free)
  - **WPSense** (free)
  - **SAINT**
  - **w3af**

## 5.5 TASK

### 5.5.1 OWASP ZAP

#### **Introduction:**

- OWASP ZAP (short for Zed Attack Proxy) is an open-source web application security scanner.
- It is intended to be used by both those new to application security as well as professional penetration testers.
- It is one of the most active Open Web Application Security Project (OWASP) projects and has been given Flagship status.
- ZAP is a free open source (DAST) tool that allows security testers to effectively detect common threats to web applications.
- These threats include common ones like:
  - ✓ SQL injection
  - ✓ XSS (Cross-site scripting)
  - ✓ CSRF (Cross-site request forgery)
  - ✓ Misconfigurations
  - ✓ Data leakage

#### **Features:**

- An intercepting proxy server,
- Traditional and AJAX Web crawlers
- An automated scanner
- A passive scanner
- Forced browsing
- A fuzzer
- WebSocket support
- Scripting languages
- Plug-n-Hack support



- Checking in alert to we find vulnerability via request or response method.

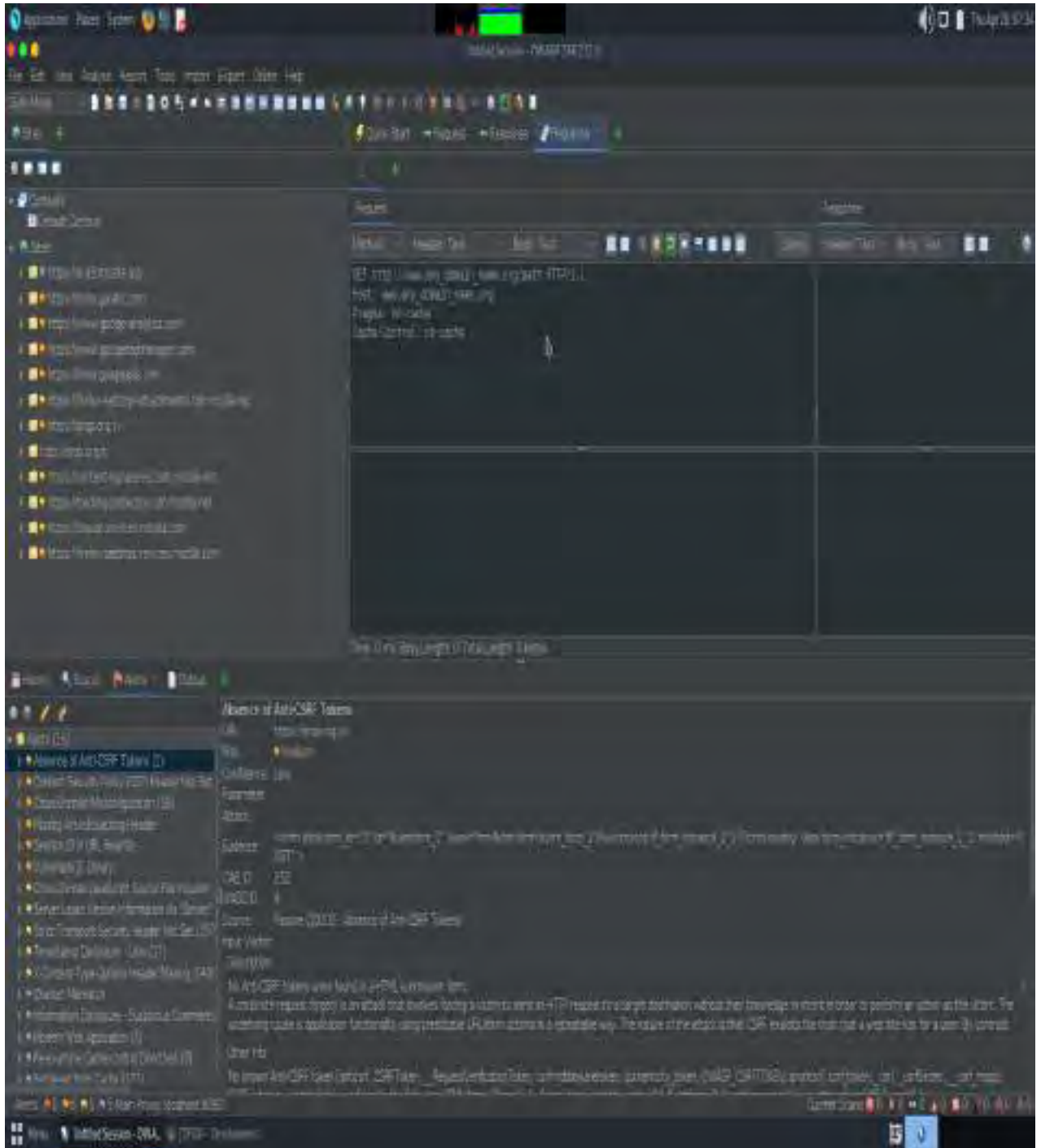


Figure 5.2 OWASP ZAP result vulnerability and Request Response page

➤ In these figure show data those have vulnerability in code types vulnerability.

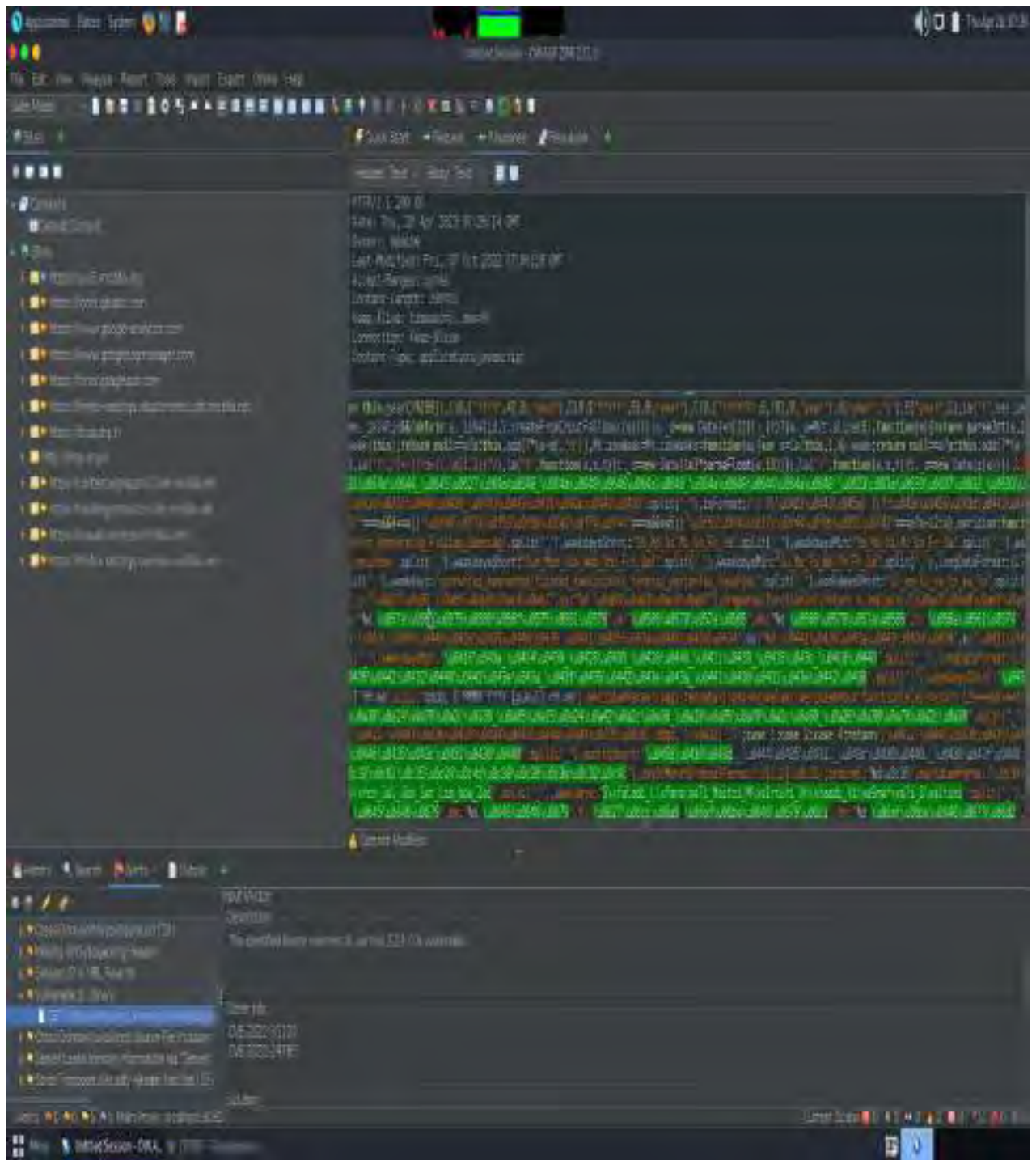


Figure 5.3 Request Response Vulnerability checking



- Js library types vulnerably show in figure.

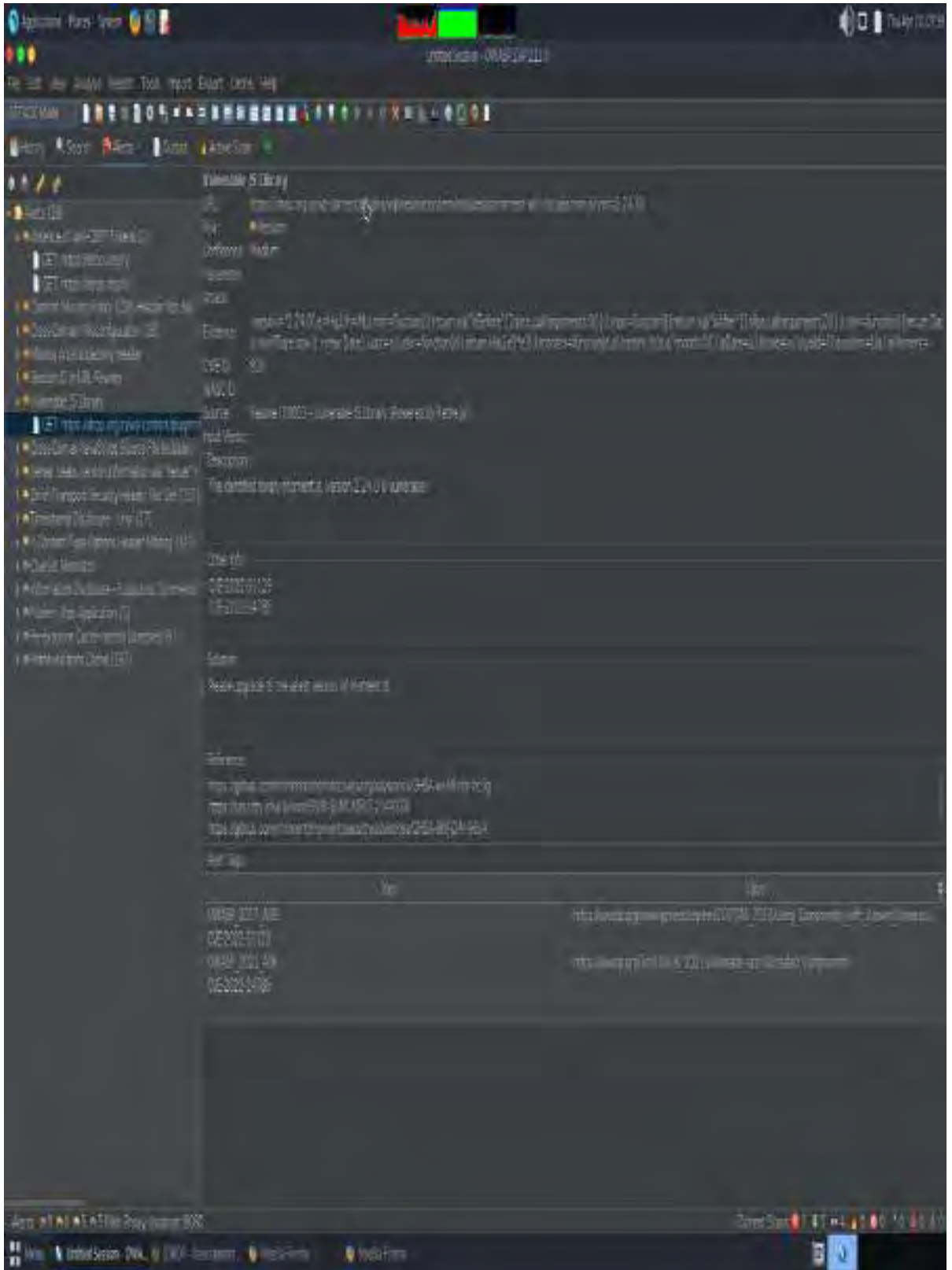


Figure 5.4 Exploitation vulnerability types checking: J S query

## 5.5.2 OPENVAS

### Introduction:

- Open vas (*Open Vulnerability Assessment System*, originally known as *GNessus*) is the scanner component of Green bone Vulnerability Manager (GVM), a software framework of several services and tools offering vulnerability scanning and vulnerability management.
- Key Features of OpenVAS:
  - Risk Management
  - Prioritization
  - Asset Discovery
  - Asset Tagging
  - Network Scanning
  - Vulnerability Assessment
  - Web Scanning

**TASK:**

- In OpenVAS' tool we can scene different types host via different scanning type and that show scanning host.



Figure 5.5 OpenVAS Vulnerability Scanning Statuses

➤ In this figure show vulnerability and scanning host ip detail in scanning result.

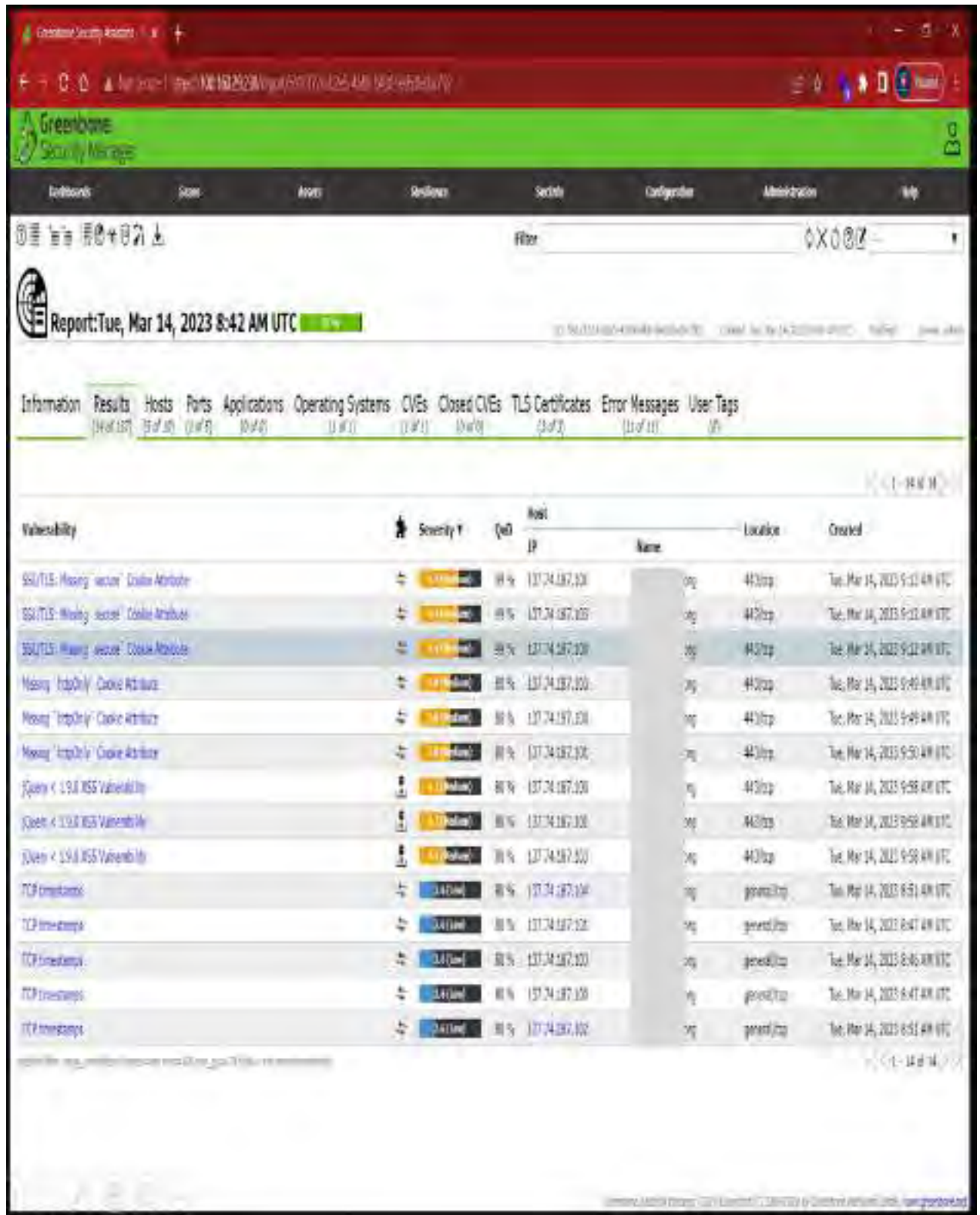


Figure 5.6 analyzing Scanning result in OpenVAS

# CHAPTER 6 PENETRATION TESTING

## 6.1 INTRODUCTION

### Overview:

- A penetration test, colloquially known as a pen test or ethical hacking, is an authorized simulated cyberattack on a computer system, performed to evaluate the security of the system
- The test is performed to identify weaknesses (also referred to as vulnerabilities), including the potential for unauthorized parties to gain access to the system's features and data, as well as strengths, enabling a full risk assessment to be completed.
- The process typically identifies the target systems and a particular goal, then reviews available information and undertakes various means to attain that goal.
- A penetration test target may be a white box (about which background and system information are provided in advance to the tester) or a black box (about which only basic information if any other than the company name is provided). A gray box penetration test is a combination of the two (where limited knowledge of the target is shared with the auditor).
- A penetration test can help identify a system's vulnerabilities to attack and estimate how vulnerable it is.
- Security issues that the penetration test uncovers should be reported to the system owner.
- Penetration test reports may also assess potential impacts to the organization and suggest countermeasures to reduce the risk.
- The goals of a penetration test vary depending on the type of approved activity for any given engagement, with the primary goal focused on finding vulnerabilities that could be exploited by a nefarious actor, and informing the client of those vulnerabilities along with recommended mitigation strategies.
- Flaw hypothesis methodology is a systems analysis and penetration prediction technique where a list of hypothesized flaws in a software system are compiled through analysis of the specifications and documentation for the system. The list of hypothesized flaws is then prioritized on the basis of the estimated probability that a flaw actually exists, and on the ease of exploiting it to the extent of control or compromise.
- The prioritized list is used to direct the actual testing of the system.
- There are different types of penetration testing, depending upon the goal of the organization which include: Network (external and internal), Wireless, Web Application, Social Engineering, and Remediation Verification

## 6.2 TYPES

➤ Penetration testing is many types testing use.

### 1. Web apps

- Testers examine the effectiveness of security controls and look for hidden vulnerabilities, attack patterns, and any other potential security gaps that can lead to a compromise of a web app.

### 2. Mobile apps.

- Using both automated and extended manual testing, testers look for vulnerabilities in application binaries running on the mobile device and the corresponding server-side functionality.
- Server-side vulnerabilities include session management, cryptographic issues, authentication and authorization issues, and other common web service vulnerabilities.

### 3. Networks.

- This testing identifies common to critical security vulnerabilities in an external network and systems.
- Experts employ a checklist that includes test cases for encrypted transport protocols, SSL certificate scoping issues, use of administrative services, and more.

### 4. Cloud.

- A cloud environment is significantly different than traditional on-premises environments.
- Typically, security responsibilities are shared between the organization using the environment and the cloud services provider.
- Because of this, cloud pen testing requires a set of specialized skills and experience to scrutinize the various aspects of the cloud, such as configurations, APIs, various databases, encryption, storage, and security controls.

## 5. Containers.

- Containers obtained from Docker often have vulnerabilities that can be exploited at scale.
- Misconfiguration is also a common risk associated with containers and their environment.
- Both of these risks can be uncovered with expert pen testing.

## 6. Embedded devices (IoT).

- Embedded / Internet of Things (IoT) devices such as medical devices, automobiles, in-home appliances, oil rig equipment, and watches have unique software testing requirements due to their longer life cycles, remote locations, power constraints, regulatory requirements, and more.
- Experts perform a thorough communication analysis along with a client/server analysis to identify defects that matter most to the relevant use case.

## 7. Mobile devices.

- Pen testers use both automated and manual analysis to find vulnerabilities in application binaries running on the mobile device and the corresponding server-side functionality.
- Vulnerabilities in application binaries can include authentication and authorization issues, client-side trust issues, misconfigured security controls, and cross-platform development framework issues.
- Server-side vulnerabilities can include session management, cryptographic issues, authentication and authorization issues, and other common web service vulnerabilities.

## 8. APIs.

- Both automated and manual testing techniques are used to cover the OWASP API Security Top 10 list.
- Some of the security risks and vulnerabilities testers look for include broken object level authorization, user authentication, excessive data exposure, lack of resources / rate limiting, and more.

## 9. CI/CD pipeline.

- Modern Develops practices integrate automated and intelligent code scanning tools into the CI/CD pipeline.
- In addition to static tools that find known vulnerabilities, automated pen testing tools can be integrated into the CI/CD pipeline to mimic what a hacker can do to compromise the security of an application.
- Automated CI/CD pen testing can discover hidden vulnerabilities and attack patterns that go undetected with static code scanning.



## 6.3 METHYODOLOGY

- The process of penetration testing may be simplified into the following five phases:
  - 1. Reconnaissance:** The act of gathering important information on a target system. This information can be used to better attack the target. For example, open source search engines can be used to find data that can be used in a social engineering attack.
  - 2. Scanning:** Uses technical tools to further the attacker's knowledge of the system. For example, Nmap can be used to scan for open ports.
  - 3. Gaining access:** Using the data gathered in the reconnaissance and scanning phases, the attacker can use a payload to exploit the targeted system. For example, Metasploit can be used to automate attacks on known vulnerabilities.
  - 4. Maintaining access:** Maintaining access requires taking the steps involved in being able to be persistently within the target environment in order to gather as much data as possible.
  - 5. Covering tracks:** The attacker must clear any trace of compromising the victim system, any type of data gathered, log events, in order to remain anonymous.
- Once an attacker has exploited one vulnerability, they may gain access to other machines so the process repeats i.e., they look for new vulnerabilities and attempt to exploit them. This process is referred to as pivoting.

### Method:

#### Eternal testing

- External penetration tests target the assets of a company that are visible on the internet, e.g., the web application itself, the company website, and email and domain name servers (DNS).
- The goal is to gain access and extract valuable data.

#### Internal testing

- In a blind test, a tester is only given the name of the enterprise that's being targeted.

- This gives security personnel a real-time look into how an actual application assault would take place.

### **Blind testing**

- In a blind test, a tester is only given the name of the enterprise that's being targeted.
- This gives security personnel a real-time look into how an actual application assault would take place.

### **Double blinding**

- In a double-blind test, security personnel have no prior knowledge of the simulated attack.
- As in the real world, they won't have any time to shore up their defenses before an attempted breach.

### **Targeted testing**

- In this scenario, both the tester and security personnel work together and keep each other apprised of their movements.
- This is a valuable training exercise that provides a security team with real-time feedback from a hacker's point of view.

## 6.4 SCANNING TOOLS

- There is no one-size-fits-all tool for pen testing.
- Instead, different targets require different sets of tools for port scanning, application scanning, Wi-Fi break-ins, or direct penetration of the network
- Broadly speaking, the types of pen testing tools fit into five categories.
  1. Reconnaissance tools for discovering network hosts and open ports
  2. Vulnerability scanners for discovering issues in-network services, web applications, and APIs
  3. Proxy tools such as specialized web proxies or generic man-in-the-middle proxies
  4. Exploitation tools to achieve system footholds or access to assets
  5. Post exploitation tools for interacting with systems, maintaining and expanding access, and achieving attack objectives

## Tools:

### 1.Instruder:

- Intruder is a powerful, automated penetration testing tool that discovers security weaknesses across your IT environment.
- Offering industry-leading security checks, continuous monitoring and an easy-to-use platform, Intruder keeps businesses of all sizes safe from hackers.
- Features
  - Best-in-class threat coverage with over 10,000 security checks
  - Checks for configuration weaknesses, missing patches, application weaknesses (such as SQL injection & cross-site scripting) and more
  - Automatic analysis and prioritization of scan results
  - Intuitive interface, quick to set-up and run your first scans
  - Proactive security monitoring for the latest vulnerabilities
  - AWS, Azure, and Google Cloud connectors
  - API integration with your CI/CD pipeline

### 2.Burp suite:

- No discussion of pen testing tools is complete without mentioning web vulnerability scanner Burp Suite, which, unlike other tools mentioned so far, is neither free nor libre, but an expensive tool used by the pros.
- While there is a Burp Suite community edition, it lacks much of the functionality, and the Burp Suite enterprise edition goes for a cool \$3,999 a year (that psychological pricing doesn't make it seem that much cheaper, guys).
- There's a reason they can get away with those kind of nosebleed prices, though.
- Burp Suite is an incredibly effective web vulnerability scanner.
- Point it at the web property you want to test and fire when ready.
- Burp competitor Nessus offers a similarly effective (and similarly priced) product

### 3.linux

- If you're not using Linux as your base pen testing operating system, you either have bleeding-edge knowledge and a specialized use case or you're doing it wrong.

- Formerly known as Backtrack Linux and maintained by the good folks at Offensive Security (Offset, the same folks who run the OSCP certification), Linux is optimized in every way for offensive use as a penetration tester.
- While you can run Linux on its own hardware, it's far more common to see pen testers using Linux virtual machines on OS X or Windows.
- Most used Linux are kali and parrot for penetrating, because of the provide all tools those need penetration testing and secure our system to victim and secure our data

#### **4.Other tools**

- Nmap, Nikto, WP Scanner, Wireshark, Metasploit, and many more use for penetrating

## 6.5 TASK

### 6.5.1 Burp suite

- scanning host via url link in lighthouse types scanning.

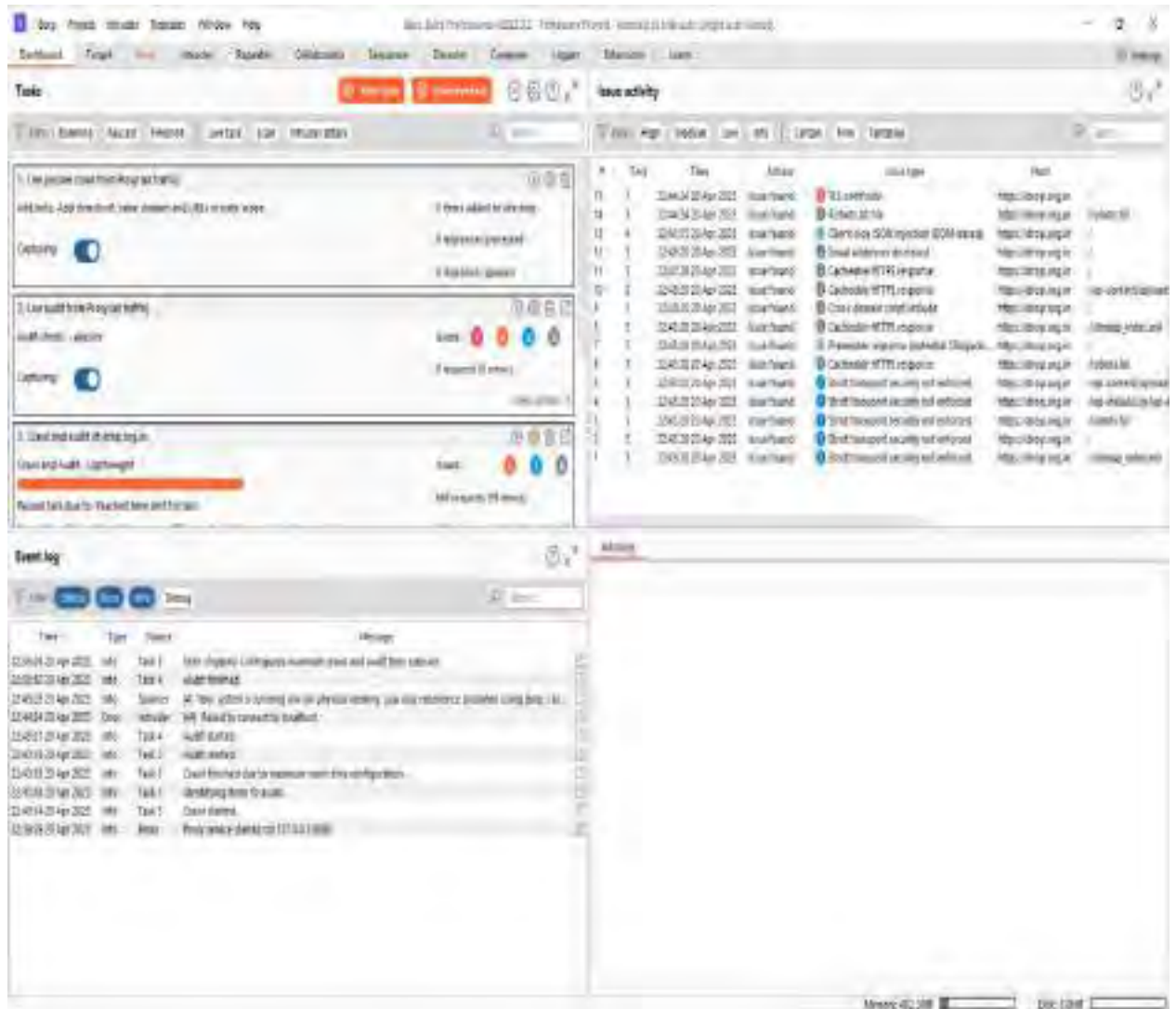


Figure 6.1 Burp suite Vulnerability Scanning page image

➤ scanned host vulnerability show in high low median type in the figure .

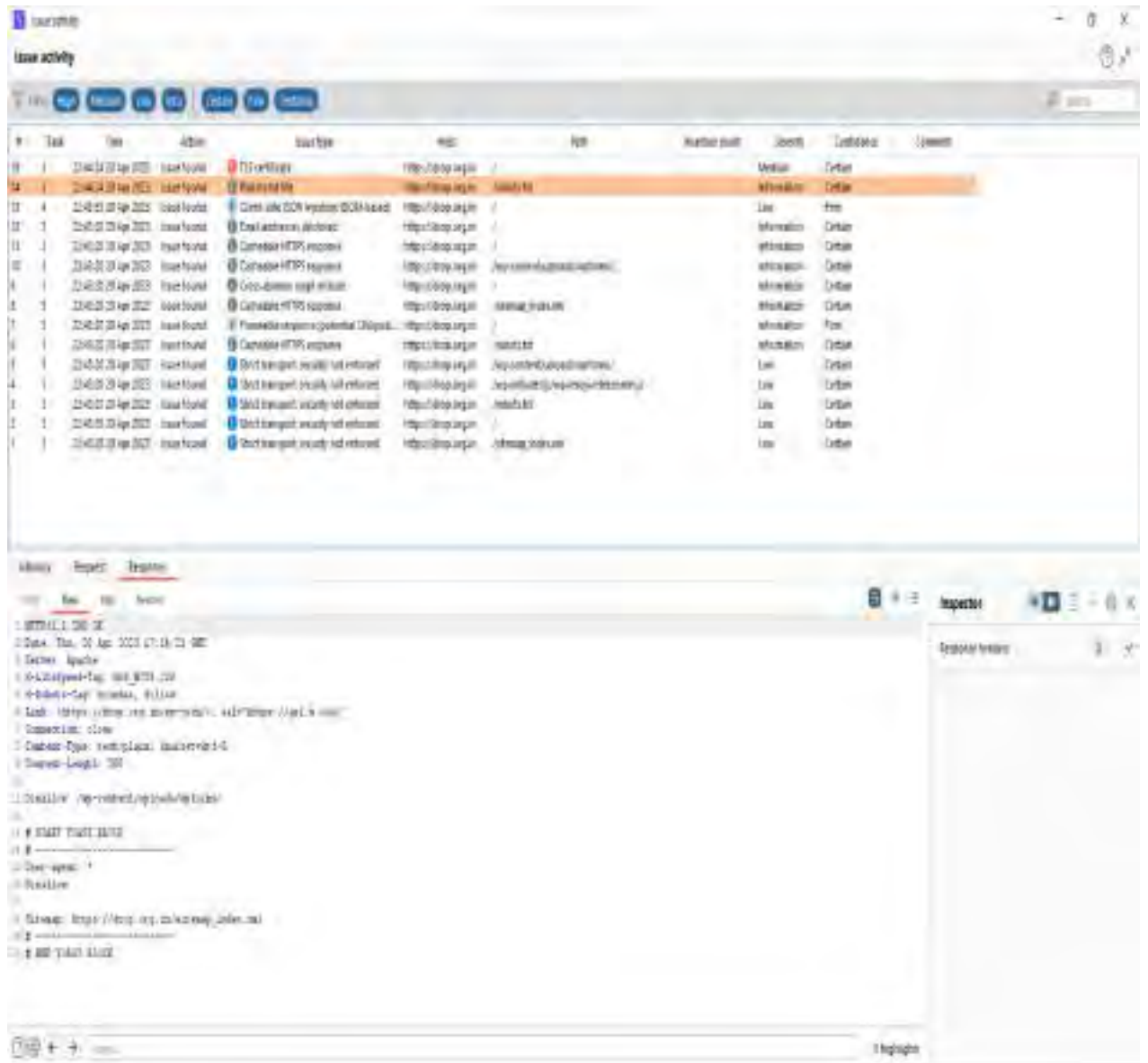


Figure 6.2 Burp Suite Result Issue Finding

➤ Chacke the vulnerability via clicking issu types and finde exploitation

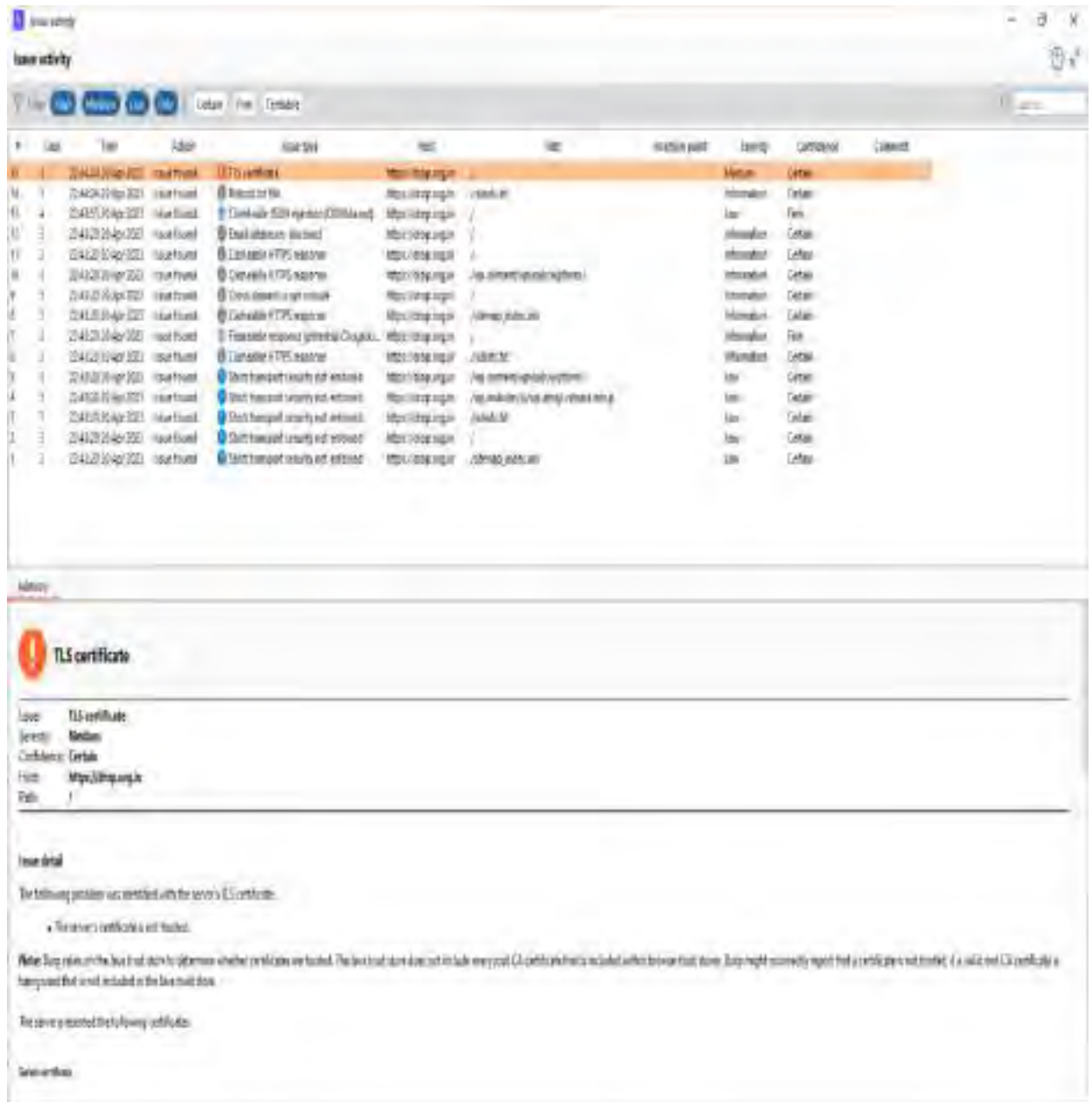


Figure 6.3 Vulnerability List Analyzing



- in logger phase we will find log detail host and exploit vulnerability using log detail.



Figure 6.4 Logger Analyzing for Vulnerability

## CHAPTER 7 EXPLOITATION

### 7.1 INTRODUCTION

- An exploit (from the English verb *to exploit*, meaning "to use something to one's own advantage") is a piece of software, a chunk of data, or a sequence of commands that takes advantage of a bug or vulnerability to cause unintended or unanticipated behavior to occur on computer software, hardware, or something electronic (usually computerized).
- Such behavior frequently includes things like gaining control of a computer system, allowing privilege escalation, or a denial-of-service (DoS or related DDoS) attack.
- In lay terms, some exploit is akin to a 'hack'.



Figure 7.1 Exploitation

## 7.2 TYPES

- Main exploitation types are show in these types' exploitation.

### 1.web application exploitation

- Web applications are some of the most used applications today.
- They have evolved to become more user-friendly, dynamic, responsive and reliable.
- The integration of services with web applications also allows them to be used together with mobile applications and databases.
- This has made these applications to be attractive to hackers, who look for various means to abuse this entire stack.

### 2.operating system exploitation

- The operating system is the core software that manages the entire computer and all the installed software runs on top of this software.
- It is therefore very important for the operating system to remain secure or else it runs a risk of being exploited by hackers.

### 3.database exploitation

- Databases are used together with web applications because this is mostly where data and information that is required by users are stored.
- So, when hackers can attack web applications and gain unauthorized access to the backend database, they can alter the contents of the database to their liking.

### 4.mobail application exploitation

- Like databases as seen above, mobile applications are the next thing that interfaces with web applications.
- It is quite possible to secure your web application and leave your mobile applications insecure.
- Since hackers know this, they will attempt to attack the database from the mobile applications in case the web application vectors fail.

## 7.3 EXPLOITATION TOOLS

- **Burp Suite:**

This is a web proxy that is found in Kali Linux. It allows you to intercept traffic between your computer and the web server. Using this proxy, you can change the values that are submitted to the web server, sending anything from malicious characters to unexpected entries, to break the web application.

- **OWASP ZAP:**

Another web proxy tool is OWASP ZAP. This is an alternative to Burp Suite and is also found in Kali Linux. It can perform well in environments where Burp Suite cannot. When it comes to choosing a proxy tool, it is a matter of preference.

- **Commix:**

This is an exploitation tool that allows you to exploit command injection vulnerabilities that lead you to run operating system level commands by exploiting web application vulnerabilities. It can be downloaded and set up in Kali Linux.

- **w3af:**

This tool used to be found in Kali Linux but has been since removed. It scans for vulnerabilities but also lets you exploit discovered vulnerabilities such as operating system command injections, SQL injections, path traversals and more.

- **Jexboss:**

This tool is compatible with Kali Linux. It allows you to exploit misconfigured JBoss servers, allowing you to take full control over the web server that the JBoss server is installed on. If the server is installed as the “root” user in Linux, then you can run commands as this user, effectively letting you do anything on the web server.

- **Mimi Katz:**

Mimi Katz is a powerful tool that comes bundled in Kali Linux with the Metasploit Framework. It allows you to perform various password-based attacks against Windows-based operating systems.

- **Nmap:**

The Nmap tool contains various scripts that can be used to attack operating systems. It comes with Kali Linux and allows you to use these scripts to quickly identify the existence of a vulnerability that affects an OS.
- **Hash cat:**

This is a more advanced password cracker that comes with Kali Linux and can be configured to use the GPU of your computer in case you have a powerful machine. This password cracker supports hundreds of formats and is one of the most preferred tools for password cracking by hackers today.
- **Nmap:**

The Nmap tool contains various scripts that can be used to attack operating systems. It comes with Kali Linux and allows you to use these scripts to quickly identify the existence of a vulnerability that affects an OS.
- **John the Ripper:**

This is a password-cracking tool that comes with Kali Linux. It can be used to attack the LM, NTLM and other passwords that have been collected from various operating systems. It accepts a password file and proceeds to attempt to crack any passwords that you give it.
- **Frida:**

Frida is a dynamic instrumentation toolkit that you can install in Kali Linux. It allows you to perform dynamic analysis of a mobile application as it runs. You can change components of the mobile application straight from memory and even alter input, allowing you to perform functions that were not otherwise possible. It allows you to write your scripts, is cross-platform and is free.
- **MobSF:**

This is an automatic code analyzer that is compatible with Kali Linux. It scans the code and provides a report with vulnerable points within the mobile app that you can exploit.
- **Runtime Mobile Security:**

RMS is another tool that allows you to manipulate android and iOS applications at runtime. It allows you to dump loaded classes and relative methods, hook everything, trace method arguments and return values, load custom scripts and perform many other things

## References

- 1) Kals, S., Kirda, E., Kregel, C., Jovanovic, N. Secubat: a web vulnerability scanner. In: Proceedings of the 15th international conference on World Wide Web. ACM; 2006, p. 247–256.
- 2) Jajodia, S., Noel, S. Topological vulnerability analysis. In: Cyber Situational Awareness. Springer; 2010, p. 139–154.
- 3) Vulnerability assessment and penetration testing (VAPT). 2015. URL: <http://memorize.com/vulnerability-assessment-and-penetration-te> Last Accessed: JAN 2015.
- 4) Shah, S., Mehra, B.M. An overview of vulnerability assessment and penetration testing techniques. Journal of Computer Virology and Hacking Techniques 2014;1–23. 10. Sectools.org: Top 125 network security tools. 2015. URL: <http://sectools.org/>. Last Accessed: JAN 2015.
- 5) “Web-Based OERs In Computer Networks.” Int. J. of Engineering Education, Vol. 29 (6), pp. 1537-1550.
- 6) Mullins, M. (2005) “Choose the Best Penetration Testing Method for your Company,” <http://www.techrepublic.com/article/choose-the-best-penetration-testing-method-for-your-company/5755555>, accessed on Nov. 23, 2011.
- 7) Saindane, M. “Penetration Testing – A Systematic Approach,” [http://www.infosecwriters.com/text\\_resources/pdf/PenTest\\_MSaindane.pdf](http://www.infosecwriters.com/text_resources/pdf/PenTest_MSaindane.pdf), accessed on Nov. 23, 2011.
- 8) Soudas, E. “Powerful Payloads: The Evolution of Exploit Frameworks,” (2005). <http://searchsecurity.techtarget.com/news/1135581/Powerful-payloads-The-evolution-of-exploit-frameworks>, accessed on Nov. 23, 2011.
- 9) Andreu, A. (2006). Professional Pen Testing for Web Applications. Worx publisher, 1st edition.
- 10) Pflieger, C. P., Pflieger, S. L., and Theophanous, M. F. (1989) “A Methodology for Penetration Testing,” Computers & Security, 8(1989) pp. 613-620.
- 11) Bishop, M. (2007) “About Penetration Testing,” IEEE Security & Privacy, November/December 2007, pp. 84-87.

- 12) Arkin, B., Stander, S., and McGraw, G. "Software Penetration Testing," IEEE Security & Privacy, January/February 2005, pp. 32-35.

## Recourses:


- 1) “GNS3.” <http://www.gns3.net>. Accessed: 22 April 2014.
- 2) “VirtualBox.” <https://www.virtualbox.org/>. Accessed: 22 April 2014
- 3) “Qemu” <http://wiki.qemu.org/>. Accessed: 22 April 2014
- 4) “Wireshark.” <http://www.wireshark.org/>. Accessed: 22 April 2014
- 5) “Penetration Testing Guide”, <http://www.penetration-testing.com/>
- 6) involution Security Technologies, “Benefits of Penetration Testing,” [http://www.ivolutionsecurity.com/pen\\_testing/benefits.php](http://www.ivolutionsecurity.com/pen_testing/benefits.php), accessed on Nov. 23, 2011.
- 7) Shumaker, J. (2008). “Introduction to Penetration Testing,” [http://www.dts.ca.gov/pdf/news\\_events/SANS\\_Institute-Introduction\\_to\\_Network\\_Penetration\\_Testing.pdf](http://www.dts.ca.gov/pdf/news_events/SANS_Institute-Introduction_to_Network_Penetration_Testing.pdf), accessed on Nov. 23, 2011.
- 8) “Application Penetration Testing,” <https://www.trustwave.com/apppentest.php>, accessed on Nov. 23, 2011.
- 9) “Nmap – Free Security Scanner for Network Explorer, <http://nmap.org/>, accessed on Nov. 23, 2011.
- 10) International Journal of Network Security & Its Applications (IJNSA), Vol.3, No.6, November 2011 38
- 11) P0f, <http://www.net-security.org/software.php?id=164>, accessed on Nov. 23, 2011.
- 12) Nessus, <http://www.tenable.com/products/nessus>, accessed on Nov. 23, 2011.
- 13) Shadow Security Scanner, <http://www.safety-lab.com/en/download.htm>, accessed on Nov. 23, 2011.
- 14) GFI LAN guard, <http://www.gfi.com/network-security-vulnerability-scanner>, accessed on Nov. 23, 2011. [
- 15) Metasploit, <http://www.metasploit.com/>, accessed on Nov. 23, 2011.
- 16) OWASP. “Web Application Penetration Testing,” [http://www.owasp.org/index.php/Web\\_Application\\_Penetration\\_Testing](http://www.owasp.org/index.php/Web_Application_Penetration_Testing), accessed on Nov. 23, 2011.



17) “White Paper on Penetration Testing,”

<http://www.docstoc.com/docs/70280500/White-Paper-on-Penetration-Testing>,  
accessed on Nov. 23, 2011.

## Appendix I



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
(Established under Gujarat Act No. 20 of 2007)  
ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ વ્હા સ્થાપિત

Annexure I  
 Enrolment no: 190390148002

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: CHADHARY DASHARATHBHAI TRIKAMBHAI

DIARY OF THE WEEK: Dt. 20/4/23 TO 5/2/23

DEPARTMENT: BE (Computer Engineering) SEM: 6<sup>th</sup>

NAME OF THE ORGANISATION: Falcon CyberTech

NAME OF THE PLANT/SECTION/DEPARTMENT: IT Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Shivraj

DESCRIPTION OF THE WORK DONE IN BRIEF

Network Core concept:

Topology: Different types of Enterprise topologies

- MESH, TREE, BUS, HYBRID, RING, STAR.

3-Way handshake:

- ACK, SYN/ACK, SYN

ports:

protocols:

- types of protocols
- user services and port number

port scanner

- nmap command use and protocols

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TOTAL HOUR: 25 -----

  
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SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / ~~VERY GOOD~~ / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor

  
Date: 15/5/23

Signature of officer-in-charge  
of Dept. / Section / Plant

  
Date: 6/2/2023

Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure 1  
Enrollment no: 190390107002

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: SHALBHARY JASHARATH TRIVAMPANAI

DIARY OF THE WEEK: BE: 06/02/23 TO 11/02/23

DEPARTMENT: B.E.C (Computer Engineering) SEM: 2<sup>th</sup>

NAME OF THE ORGANISATION: Falcon CyberTech

NAME OF THE PLANT/SECTION/DEPARTMENT: IT DEPARTMENT

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Shivangi Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

**Vulnerability Scanner :**  
: types, feature, comparison and use

**OpenSource Firewall :**  
: Type, feature, comparison and use  
: free paid differentiate. \*

**Nmap command :**  
: program all nmap command using diffrent script command use

**Metasploit :** firewall or login password use in port scaning.


**Zenmap :**  
: use, feature, tools  
: various method cover concept.



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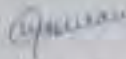
ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 25

  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor



Date: 14/8/23

Signature of officer-in-charge  
of Dept. / Section / Plant



Date: 14/8/23

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Academy I

Enrollment no. 190390107002


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Chandray Jasharuth TaiKumabhai  
 DAILY OF THE WEEK: Dn: 13/02/23 to 19/02/23  
 DEPARTMENT: BE (Computer Engineering) SEM: 5<sup>th</sup>  
 NAME OF THE ORGANISATION: Fulton CyberTech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Shivang Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

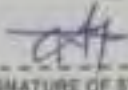
NMAP / zenmap: port scanning using scan type  
 - port file name (scan file)  
 - topology / services / host details / ports

Wireshark: use / advantages / features  
 - Tools  
 - Filter (capture and use)  
 - packet capture  
     - IP / mac addresses detail  
     - source / destination  
     - protocol  
     - info  
     - Filter / Ethernet / Internet Protocol  
     - Transmission Control Protocol

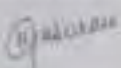
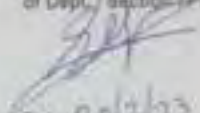

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---

TOTAL HOURS: 25

  
 SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

<p>Signature of Faculty Mentor</p>  <p>Date: <u>19/3/23</u></p>	<p>Signature of officer-in-charge of Dept. / Section / Plant</p>  <p>Date: <u>20/2/23</u></p>
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Address:

Cardment no: 190541107002

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

 NAME OF STUDENT: Chaudhary Dushansh Tailorambhai

 DIARY OF THE WEEK: Dt. 20/02/23 TO 26/02/23

 DEPARTMENT: BE Computer Engineering SEM: 4th sem

 NAME OF THE ORGANISATION: Falguni Vard Tech

 NAME OF THE PLANT/SECTION/DEPARTMENT: IT Department

 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Shivraj Patel
**DESCRIPTION OF THE WORK DONE IN BRIEF**
**Google Dns:**

- : What is Google Dns
- : use
- : Parameters / Command
- : procedure

**IPtable: (It filters rules of the linux firewall)**


- : what is IPtable
- : use
- : Setup / Installation
- : Command use and procedure

: Generate rules and block incoming and outgoing

IP/Port or port for some of

- : Work like firewall





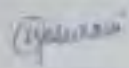

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TOTAL HOURS: 25 -----

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 SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor  Date: <u>18/5/23</u>	Signature of officer-in-charge of Dept. / Section / Plant  Date: <u>27/2/23</u>
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Annexure 1

Enrollment no: 117310197002

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Dushazeth Tharmathai Choudhary  
 DIARY OF THE WEEK: Dt. 21/02/23 TO 01/03/23  
 DEPARTMENT: BF (Computer Engineering) SEM: 8<sup>th</sup>  
 NAME OF THE ORGANISATION: Falcon Cyber Tech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: shivaraj raje

DESCRIPTION OF THE WORK DONE IN BRIEF

PFsense (OpenSource Firewall)  
 : Features  
 : IDS/IPS using software (BDE)  
 : IDS/IPS used software  
 : Snort (Features, advantages, Release)  
 : Snort (Features, advantages, Release)  
 : Snort 1 - Release 2 (Community, customise)  
 : Installing (snort) in pfsense and pfsense  
 o2 configuration pfsense 2 snort (in pfsense)


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TOTAL HOURS: 25

  
 SIGNATURE OF STUDENT

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Signature of Faculty Mentor  Date: <u>15/3/23</u>	Signature of officer-in-charge of Dept. / Section / Plant  Date: <u>09/3/23</u>
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Annexure 1  
 Enrollment no: 190390101002

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Chaudhary Jashrajesh Tallamathai  
 DIARY OF THE WEEK: Dt: 06/03/23 TO 12/03/23  
 DEPARTMENT: BE (Computer Engineering) SEM: 4th Sem.  
 NAME OF THE ORGANISATION: Falcon CyberTech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT Department  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Patel Shivraj

**DESCRIPTION OF THE WORK DONE IN BRIEF**

PFsense Snort

- Rule understanding :- TYPE Rule (GSI, Protocol use)
- Ssnort, IPport, source, destination
- Rule specification

Penetration testing

- type :- [ Black, Green, White ] etc
- methodology :- [ reconnaissance, target names, vulnerability analysis ]
- use tools :- [ OPENVAS, OWASP ZAP ] [ nmap, rebor ]

OWASP ZAP

- Installing
- started host [url server]
- create Report



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SUPPLEMENTARY NOTES  
(add additional sheets if required)

OpenVAS:-

: INSTALLING : (windows ver) and linux

: USE SPECIFICALLY :

: OWASP ZAP

- Report Company : (Scanning)

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TOTAL HOURS: 25 SIGNATURE OF STUDENT: 

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR  
✓

Signature of Faculty Mentor:  Signature of officer-in-charge of Dept. / Section / Plant: 

Date: 15/9/23 Date: 13/3/23

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Annexure I

Enrollment no: 190390107002

STUDENT'S WEEKLY RECORD OF INTERNSHIP


NAME OF STUDENT: Chaudhary Jaskaranth Tailamukhi  
 DIARY OF THE WEEK: DE 13/03/23 TO 29/03/23  
 DEPARTMENT: BE (Computer Engineering) SEM: 6th SEM  
 NAME OF THE ORGANISATION: Falcon Cyber Tech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT Department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Amit Shrivastava

DESCRIPTION OF THE WORK DONE IN BRIEF

OpenVAS :-  
 ! setup Ethernet for scanning Report  
 ! IP/Password and services setup on VM box  
 ! Scanning Report  
 ! Analysis Report (scanning detail)

Report :-	HOST	Vulnerability scanning Report
	PORT	Solution
	Application	Vulnerability detection Solution
	offending system	References

Analysing above type detail and Analysing Vulnerability

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TOTAL HOURS: 25 -----

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SIGNATURE OF STUDENT

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Signature of Faculty Mentor: [Signature]


Signature of officer-in-charge  
of Dept. / Section / Plant: [Signature]

Date: 16/5/23

Date: 17/5/23

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Answered 1  
Enrollment no: 190310102002

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Chavdhary dasharath Tailkarnabhai

DIARY OF THE WEEK: IN 20/03/23 TO 26/03/23

DEPARTMENT: BE (Computer Engineering) SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Falcon Cyber Tech

NAME OF THE PLANT/SECTION/DEPARTMENT: IT Department

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Patel Shivanshu

DESCRIPTION OF THE WORK DONE IN BRIEF

Vulnerability Scanner:

- nessus
- Mega Engine } : use scan against vulnerability
- Azure defender } : use secure system defense
- Trend micro } : vulnerability

: Report : Azure defender & Trend micro

- : use specification
- : configuration
- : product / services

: FNS3:

- : installation
- : configuration
- : create digital internet device connecting & IP



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TOTAL HOURS: 25

SIGNATURE OF STUDENT

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Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 24/3/23

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Annexure 1

Enrollment no: 190390107002

STUDENT'S WEEKLY RECORD OF INTERSHIP

NAME OF STUDENT: Choudhary Jasharuth Tashamubhai  
 DIARY OF THE WEEK: Dt: 22/03/23 to 02/04/23  
 DEPARTMENT: B.E. Computer Engineering SEM: 8<sup>th</sup> Sem.  
 NAME OF THE ORGANISATION: Falcon Cyber Tech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT Department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Patel Shiveraj

DESCRIPTION OF THE WORK DONE IN BRIEF

GNS3

- : Installation : GNS3 & VM (Windows and Linux OS)
- : Setup
  - Setup GNS3 and connect VM support for devices VM
  - VM (VMware workstation) & local vSwitch/BX
- : devices
  - Router, Firewall, VM/PC
  - Installation and setup configuration
- : communication
  - IP / gateway / route
  - ping
  - system topology / tracer
  - web API
- : report
  - Installation [Router / setup]

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TOTAL HOURS 25 ----- SIGNATURE OF STUDENT [Signature] -----

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Signature of Faculty Mentor \_\_\_\_\_ Signature of officer-in-charge  
of Dept. / Section / Plant [Signature]

Date: \_\_\_\_\_ Date: 3/4/23

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Annexure I

Enrollment no: 190370107002

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Vasheerath Trinamabhai Chaudhary  
 DIARY OF THE WEEK: Dt: 03/04/23 TO 09/04/23  
 DEPARTMENT: BE (Computer Engineering) SEM: 5th  
 NAME OF THE ORGANISATION: Falcon Cyber Tech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT Department  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Ratul Chivara

DESCRIPTION OF THE WORK DONE IN BRIEF

Nessus! (Vulnerability Scanner)

- Installatin / setup
- + Free trial subscription.
- + Scanning host and find vulnerability
- Report create (~~report~~)
- understanding different types network vulnerability scanner. Scanning Report
- Drasuite!
- Installatin / setup
- Feature, Limit, characteris, understand
- + Scanning host and find vulnerability
- Scanning Scanning and find vulnerability issue ~~Drasuite~~



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TOTAL HOURS: 25 -----

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SIGNATURE OF STUDENT

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Signature of Faculty Mentor \_\_\_\_\_

Signature of officer-in-charge  
of Dept. / Section / Plant  
-----  
Date: 10/11/23

Date: \_\_\_\_\_

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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ થી સ્થાપિત)

Signature :

Enrollment no. 1903701e4002

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Chaudhary Dushanath Trilokanabhai  
 DIARY OF THE WEEK: Dr. 16/04/23 to 16/04/23  
 DEPARTMENT: AE (Computer Engineering) SEM: 6th  
 NAME OF THE ORGANISATION: Falcon Cyber Tech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Patel shivraj

**DESCRIPTION OF THE WORK DONE IN BRIEF**

BluePill:

- > Proxy
- > Repetitor
- > Injector

} study about web service con-  
tainers methodology

Exploitation:

- > browser exploitation
- > reverse engineering
- > zero-day-exploitation

} implemented exploiters  
with poc exploiters  
- exploiters.

Differentiation between: portscanning, testing & vulnerability  
assessment tools use, operations use &  
compromised use.



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ બરા સ્થાપિત)

---

TOTAL HOURS: 25 SIGNATURE OF STUDENT 

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept / Section / Plant 

Date: Date: 17/4/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure 1

Enrollment no: 190390107002

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Dasharath Trivramubhai chavdhary  
 DIARY OF THE WEEK: Dn: 12/04/23 to 24/04/23  
 DEPARTMENT: BE (computer Engineering) SEM: 8<sup>th</sup>  
 NAME OF THE ORGANISATION: Falcon Cyber Tech  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Patel shivang

DESCRIPTION OF THE WORK DONE IN BRIEF

Exploitation:

- > understand exploitation
- > which type vulnerability which exploitatory used?
- > types of user tools

Refer tools:

- > Burpsuite
  - > oJAP20P
  - > OPOVUS
  - > GNSP
- > understand using methods  
 -> scan of user  
 -> find vulnerability post (IP)  
 -> systematic finding  
 -> capture server via IP (another GNSP could  
 with remote PC)

Differentiation between Penetration Test and Vulnerability Assessment


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---

TOTAL HOURS: 25 SIGNATURE OF STUDENT 

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor: Signature of officer-in-charge  
of Dept. / Section / Plant 

Date: Date: 24/11/2023

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## Appendix II



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Annexure 2

**Feedback Form by Industry expert**

Student Name: Dr. Shreshth, Tejashreebhai chivshetty      Date: 24/04/23  
 Work Supervisor: Pune! shirsang      Title: VAPT  
 Company/Organization: Falcon Cyber Tech  
 Enrollment No.: 190390107002  
 Internship Address: 202, Angulam Bypass, Dahanu-Majidpur Road, Veda, Dist. Surat 395007  
 Date of Internship: From 30/01/23 to 24/04/23

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and takes initiatives				✓
Produces high-quality work and accepts responsibility			✓	
Uses technical knowledge and expertise			✓	
Analyzes problems effectively			✓	
Communicates well and writes effectively		✓		

Overall performance of student intern: (Needs improvement/ Satisfactory/ Good/ Excellent) ✓

Additional comment, if any:

Signature of industry person with name and Stamp:



Signature of the Faculty Mentor:

## Internship Offer later



**Falcon Cyber Tech**  
Address:- 208, Aagam Emporio, UM Rd, Vast, Surat, Gujarat 395007  
Phone Number:- +91 261 4099990 | +91 8200049689  
E-mail Address:- contact@falconcybertech.com

Date: 28/01/2023

**INTERNSHIP OFFER LETTER**

Dear Dasharath Chaudhary From,

SAFFRONY INSTITUTE OF TECHNOLOGY,

Falcon Cyber Tech is pleased to offer you an educational internship opportunity as an Associate IT Security Engineer intern. You will report directly to Mr. Shivang Patel.

This position is located in Surat Gujarat.

As you will be receiving academic credit for this position, you will not be paid (or, if hourly wage is provided). Additionally, students do not receive benefits as part of their internship program.

For this position, your major duties will include designing and solving VAPT base problem (as per task given). Your schedule will be approximately Twenty-Five hour per week beginning 30-Jan-2023.

Congratulations and welcome to the team!

Shivang Patel | +91 99744 32293

Founder & Owner



# Attendance Proof



# **INTERNSHIP AT TECHAVIDUS**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Manav Sanjay Dave**

**200390107505**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFARI INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad May, 2023**

# INTERNSHIP AT TECHAVIDUS

AN INTERNSHIP REPORT

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**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Technological University, Ahmedabad May, 2023**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Litch, Gujarat**

## **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at TechAvidus** has been carried out by **Manav Sanjay Dave** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Prof. Manav Sanjay Dave

Internal Guide

Sign

Prof. Akshay Kansara

Head of Department



# COMPANY CERTIFICATE

**TECH  
AVIDUS**

---

## EXPERIENCE CERTIFICATE

Date: 5<sup>th</sup> May 2023

To whom it may concern,

This is to certify that Mr. Manav Dave has worked with TechAvidus Pvt. Ltd. from 5<sup>th</sup> February 2023 to 5<sup>th</sup> May 2023 as Software Developer Intern.

During his tenure, we found him effective and his services were satisfactory as a Software Developer Intern.

We hereby certify that the above particulars are true according to our records and to the best of our knowledge & belief.

We wish him all the best in his future endeavors.

---

For TechAvidus Pvt. Ltd.



---

<https://www.techavidus.com>



# GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL  
B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 15 May 2023 (10:42:05)

This is to certify that, *Dave Manav Sanjay* ( Enrolment Number - 200390107505 ) working on project entitled with *Internship at TechAvidus Pvt. Ltd* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : Dave Manav Sanjay

Name of Guide : Mr. Akshay Rameshchandra Kansara

Name :

\*Signature of Guide :

#### Disclaimer :

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Litch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at TechAvidus Pvt.Ltd** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Raju Parmar (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

Signature of Student

## ACKNOWLEDGMENT

I would like to express my sincere gratitude and appreciation to the management team of *TechAvidus*, Mr. Keshu Keshvala and the HR team for providing me with the opportunity to undertake my internship and project at their esteemed organization. Their guidance and support have been invaluable to me throughout this journey, and I am grateful for the experience and knowledge gained.

I would also like to extend my heartfelt thanks to my external guide, Mr. Raju Parmar, for his constant guidance, encouragement, and support throughout the internship. His expertise and knowledge in the field have been instrumental in shaping my understanding and approach towards the project.

Furthermore, I would like to acknowledge my internal guide, Mr. Akshay Kansara, for his continuous support, valuable insights, and constructive feedback throughout the project. His encouragement and guidance have been vital in helping me navigate through the challenges faced during the project.

Lastly, I would like to extend my sincere thanks to the entire *Techvidus* family for their constant support and encouragement during my internship. Their willingness to share knowledge, offer advice, and provide feedback has been invaluable to my professional and personal growth.

Once again, I express my heartfelt thanks to everyone who has contributed to the success of this internship and project.

## **Abstract**

This report contains the work done by the author during his internship at *TechAvidus* and the development of an education app using React Native. The app was designed to provide a user-friendly and interactive platform for students to learn and practice various academic subjects. The project involved developing the app's user interface, integrating multimedia content, and implementing features such as progress tracking.

During the internship, I gained valuable experience in mobile application development using React Native and working in a team environment. I collaborated with other developers and designers, utilizing agile development methodologies to ensure timely delivery of project milestones.

This report outlines the project's objectives, methodologies, and outcomes, along with the challenges faced and the solutions implemented to overcome them. It also presents a detailed analysis of the app's functionality, user experience, and technical aspects. The report concludes with a reflection on the skills and knowledge gained from the internship, and how it has contributed to my personal and professional development.

Overall, this internship and project provided a valuable opportunity to apply theoretical knowledge in a practical setting, gain industry experience, and develop new skills in software development. The education app developed during this internship has the potential to enhance student learning and engagement, and can be further improved and developed in the future.

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## Abbreviations

CLI	Command Line Interface
NPM	Node Package Module



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## Chapter 1. OVERVIEW OF THE COMPANY

### 1.1 COMPANY PROFILE:

TechAvidus is a top-rated custom software, web, and mobile app development services provider in India and the USA.

Dedication and Togetherness are our keys to success. Our team has been working on creative software solutions for many years and has successfully delivered extensive small, medium, and enterprise projects. Foundation and strong pillars on which TechAvidus relies are a strong network of partnerships and focusing on long-term relationships rather than keeping them short-term.

Our team comprises experienced and expert professionals who are experts in creating fully customizable, highly functional, and robust next-generation applications. We have immense expertise in various IT services, including Custom Software, web and mobile applications development, cross-platform mobile app development, and eCommerce solutions development. UI/UX design & development and software testing services.

We serve all your development needs by using technologies, standards, and industry best practices. We hold expertise in delivering and creating business solutions and mobile applications.



Fig. 1.1 Company Logo

## 1.2 COMPANY TEAM'S CORE VALUES:

1. **Accountability:** Remaining accountable for an individual as well as teamwork.
2. **Leadership:** Accomplishment of a vision through the direction of human assistants.
3. **Honesty and Trust:** Observing honesty and trustworthiness in every dealing with the company.
4. **Excellence:** We are consistently upgrading ourselves to achieve excellence.
5. **Openness:** Openness to innovate by questioning, disagreeing and suggesting withing the disciplined environment.
6. **Teamwork:** Respect Opinions and Share and Collaborate ideas and information, and provide mutual support for achieving goals.
7. **Communication:** Share ideas, listen to clients and colleagues, and accept constructive criticism.

## Chapter 2. INTRODUCTION TO INTERNSHIP

### 2.1 INTERNSHIP SUMMARY:

I recently completed an internship with *TechAvidus*, where I had the opportunity to work on React Native technology. The experience was both challenging and rewarding, and I gained valuable knowledge and skills that will undoubtedly benefit me in my future career.

During the internship, I was tasked with developing a mobile application using React Native. This involved working with a team of developers and collaborating on various aspects of the project, such as design, development, and testing. I was able to gain hands-on experience with React Native, a popular technology used for building mobile applications, and learn about the best practices and techniques used in the industry.

Throughout the internship, I was able to hone my problem-solving skills, as I encountered various challenges in the development process. I had to think critically and come up with creative solutions to overcome these challenges and ensure the success of the project.

One of the most rewarding aspects of the internship was the opportunity to work closely with experienced developers who provided guidance and mentorship throughout the process. I was able to learn from their expertise and gain insights into the industry, which will be valuable as I pursue a career in technology.

Overall, my internship with *TechAvidus* was an excellent opportunity to gain practical experience with React Native and develop my skills in a real-world setting. I am grateful for the opportunity and look forward to applying what I have learned in future projects.

## 2.2 PURPOSE:

The purpose of my internship in React Native was to gain practical experience and develop skills in this popular technology used for building mobile applications. Through my internship, I had the opportunity to work on real-world projects and collaborate with experienced developers, learning best practices and techniques used in the industry. The purpose of the internship was also to gain insights into the software development process, including design, development, and testing, and to prepare me for a career in technology. Ultimately, the purpose of the internship in React Native was to help me develop my skills, knowledge, and experience in this technology, and to provide me with a foundation for future success in my career.

## 2.3 OBJECTIVE:

The objective of my internship in React Native was to gain practical experience and develop technical skills in this popular mobile app development technology. Specifically, I aimed to:

- Gain experience in designing and developing mobile applications using React Native
- Develop skills in debugging and testing mobile applications
- Learn best practices for mobile app development using React Native
- Develop skills in collaborating with other developers and working in a team environment
- Gain insights into the software development process, including design, development, and testing, and learn how to apply it to real-world projects
- Acquire knowledge of the latest trends and techniques in mobile app development
- Develop my communication and problem-solving skills, and build my confidence as a developer.

## 2.4 SCOPE:

The scope of my internship in React Native included working on a real-world project and developing technical skills and knowledge in this popular mobile app development technology. The project I worked on was focused on developing a mobile application using React Native, and I was responsible for designing, developing, and testing specific features of the application. Throughout the internship, I gained practical experience in using React Native to build mobile applications, including debugging and testing techniques, and I developed an understanding of best practices for mobile app development.

The scope of my internship also included collaborating with other developers and working in a team environment. I participated in regular team meetings and code reviews, where I received feedback from experienced developers and contributed to discussions on new features and technical solutions. I also had access to mentoring and support from experienced developers, who provided guidance and answered my questions.

In terms of skills development, the scope of my internship included gaining experience in coding with React Native, as well as developing skills in communication, problem-solving, and time management. I also had the opportunity to learn about the software development process, including design, development, and testing, and to apply this knowledge to real-world projects.

Overall, the scope of my internship in React Native was broad, encompassing real-world project work, collaboration with other developers, and skills development in this popular mobile app development technology.

## 2.5 TECHNOLOGY:

The technology used in my internship in React Native included React Native itself, as well as other tools and technologies commonly used in mobile app development. Specifically, I worked with:

- **React Native**, a popular open-source framework for building mobile applications using JavaScript and React
- **JavaScript**, a widely-used programming language for web and mobile app development
- **Node.js**, a JavaScript runtime environment that enables running JavaScript code outside of a web browser
- **Git**, a version control system for tracking changes in code and collaborating with other developers
- **Android Studio and Xcode**, integrated development environments (IDEs) used for developing Android and iOS applications, respectively
- **Firebase**: Firebase is a backend platform that can be used in React Native app development for tasks such as user authentication and real-time database management
- **MongoDB**: MongoDB is a NoSQL database used in React Native app development for efficient data storage and management.
- **ExpressJs**: Express.js can be used to create RESTful APIs and handle server-side logic efficiently in React Native app development.
- **Various libraries and packages** commonly used with React Native, such as React Navigation, Redux, and Axios.

During my internship, I gained practical experience in working with these technologies, learning how to use them to build and deploy mobile applications. I also learned best practices for debugging and testing mobile applications, as well as collaboration tools and techniques commonly used in software development, such as version control and code reviews.

## 2.6 INTERNSHIP PLANNING:

The internship planning for my React Native internship involved several stages, including orientation, project planning, and execution.

During the orientation phase, I was introduced to the company's culture, values, and processes. I received training on the tools and technologies I would be using throughout the internship, such as React Native, JavaScript, and Git. I also had the opportunity to meet with my supervisor and team members to discuss the scope of my project and my responsibilities as an intern.

In the project planning phase, I worked with my supervisor to define the project scope, identify deliverables, and establish a timeline for completing the work. We discussed project milestones, deadlines, and the expected outcomes of the project. I was also given access to relevant documentation, such as technical specifications and project requirements, to help guide my work.

During the execution phase, I worked on developing the project, following the timeline and deliverables outlined in the planning phase. I collaborated with other developers on the team, participating in regular meetings and code reviews to ensure that my work aligned with the project goals and met quality standards. I also received feedback and guidance from my supervisor and other experienced developers, helping me to develop my skills and knowledge in React Native.

Throughout the internship planning process, I was encouraged to ask questions and seek support when needed. I also had the opportunity to reflect on my learning and progress, and to identify areas for improvement. By following a structured planning process, I was able to develop technical skills, gain practical experience, and prepare myself for a career in software development.



## 2.7 INTERNSHIP SCHEDULING

<b>Week</b>	<b>Task</b>	<b>Duration</b>
1-2	Introduction and Training	2 weeks
3-4	Tasks Planning and Designing	2 weeks
5-8	Development	4 weeks
9-10	Optimization and Improvement	2 weeks
11-12	Finalizing Internship	2 weeks

Table 2.7 Internship Scheduling

## Chapter 3. GETTING STARTED

### 3.1 ENVIRONMENT SETUP

1. **Install Node.js:** React Native requires Node.js to be installed on your system. You can download and install the latest version of Node.js from the official website at <https://nodejs.org>.
2. **Install React Native CLI:** To create a new React Native project, you need to have the React Native command-line interface (CLI) installed on your system. You can install it using the following command: `npm install -g react-native-cli`
3. **Install a development environment:**
  - **For iOS development:** You need to install Xcode, which includes the iOS Simulator, and the Xcode Command Line Tools. You can download and install Xcode from the Mac App Store. To install the Xcode Command Line Tools, run the following command: `xcode-select --install`
  - **For Android development:** You need to install Android Studio, which includes the Android SDK, Android Emulator, and Android platform tools. You can download and install Android Studio from the official website at <https://developer.android.com/studio>.
4. **Set up an Android emulator:** To test your React Native app on Android, you need to set up an Android emulator on your system. You can create a new emulator from Android Studio's AVD Manager.
5. **Create a new React Native project:** You can create a new React Native project using the following command: `react-native init MyProject`

**Note:** Replace "MyProject" with the name of your project.

**6. Start the development server:** You can start the development server by running the following command in your project directory: `cd MyProject, react-native start`

**7. Run the app on a device or emulator:**

- For iOS: Open the Xcode project located in the 'MyProject/ios' directory and select a device or simulator to run the app on. Then, press the "Run" button in Xcode.
- For Android: Start an Android emulator or connect an Android device to your system. Then, run the following command in your project directory: `react-native run-android`

**Note:** Make sure that the development server is running before running the above command.



Fig 3.1 Welcome page

## Chapter 4. IMPLEMENTATION

### 4.1 IMPLEMENTATION PLATFORM

#### 1. Vs Code (Visual Studio)

Visual Studio Code (VS Code) is a popular open-source code editor that can be used for developing React Native apps. VS Code is highly customizable and supports a wide range of extensions and plugins that make it suitable for various programming languages and frameworks, including React Native.

Here are some of the features of VS Code that make it an excellent choice for React Native app development:

- **IntelliSense:** VS Code provides intelligent code completion, suggestions, and highlighting for JavaScript, React, and other web technologies, making it easier to write and debug code.
- **Debugging:** VS Code has built-in support for debugging React Native apps, allowing developers to set breakpoints, inspect variables, and step through code.
- **Git integration:** VS Code has integrated support for Git version control, making it easy to manage code changes and collaborate with team members.
- **Live Server:** VS Code also has a Live Server extension, which allows developers to preview changes to their app in real-time without having to manually reload the app.
- **Extensions:** VS Code has a vast library of extensions and plugins that can be used to enhance the development experience for React Native apps. These extensions can add features such as code formatting, code snippets, and custom syntax highlighting.

Overall, VS Code is an excellent tool for React Native app development, with many features that make it a popular choice among developers.

## 2. Android Studio

Android Studio is an Integrated Development Environment (IDE) specifically designed for Android app development. While React Native is a cross-platform framework, it still requires the use of native components and requires a certain level of configuration to build and run on Android devices. Android Studio provides the necessary tools for configuring and building React Native apps for the Android platform.

Here are some of the features of Android Studio that make it useful for React Native app development:

- **Android Emulator:** Android Studio provides an emulator for testing React Native apps on a virtual Android device. This can be useful for testing apps on different screen sizes and versions of Android.
- **Gradle Build System:** Android Studio uses the Gradle build system to manage the build process of React Native apps. Gradle can be configured to include external libraries and dependencies required by the app.
- **Debugger:** Android Studio has a built-in debugger that allows developers to debug React Native apps running on Android devices. The debugger can be used to set breakpoints, examine variables, and step through code.
- **Layout Editor:** Android Studio has a visual Layout Editor that allows developers to create and edit layouts for React Native apps. This can be useful for designing user interfaces and testing layouts on different screen sizes.
- **APK Analyzer:** Android Studio provides an APK Analyzer tool that allows developers to analyze the size and composition of the APK file generated by the build process. This can be useful for optimizing the size of the app and identifying potential issues.

## 4.2 TECHNOLOGY

### 1. React-Native

React Native is a popular open-source framework for building mobile apps using JavaScript and React. With React Native, developers can create high-performance native mobile apps for both iOS and Android platforms using a single codebase.

Here are some of the features of React Native that make it a popular choice for mobile app development:

- **Native components:** React Native uses native components, such as text, images, and buttons, to build UI components, providing a more native look and feel to the app.
- **Cross-platform development:** React Native allows developers to build apps for both iOS and Android platforms using a single codebase. This significantly reduces development time and costs.
- **Hot reloading:** React Native provides hot reloading, which allows developers to see changes in real-time without having to rebuild the app.
- **Third-party libraries:** React Native has a vast library of third-party libraries and modules that can be used to add additional features and functionality to the app.
- **Flexibility:** React Native provides a lot of flexibility and customizability, allowing developers to create highly customized and unique mobile app experiences.

Overall, React Native provides an efficient and cost-effective way to build native mobile apps for both iOS and Android platforms. Its use of native components and cross-platform development capabilities make it a popular choice for mobile app development.

## 2. Javascript

JavaScript is a programming language used for both front-end and back-end web development, as well as for mobile app development using React Native. JavaScript is an interpreted language, which means that it is executed by the browser or runtime environment rather than being compiled into machine code.

Here are some of the features of JavaScript that make it useful for React Native app development:

- **Easy to learn:** JavaScript is a relatively easy language to learn, especially for those with experience in other programming languages.
- **Large community:** JavaScript has a vast community of developers who contribute to open-source projects, provide support and resources, and develop new libraries and frameworks.
- **Flexibility:** JavaScript is a flexible language that can be used for both front-end and back-end development. It can also be used in conjunction with other languages, such as HTML and CSS, to create dynamic web pages and web applications.
- **Libraries and frameworks:** JavaScript has a vast array of libraries and frameworks, such as React, React Native, Angular, and Vue.js, that can be used to build powerful and scalable applications.
- **Cross-platform development:** JavaScript, and specifically React Native, allows developers to build native mobile apps for both iOS and Android platforms using a single codebase.

Overall, JavaScript is a versatile and widely-used programming language that is essential for React Native app development. Its ease of use, flexibility, and large community make it a popular choice for web and mobile app development.

### 3. Node.Js

Node.js is an open-source, cross-platform JavaScript runtime environment that enables developers to build scalable and high-performance applications using JavaScript. Node.js provides a server-side runtime environment for JavaScript, which makes it an essential component of the React Native app development ecosystem.

Here are some of the features of Node.js that make it useful for React Native app development:

- **Single language for both front-end and back-end:** Node.js enables developers to use JavaScript for both front-end and back-end development, which reduces development time and streamlines the development process.
- **Cross-platform development:** Node.js is a cross-platform environment, which means that developers can write code on one platform and run it on another. This feature is especially useful for React Native app development, as it allows developers to build and test their apps on different platforms.
- **Large package ecosystem:** Node.js has a large package ecosystem, which means that developers have access to a wide range of packages and modules that they can use to build their applications.
- **Non-blocking I/O:** Node.js uses non-blocking I/O, which means that it can handle a large number of concurrent connections without blocking the thread. This feature makes Node.js highly scalable and efficient, which is essential for building high-performance applications.
- **Community-driven development:** Node.js has a large and active community of developers who contribute to the development of the platform, provide support and resources, and develop new packages and modules.



## 4. Git

Git is a popular version control system used in software development, including React Native app development. It is an open-source system that allows developers to track changes in their codebase, collaborate with other developers, and manage different versions of their code.

Here are some of the key features of Git that make it useful for React Native app development:

- **Distributed Version Control:** Git is a distributed version control system, which means that every developer has a complete copy of the repository on their local machine. This allows developers to work on their own local branches and merge changes later, making collaboration and development more efficient.
- **Branching and Merging:** Git allows developers to create and switch between multiple branches of their code, which enables them to work on new features or bug fixes without disrupting the main codebase. Git also makes it easy to merge changes from different branches back into the main codebase.
- **Collaboration:** Git enables developers to work collaboratively on a codebase, either through a centralized or distributed workflow. Developers can easily share code changes with their team members and track changes made by others.
- **Version Control:** Git provides a complete history of changes made to a codebase, including who made the changes and when. This enables developers to revert to a previous version of their code if necessary and makes it easier to identify and fix bugs.
- **Integration:** Git can be integrated with other tools and services, such as GitHub and GitLab, which provide additional features such as issue tracking, continuous integration, and code reviews.

## 5. Firebase

Firebase is a comprehensive backend-as-a-service platform owned by Google, which offers a wide range of tools and services that can be used in React Native app development to handle tasks such as user authentication, real-time database management, cloud storage, and more. It provides an easy-to-use API and flexible pricing options, making it a popular choice for developers.

## 6. MongoDB

MongoDB is a widely used NoSQL database that can be used in React Native app development for storing and managing large volumes of data efficiently. It offers features such as dynamic schema, horizontal scaling, and support for complex data structures, making it a popular choice for applications with flexible data needs. Developers can use MongoDB in React Native apps through various libraries and APIs, such as the MongoDB Stitch SDK.

## 7. Express Js

Express.js is a powerful web application framework built on top of Node.js, a JavaScript runtime environment. It provides a range of features that make it a popular choice for building scalable and modular web and mobile backends, including robust routing, middleware support, and easy integration with various databases and other web frameworks.

Express.js is designed to be lightweight and flexible, making it easy to use for developers of all levels. Its routing system allows developers to define application endpoints and handle incoming requests, while its middleware support provides a way to handle common tasks such as authentication, logging, and error handling.

Express.js also supports the use of various templating engines, making it easy to create dynamic views for web and mobile applications. Additionally, it can be easily integrated with various databases and other web frameworks, such as MongoDB and AngularJS, providing a powerful and flexible toolset for developers to create robust web and mobile applications.

One of the key benefits of using Express.js in React Native app development is that it allows developers to create RESTful APIs and handle server-side logic efficiently. This is particularly useful for applications that require complex backend functionality, such as user authentication, data management, and file uploading.

## 4.3 OUTCOMES

### 4.3.1 Daily Task

Some Basic Tasks of React-Native as Follows:

**Task 1:** Created a Calculator

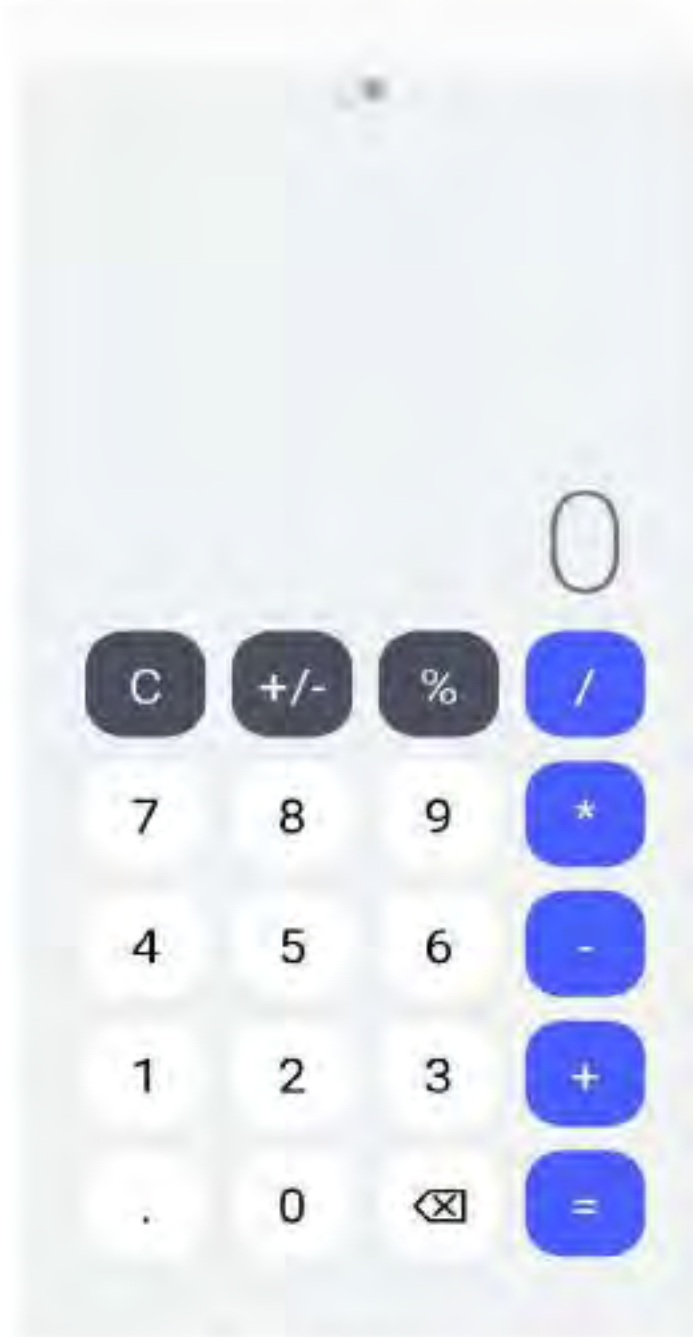


Fig 4.1 Calculator page

Buy me Coffee : <https://github.com/davecoders0201/Calculator>

**Task 2:** Created a Location App

Fig. 4.2 Location App



Fig. 4.3 Welcome page

Buy me coffee: <https://github.com/davecoders0201/LocationApp>

**Task 3:** Created a Calendar App

Fig 4 4 Calendar App

Buy me Coffee: <https://github.com/davecoders0201/CalendarApp>

## Some Advanced Task in React-Native

**Task1:** Created a Social App

Fig.4.5 Login page

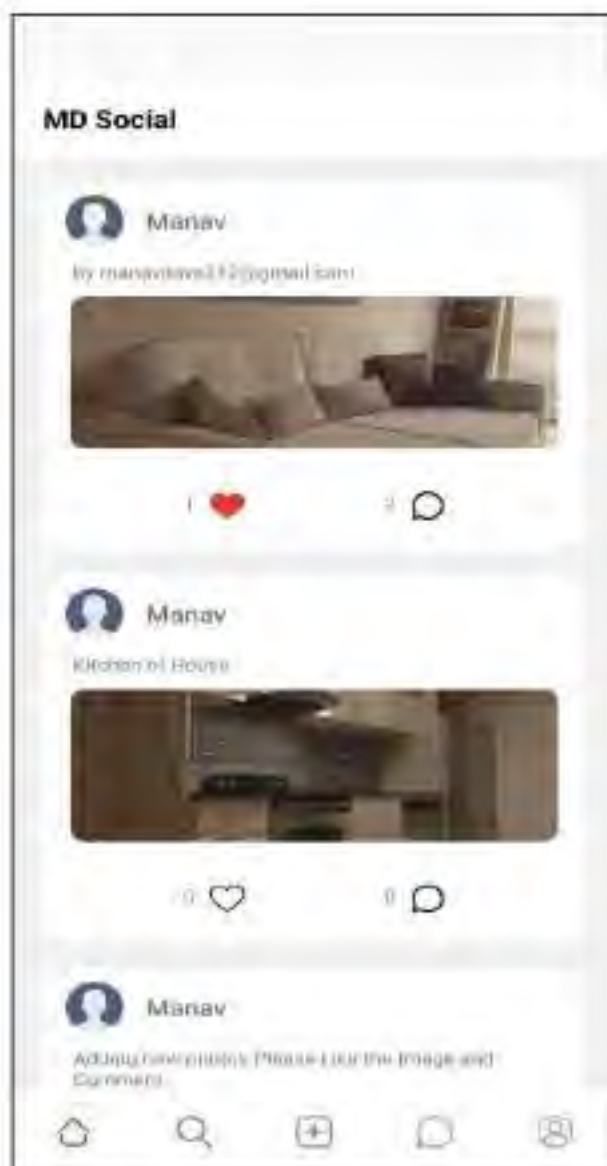


Fig 4.6 Home page

Buy me Coffee: <https://github.com/davecoders0201/SocialApp>

**Task 2:** Created Ecommerce App (Amazon Clone) with Backend

Fig.4.7 Sign in page



Fig.4.8 Home page

Buy me coffee:

Front-end: <https://github.com/davecoders0201/EcommerceProject>

Back-end: <https://github.com/davecoders0201/Node-Js-EcommerceProject>

### 4.3.2 Project Outcomes

**Project Github Profile:** <https://github.com/davecodez0201/TestProject>

#### Login Page:

The login page in the project allows users to input their credentials (i.e., username and password) and submit them for authentication. The code includes form validation to ensure that both fields are filled out and that the username and password meet certain requirements (e.g., minimum length). If the credentials are valid, the user is redirected to the home page of the application. If the credentials are invalid, the user is shown an error message and prompted to try again. The login page also includes functionality for handling forgotten passwords and resetting them.



Fig 4.9 Login page



### Registration Page:

The registration page is a React Native component. It takes user input for name, surname, email, and password, and performs various validations on the password to ensure its strength. If all validations pass, it creates a user using Firebase auth and clears the input fields.



The registration page displays the following elements:

- Logo: MD Technical (www.mdtechnical.com)
- Input fields: Name, Surname, Email, Enter New Password, Re Enter Password
- Visibility toggles: Eye icons for password fields
- Link: Already Member? [Login](#)
- Button: Register

Fig. 4.10 Registration Page

### Forgot Password Page

This is a forgot password page in React Native. It includes a function for validating email input and a function for sending a password reset email through Firebase authentication. The code also includes styling for various UI elements such as labels, input fields, and buttons.

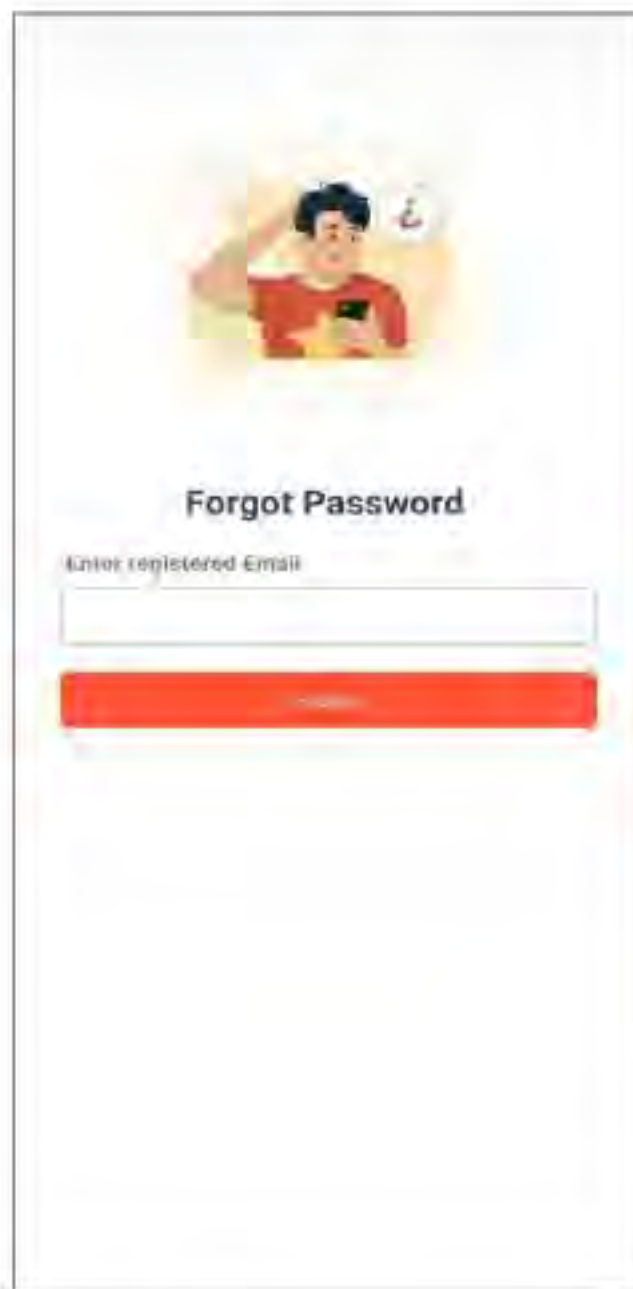


Fig. 4.11 Forgot password page

## Home Page

This is a React Native component that renders a home screen with an image, a title, a subtitle, and a description. The component uses styles to define the layout and appearance of the elements.



Fig. 4.12 Home page

## Course Page

The course page is a React Native component that renders a list of courses. It fetches the course data from an API and displays each course in a card-like format that includes the course title, description, and an image. Each course card also includes a button that navigates to a separate screen with more details about the course. The code also includes some styling to give the cards and button a consistent look and feel.



Fig. 4.13 Course page



Fig. 4.14 Join Now page

## Students Page

The students page fetches student data from a JSON file hosted on a server and displays it in a horizontal scrollable list using React Native

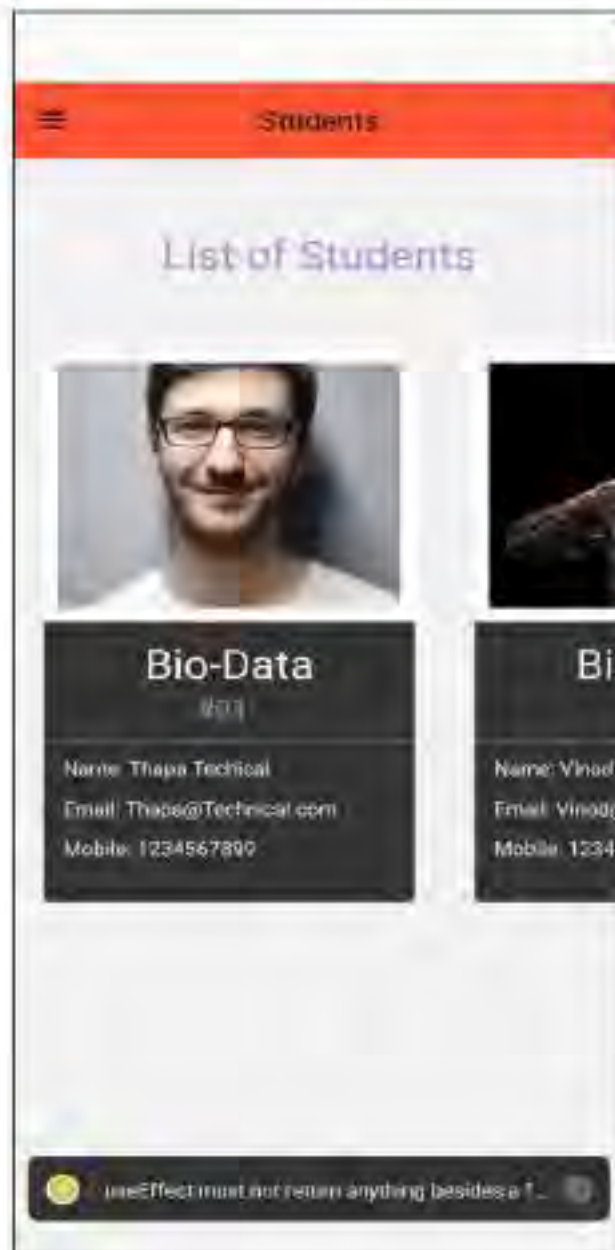


Fig. 4.15 Student page

### About Us Page:

This is about us page that displays information about a developer, including a profile picture, a brief introduction, their skills, and some styled sections.



Fig 4.16 About Us page

### Contact Us Page

This is a contact us page that represents a contact us form with input fields for name, email, phone number and message, as well as a checkbox for terms and conditions agreement and a submit button. The page includes functionality for validating email and phone number inputs, displaying error messages, and clearing input fields upon submission.



The image shows a mobile application interface for a contact form. At the top, there is a red header bar with a hamburger menu icon on the left and the text "Contact Us" in the center. Below the header, the main content area has a white background. It starts with the heading "Level Up Your Knowledge" in bold. Underneath, there are four input fields, each with a label above it: "Enter your name" (with placeholder "John Doe"), "Enter your Email" (with placeholder "demo@gmail.com"), "Enter your mobile" (with placeholder "Enter Phone"), and "How can we help you?" (with placeholder "Tell us about your self"). Below these fields is a checkbox labeled "I have read and agree with the TC". At the bottom of the form is a dark grey button with the text "Submit".

Fig. 4.17 Contact Us page

## Chapter 5. TESTING

### 5.1 TESTING STRATEGY:

- **Unit Testing:** Write unit tests for individual functions or components to ensure that they work correctly in isolation.
- **Integration Testing:** Test how different components work together in your app, to make sure that they are properly integrated.
- **Functional Testing:** Perform functional tests to ensure that the app's functionality works as expected. Test all use cases, including happy paths and edge cases.
- **User Acceptance Testing:** Conduct user acceptance testing (UAT) to ensure that the app meets the user's requirements and expectations. Get feedback from real users and make necessary improvements.
- **Performance Testing:** Test the performance of the app under different conditions, such as low battery, slow internet, or high traffic.
- **Security Testing:** Perform security testing to ensure that the app is secure and user data is protected.
- **Compatibility Testing:** Test the app on different devices, platforms, and screen sizes to ensure that it works as expected on all of them.
- **Regression Testing:** Perform regression testing to ensure that the app still works as expected after making changes or adding new features.
- **Automated Testing:** Implement automated tests to save time and increase the efficiency of the testing process. Use tools like Jest, Enzyme, and Detox to automate testing.
- **Continuous Integration and Deployment:** Implement continuous integration and deployment (CI/CD) to ensure that the app is always up-to-date, and any new changes or features are deployed smoothly without causing any issues.



## 5.2 TESTING RESULTS AND ANALYSIS:

### 5.2.1 Test Cases

Test case	Description	Expected Result	Actual Result	Pass/Fail
1	Login with valid credentials	User should be able to log in successfully	Pass	Pass
2	Login with invalid credentials	User should not be able to log in and an error message should be displayed	Pass	Pass
3	Create a new account with valid credentials	User should be able to create a new account successfully	Pass	Pass
4	Create a new account with invalid credentials	User should not be able to create a new account and an error message should be displayed	Pass	Pass
5	View course catalog	User should be able to view all available courses	Pass	Pass

Table 5.2.1 Test case

## Chapter 6. CONCLUSION AND DISCUSSION

### 6.1 PROJECT VIABILITIES:

Project viability refers to the ability of a project to achieve its goals within the available resources, time, and budget. In the case of the Education App project developed in React-Native, some key project viabilities include:

1. **Technical viability:** The Education App project is technically feasible as it was developed using the React-Native technology which is compatible with both Android and iOS platforms. Additionally, Firebase was used for database management, providing the necessary support for data storage and retrieval.
2. **Financial viability:** The Education App project was developed within the allocated budget and resources, making it financially feasible. The cost of development was kept low by using open-source software and leveraging existing tools and technologies.
3. **Time viability:** The project was developed within the allocated 12-week timeframe, demonstrating its time viability. The project team adhered to the schedule, delivering milestones on time and ensuring the project was completed within the deadline.
4. **Market viability:** The Education App project was developed in response to a clear market need, making it market viable. The app targeted the education sector, offering a user-friendly and functional app for students to access study materials and connect with teachers.

Overall, the Education App project developed in React-Native was found to be viable in terms of its technical, financial, time, and market feasibility, and had the potential to address a clear market need.

### 6.2 SUMMARY OF INTERNSHIP WORK:

As an intern in React-Native, I gained valuable experience in app development, environment setup, testing, and project management. Over the course of my 12-week internship, I successfully completed a project called "Education App" using React-Native technology and integrated Firebase for database management.

My responsibilities included developing a testing strategy, executing test cases, and conducting thorough testing of the Education App to identify and fix bugs and issues. I also gained proficiency in using various tools and technologies such as VS Code, Android Studio, Git, and MongoDB. In addition, I was responsible for managing my time effectively and adhering to the internship schedule.

Overall, my internship provided me with a strong foundation in React-Native technology and important soft skills such as project management, communication, and problem-solving. I demonstrated a strong work ethic and a willingness to learn throughout the internship and contributed positively to the team's success.

## REFERENCES

1. <https://nodejs.org/en>
2. <https://reactnative.dev/>
3. <https://www.w3schools.com/>
4. <https://stackoverflow.com/>
5. <https://www.techavidus.com/>
6. <https://github.com/explore>
7. <https://www.youtube.com/>
8. <https://expressjs.com/>
9. <https://www.mongodb.com/>
10. <https://firebase.google.com/>

### APPENDIX



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ બરા સ્થાપિત.)

Feedback Form by Industry expert

Annexure 2

Student Name: Manav Sanjay Dave

Date: 5-May-23

Work Supervisor: RAJU PARMAR

Title:

Company/Organization: TechAvidya

Enrollment No: 200390107505

Internship Address: 407, Capital Icon, Sarjagan, Gandhinagar

Dates of Internship: From 6-Feb-23 to 6-May-23

Please evaluate your intern by indicating the frequency with which you observed the following behaviors

Parameters	Needs Improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise				✓
Analyzes problems effectively				✓
Communicates well and works effectively				✓

Overall performance of student (intern): (Needs improvement/ Satisfactory/Good/Excellent)

Excellent

Additional comments, if any:


All good

Signature of Industry person with name and Stamp:



Signature of the Faculty Member:

## WEEK-1



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Annexure 1  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Mangv Ganraj Dave

DIARY OF THE WEEK: DU: 6-Feb-23 to 10-Feb-23

DEPARTMENT: Computer Engineering (CE) SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: TechAvidius

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ravi Parmar

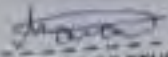
DESCRIPTION OF THE WORK DONE IN BRIEF

- Explore details about the different technologies and implement the different technologies like HTML, CSS, Javascript and React, React Native
- learned about Javascript and React, React-Native
- learn to install VScode, Android studio, React-Native components, functions in CLI and Expo methods
- learned various functions of Array, String in Javascript and React
- learned about html Dom and initialize the html Dom and various errors etc
- learned about the ChatGPT and various AI modules.



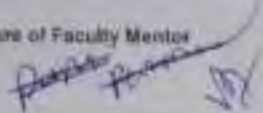

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS 43 SIGNATURE OF STUDENT 

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 10/2/23 18-7-2023 Date: 10/2/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## WEEK-2


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Semester I  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sonjay Dave  
 DIARY OF THE WEEK: Dr: 13-Feb-23 to 17-Feb-23  
 DEPARTMENT: Computer engineering SEM: 8<sup>th</sup>  
 NAME OF THE ORGANISATION: TechAvidus  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ravi Parmar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Explore about the new ways to create a web Applications, web browsers events
- Create a Portfolio website with search bar
- learned about React-Native and explore CLI Technologies in the React-Native
- learned about Android studio and how to run emulator.
- explore to create a mobile app (Android) using React-native technology.
- Created login form in the React-Native.

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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS: 43 -----

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*[Signature]*  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: *[Signature]*

Signature of officer-in-charge of Dept. / Section / Plant: *[Signature]*


Date: ~~17-02-23~~ 18-2-23

Date: 17-Feb-23

Grading of Work, for trainee may be given depending upon your judgement about  
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## WEEK-3


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 ગુજરાત અધિનિયમ ક્રમ ૨૦, ૨૦૦૭ અંતે સ્થાપિત

Annexure 1  
 Enrollment no.  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave  
 DAILY OF THE WEEK: (D) 20-Feb-23 to 24-Feb-23  
 DEPARTMENT: Computer Engineering (CE) sem 8<sup>th</sup>  
 NAME OF THE ORGANISATION: TechAvidus  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Ravi Parmar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Build a portfolio - website using React JS, HTML, CSS and used Animations.
- Explore node JS and its errors and how to build the build and run the app
- Run basic android app using the node commands (npm react-native run-android)
- Create a Login form in React-native
- Create a Registration form in the React-native
- Make the Login if Registration Page which is able to Authenticate the user
- Create a Drawer Navigation using Packages

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 (ગુજરાત અધિનિયમ ક્રમક: ૨૦/૨૦૦૭ બરા અધિપતિ)

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TOTAL HOURS: 45 -----

  
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 SIGNATURE OF STUDENT

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Signature of Faculty Mentor: 


Signature of officer-in-charge of Dept. / Section / Plant: 

Date: 10-1-2025

Date: 03/03/2025

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## WEEK-4


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 (ગુજરાત અધિનિયમ અંક 20/2007 હેઠળ સ્થાપિત)

Annexure 1  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave  
 DURATION OF THE WEEK: IN 27-Feb-23 TO 03-March-23  
 DEPARTMENT: Computer Engineering (CE) SEM 8<sup>th</sup>  
 NAME OF THE ORGANISATION: TechAvidus  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ravi Parmar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Create a About us page and contact us form and add validation in it.
- Explore the AsyncStorage in React-Native and Firebase for Login and Registration Authentication.
- Email Authentication is Explored and Phone Authentication.
- ~~Use~~ Create a Forgot Password functionality and add email link to change password
- Add the functionality of Remember me in the APP
- fetch the data from the live api in the app.



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TOTAL HOURS: 43


  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor  Date: <u>18-5/2023</u>	Signature of officer-in-charge of Dept. / Section / Plant  Date: <u>03/03/2023</u>
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Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## WEEK-5


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 (ગુજરાત અધિનિયમ ક્રમાંક- 20/2007 હેઠળ સ્થાપિત)

Annexure I  
 Enrollment No. 200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave  
 DIARY OF THE WEEK: Du 6 March-23 TO 10-March-23  
 DEPARTMENT: Computer Engineering (CE) SEM: 5th  
 NAME OF THE ORGANISATION: TechAvids  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Raju Parmar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Explore the Remember me functionality using the AsyncStorage in the Native.
- Explore about Horizontal card display and vertical card display through API fetching
- learn about the External API fetching
- learn Designing of Ecommerce Shopping Application displaying the product and Product details.
- learning about the Node.js and Express and MongoDB and Explore documentation and made own login screen.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 45

*[Signature]*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

*[Signature]*  
Signature of Faculty Mentor


*[Signature]*  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 6/5/23

Date: 10 March - 23

Grading of Work, for trainees may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, interest taken, Work done etc.

## WEEK-6


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Annexure 1  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Munaw Sanjay Dave  
 DAILY OF THE WEEK: 12-march-23 to 17-march-23  
 DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup> sem  
 NAME OF THE ORGANISATION: TechAvidus  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Rajiv Patidar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- learn about the transfer and navigate the Ids coming backend one Page to another Page
- learn about the Postman, API fetching and details about the Particular Id
- Explore about the Firebase in the Application
- Explore about the Firebase Authentication and Email service of the Firebase
- learn about to push the Id in the stack and display the Particular Id
- display the content of the stack in the Page and all data from the backend.

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 (ગુજરાત અધિનિવન ક્રમકઃ ૨૦/૨૦૦૭ ના રા સ્થાપિત)

TOTAL HOURS: 45

*[Signature]*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR.

*[Signature]*  
Signature of Faculty Mentor

*[Signature]*  
Signature of officer-in-charge  
of Dept. / Section / Plant


Date: 6/5/23

Date: 17-march-23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



## WEEK-7


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Annexure 1  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Ganraj Dave  
 DIARY OF THE WEEK: On 20 March-23 TO 24 March-23  
 DEPARTMENT: Computer Department (CE) SEM  
 NAME OF THE ORGANISATION: TechAvidus  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Rajiv Parmar

DESCRIPTION OF THE WORK DONE IN BRIEF

- Explore about the Stripe API
- Explore to integrate the Stripe API in the Application
- learn about to design the Payment Screen
- learn about to integrate the Payment Screen to the Stripe Payment API.
- Explore about the ~~Secret~~ secret key and Public key of the Stripe API
- learn about the connection of the Front-end & backend in one application.
- Integrate login and Registration Page in the validation mode.

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 ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ થી સ્થાપિત

TOTAL HOURS: 45

*[Signature]*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


*[Signature]*  
Signature of Faculty Mentor

Date: 6/5/23

Signature of officer-in-charge  
of Dept. / Section / Plant  
*[Signature]*  
Date: 24-March-23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## WEEK-8



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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Semester I  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave

DIARY OF THE WEEK: Dr 27-March-23 to 31-March-23

DEPARTMENT: Computer Engineering (CE) SEM: 8<sup>th</sup> sem

NAME OF THE ORGANISATION: TechAidvs


NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ravi Parmar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- learn about to create APIs in the Postman
- learn the get and Post method in the Backend.
- learn about the Routes, Connections, controllers in the Node.js
- learn about to create a APIs in one file and access all APIs from that one file
- Integrate the Authentication of Login and Registration with backend.
- learn about ~~the~~ to create routers in the Backend and how to access in the Frontend.
- Image URL Problems solving

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TOTAL HOURS: 45 -----

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 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]


Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: 6/5/23

Date: 31-March-23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## WEEK-9



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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Annexure 1  
 Enrollment No: 200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave

DIARY OF THE WEEK: DO 3 April-23 TO 7 April-23

DEPARTMENT: Computer Engineering (CE) SEM: 8<sup>th</sup> sem

NAME OF THE ORGANISATION: TechAvidus

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Raju Parmar

DESCRIPTION OF THE WORK DONE IN BRIEF

- learn about the different API from Backend calling.
- learn about different Payment methods like G+Pay, Apple-Pay, PhonePe etc.
- Testing through dummy card in the API.
- The testing scenario for the Payment testing
- The Testing Environment for the Application and write a different test cases.
- Complete the Full Stack App of Ecommerce (Amazon clone) with Stripe Payment.
- learned about the Node.js, MongoDB and Express.

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TOTAL HOURS: 45

*[Signature]*  
SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: *[Signature]*


Signature of officer-in-charge  
of Dept. / Section / Plant: *[Signature]*

Date: 6/5/23

Date: 7-April-23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## WEEK-10


**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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Annexure I  
 Enrollment no: 200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave  
 DURATION OF THE WEEK: DATE: April-23 TO 14- April-23  
 DEPARTMENT: Computer Engineering (CE) SEM. 6th SEM.  
 NAME OF THE ORGANISATION: TechAvidus  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ravi Parmar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Design a calculator screen for the client.
- learn the External Stylesheet in the React-Native Application
- learn the Countel of the React Native.
- learn about the different components of the core React-Native.
- learn about the Typescript and different Types in the Typescript
- learn about the git Push, Pull, Stash Commands
- learn how to merge the branch and Create a branch in the same repo.

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TOTAL HOURS: 45 SIGNATURE OF STUDENT: [Signature]

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor: [Signature] Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: 6/5/23 Date: 14 April - 23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



## WEEK-11



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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Annexure I  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave

PERIOD OF THE WEEK: Dn 17-April-23 TO 21-April-23

DEPARTMENT: computer engineering (CE) SEM: 6th SEM

NAME OF THE ORGANISATION: TechAvidus

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Raju Parmar

DESCRIPTION OF THE WORK DONE IN BRIEF

- Create a calendar which will adding the task using the AsyncStorage.
- learn about the Permissions in the React Native.
- learn about the Latitude and Longitude in the React-Native.
- learn about to create Permission modal and ask the permission to the client.
- learn about the permission of the camera.
- Create a social app, and which are able to create Post display Post and chat functionality.



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TOTAL HOURS: 45 -----

  
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 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

  
 Signature of Faculty Mentor


  
 Signature of officer-in-charge  
 of Dept. / Section / Plant

Date: 6/6/23

Date: 21-April-23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## WEEK-12



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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Annexure I  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave.

DIARY OF THE WEEK: D: 24-April-23 TO 25-April-23

DEPARTMENT: Computer Engineering (CE) SEM: 6th sem


NAME OF THE ORGANISATION: TechAvictus

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Rajiv Parmar

DESCRIPTION OF THE WORK DONE IN BRIEF

- learn about the Firestore in the Firebase
- learn about the Database and storage in the Firebase.
- Integrate the Firebase Database to the Application.
- learn about to extract Data from the Database.
- learn about to Push and Pop the data in the Database to the Firebase
- Add the Implement the chat functionality and gifted chat library of npm.
- Integrate Real-time Chat functionality in the Application
- learn to create a Modal's in the Application.



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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ હેઠળ સ્થાપિત)

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TOTAL HOURS: 45 dsava  
SIGNATURE OF STUDENT


The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: VA Signature of officer-in-charge  
of Dept. / Section / Plant: [Signature]

Date: 6/5/23 Date: 28-April-23

Grading of Work, for trainee may be given depending upon your judgment about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## WEEK-13



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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Semester I  
 Enrollment no:  
200390107505

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Manav Sanjay Dave

DIARY OF THE WEEK: 01-May-23 to 5-May-23

DEPARTMENT: Computer Engineering (CE) SEM:

NAME OF THE ORGANISATION: TechAvidus

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Raju Parmar

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- learn about the Editing and deleting the notes and close the modal in the customized format.
- Learn about the Maps and location in React Native.
- learn about the current position of the person, call etc
- learn about the call marks and person marker in the map
- learn to design the customized and client required design
- Implementing the search functionality based on location
- Solving lots of error in the maps functionality

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TOTAL HOURS: 45 -----

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*[Signature]*  
 SIGNATURE OF STUDENT

☉ The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

*[Signature]*  
 Signature of Faculty Mentor

*[Signature]*  
 Signature of officer-in-charge  
 of Dept. / Section / Plant

Date: 6/5/23

Date: 5 - May - 23

☉ Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

# **INTERNSHIP AT LOGICBUZZ INFOTECH**

**AN INTERNSHIP REPORT**

*Submitted by*

**Deep Vasantbhai Jodhani**

**200390107003**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

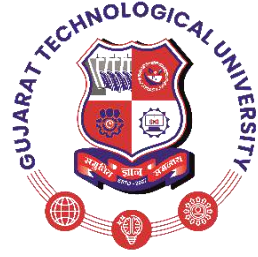


**Gujarat Technological University,**

**Ahmedabad July-August, 2023**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at LOGICBUZZ Infotech** has been carried out by **Deep Vasantbhai Jodhani** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

Sign

Sign

Prof.

Prof. Akshay Kansara

Internal Guide

Head of Department



## Company Certificate



#2062, Silver Business Point, Near Royal Square, V.I.P. Circle, Uttran, Surat

Date: 13/08/2023

### TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. Deep Jodhani** the student of S.P.B. Patel Engineering College has successfully completed the internship as a part of B.E. in Computer Engineering. Internship work started from **27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023**.

During the internship period, he worked on the project entitled "**UMANG-i-Connect**" using Dart, Flutter, Nodejs, MongoDB and Android Studio. During this internship, he was a very active intern and the work carried by him was satisfactory.

All the duties and responsibilities given to him were successfully accomplished by him. he showed a great progress during this period of time

We wish him bright future and all success in his professional life.

Sincerely,



(Authorized Signatory)

**Mr. Gaurang Radadiya**

(CEO of LogicBuzz Infotech LLP, Surat.)

+91 9574997597

www.logicbuzzinfotech.com

info@logicbuzzinfotech.com

Fig 1. Internship completion certificate



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship report submitted along with the Internship entitled **Internship at LOGICBUZZ Infotech** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad is a bonafide record of original project work carried out by me under the supervision of Prof. Akshay Kansara and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Deep Vasantbhai Jodhani**

## **ACKNOWLEDGMENT**

I would like to express my heartfelt gratitude and appreciation to all those who have contributed to the successful completion of my 15-day summer internship at **LOGICBUZZ Infotech**. This opportunity has provided me with invaluable insights into the world of technology and business, and I am truly grateful for the support and guidance I have received throughout this journey.

I extend my deepest gratitude to **Mr. Gaurang Radadiya**, my internship supervisor, for their unwavering support, mentorship, and valuable guidance. Their expertise and willingness to share their knowledge have been instrumental in shaping my understanding of the industry and my professional growth.

I am also thankful to the entire team at LOGICBUZZ Infotech for their warm welcome, encouragement, and the engaging work environment they provided. The collaborative atmosphere and camaraderie within the team have made my internship experience both enjoyable and enriching.

In conclusion, my internship experience at LOGICBUZZ Infotech has been transformative and enlightening. I am truly thankful for the support, guidance, and opportunities that I have received. This experience has undoubtedly contributed significantly to my personal and professional growth.

Sincerely,

Deep Jodhani

## **Abstract**

During my enriching 15-day internship at LOGICBUZZ Infotech, a cutting-edge IT service firm headquartered in Surat, I had the privilege to collaborate closely with both the Designing and Development departments. LOGICBUZZ Infotech, boasting a diverse array of divisions including Designing, Development, Human Resources, Finance, and more, provided me with an immersive and invaluable learning experience. Within the Design department, I dived headfirst into the art of creating captivating user interfaces (UI) for mobile applications using top-tier tools such as Figma. Subsequently, my journey extended into the Development department, where I engaged in close collaboration with adept developers. This phase of my internship introduced me to the dynamic landscape of Flutter, a versatile framework for mobile application development. Through this engagement, I gained proficiency in a plethora of novel concepts, which I eagerly incorporated into my own project. The pinnacle of my internship involved the inception and realization of a fully functional mobile application. Moreover, I embarked on an extensive exploration of the complete app development life cycle, gleaning insights from the initial design ideation to the ultimate deployment pro

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# **Chapter 1. INTRODUCTION**

## **1.1 COMPANY PROFILE**

LogicBuzz Infotech LLP is not just another web development company, but it is an institution for global businesses to get the technical solution of complex business problems and needs. In Fifteen years of their sound existence, they have remarkably touched every segment of the web & mobile development industry. Thus, they have been the most sought-after web development company offering notable services, like the website, E-commerce stores, Web applications, Mobile applications.

LogicBuzz Infotech enthusiasm will lead us to become a top IT company in India & USA for delivering various industry-led mobility solutions in web and mobile application development domains leveraging futuristic technologies like the Internet of Things (IoT), AI-ML, AR-VR, Voice assistants, and Voice Skills, DevOps & Cloud computing, etc.

## **1.2 MISSION AND VISION OF WEBITO INFOTECH**

### **1.2.1 Mission**

They continuously strive to explore new horizons in technology, seeking creative and unique solutions that solve complex challenges. They believe in the power of collaboration, both internally and with their clients. They work as a cohesive team to bring diverse perspectives together and create solutions that truly make a difference. Excellence is at the heart of everything they do. They are committed to delivering solutions that exceed expectations, ensuring the success of their clients and partners. their mission extends beyond technological solutions. They aim to empower businesses to reach their full potential by providing tools and strategies that foster growth and transformation.

### **1.2.1 Vision**

They aspire to be at the forefront of technological advancements, consistently pushing boundaries and pioneering innovative solutions that shape industries and drive progress. They envision a world where businesses of all sizes can seamlessly embrace digital transformation, leveraging technology to optimize processes, enhance customer experiences, and unlock new opportunities. They believe in the power of collaboration without borders. Their vision includes fostering partnerships and collaborations across the globe, uniting diverse expertise to tackle complex challenges. Their vision extends beyond innovation to ethical technology practices. They are dedicated to promoting responsible and sustainable tech solutions that respect privacy, security, and societal well-being.

## **1.3 PROJECT OVERVIEW**

I developed a project for Umang Motors, a renowned multi-brand car workshop situated in Surat. Umang Motors has established a partnership with a reputable car sales brand, cars24, to manage the refurbishment of cars acquired from customers within the Surat region. In order to streamline the refurbishment operations, there was a need to create an application that facilitates the monitoring of cars before and after refurbishment. This application also facilitates the uploading of refurbishment cost estimates, which are subsequently reviewed and approved or rejected by the management at car24.

Additionally, Umang Motors expressed the desire to establish an attractive and user-friendly platform for their customers. This platform is designed to provide customers with a comprehensive service history, enabling them to track the maintenance and repairs performed on their vehicles. Customers are also able to submit pickup requests through this application, enhancing the convenience and accessibility of their services.



## Chapter 2. PROCESS OF APPLICATION DEVELOPMENT

### 2.1 APPLICATION UI DESIGNING PHASE

#### 2.1.1 Tool's

Figma - Figma was really important in creating the look of the whole app. I made lots of different screens that had cool colors. I also added some pictures and animations to make it even more interesting for people using it. By combining all these design things, the app became easy to use and exciting to look at.

#### 2.1.2 Color Palette

I chose specific colors with a purpose while designing the UMANG-i-Connect app's interface. These colors follow important rules for making the app's look and feel just right. This group of colors works together to create a unified style for the app, making sure it looks nice and stays the same everywhere you use it.

The colors I picked are:

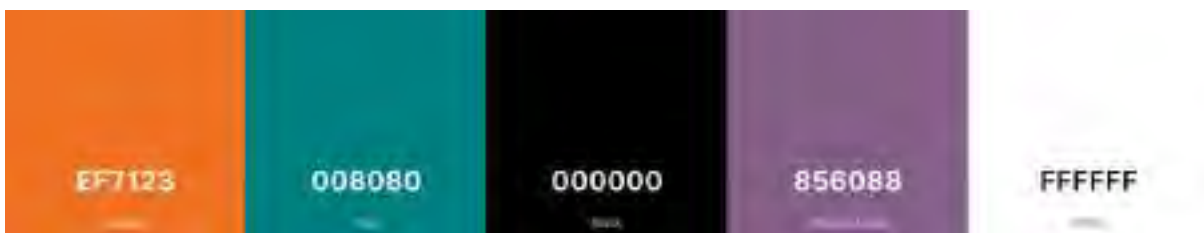


Fig 2.1. Color Palette

#### 2.1.3 Overview

Utilizing a carefully chosen set of 5 primary colors to define the app's theme, I meticulously crafted a total of 10 distinct screens. These screens encompass the Home screen, Service History screen, Buy Car screen, Pickup Request screen, Splash screen and Profile screen. Each screen plays a crucial and unique role within the application, contributing to its overall functionality and enhancing the user experience.

### 2.1.4 Result of Designing Phase

Upon the culmination of the design phase, I obtained a comprehensive set of 10 distinct screens that offered a vivid preview of the app's post-development appearance. This UI compilation proved invaluable during the subsequent development process, facilitating the extraction of crucial design elements such as sizes, text styles, and various assets. Armed with this meticulously prepared UI, my role as a developer was enhanced with a crystal-clear understanding of the precise development objectives and a well-defined roadmap for interconnecting each screen, all seamlessly aligned with the established UI framework.

## 2.2 APPLICATION DEVELOPMENT PHASE

### 2.2.1 Used Technology

I built the UMANG-i-Connect app using the following technologies:

1. Flutter: Flutter is an open-source framework developed and supported by Google. Frontend and full-stack developers use Flutter to build an application's user interface (UI) for multiple platforms with a single codebase.
2. Dart: Dart is a general-purpose programming language that can be used for various applications, including web development, server-side programming, and mobile app development. Flutter is a framework of the dart.

### 2.2.2 File Structure

To organize my whole application code for better understanding, increase productivity, and under the table by another developer, I structure my code in the below file format structure.



Fig 2.2 File Structure-I

Fig 2.3 File Structure-I

### 2.2.2.1 pubspec.yaml file

In the realm of Flutter, when integrating third-party dependencies or packages from [pub.dart](https://pub.dev), all of these additions are cataloged within the [pubspec.yaml](#) file. Moreover, this same [pubspec.yaml](#) file serves as the repository for various assets, including fonts, icons, and images.

```
dependencies:  
  flutter:  
    sdk: flutter  
  razorpay_flutter: ^1.3.5  
  animated_splash_screen:  
  velocity_x: ^3.6.0  
  cupertino_icons: ^1.0.2  
  flutter_svg: ^0.21.0-nullsafety.3  
  carousel_slider: ^4.0.0-nullsafety.0
```

Fig 2.4 Dependencies pubspec.yaml file

```
flutter:  
  uses-material-design: true  
  assets:  
    - assets/images/  
    - assets/icons/  
    - assets/dialog_flow_auth.json
```

Fig 2.5 Image assets in pubspec.yaml file

```
fonts:  
  - family: Roboto  
    fonts:  
      - asset: assets/fonts/Roboto-Bold.ttf  
      - asset: assets/fonts/Roboto-Regular.ttf  
      - asset: assets/fonts/Roboto-Light.ttf
```

Fig 2.6 Font assets in pubspec.yaml file

### 2.2.3 Assets Structure

Assets are like the building blocks that make our app visually appealing. They include images, icons, fonts, and more. For this project, I gathered images, icons, and fonts, and placed them in a folder called "Assets." This way, everything we need for the app's look is neatly organized in one place, making it easy to find and use during design and development.

Here is my assets structure:

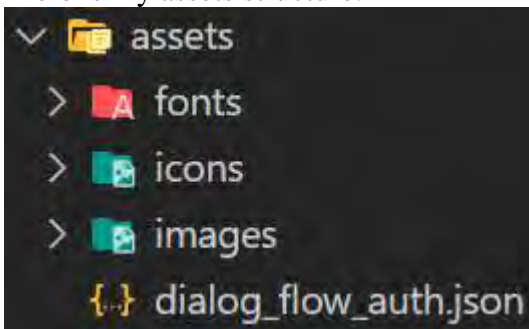


Fig 2.7 Assets structure

### 2.2.4 Process Overview

Once all the files were in place and the project was primed, I initiated the coding process, starting with the home screen. Here, I translated the designed UI into functional reality using Flutter. Progressing steadily, I proceeded to develop the remaining screens and seamlessly linked them. Stepping into the realm of logic,

## 2.3 APPLICATION DEPLOYMENT PHASE

### 2.3.1 Deployment Process Overview

After completing the app development and conducting comprehensive functionality tests, I will proceed to the next phase of the application development cycle: deployment. As a preparatory step for the app's release, I will initiate the process by generating a unique and secure key specifically for my app. This key will play a crucial role in signing the app, serving as a method for the Play Store to distinguish and validate the app's authenticity, thus preventing any potential duplicates.

Simultaneously, I will ensure the app's distinct identity within the digital landscape. I will achieve this by reversing my domain name and associating it with the app, a vital step for accurate recognition and proper categorization within the app ecosystem. With all prerequisites meticulously fulfilled, I will execute the essential command to create both the release .apk and .aab files. This critical task, along with generating the app's icon and adjusting its name, will meticulously set the stage for its smooth journey into the digital marketplace.

### 2.3.2 Commands for making .apk file and .adb file

I will utilize the following command to create two distinct files that will enable me to successfully publish my app on the Play Store:

For .apk file `flutter build apk --split-per-abi`

For app bundle (.aab) file `flutter build appbundle`

### 2.3.3 Deployment Platform Overview

To release my app, I will utilize the Play Store platform. The uploading process will involve several steps, outlined below:

1. **Creating the App:** I will initiate by creating a new app listing on the Play Store.
2. **Providing Details:** I will fill in essential details such as the app's title and description, along with creating an eye-catching app banner. I will also incorporate app screenshots, which I will generate using a third-party website.
3. **Security and Country Information:** I will address security and country-specific queries by completing relevant forms.
4. **Starting Production:** Once everything is set, I will commence the production process and upload my .aab file, which will contain the app's compiled code and resources.
5. **App Verification and Release:** After a brief verification period, the Play Store will approve my app, and it will become accessible to users within a few days. This method will facilitate a smooth and structured approach to getting my app live on the Play Store.

## Chapter 3. PROTOTYPE OF APPLICATION

I included a collection of screenshots showcasing how my app looks and functions.



Fig 3.1 Splash screen

Fig 3.2 Home screen

Fig 3.3 Side Menu

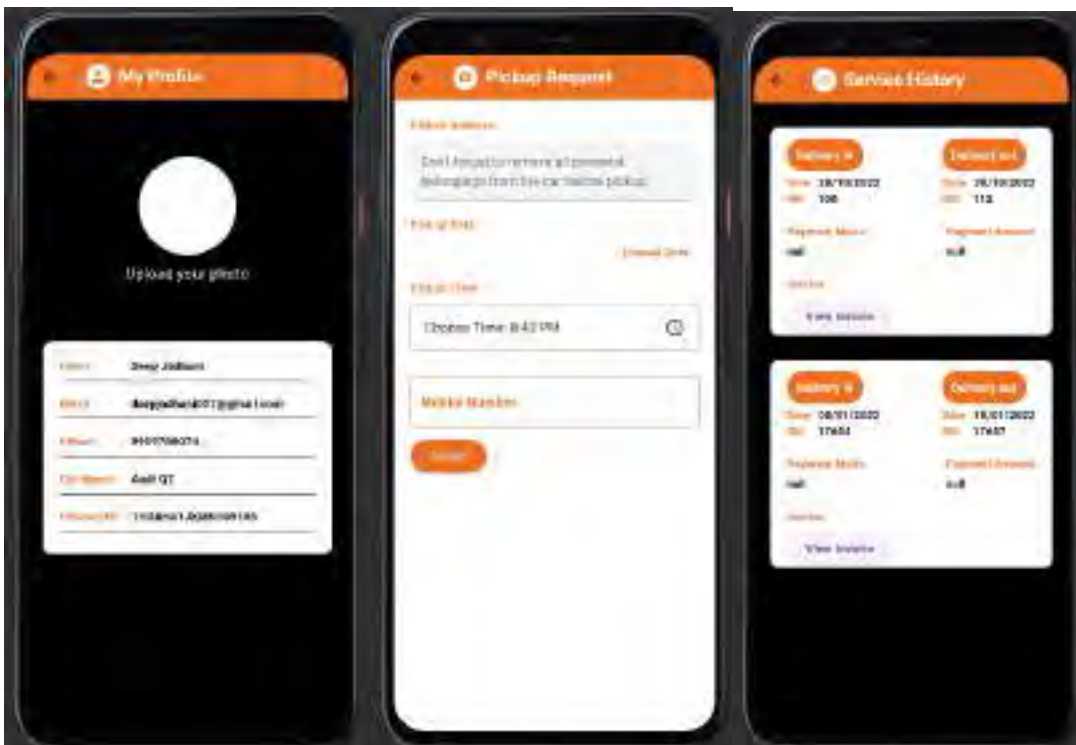


Fig 3.4 My Profile

Fig 3.5 Pickup Request

Fig 3.6 Service History



Fig 3.7 Payment screen

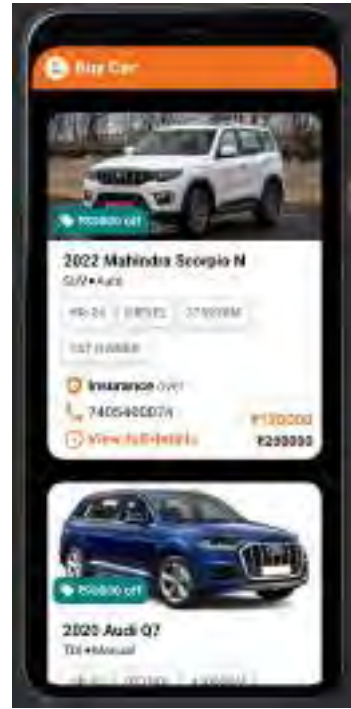


Fig 3.8 Buy Car screen



Fig 3.9 Signin Page



Fig 3.10 Signup Page

# **INTERNSHIP AT RadixWeb S/W Service Pvt. Ltd.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Deep Mukeshbhai Patel**

**190390107030**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



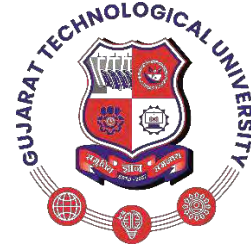
**Gujarat Technological University, Ahmedabad**

**May, 2023**





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at RadixWeb S/W Service Pvt. Ltd.** has been carried out by **Deep Mukeshbhai Patel (190390107030)** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay Kansara

Internal Guide

Head of Department

## GTU Certificate



# GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 04 May 2023 (22:16:43)

This is to certify that, **Patel Deep Mukeshbhai** ( Enrolment Number – 190390107030 ) working on project entitled with **Internship At Radixweb: Software Development Company** from **Computer Engineering** department of **S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA** had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : Patel Deep Mukeshbhai

Name of Guide : Mr. Chetan Rameshbhai Chaudhan

Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

### Disclaimer :

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.

## Company Certificate



Date: 28th April, 2023

**ONGOING TRAINING CERTIFICATE  
TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Mr. Deep Mukeshhhai Patel** (EC: 2753) is currently working as Trainee Software Engineer in PHP with Radix Software Services Pvt. Ltd. Ahmedabad since 1st February, 2023.

Warm Regards,

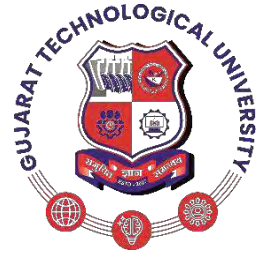


Yours Sincerely,

(Company Stamp & Authorized Signature)



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at RadixWeb S/W Service Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Varsha Oberoi (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**1. Deep Mukeshbhai Patel**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would like to convey my gratitude to RadixWeb S/W Development Pvt. Ltd. to give me the opportunity to give me the best training on different technologies and help me to enhance my skills and knowledge in different programming technologies. Also, I like to thank my internal guide Mrs. Varsha Oberoi for their encouragement to enhance my skills and knowledge. I also thank to my internal guide prof. Chetan Chauhan to give their guidance during my internship. I am extremely thankful to the department staff and my colleagues and my friends to help me to complete this internship successfully.

Thank you once again to all of you for the support and valuable guidance.

Sincerely,

Deep Mukeshbhai Patel (190390107030)

## **ABSTRACT**

*Industrial training is the important part for any student to start their new journey in any new technology or at beginning of working on any technology. A well planned, structured and properly executed training will help to develop different professional skills and attitude. It helps to understand the problem-solving approach on broad level of understanding, process and modes of operation.*

*The purpose of this internship is to assist me a understand the concept of computer science, broad level of understanding to solve a problem with proper process and under different modes of operation by providing me discipline, skills, teamwork and technology knowledge through appropriate training environment.*

*I was appointed in RadixWeb Software Service Pvt. Ltd. for a twelve-week internship as trainee software engineer to carry out and manage the business development initiatives. During my internship period I worked with different technologies like GitHub, HTML, CSS, Bootstrap, Tailwind CSS, Docker, JavaScript, jQuery, Typescript, MySQL and React Js fundamentals during the internship period. This are the technologies which are the necessary for the development of web applications.*

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## **Abbreviations**

QA	Quality Assurance
CSS	Cascading Style Sheets
SQL	Structured Query Language
PHP	Hypertext Pre-processor
HTTP	Hypertext Transfer Protocol
SDLC	Software Development Life Cycle
HTML	Hypertext Markup Language
GB	Gigabyte
DOM	Document Object Model
AJAX	Asynchronous JavaScript
DML	Data Manipulation Language
DQL	Data Query Language
XML	Extensible Markup Language
JSX	JavaScript XML

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## Chapter 1. INTRODUCTION

### 1.1 COMPANY PROFILE:

RadixWeb is a software development company based in Ahmedabad, India, with additional offices in the United States and the United Kingdom. The company was founded in 2000 and has since become a leading provider of software development and IT outsourcing services.

RadixWeb offers a wide range of services to clients in various industries, including custom software development, web application development, mobile app development, cloud computing, software testing, and maintenance and support. The company has expertise in various technologies, such as .NET, PHP, Python, Angular, React, Node.js, and more.

Fig 1.1 shows the logo of the RadixWeb. RadixWeb has a team of over 700 skilled professionals, including software engineers, project managers, and quality assurance specialists. The company has received various awards and recognitions for its services, including the Stevie Business Awards for Innovation in Technology Development, the best IT Consulting Company Award by Globee Business Awards, the most Innovative IT Company of 2022 by TITAN Business Awards, the Great Place to Work India, 2021 Certification, and the International Association of Outsourcing Professionals (IAOP) award.

RadixWeb is committed to delivering high-quality software solutions to its clients and has established a reputation for excellence in the industry. The company prides itself on its customer-centric approach, and its ability to deliver innovative and cost-effective solutions that meet the unique needs of each client.



Figure 1.1 RadixWeb Logo

## 1.2 DIFFERENT PRODUCTS:



Figure 1.2 OnprintShop Logo

OnPrintShop is a web-to-print solution developed by RadixWeb that enables printing companies to create and manage online stores for their customers. Fig 1.2 shows the logo of the OnPrintShop. It is a comprehensive solution that includes features such as product personalization, design templates, order management, and payment processing.

The solution is designed to cater to the needs of printing companies that want to expand their business by offering online printing services to their customers. With OnPrintShop, printing companies can create customized online stores for their customers where they can order products such as business cards, brochures, flyers, and more.

OnPrintShop offers a range of features that enable printing companies to create a seamless online shopping experience for their customers. The solution includes a powerful product personalization tool that enables customers to customize their products with text, images, and graphics. The solution also includes a wide range of design templates that customers can choose from to create their customized products.

Order management is also a key feature of OnPrintShop, with the solution offering a range of tools to manage orders efficiently. The solution includes order tracking, order history, and shipping integration with leading logistics providers.

Payment processing is also streamlined with OnPrintShop, with the solution supporting multiple payment gateways to enable customers to pay for their orders securely.

Overall, OnPrintShop is an excellent solution for printing companies looking to expand their business by offering online printing services. The solution offers a range of features that enable printing companies to create a seamless online shopping experience for their customers while also managing orders efficiently.

## RxWeb:



Figure 1.3 RxWeb Logo

RxWeb is an open-source framework for developing TypeScript reactive web apps. By offering a set of tools and rules for developing scalable and maintainable systems, it is intended to make the development of sophisticated online apps simpler.

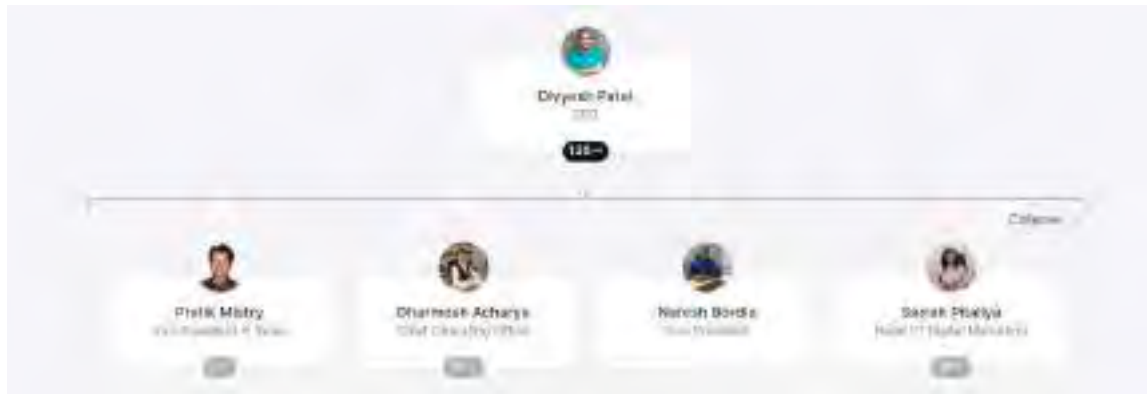
The framework is constructed on top of Angular and RxJS, two commonly used web development technologies. Fig 1.3 shows the logo of RxWeb. The reactive programming paradigm, which RxWeb makes use of, enables programmers to design code that reacts to changes in data over time. This improves user experience and makes it simpler to manage complex data flows in web applications.

The capabilities and conventions offered by RxWeb make it simple to create reactive web apps. These consist of:

- 1. Reactive forms:** To make it easier to create forms for online applications, RxWeb offers a reactive form module. This module offers a set of validators for form validation and makes use of RxJS's power to manage form data changes.
- 2. Reactive HTTP:** To make communication with web servers simpler, RxWeb offers a reactive HTTP module. This module handles HTTP requests and responses using observables, which makes handling complex data flows and handling failures simpler.
- 3. Reactive storage:** RxWeb offers a reactive storage module that makes it easier for web applications to manage client-side storage. This module offers a simple-to-use API for saving and retrieving data while utilizing local storage and session storage.
- 4. Code generation:** RxWeb offers a collection of tools for code generation that make it easier to create intricate web apps. The time and effort needed to create web applications is decreased by these tools, which produce boilerplate code from straightforward configuration files.

RxWeb is an effective framework that makes it easier to create reactive web apps. It is the best option for creating scalable and maintainable web apps due to its concentration on reactive programming and code generation.

### 1.3 ORGANIZATION CHART:



**Figure 1.4 Organization Chart**

Fig 1.4 is showing the organization chart of RadixWeb and working hierarchy.

### 1.4 CAPACITY OF PLANT:

With rich and varied experience of 20+ years in software development and stringent quality standards, RadixWeb offer utmost qualitative, on-time and cost-effective software solutions. RadixWeb serve clientele across the industries and globe with offices in US, Canada, UK, Australia, and Development center in India with a workforce of 700+ IT professionals.

RadixWeb have successfully completed 1800+ projects with 700+ SMEs and Fortune 500 Companies.

### 1.5 MISSION AND VISION OF THE COMPANY:

#### **Mission**

RadixWeb's mission is to provide innovative and customized software solutions to clients across various industries. The company aims to leverage its expertise in technology to help clients achieve their business objectives and enhance their competitive edge. RadixWeb strives to maintain the highest standards of quality, integrity, and professionalism in all its operations.

**Vision**

Radix Web's vision is to be a globally recognized software development company that delivers innovative and cutting-edge solutions to clients across various industries. The company aims to achieve this vision by continuously investing in the latest technology, attracting and retaining top talent, and providing exceptional customer service to clients. RadixWeb also aims to be a socially responsible company that contributes to the betterment of society and the environment.



## CHAPTER 2: - DIFFERENT UNIT OF THE ORGANIZATION

RadixWeb has various departments, each playing a crucial role in delivering high-quality software solutions to its clients. Here's a brief overview of the work carried out by each department:

- 1. Business Development:** The Business Development department is responsible for identifying potential clients and establishing partnerships with them. They are responsible for understanding the clients' requirements, developing proposals, and negotiating contracts. They work closely with the other departments to ensure that the proposed solutions meet the clients' needs.
- 2. Project Management:** The Project Management department is responsible for managing the software development projects from start to finish. They work closely with the clients, the development team, and other stakeholders to ensure that the project is completed within the specified timeline, budget, and scope. They also ensure that the project meets the quality standards set by the company.
- 3. Software Development:** The Software Development department is responsible for designing, developing, testing, and maintaining software applications. They work with various programming languages, frameworks, and tools to develop custom software solutions that meet the clients' requirements. They follow agile methodologies and best practices to ensure that the software is delivered on time, within budget, and with the desired quality.
- 4. Quality Assurance:** The Quality Assurance department is responsible for testing the software applications developed by the software development team. They ensure that the software meets the functional and non-functional requirements specified by the clients. They perform various types of testing, such as unit testing, integration testing, system testing, and acceptance testing, to ensure that the software is bug-free and meets the quality standards set by the company.
- 5. UX/UI Design:** The UX/UI Design department is responsible for designing user interfaces and user experiences for software applications. They work closely with the software development team to ensure that the software is user-friendly, intuitive,

and visually appealing. They use various tools and techniques to create wireframes, mockups, and prototypes that showcase the software's design and functionality.

6. **Human Resources:** The Human Resources department is responsible for recruiting, training, and managing the company's workforce. They ensure that the company has the right talent and resources to deliver high-quality software solutions to its clients. They also ensure that the company's policies and procedures are compliant with the relevant laws and regulations.
7. **Marketing:** The Marketing department is responsible for promoting the company's services and brand. They develop marketing strategies, create content, and use various channels to reach out to potential clients. They also organize events, webinars, and conferences to showcase the company's expertise and capabilities.

Overall, each department plays a critical role in delivering high-quality software solutions to RadixWeb's clients. They work collaboratively to ensure that the projects are completed on time, within budget, and with the desired quality.

## 2.1 TECHNICAL SPECIFICATIONS IN EACH DEPARTMENT

1. **Business Development:** Laptops, desktop computers, projectors, conference call systems, CRM software, project management software.
2. **Project Management:** Laptops, desktop computers, project management software, collaboration tools, communication software, time tracking software.
3. **Software Development:** Laptops, desktop computers, servers, integrated development environments (IDEs), code editors, version control software, testing frameworks, programming languages, software development kits (SDKs).
4. **Quality Assurance:** Laptops, desktop computers, software testing tools, test automation tools, defect tracking software, virtualization software.
5. **UX/UI Design:** Laptops, desktop computers, design software, wireframing tools, prototyping tools, graphic design software, user testing software.
6. **Human Resources:** Laptops, desktop computers, HR software, payroll software, time tracking software, benefits management software.

- 7. Marketing:** Laptops, desktop computers, marketing automation software, email marketing software, social media management tools, analytics software, content creation tools.

It's worth noting that the specific technical specifications of the equipment used in each department can vary depending on the specific needs of the department and the projects being worked on.

## 2.2 SCHEMATIC LAYOUT OF END PRODUCT

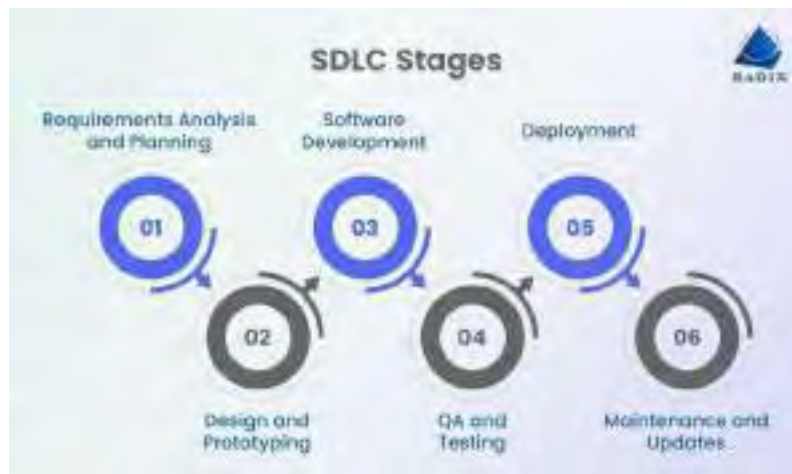


Figure 2.1 SDLC

SDLC (Software Development Life Cycle) has different process stages in which software passes through during its lifetime. The software development life cycle consists of a defined step-by-step process for developing quality software. And if any of the steps are missed, then all the software development efforts will go in vain.

Fig. 2.1 shows software development life cycle stages consist of requirement gathering, design, development, testing, deployment, and maintenance. However, when you hire a dedicated team of experts, they are responsible for each software product development phase.

Moreover, the software design process steps remain constant, irrespective of implementing the software development methodology.

## 2.3 DIFFERENT STAGES OF THE PRODUCTION

### Stage-1: Requirements Analysis and Planning

In the software development process, requirements analysis and planning are considered

the first step. For many projects, this step requires a great amount of attention. Project managers and prospects exchange words to understand each other's persona and requirements.

There are several questions to be asked at this stage, which are:

- Who is going to use the product?
- How will the software be used upon completion?
- What types of functionalities and features will the software have?
- What should be the final outcome of this product or software?

After getting answers to the above questions, a general outline is created for the software development team to focus on. Then data is monitored to ensure the validity and any possibility for incorporation of the same. Finally, a requirement specification document is created as a roadmap for the next stage of the software development process.

Before proceeding with the software product development strategic move, technical feasibility needs to be checked at this stage.

### **Stage-2: Design and Prototyping**

In this phase of SDLC, you need to create simple wireframes to show how interactions will function in the software or create full-featured prototypes using various tools like In Vision or Adobe to test with users, depending on the software development approach you are using.

In this stage, you can identify whether there are any errors or bottlenecks or not. You can easily get prompt feedback from the users and improve the products based on their feedback or issues. This will help you with the finalized product for development.

### **Stage-3: Software Development**

Development phase only comes into the software process once you are ready with your final requirements, wireframe, prototype, and sure about UX design. The software engineers start working on the development by choosing their given programming language for enterprise software development.

Apart from writing codes, software developers perform unit and module testing to detect potential errors in the early stage of development. However, some organizations prefer to

outsource their software development requirements for better product development. In fact, the actual reason for outsourcing development varies from simply not having capable in-house resources or skills.

Tasks are divided based on the development approach, and the product can be developed by the specified timeline. Many important documents are created, including the design document, the functional requirement specification document, and the coding guidelines used for the final delivery.

#### **Stage-4: QA and Testing**

Quality is the key to the success of any software product. Hence, the testing and quality assurance stage involves various types of testing, such as system testing, bug fixing, user acceptance testing (UAT), and test report generation.

Once the product is ready with all the features and functionalities, it's deemed ready for quality assurance. It's performed iteratively as issues are found, corrected, and verified.

#### **Stage-5: Deployment**

Deployment is one of the important stages in the software development life cycle. Once the developers are done with coding and testing, the next development phase is to deploy or publish your software on the given servers.

As the product is now available on the market to potential customers, it's named an Alpha release. This is because a limited set of users use the product and give their feedback. Once all the feedback is gathered, the required changes are updated to the software for seamless performance and then released as a Beta version. Now, more user base will have access to the software product.

#### **Stage-6: Maintenance and Updates**

The SDLC is not completed once your software is deployed or available on the market. You know, it's a 'lifecycle' and "iterative process", right?

The ending of one phase is just the beginning of another. And this is applicable after the deployment stage as well.

As we know, in this competitive market, project requirements and customer need always

keep changing. While using the software product, some users may also find bugs or errors. Moreover, they will also request new features and different functionalities for a seamless experience. And the software requires platform upgrades and software maintenance.

## **CHAPTER 3:- INTRODUCTION TO INTERNSHIP**

### **3.1 INTERNSHIP SUMMARY**

It was an amazing experience to learn about a technology which is quite trending in today's era. Learning about website development in React.js was a new experience for me and I am glad that I got to learn this technology.

Currently, React.js is one of the most popular JavaScript front-end libraries which has a strong foundation and a large community. I have worked on making static home pages as a part of my internship task. I got experience of learning new tools and technology.

### **3.2 PURPOSE**

Industry experience is often an important part of applying for full time positions. Gaining experience through internship can be helpful for our future scope. Similarly, my purpose was to gain experience and decide my career path so that I can have a clear path towards my goals. Also, I wanted to develop new skills and build a network with professionals.

### **3.3 OBJECTIVE**

A motivated individual with in-depth knowledge of languages and development tools, seeking a position in a growth-oriented company where I can use my skills to the advantage of the company while having the scope to develop my own skills.

To work as a Software Developer applying my knowledge in the field of testing, designing, and maintenance to cater to the specific needs of the people. I wish to work in a team of motivated individuals who wish to work towards the advancement of the company.

### **3.4 SCOPE**

The scope for the internship role at my company was to perform the tasks that had been allotted to me before the deadline.

The things that I was allowed to do:

- Be punctual and attend all the scheduled meetings, including orientations, training sessions, and team meetings.
- Dress appropriately as per the company culture and guidelines.

- Be respectful and courteous to everyone, including supervisors, colleagues, and clients.
- Ask questions and seek feedback to improve your skills and understanding of the tasks assigned to you.
- Follow the company policies and guidelines related to confidentiality, security, and professional conduct.
- Take initiative and show a willingness to learn and contribute to the team's goals.
- Communicate effectively with your supervisor and colleagues, including sharing progress reports and seeking guidance as needed.

The things that I was not allowed to do:

- Don't engage in any behavior that violates the company's policies or the law, including harassment, discrimination, or unethical conduct.
- Don't use company resources or information for personal gain or share confidential information with unauthorized individuals.
- Don't miss any deadlines or fail to complete assigned tasks without prior communication and approval from your supervisor.
- Don't be late or absent from work without valid reasons or prior approval from your supervisor.
- Don't engage in any unprofessional behavior, including gossiping, being rude, or disruptive in the workplace.
- Don't assume anything, ask questions if you are unsure about anything, and seek feedback to improve your work.

### **3.5 TECHNOLOGY**

- Git
- HTML
- CSS
- Bootstrap
- Tailwind CSS
- Docker
- JavaScript



- jQuery
- Typescript
- SQL
- Python fundamentals
- ReactJs

### 3.6 INTERNSHIP PLANNING

The Internship was mainly divided into two parts:

- 1. Common Training:** This training was carried out from 01/02/2023 to 11/04/2023. In this training all the new interns got the common training which included the training about the Git, HTML, CSS, Bootstrap, Tailwind CSS, Docker, JavaScript, jQuery, Typescript and MySQL. This part of the training was intended to learn the concepts that would be required to be used in the live projects in the future and make familiar with all the common languages.
- 2. Technology-specific Training:** This training was carried out from 12/04/2023 to 01/05/2023. In this training I learned about the Basic and Advanced React Js Framework. This training involves Assignments or tasks that allow me to apply their newly acquired knowledge in practical scenarios. It helps me become more proficient in my chosen field of study or career path. This training was designed to equip me with the necessary skills and knowledge to perform tasks related to the project effectively in the future.

## CHAPTER 4:- IMPLEMENTATION

### 4.1 IMPLEMENTATION PLATFORM

#### Visual Studio Code:

Visual Studio Code is a free and open-source code editor developed by Microsoft that runs on Windows, Linux, and macOS. It offers support for a wide range of programming languages, including Python, Java, C++, and JavaScript, and comes with features such as syntax highlighting, code completion, debugging tools, and Git integration. Visual Studio Code also supports extensions, which allows users to customize the editor to their specific needs, making it a popular choice among developers.

### 4.2 TECHNOLOGY

#### Git

Git is a well-known version control tool made to assist developers in managing and following changes made to their codebase over time. Since its creation by Linus Torvalds in 2005, it has grown to rank among the most popular software development tools.

Every developer working on a project has a complete copy of the codebase on their own PC because Git is fundamentally a distributed system. This makes it simple to combine modifications from various contributors into a single codebase and enables developers to work on their own code without disturbing others.

Git's capability to resolve disputes that happen when different developers make changes to the same codebase at the same time is one of its main advantages. Git offers techniques for reconciling incompatible changes, enabling developers to work together efficiently without compromising any code.

Last but not least, Git offers a variety of tools for controlling and exchanging code with other developers. Developers can use Git, for instance, to make "branches" that let them work on new features or problem fixes apart from the main codebase. By pushing updates to a central repository or forking the source and producing their own version, they can also utilize Git to share their work with others.

Overall, Git is a powerful and flexible tool that has become an essential part of modern software development. Its ability to handle complex codebases and support collaboration

makes it a must-have tool for any development team.

The topics which I learned in Git during the internship are as follows:

- Learned how to create the Repository, clone the Repository, Making Changes in the Repository.
- Learned how to commit, push and Resolve Conflict while taking pull.
- Learned how to create branch, checkout the branch, merging the branch, cherry pick, merge and rebase, stage the changes and stash the changes.

## **HTML**

HTML (Hypertext Markup Language) is a standard markup language used to create web pages and other information that can be displayed in a web browser. It consists of a set of tags and attributes that define the structure, content, and formatting of web documents.

The various elements that make up HTML documents are contained within tags. Angle brackets (<>) make up tags, which are typically paired with a start tag and an end tag. Between the start and end tags, an element's content can contain text, images, links, and other sorts of media.

The usage of attributes, which offer more details about an element, is also permitted by HTML. The opening tag contains attributes, which can be used to indicate things like the color of text, the location of an image, or the destination of a link.

HTML is essential for creating websites and is often used in conjunction with other technologies such as CSS (Cascading Style Sheets) and JavaScript to create interactive, dynamic web pages. With HTML, web developers can create well-structured and accessible web pages that can be accessed from a variety of devices and platforms.

The topics which I learned in HTML during the internship are as follows:

- Learned HTML5, Empty tags, common HTML tags, Attribute, tables, Ordered List and Unordered List.
- Learned HTML Layout, Semantic Markup, Header and Footer, section, nav, forms, Validation and HTML5 media Tags.

## CSS

CSS (Cascading Style Sheets) is a stylesheet language used for describing the presentation of a document written in HTML. CSS is used to control the visual style and layout of web pages, including fonts, colors, spacing, and more. It allows web developers to separate the design and layout of a web page from its content, making it easier to maintain and update.

CSS works by selecting HTML elements and applying styles to them. Selectors can be used for this, including ID selectors, class selectors, and element selectors. Specific elements, groups of elements, or the entire document can be styled.

A variety of CSS attributes, including font-size, color, background-color, margin, padding, border, and many others, are available for use in defining styles. Combining these attributes can result in intricate visual effects and layout concepts.

The cascading principle, which allows for the application of several styles to an element with the most particular style having precedence, is also supported by CSS. This enables extensive control over the visual appearance of web pages and the creation of unified, expert-looking designs throughout a full website.

The topics which I learned in CSS during the internship are as follows:

- Learned CSS Selectors (id selectors, class selectors, element selectors), background properties, border properties.
- Learned Text properties, Display properties (inline, block, inline-block)
- Learned CSS Float properties, CSS Position properties and CSS Overflow properties.
- Learned CSS Box Model.
- Learned Flex Model.
- Learned CSS Media Queries.
- Learned Grid Layout.

## Bootstrap

Bootstrap is a popular open-source front-end framework that provides a collection of tools, CSS styles, and JavaScript components to help developers quickly build responsive and mobile-first websites and web applications. It was created by Twitter and is now

maintained by a large community of developers.

Developers can create adaptable designs that adjust to various screen sizes and devices thanks to Bootstrap, which employs a grid structure to describe the layout of a webpage. Additionally, it offers a collection of pre-designed elements that can be easily modified and expanded, including buttons, forms, navigation menus, and typography.

One of Bootstrap's key advantages is that it allows programmers to save time by offering a standardized collection of components that are simple to incorporate into their projects. It also guarantees a consistent visual style across many websites and software programmers, making it a wonderful option for web designers who like to concentrate on utility over appearance.

Bootstrap is compatible with all modern web browsers and supports the latest HTML, CSS, and JavaScript standards. It also has a large community of developers and contributors who provide support, resources, and plugins to enhance its functionality and ease of use.

In summary, Bootstrap is a popular front-end framework that provides a comprehensive set of tools and components to help developers build responsive and mobile-first websites and web applications quickly and efficiently.

The topics which I learned in Bootstrap during the internship are as follows:

- Learned Text Alignment & Display, Float & Fixed positions, Colors & background, margin & spacing, sizing & borders, buttons & buttons groups.
- Learned navbar & nav, List groups & Badges, Forms & Input, Input Groups, Alert & Progress Bars, Tables & Pagination, Cards, Breadcrumbs, Carousel, Badge.
- Learned Grid System & Flex box, Carousel Slider, Collapse & Accordion, popovers, Modals.

### **Tailwind CSS**

Tailwind CSS is a popular utility-first CSS framework that provides developers with a set of pre-defined CSS classes to quickly and easily style HTML content. Unlike traditional CSS frameworks, which often have pre-built components and require extensive customization, Tailwind CSS focuses on providing low-level utility classes that can be

combined to create custom designs without writing any CSS code.

A full collection of pre-built classes for layout, typography, color, and spacing, among other things, are included in the framework's extensive list of customization options. In addition to swiftly prototyping and refining ideas, this enables developers to make adaptable layouts that adjust to various screen sizes.

One of the key benefits of Tailwind CSS is its flexibility. Because it provides low-level utility classes, developers can create highly customized designs without having to override default styles or deal with complex CSS specificity issues. Additionally, the framework is highly modular, making it easy to selectively include only the classes needed for a particular project.

### **Docker**

Docker is a platform that enables developers to create, deploy, and run applications in a consistent, reliable, and scalable way. It uses containerization technology to package an application and all its dependencies into a single container that can be easily moved from one environment to another.

Because Docker containers are small and effective, developers can quickly create and destroy environments for testing, development, and production. A secure and dependable approach to run programmers is provided by each container's isolation from the host operating system and other containers.

Docker provides a wide range of tools and services to manage containers, including Docker Engine and Docker Compose. The Docker platform's heart, Docker Engine, offers a runtime environment for containers. Developers can specify multi-container applications using Docker Compose.

Overall, Docker has become a popular choice for developers and organizations looking to streamline the development and deployment of their applications and is used by many companies across a variety of industries.

The topics which I learned in Docker during the internship are as follows:

- Learned docker container, images, building images, using images, docker file, docker CLI.
- Learned Docker Compose, Multistage in docker file, Docker Volumes,

Docker hub, push and pull the images.

## **JavaScript**

JavaScript is a programming language that is commonly used to create dynamic and interactive web pages. It is a high-level language that is interpreted by browsers, which means that it is executed on the client-side, or on the user's computer, rather than on the server.

JavaScript enables web designers to incorporate animations, pop-up windows, drop-down menus, and other interactive elements into online sites. It can also be used to carry out more difficult tasks, such as developing web-based games and applications or even operating robots and drones.

One of the key features of JavaScript is its ability to manipulate the Document Object Model (DOM), which is the programming interface for HTML and XML documents. This allows developers to dynamically change the content and appearance of web pages in response to user actions, without the need for a full-page refresh.

Web browsers, servers, and even mobile devices may all use JavaScript since it is a flexible and adaptable language. It is a fascinating language for developers to work with because it is also continually changing, with new features and upgrades being added on a regular basis.

The topics which I learned in JavaScript during the internship are as follows:

- Learned JavaScript Variables, Data types, Functions, for, while, foreach loop, Array, methods, events.
- Learned Array methods, String methods, Number methods, Date methods, Regular Expression.
- Learned DOM, callback, promises, async and await.
- Learned Function Expression, function constructor, self-invoking constructor, function call, function apply, function hoisting, global variable and local variable and function closure.
- Learned Web storage API, web fetch API.

## **jQuery**

jQuery is a fast, lightweight, and powerful JavaScript library that simplifies HTML

document traversing, event handling, animating, and AJAX interactions for rapid web development. It is cross-platform compatible and can be used with any web browser that supports JavaScript.

One of the most significant advantages of jQuery is its ability to help developers create complex web applications with minimal code. jQuery provides an extensive range of functionalities for creating dynamic and interactive web pages, including DOM manipulation, event handling, and animation effects.

The library offers a wide range of features, including a CSS selector engine, which allows developers to easily select and manipulate elements within an HTML document. It also provides numerous pre-built plugins that can be used to enhance web pages with features like sliders, carousels, and tooltips.

Another key advantage of jQuery is its support for AJAX, which enables developers to create dynamic web applications that can communicate with servers asynchronously, without requiring the entire page to reload.

The topics which I learned in jQuery during the internship are as follows:

- Learned jQuery id and class selectors, events, hide, show, toggle, fadeIn, fadeout, jQuery DOM manipulation (text(), html(), val(), attr()).
- Learned jQuery Add elements (append(), prepend(), after(), before(), remove(), empty()), CSS() and iterate(\$.each()).
- Learned jQuery Traversing, Ancestors (parent(), parents(), parent Until()), Descendants (children(), find()), filtering (first(), last(), eq(), filter(), not()).

### **Typescript:**

TypeScript is an open-source programming language that is a superset of JavaScript. It was developed and maintained by Microsoft, and it aims to provide developers with a more robust, scalable and reliable way to write code in JavaScript.

JavaScript now has static type checking thanks to TypeScript, which enables programmers to identify mistakes at compilation rather than runtime. It also has extra features that help organizing and maintaining big codebases simpler, including as interfaces, classes, modules, and namespaces.

One of the main benefits of using TypeScript is that it helps developers catch errors early



in the development process. This can save a significant amount of time and effort that would otherwise be spent debugging code. Additionally, TypeScript can help improve the overall quality of code by making it easier to read, maintain, and understand.

Various contexts, such as web development, server-side applications, and mobile development, can make use of TypeScript. Many developers favor it because it is compatible with well-known frameworks like React, Angular, and Node.js.

Overall, TypeScript is a powerful and flexible programming language that can help developers build high-quality, scalable applications with ease.

The topics which I learned in Typescript during the internship are as follows:

- Learned Typescript data types, type Annotation, Number, Number methods, String, string methods, Array, Array methods, Class, function, Enum, interface, tuples, union, set, map, date.
- Learned Generic, Modules, Namespace.

## **SQL**

SQL stands for Structured Query Language and is a standard language used for managing and manipulating data in relational database management systems (RDBMS). It is a powerful tool for querying, updating, and retrieving data from databases.

SQL uses a set of commands to interact with the database. These commands include SELECT, INSERT, UPDATE, DELETE, CREATE, and DROP, among others. Each command is used for specific purposes, such as selecting data from a database, inserting data into a database, updating existing data, and deleting data from a database.

Using joins and subqueries, SQL also supports complex queries. Subqueries are used to retrieve data from one table that meets particular criteria given in another table, whereas joins are used to aggregate data from two or more tables based on a common field.

One of the strengths of SQL is its ability to handle large amounts of data efficiently. It also provides strong data integrity and security features to protect sensitive information.

- Learned Create, alter, drop, normalization, DML (update, insert and delete).
- Learned DQL (where, comparison & logical operator, range operator, in/not operator, like, order by, top, distinct), union, except, intersect, derived tables and Common Table Expression.

- Learned String functions, Date functions, Rankings functions, system functions.
- Learned Aggregate functions (sum, count, avg, max, min), group by, having, rollup, select into, joins, subqueries.
- Learned Views, Indexes, Stored Procedures.

## **ReactJS**

ReactJS is a popular open-source JavaScript library used for building user interfaces for web applications. It was developed by Facebook and released in 2013. ReactJS allows developers to build complex and interactive UIs with ease by breaking them down into smaller, reusable components.

One of the key features of ReactJS is its virtual DOM (Document Object Model). ReactJS compares and updates the changes made by the user in the UI using a virtual DOM rather than directly updating the real DOM. Since only the necessary components are updated instead of the entire page, this enables faster and more effective rendering of the user interface.

Data in ReactJS flows solely in one direction, from parent to child components. This is known as a unidirectional data flow. This improves control over the application's state and makes troubleshooting faults simpler.

ReactJS is also very adaptable and simple to combine with other frameworks and libraries. With a sizable and active developer community always trying to enhance and increase its capabilities, it is widely utilized in the industry for developing intricate, high-performance online applications.

The topics which I learned in ReactJs during the internship are as follows:

- Learned how to create a new React App, JSX, Rendering Elements, JavaScript in JSX, Components and Props and CSS in React.
- Learned Import and Export, class-based Component, Function vs Class, State.
- Learned Events, passing methods to children, Conditional in JSX.
- Learned Controlled Input form submission.
- Learned Uncontrolled Input with ref and React Fragment.
- Learned React Hooks (use State, use Effect, use Ref).

### 4.3 Redmine Git – 1.0 Assignments

#### Assignment-1:

Create a flow chart and algorithm for addition of two numbers, area of circle, do the sum of all the even numbers.



Figure 4.1 Git Module Assignment-1

The above diagram shows the final repo structure after complete the task of git.

#### Assignment-2:

Fork the following repository and Practice to conflict.

#### Work:



Figure 4.2 Git Module Assignment-2

Fig. 4.2 shows the final repo structure after solve the conflict.


### FT-HTML 1.0 Assignment

#### Assignment-1:

Design a form for storing employee details. (Employee name, age, Gender, designation, salary, location, Email ID, Date of Joining and contact number)

- Validation required.
- Age should be a number.
- Each field should contain value
- Email ID should be in proper format

- Date of joining should be in date format
- Location should be in the drop-down list
- Use radio buttons for Gender.

**Work:**

The screenshot shows a web form with the following elements:

- Employee Name:
- Employee Age:
- Select your gender:  Male  Female
- Enter your designation:
- Enter your salary:
- Select your location:
- Enter your E-mail:
- Date of joining:
- Contact number:
- 

**Figure 4.3 HTML Assignment-1**

Figure 4.3 shows the final output of the given task with all the mentation validations.

**Assignment-2:**

Create personalized resume, which must be attractive. Use all the HTML tags.

**Work:**



Figure 4.4 HTML Assignment-2 Resume

Figure 4.4 shows the final output of the resume task which has been design by different HTML tags and CSS properties.

## FT-CSS 2.1 Assignments

### Assignment-1:

Create Basic layout of the application which contain header, footer, left bar and sidebar. Header keeps brand logo and navigation bar for home, about us and contact us. Navigation should work properly.

### Work:



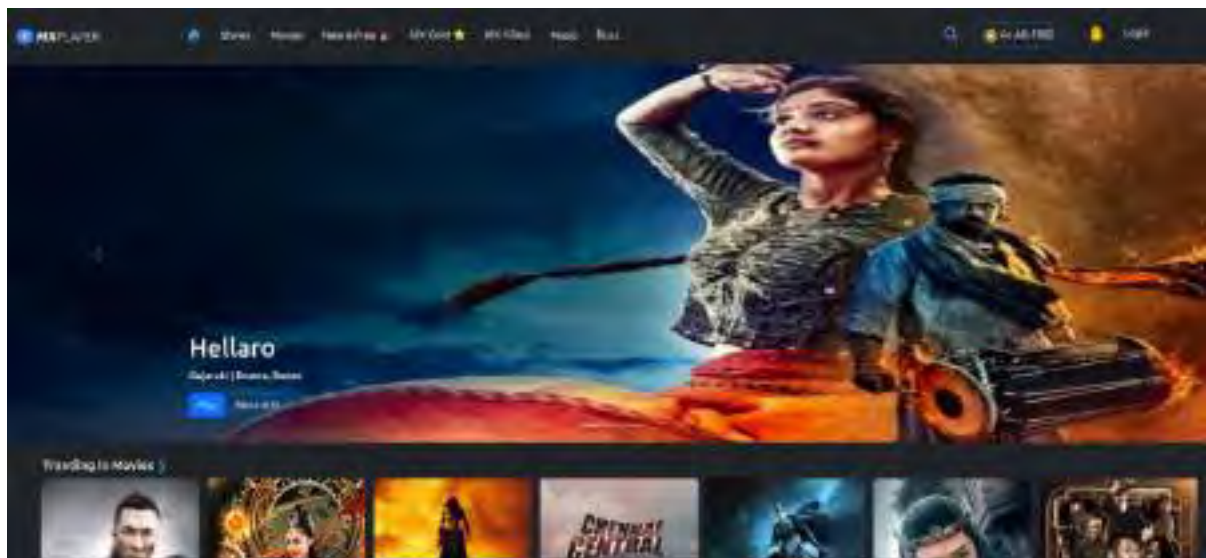
**Figure 4.5 CSS Website**

Figure 4.5 shows the website layout made in CSS and all pages are properly can navigate from page to another.

## **FT-Bootstrap 2.2 Assignments**

### **Assignment-1:**

Create Mx Player Clone.



**Figure 4.6 Mx Player Clone - Bootstrap**

Figure 4.6 shows the frontend of Mx Player app which is design in bootstrap.

### **Assignment-2:**

Hands on the Project what you learn on video tutorial.

### **Work:**

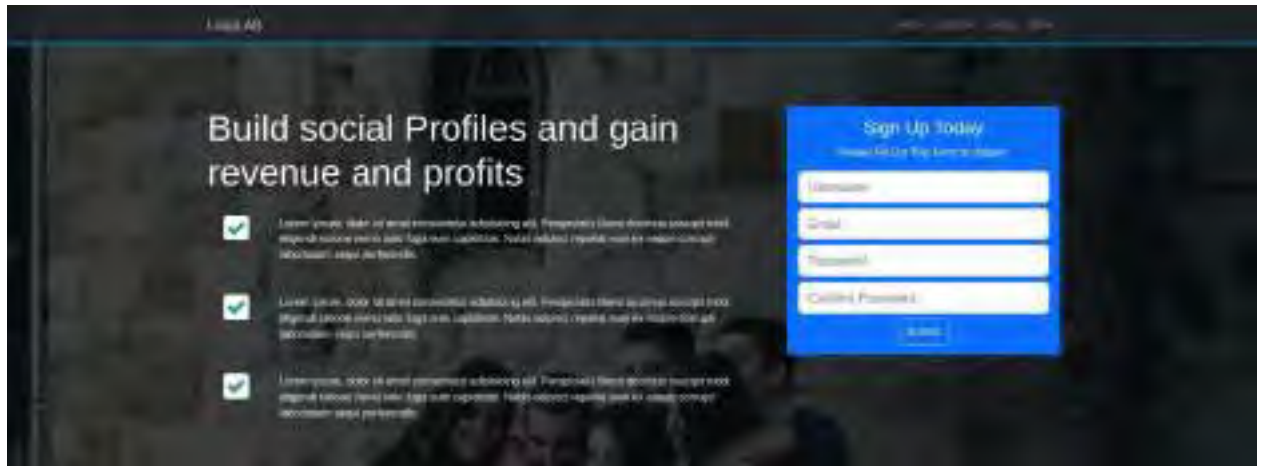


Figure 4.7 Bootstrap LoopLab Project

Figure 4.7 shows the LoopLab project layout design in bootstrap with responsive for all the device.

## FT-Tailwind 2.3 Assignments

### Assignment-1:

Create your own portfolio which should be responsive.

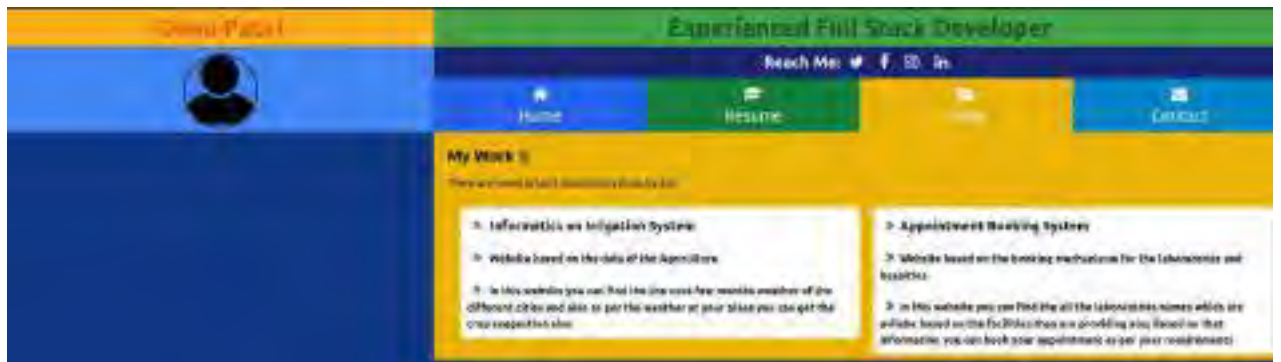


Figure 4.8 Tailwind CSS Portfolio

Figure 4.8 shows the output of the portfolio design in tailwind in responsive nature for all the devices.

### Assignment-2:

Create a product website.

### Work:



**Figure 4.9 Tailwind CSS PhoneVala**

Figure 4.9 shows the final output page navigation in tailwindcss with responsive nature.

## FT-JavaScript 3.0 Assignments

### Assignment-1:

Design a form for storing employee details. (EmployeeID, Employee name, age, Gender, designation, salary, location, Email ID, Date of Joining and contact number) Validation required - EmployeeID should be at least 5 character long. use regular Expression - Age should be a number - Each field should contain value - Email ID should be in proper format - Date of joining should be in date format - Location should be in the drop-down list - Use radio buttons for Gender.

### Work:

Registration Form

Employee ID

Employee Name

Age

Gender:  Male  Female  Other

Designation

Salary

Select your City

Email address

Date of joining

Address

**Figure 4.10 Student Form JS**

Figure 4.10 shows the student Registration form design in tailwind and validated in JavaScript for all the fields.



## Assignment-2:

University of Mumbai needs to set an online exam for their students. For that they need to set a timer for three hours. After 3 hours exams should be finished.

### Work:



Figure 4.11 Timer

Figure 4.11 shows the timer in JavaScript which will count for 3 hour and after that timer will be stop automatically.

## Docker Assignment:

### Assignment-1:

Deploy your Vite vanilla project of CSS course.

### Work:



Figure 4.12 Docker Image Reflect Resume

Figure 4.12 shows the output of the code after create the docker image in browser.

## FT-5.0-TypeScript Assignments

### Assignment-1:

Store 5 employees' data in one array (ID, FirstName, LastName, Address, Salary). Do the operation searching by index number, EmployeeID, Insert the employee, delete the employee from the Array.

**Work:****Figure 4.13 TS Assignment-1**

Figure 4.13 shows the Employee registration from design in HTML and validation done in typescript.

**Assignment-2:**

There is a retail shop which need to manage the inventory, whenever some purchase is being made product quantity should be reduced, if quantity is less than 5 reorder requests should be raised.

**Work:****Figure 4.14 Ts Inventory Shop**

Figure 4.14 show the output layout of retail shop in which we can add product and also purchase the product and when product quantity goes to less than 5 alert will appear for particular product. Frontend design in bootstrap and business logics written un Tailwindcss.

## Beginner SQL Assignments

### Assignment-1:

You have been hired to create a relational database to support a car sales business. You need to store information on the business's employees, inventory, and completed sales. You also need to account for the fact that each salesperson receives a different percentage of their sales in commission. What tables and columns would you create in your relational database, and how would you link the tables?

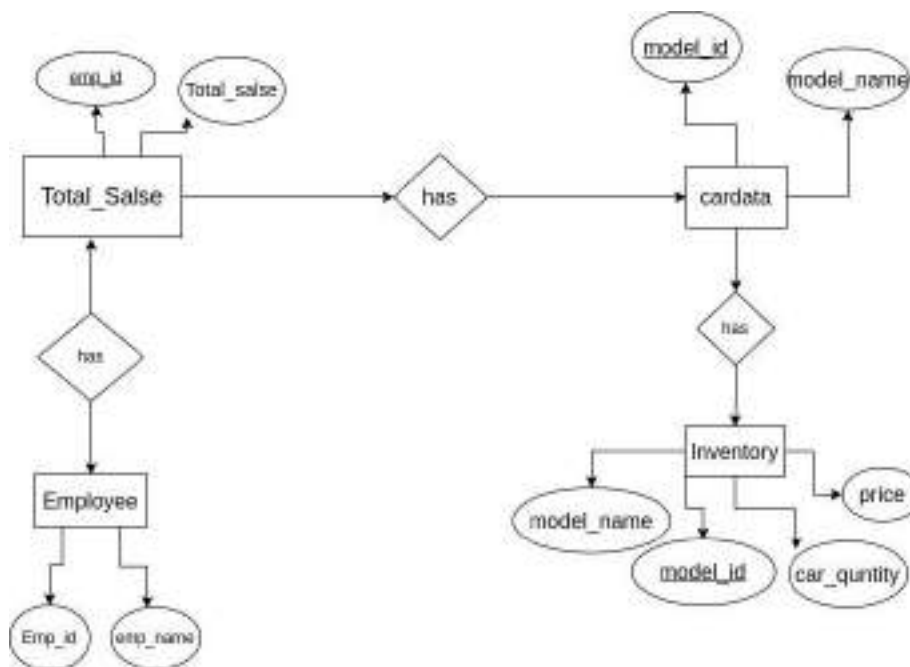


Figure 4.15 MySQL ER Diagram

Figure 4.15 shows the ER diagram of problem statement where underline entity is the primary key and each department has only one primary key.

### Assignment-2:



Figure 4.16 MYSQ One Compiler

Figure 4.16 shows the image of one compiler which provide the platform to run the SQL query online.

## React Js Assignments

### Assignment-1:

Store the student data in one array and pass data with props and print the student cards with the map function.

### Work:

Data passing in from of props:

```
return (
  <div className="flex flex-wrap">
    (StudentData.map((e) => {
      return (
        <div key={e.Enroll} className="w-max mx-auto">
          <College />
          <UserImage link={e.Image}/>
          <UserInfo name={e.Name} dep={e.Department} enroll={e.Enroll} dob={e.DOB}/>
        </div>
      )
    })
  </div>
)
```

Figure 4.17 React Pass data as Props



Figure 4.18 Pass data as props and print

Figure 4.17 shows the code that how we can pass data in props in react with map function and Figure 4.18 shows the final output of the card layout after pass the data in props.

### Assignment-2:

Store the student data in one array and pass data with children and print the student cards with the map function.

**Work:**

Passing data in children:

```

return (
  <div className="flex flex-wrap">
    {StudentData.map(e) => {
      return (
        <div key={e.Enroll} className="w-max mx-auto">
          <College />
          <UserImage >{e.Image}</UserImage>
          <UserInfo>{{"name":e.Name,"dep":e.Department,"enroll":e.Enroll,"dob":e.DOB}}</UserInfo>
        </div>
      )
    }}
  </div>
)

```

Figure 4.19 Pass data in children



Figure 4.20 Pass data in children and props

Figure 4.19 shows the code image of another data passing method of react and the Figure 4.20 shows the same out as we pass data in props.

**Assignment-3:**

Create one student registration form with the details of (Name –(First/Middle/Last)

DOB, Place of Birth, First Language, Address- Cit, State, Country, Pin,

Father: FullName –First/Middle/Last, Email, Education, Qualification, Profession, Designation, Phone,

Mother: FullName –First/Middle/Last, Email, Education, Qualification,

Profession, Designation, Phone, Emergency Contact List, Relation, Number, Reference Details, Reference Through)

Student Name	Student ID	Student DOB	Student Gender	Student Address	Student City	Student State	Student Pincode	Student Email	Student Phone	Student Password	Student Confirm Password	Student Profile Picture
Deep Mukherjee	20231042	2004	Male	14/2	142	142	142	142	142	142	142	142

Figure 4.21 Student Registration Form

Figure 4.21 show the design of student registration from and validation in JavaScript and also the below table shows the data entered in table and for data store we will hook of react that will store temporary data in react.

**Assignment-4:**

Based on the data print the data in form of given color and in the given format

Employee Name: Vikas  
Employee code: 101

Status	Type	Days	From Date	To Date	Applied On	Applied By	Handle
Approve	Privilege Leave (PL)	1	2023-02-15 (Wed)	2023-02-15 (Wed)	2023-02-21T18:49:31.41	Nikunj Prajapati	Edit
Approve	Common Leave	1	2023-02-06 (Mon)	2023-02-06 (Mon)	2023-02-09T18:42:47.937	Nikunj Prajapati	Edit
Reject	Comp Off (CO)	0.5	2023-02-03 (Fri)	2023-02-03 (Fri)	2023-02-03T00:00:00	Nikunj Prajapati	Edit
Applied	Sick Leave (SL)	0.5	2023-04-03 (Fri)	2023-04-03 (Fri)	2023-02-03T00:00:00	Nikunj Prajapati	Edit
Applied	Privilege Leave (PL)	5	2023-10-02 (Mon)	2023-10-05 (Tue)	2023-02-03T00:00:00	Deep Patel	Edit

Figure 4.22 React Data table

Figure 4.22 shows the printed table based on the given data and the same structure we have to follow for the data print.

**Assignment-5:**

To-do Application with Crud operation

**Work:**

**Figure 4.23 To-do with CRUD Application**

Figure shows the final layout of the CRUD app in react in which we can create, edit, update and delete tasks.

## Chapter 5: PROJECT

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### A Mini Project - CandiHire

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#### Quick Summary

- **Project Name:** Candi Hire – An Employee Hiring System
- **Project Domain:** Industries
- **Project Description:** CandiHire is universal candidate hiring portal, that can help to hire candidate in easy way. Company can establish own CandiHire.
- **Built in:** Typescript, Tailwind CSS, HTML
- **Effort Time:** 8 hour / Day \* 9 Days = 72 Hours
- **Use Cases:** A Company who are looking for the Hire candidate.
- **Type:** Web Application
- **CandiHire official Link:** <https://deep-candihire.netlify.app/>

### Introduction to Candidate Hiring portal

A candidate hiring portal is an online platform or software that allows employers to manage the entire hiring process, from job postings and applications to candidate screening and selection. It serves as a centralized location where employers can create job listings, receive resumes and applications, communicate with candidates, schedule interviews, and manage hiring workflows.

### Analysis the Scenario

Majorly, most of companies Recruit the Candidate by their own website's page called 'Career' section. But in this page, there is only vacancy's part, candidate can show or apply, there are no tracker of your application, further most of communication done by mail. So, there is lots of difficulties for candidate to track his/her application.

Now, there is smart solution for this "Candi-Hire" - this portal providing the real time application tracking. So, user can easily track their application.

### Targeting feature of CandiHire:

- Job Posting
- Application Management
- Interview Scheduling
- Reporting



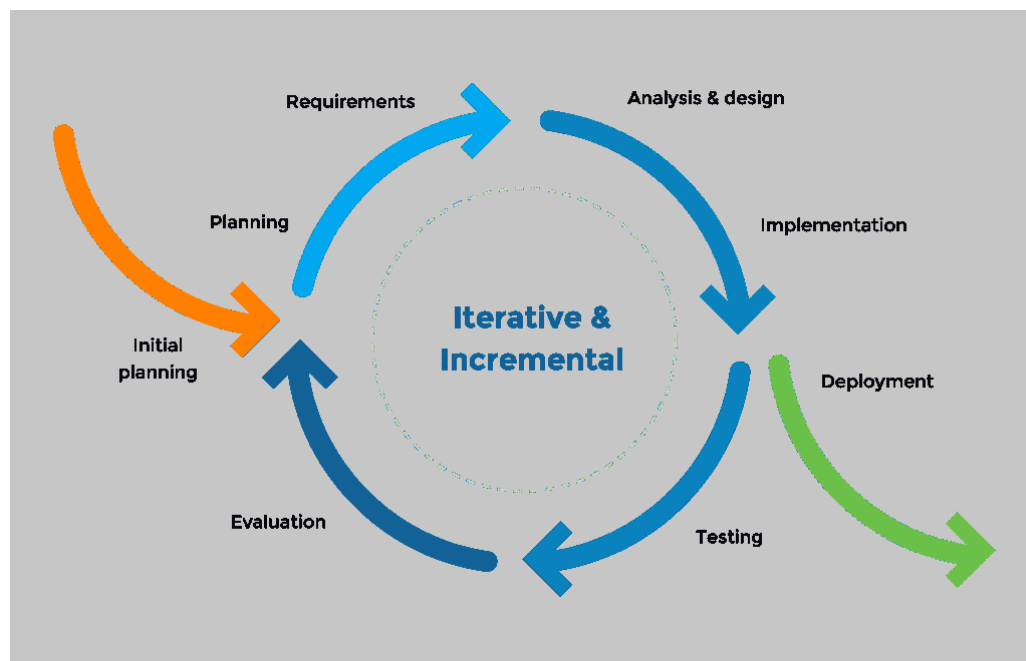
### Objective of Candi-Hire

- ✓ Making easy of recruitment
- ✓ Real time application tracking
- ✓ Overcome to manage the lots of application in one time
- ✓ Making selection fast
- ✓ No require to wait and watch of application
- ✓ Promoting Skill India

### Scope of Candi Hire

In India there are lots of employment done in daily basis so there are lots of industries who are facing the recruitment issue, they can use this product.

### Software Development Strategy Used for CandiHire



**Figure 5.1 SDLC of CandiHire**

The iterative model is one of the easiest to implement software development life cycle models. Figure 5.1 shows the SDLC which is used in development of CandiHire site. There are certain scenarios where the initial or the core software requirements are clearly defined, but the actual span or the full set of features of the project are unknown. Iterative SDLC define as “The iterative process model is the implementation of the software development life cycle in which the initial development is started based on the initial requirements and

more features are added to the base software product with the ongoing iterations until the final system is created.

**Data Designing: ERD**

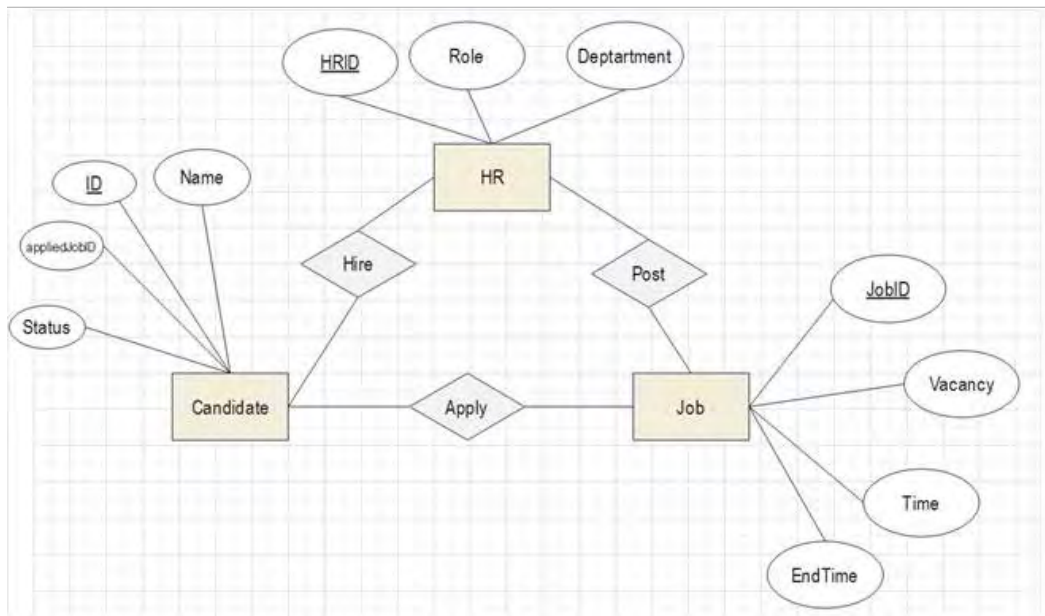


Figure 5.2 ERD of CandiHire

Figure 5.2 shows the ER diagram of the CandiHire.

**Data Flow Diagram:**

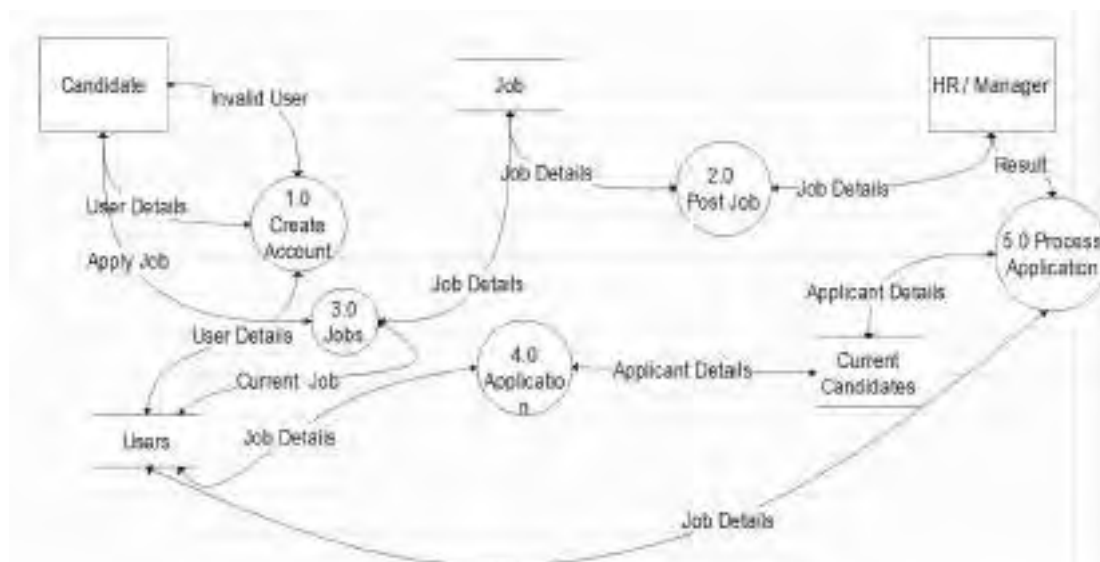


Figure 5.3 Data flow Diagram of CandiHire

Figure 5.3 shows the CandiHire data flow chart as well as it can describe the website flow that from where-to-where data flow is going.

## Candidate UI & Testing: Signup:

The figure displays four screenshots of a sign-up form, illustrating different states and error handling:

- Top Left:** The form is empty, showing fields for User Name, Password, and Confirm Password. A red 'Close' button and a green 'Sign-Up' button are at the bottom right.
- Top Right:** The form is filled with 'User Name: deep\_02', 'Password: \*\*\*', and 'Confirm Password: \*\*\*'. A red message 'Sign-Up Successfully!! 🎉' is displayed at the bottom, along with the 'Close' and 'Sign-Up' buttons.
- Bottom Left:** The form is filled with 'User Name: deep\_02', 'Password: \*\*\*', and 'Confirm Password: \*\*\*'. A red message 'Username Already Exist!! 😞' is displayed at the bottom, along with the 'Close' and 'Sign-Up' buttons.
- Bottom Right:** The form is filled with 'User Name: deep\_02', 'Password: \*\*\*', and 'Confirm Password: \*\*\*\*'. A red message 'Password Not Match!! 😞' is displayed at the bottom, along with the 'Close' and 'Sign-Up' buttons.

**Figure 5.4 Sign-Up Form**

Figure 5.4 shows the signup page it will not allow any duplicate user and also it will check for the both passwords are same or not. For each possible condition the error is available.

## Log-In:

The figure displays two screenshots of a log-in form:

- Left Screenshot:** The form is empty, showing fields for User Name and Password. A red 'Close' button and a green 'Log-In' button are at the bottom right.
- Right Screenshot:** The form is filled with 'User Name: deep\_02' and 'Password: \*\*\*'. The Password field has a blue border and a focus ring, indicating it is selected. The 'Close' and 'Log-In' buttons are at the bottom right.

**Figure 5.5 Log-In Form**

Figure 5.5 shows the log-in page view that if the credentials are correct, it will show the user page else it will not allow anyone to enter in site.

### After Login Home Page:

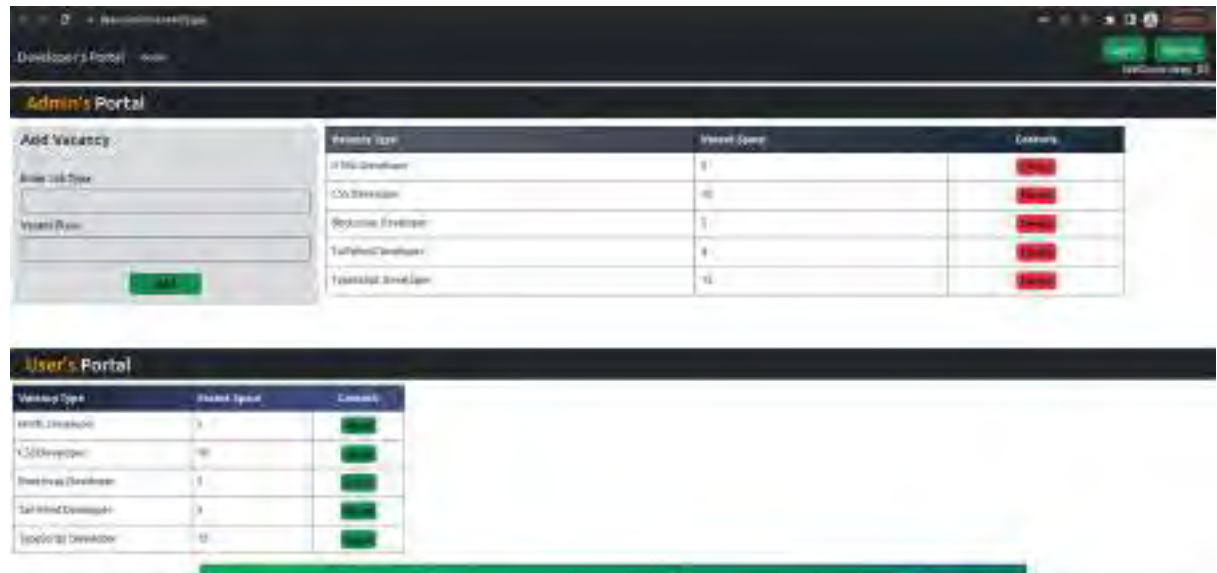


Figure 5.6 After Login Home Page

Figure 5.6 shows the main page view after login.

### Job Posting:

#### Admin Side:



Figure 5.7 Job Posting Admin Side

Figure 5.7 shows the job posting page from admin side in which they can add new job post and that post also will be show to user after log-in.

#### User Side:

Vacancy Type	Vacant Space	Controls
HTML Developer	5	Apply
CSS Developer	10	Apply
Bootstrap Developer	2	Apply
Tail-Wind Developer	4	Apply
TypeScript Developer	15	Apply
Python	10	Apply

**Figure 5.8 After Job Add in User Side**

Figure 5.8 shows the user side view after successfully log-in from this is list user can apply for any job.

### For Admin:

Applied Applicants				
Name	Experience	Technology	Objective	Controls
Deep Patel	1-2 Year	HTML Developer	Web Developer	<input type="button" value="Schedule"/> <input type="button" value="Reject"/>

**Figure 5.9 After Apply the job at admin**

Figure 5.9 shows the admin side page after apply for any job from user side, at this module they have rights to schedule any user's exam or based on the basic info they can reject user as well.

### For User:

Name	Experience	Technology	Objective
Deep Patel	1-2 Year	HTML Developer	Web Developer

**Figure 5.10 After Apply the Job at user**

Figure 5.10 shows the user side page after apply for any job vacancy.

### Exam Schedule:

**Schedule Exam For Deep Patel** ✕

Exam Type

Schedule Exam

**Figure 5.11 exam Schedule at Admin Side**

Figure 5.11 shows the exam schedule module for admin side from there admin can schedule any register user's exam.

### After Scheduling Exam:

#### Admin:



Name	Technology	Exam Type	Scheduled Date	Controls
Deep Patel	HTML Developer	Technical Test	2023-04-24T17:31	Result

Figure 5.12 Result Declare at Admin Side

Figure 5.12 is the admin side view that shows the admin that list of schedule exams scheduled and also show the exam type and the time, date and name of user for whom exam has been scheduled.

#### User:



Figure 5.13 After scheduling exam the view

Figure 5.13 shows the user when his/her exam will be schedule and it will be of which type.

### Admin Can Declare Result:

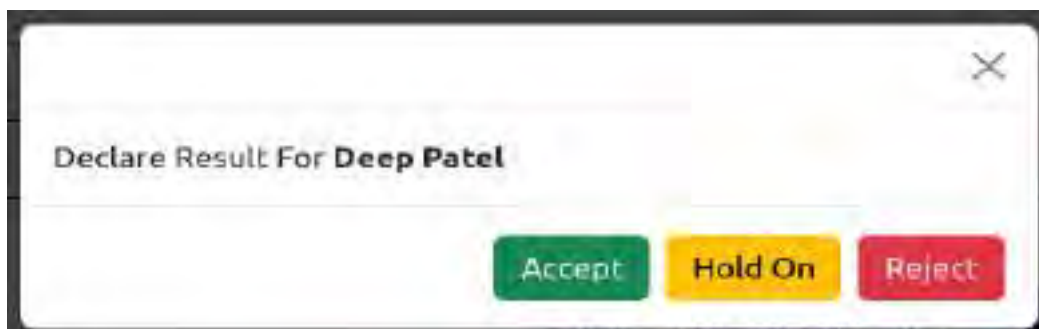


Figure 5.14 Result declaration at admin side

Figure 5.14 show the option to the admin to declare the use of user.

## User View After Declaring The exam:



**Figure 5.15 After result declare view at**

Figure 5.15 shows the final view to the user when exam has been over and result has been declared.

## BIBLIOGRAPHY

### Website References:

1. <https://www.w3schools.com/>
2. <https://tailwindcss.com/>
3. <https://jquery.com/>
4. <https://getbootstrap.com/>
5. <https://react.dev/>
6. <https://git-scm.com/>
7. <https://www.typescriptlang.org/>
8. <https://www.docker.com/>
9. <https://radixweb.com/>





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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no.

1999510370

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: DEEP MUKESHBHAI PATEL

DIARY OF THE WEEK: Dt: 1/21/23 TO 4/21/23

DEPARTMENT: COMPUTER SEM: 4<sup>TH</sup>

NAME OF THE ORGANISATION: BUDIX WEB-ANALYTICS SERVICE PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: BAP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: YASHAL SHARMA

DESCRIPTION OF THE WORK DONE IN BRIEF

- DAY-1: first day of the internship and on this day complete some documentation work and also attend the introduction session.
- DAY-2: attend the network introduction session for the required ~~system~~ use of the introduction of github.
- DAY-3: perform some practice hands-on practical to understand the github operation and how to make the clone repository.
- DAY-4: perform more practical assignments and understand the things on the conflict and how to solve the conflict.



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

---


TOTAL HOURS: 36 hours SIGNATURE OF STUDENT [Signature]

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: Date: 27/2/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, interest taken, Work done etc.



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Annexure I  
 Enrollment no: 190320107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEEP NIKESHBHAI PATIL

DIARY OF THE WEEK: DE: 09/12/23 TO 11/12/23

DEPARTMENT: COMPUTER SEME: 4<sup>TH</sup>


NAME OF THE ORGANISATION: RAJIVWEB-SOLUTIONS SERVICE PVT. LTD.

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SUBODH SHARMA

DESCRIPTION OF THE WORK DONE IN BRIEF

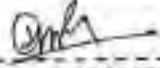
- > assisting learning on the HTML tags and understanding the different tags.  
ex: <img>, <table>, <div>, <address>
- > explore the knowledge on more different tags to design a webpage.  
ex: <div>, <div>, <div>, <div>, <div>, <div>
- > get the knowledge on the border property and color property also margin and padding property.
- > the main concept while use the CSS is the concept of flex and grid how to use where to use flex and how to manage the column part.
- > learn on the git practical with more and some time bounded practicals.
- > design a real web-page with HTML and CSS with all the learned tags and CSS properties.



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ બરા સ્થાપિત)

---

TOTAL HOURS: ૩૫ hours -----


  
-----  
SIGNATURE OF STUDENT

☉ The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor \_\_\_\_\_

Signature of officer-in-charge  
of Dept. / Section / Plant

Date: \_\_\_\_\_

  
Date: 27/2/23

☉ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

170309102010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEEP MUKESHBHAI PATEL

DIARY OF THE WEEK: Dd: 13/2/23 TO 16/2/23

DEPARTMENT: computer SEM: 4<sup>th</sup>

NAME OF THE ORGANISATION: Radixweb - Radix giv service Pvt. Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

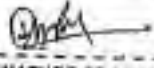
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: YUNUSHAH KHAN

DESCRIPTION OF THE WORK DONE IN BRIEF

- > design a another webpage for practice and that will help to make understanding and learning concept more strong.
- > design a web-portal that contain all the practices and assignments with technology wise and each portal can be responsive in all device and also we can navigate them from any portal.
- > starting learning on bootstrap with some bunch of files which have some description of task and based on that description we need to complete the tasks.
- > design a clone of any-portal with the help of HTML5 and bootstrap and also make it responsive for all the devices.

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**TOTAL HOURS:** 54 hours

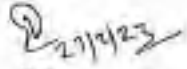
  
SIGNATURE OF STUDENT

☐ The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

  
Date:

☐ Grading of Work, for trainees may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Signature: \_\_\_\_\_  
 Enrollment no: 12020101030

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEEP MUKESHBHAI PATEL

DIARY OF THE WEEK: Dt: 20/12/23 TO 23/12/23

DEPARTMENT: COMPUTER SEM: 4<sup>TH</sup>

NAME OF THE ORGANISATION: Fullstack-Pullix S/W Service Pvt. Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: DHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Manish Mehta

DESCRIPTION OF THE WORK DONE IN BRIEF

- > Deploy the website (MVC-PHYPER) done on the netlify.
- > Design a project website layout with the help of video tutorials and bootstrap-5 as well.
- > Design a page home portfolio with the help of HTML, CSS and bootstrap.
- > Attend the internal and external practical exam of bootstrap.
- > Make the final template for web page with the help of tailwind.
- > Design the web page with tailwind that is such a simple task to complete.


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TOTAL HOURS: 45-Hours

  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor
 
 Signature of officer-in-charge  
 of Dept. / Section / Plant  
  
 Date: 27/12/22

Date: \_\_\_\_\_

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure I

Enrollment no:

19979107930

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEEP MUKESHBHAI PATEL

DIARY OF THE WEEK: Dt: 22/2/23 TO 4/3/23

DEPARTMENT: COMPUTER SEM: 4<sup>th</sup>

NAME OF THE ORGANISATION: Rudix web-Rudix SW SERVICE Pvt Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: DHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: VIKASH KUMAR

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- complete the following website responsiveness.
- start working with docker.
- docker is centralized container work to run website and give repository support to store images.
- work with ~~git~~ docker commands: docker build / push image  
docker run / pull image
- write 4 command to run the docker file in single command and without dockerfile.
- file multistaging and docker-compose up.
- javascript array, date time and string function.
- setTimeout, promises.
- date validation and array push, pop, shift and delete operation.

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TOTAL HOURS: 02-Hours Amul  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept / Section / Plant

Date Date 10/12/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



Annexure )

Enrollment no:

190299107330**STUDENT'S WEEKLY RECORD OF INTERNSHIP**NAME OF STUDENT: DEEP ANKESHBHAI PATELDIARY OF THE WEEK: DR. 09/12 TO 11/12DEPARTMENT: Computer SEM: 4<sup>th</sup>NAME OF THE ORGANISATION: Reliance - Reliance GM Service Pvt. Ltd.NAME OF THE PLANT/SECTION/DEPARTMENT: HRPNAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Manish Shah**DESCRIPTION OF THE WORK DONE IN BRIEF**

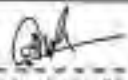
- continue the work with JavaScript and start the work with date validation.
- Employee form design and validate it using JavaScript.
- Holi celebration.
- create the counter for 3 hrs 35 time.
- write comments in docx folder for all the practice exercise we did.
- JavaScript provide concept and practical on it that if input is string then return reverse string with same case as default.
- function constructed
- function class
- shopping cart.
- arrays and string methods.

→ date function

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TOTAL HOURS: ૨૫ વાગ્યે -----

  
-----  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor \_\_\_\_\_

Signature of officer-in-charge  
of Dept. / Section / Plant \_\_\_\_\_

Date: \_\_\_\_\_

Date: 16/12/23

Grading of Work for trainee may be given depending upon your judgement about  
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Assesure 1

Enrollment no:

199220197219

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEEP MUKESHBHAI PATEL

DIARY OF THE WEEK: Di: 13/9/23 TO 19/9/23

DEPARTMENT: COMPUTER SEM: 5th

NAME OF THE ORGANISATION: Positivweb - Posix CSM Service Pvt. Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Suman Shetty

DESCRIPTION OF THE WORK DONE IN BRIEF

- JAVASCRIPT practice
- CSSME and circuit
- ES6 concept / small operation
- arrays
- JAVASCRIPT exam
- API CRUD operation
- array school exercise
- hide(), show(), fade(), fadeout(), slideDown(),  
~~slideUp()~~
- make practice on API CRUD operation with dynamic  
dropdown.
- append, appendTo method
- for each loop
- collect MSA



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TOTAL HOURS: 45- hours -----

*[Signature]*  
-----  
SIGNATURE OF

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of

Date:

★ Grading of Work, for trainee may be given based on his Punctuality, Regularity, Sincerity, etc.



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Annexure I

Enrollment no:

172299107030

### STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: DEEP MUKESHBHAI PATEL

DIARY OF THE WEEK: IN: 20/3/23 TO 26/3/23

DEPARTMENT: COMPUTER SEM: 5th


NAME OF THE ORGANISATION: RAJIXWEB-PUBLIC SIM SERVICE PVT. LTD.

NAME OF THE PLANT/SECTION/DEPARTMENT: DHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: VAHINI DESAI


#### DESCRIPTION OF THE WORK DONE IN BRIEF

- TypeScript basic
- Array & type
- filter
- classes, interface
- dynamic object
- shop inventory management
- ~~dynamic~~ dynamic data add and low quantity alert
- Interview management portal
- dynamic job post and delete job post
- Applicant table and total applicant table
- exam schedule table and exam result declare mechanism



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TOTAL HOURS: 43-hrs   
SIGNATURE OF STUDENT

☐ The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: Date:

☑ Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure I

Enrollment no.

150350102020

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: DEEP KANAKSHANKAR PATEL

DIARY OF THE WEEK: DG: 23/5/23 TO 1/4/23

DEPARTMENT: COMPUTER SEM: 2<sup>TH</sup>

NAME OF THE ORGANISATION: Bank of Baroda - Baroda SWI Scheme Pat Vad.

NAME OF THE PLANT/SECTION/DEPARTMENT: DBP

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Sudhakar Shrivastava

DESCRIPTION OF THE WORK DONE IN BRIEF

- continue working on interview portal to give the result notification mechanism to academy side.
- Enums and Enums
- Attempt to practical exam
- Assignment upload on DigiHub
- Start learning MySQL
- Learn SQL commands: create, insert, update, delete, AND, OR, NOT, where, like
- Foreign key, private key, composite key
- ER diagram
- joins
- perform queries on practice on practicals
- SQL inbuilt functions: length, avg, max, round, substr, date diff, month.



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TOTAL HOURS: <u>54 HOURS</u>	<u>[Signature]</u> SIGNATURE OF STUDENT
<input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR	
Signature of Faculty Mentor	Signature of officer-in-charge of Dept. / Section / Plant
Date:	Date: <u>[Signature]</u>
<input checked="" type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.	



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Signature: \_\_\_\_\_

Enrollment no: \_\_\_\_\_

199396103910

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEEP MUKESHBHAI PATEL

DIARY OF THE WEEK: Dt: 2/14/23 TO 2/14/23

DEPARTMENT: computer SEM: 4th

NAME OF THE ORGANISATION: Redinweb - Public s/w Service Pvt. Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: vedant sharma

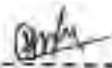
**DESCRIPTION OF THE WORK DONE IN BRIEF**

- start learning on sql and start performing practicals on different topics.
- create, primary key, foreign key reference, alter table and modify column.
- where clause, union clause, logical operators (AND, OR, NOT), IN, BETWEEN, LIKE, ORDER BY, GROUP BY, HAVING, JOIN.
- joins: aggregate function, SUM, AVG, MAX, MIN, LEFT JOIN.
- if-else loop, while loop, case.
- convert a table from join format and from join to table format.
- practical exam of MySQL.
- student completed work in 30 days.



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TOTAL HOURS: 54-7004	 SIGNATURE OF STUDENT
<input type="checkbox"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR	
Signature of Faculty Mentor	Signature of officer-in-charge of Dept. / Section / Plant
Date:	Date: 17/3/23
<input checked="" type="checkbox"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.	



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Annexure I

Enrollment no:

19072012739

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEEP MUKESHKUMAR PATEL

DIARY OF THE WEEK: DU 10/11/23 TO 16/11/23

DEPARTMENT: computer SEM: 4<sup>th</sup>


NAME OF THE ORGANISATION: Realtime-Ruix SW Service Pvt. Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: DXP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Manoj Kumar


**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Modified the interview portal and make it for multiuser.
- copied the interview portal on netlify and also update some CSS of it.
- start learning of react.
- class component, function component, create react project
- react project folder structure
- react ES6
- props, child, composite component
- react hooks, useState, useEffect
- redux - task management



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TOTAL HOURS: 24 - hours   
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member Signature of officer-in-charge  
of Dept. / Section / Plant

Date: Date: 21/1/23

Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure I

Enrollment no:

18035910350

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEEP MUKHERJEE DUTTA

DIARY OF THE WEEK: Dt: 13/11/23 TO 22/11/23

DEPARTMENT: SWP Computer SEM: 4<sup>th</sup>

NAME OF THE ORGANISATION: Swixweb-Bulk SW Service Pvt. Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: DDE

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Manoj Kumar


DESCRIPTION OF THE WORK DONE IN BRIEF

- > create array (internal storage of component)
- > react object, student registration form
- > take the data in form from user and print in table.
- > data passing in react -> props, children
- > state lift up -> passing data from one child component to another child component
- > react mechanism with lifting state concept.
- > react-router-dom
- > todo crud application
- > use API mock



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TOTAL HOURS: ૩૫ hours	 SIGNATURE OF STUDENT
<input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR	
Signature of Faculty Mentor	Signature of officer-in-charge of Dept / Section / Plant
Date:	Date: 3/11/22
<input checked="" type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.	





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Annexure 2

**Feedback Form by Industry expert**

Student Name: DEEP MUKESHBHAI PATEL Date: 31/5/23  
 Work Supervisor: VIKASHJI GHORANI Title:  
 Company/Organization: Amitech - Best HR Advice Pvt. Ltd.  
 Enrollment No: 1903200102030  
 Internship Address: B/H Nirma University, Ekowadi, Gandhinagar, Gandhinagar,  
 Dates of Internship: From 11/2/23 to 31/5/23

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives			✓	
Produces high quality work and accepts responsibility			✓	
Uses technical knowledge and expertise			✓	
Analyzes problems effectively			✓	
Communicates well and writes effectively			✓	

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):

Additional comments, if any:

Performing Good

Signature of Industry person with name and Stamp



31/5/23 Vikash Ghorani

Signature of the Faculty Mentor:

Team ID: -321673

# **INTERNSHIP AT Zenkins Technologies Pvt. Ltd**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Patel Dev Bhupendrabhai**

**190390107031**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**

Team ID: -321673



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway,**

**Linch, Gujarat**

## **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Zenkins Technologies Pvt. Ltd** has been carried out by **Patel Dev Bhupendrabhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay Kansara

Internal Guide

Head of Department

## PMMS Certificate



### **GUJARAT TECHNOLOGICAL UNIVERSITY**

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 14 May 2023 (22:43:25)

This is to certify that, *Patel Dev Bhupendrabhai* ( Enrolment Number - 190390107031 ) working on project entitled with *Intanship at zenkins Technologies* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	<b>Completed</b>
---------------------------	------------------

Name of Student : P a t e l D e v  
Bhupendrabhai

Name of Guide : Mr. Chetan Ranchoddbhai  
Chauhan

Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

**Disclaimer :**

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.

## Company Certificate

ZENKINS TECHNOLOGIES PRIVATE LIMITED  
Corporate Identity Number: U72900GJ2022PTL133377  
(A) 914, Fortune Business Hub, Science City Rd, Thane,  
Ahmedabad - 380060 (India)  
(T) +91 70690 18504  
(W) <https://zenkins.com>  
(E) [contact@zenkins.com](mailto:contact@zenkins.com)

Date: Friday, 14 April 2023

### TO WHOMSOEVER IT MAY CONCERN

This certificate is awarded to **DEV PATEL** for the successful completion of **12 weeks (23 January 2023 to 14 April 2023)** of internship at **ZENKINS TECHNOLOGIES PRIVATE LIMITED**.

Dev has shown exceptional dedication, enthusiasm, and commitment to their work during the internship. They have successfully completed all assigned tasks and projects with high professionalism and quality. Their supervisors and colleagues have highly appreciated their excellent communication skills, positive attitude, and ability to work independently and as team members.

Through this internship, Dev has gained valuable knowledge and experience in their chosen field. They have demonstrated their ability to apply theoretical concepts to practical work situations and have shown a strong willingness to learn and grow professionally.

We are confident that Dev will continue to excel in their future endeavors and wish them all success in their career.

Warm regards,

For, ZENKINS TECHNOLOGIES PRIVATE LIMITED



Bhumika Darji

Vice President of Human Resources



zenkins®



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

**DECLARATION**

We hereby declare that the Internship report submitted along with the Internship entitled **Internship at Zenkins Technologies Pvt. Ltd** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Jignesh Darji** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Patel Dev Bhupendrabhai**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I really believe that behind every records and success of student, not only hard work and perfection is there, also there is inspirations and guidance of the teachers and the persons who support them until Training has been done. It gives us great pleasure in submitting this in plant Internship report of my training experience which I gained from 23rd January 2023 to 14th April 2023 at “Zenkins Technologies Pvt. Ltd” located at Ahmedabad, Gujarat.

I would like to express our heart full gratitude to Mr. Jignesh Darji who granted me the permission for obtaining training at Zenkins Technologies Pvt. Ltd. We are very thankful to Mr. Bhumika Darji (HR) for giving us valuable chance for training at Zenkins Technologies Pvt. Ltd.

So, I would like to convey my gratitude towards the all Technical Staff of Zenkins Technologies Pvt. Ltd for giving me technical and practical knowledge of the development and helping me via developing bridge between theoretical knowledge and its practical application.

### **Abstract**

The word engineering itself means to develop something new by knowing the basis of fundamental theories and principles. Engineering concepts are always powered by strong theoretical concepts. Theory scrutinizes all the ideal situations. But it is rightly said that theory is incomplete without practice. It is very important to compare ideal situations with real ones so as to understand how a real system works. Industrial training is the best platform where the so-called engineering student can sharpen his analytical as well as practical skills so as to become the best of the best, promising engineers for the future world. It usually helps to clear all his theoretical concepts so he can learn how to apply them.

As a part of our academics, we were placed to train at “Zenkins Technologies Pvt. Ltd.” located at Ahmedabad, Gujarat.



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Team ID: -321673

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## Chapter 1. INTRODUCTION

### 1.1 COMPANY PROFILE:

**Company Name:** Zenkins Technologies Pvt. Ltd  
**Address:** 914 Fortune Business Hub, Science City Rd, near Science City,  
Thaltej, Ahmedabad, Gujarat 380060  
**Email:** [contact@zenkins.com](mailto:contact@zenkins.com)



Fig 1.1 Company Logo

Zenkins is an Indian information technology services, IT consulting, business services, and software development company headquartered in Ahmedabad India with offices in Pune, and Bangalore.

Since 2013, Zenkins Technologies is present on the international market (Register in 2022 as Pvt. Ltd.) as a supplier of innovative solutions, adding business value through technology implementation at a professional level. Focusing our activities on developing complex software products, Zenkins Technologies provides consistent results in emerging fields such as mobile and web-based custom business applications, e-commerce, e-payment, e-security, e-health, and enterprise & resource planning, entertainment, and the finance industry.

## 1.2 Whom Company Server:

## 1.3 Company Core Value:



Fig 1.2 Core Value

## 1.4 Company Engagement Models:

### **Fixed Price:**

- Recommended for middle-size projects, where the scope of the project is clearly defined.

### **Time & Material:**

- Recommended for middle-size and large projects, and for consulting, which are dynamic and need fluidity.

### **Consumption-based Pricing:**

- For managed services and help desk. (e.g. No. of tickets solved, cloud resources consumed)

### **Monthly Subscription Fee:**

- Generally used to hire dedicated software developers and support engineers.

## CHAPTER 2: OVERVIEW OF DEPARTEMENT

### Startup Businesses

Companies with 0-100 employees

- Website design and development
- Custom software development
- Mobile application development
- Cloud hosting and management
- API development & Integration
- SEO & Digital Marketing
- QA & Testing
- UI / UX & Graphics design

### Midsize Businesses

Companies with 200-5,000 employees

- Everything for start-up businesses+
- IT Consulting
- Business automation
- IT outsourcing
- IT staff augmentation

## 2.1 VARIOUS DEVELOPMENT DEPARTEMENTS:

### 1) Android Application Development:

At Zenkins Technologies, we conceptualize, design, and develop Android Applications as per unique needs of the clients. we understand exact need of client and present it. We create Android Applications with capability of running across all the Device. Our experience team can work any kind of customized mobile Applications.

### 2) iOS Application Development:

Any business should always go with Synoptic as the top iOS app development company having experience on iOS platform, an in-depth understanding of its security, app-store regulations and know-how of smooth app development.

### 3) Web Development:

As a web development company, we provide professional website designing and website development services, ecommerce website development, web application development, web design, offshore website design and development (Angular, Asp.net, MySQL, MS SQL server, java Script, Oracle, HTML/XML, visual basic), Flash design and Development, Flash custom animation, Tutorials, Corporate Presentations, CBTs, Logo Designing Graphics and Print Design Solutions etc. Effectiveness, high motivation, and high level of professional expertise are three major keys, which help [Company's] experienced web application and software developers open the doors to a successful completion of all their projects, from simple to intricate.

### 4) UI/UX Development:

While designing a site we follow two important steps. The first is user experience design. Here we study the behaviour pattern of users from different demography and plan a wireframe (blueprint) by combining the inputs from different studies. After this, the next step is designing the user interface based on that wireframe. So, the UI designers build every element that a user would interact or engage with on .

## **2.2 WORK BEING CARRIED OUT AT COMPANY:**

Our company has a well-coordinated team and work like a well-oiled machine. In fact, we work on a human scale and build long lasting businesses with our clients. Our firmness affords us the required room and flexibility to manage our future and independence. Apart from this, it also provides us a strong platform to protect our ethics and core values.

Our company works on several domains for Android Apps, iOS Apps as well as Cross Platform Apps. It also works on web development platforms.

## **2.3 7 STAGES OF APP DEVELOPMENT:**

Mobile apps cannot be done at once because there is a technique called project management – a wise way to split the **stages of building an app** into steps and control everything to be sure of the quality of final results. Fortunately, Agile development or Agile project management came into being and did wonders to software development teams.

Agile is known as one of the methodologies of SDLC (Software development life cycle), which is a consequence of phases from the project start to its end. Each phase is a collection of activities, completion of which guarantees exact deliverables. Agile's key concept is to ensure agility and flexibility especially in projects with frequently changing requirements. This method of project management is based on iterative delivery and incremental approach.

Key **stages in app development** that can be met in Agile and other methodologies of SDLC include the next steps: project initiation, requirements collection, and analysis, planning, designing, development, testing, deployment, maintenance.

### **1) Project Initiation**

If you look at the whole project, there is always project ideation at the beginning, requirements analysis, or Discovery phase. As soon as a client comes with a request to a company, he or she presents the engagement manager with the business needs, objectives, and vision over the product. If the concept of the project



is vague and needs estimation of target audience and market trends, ensuring its helpfulness for end-users, estimating costs and time, refining requirements, then a client can be offered Discovery phase service.

A picture of the project should be consistent for the expert team to conduct requirements specifications and agrees on improvements with a client (if there are some).

## 2) Requirements Analysis

Requirements analysis should be done professionally and ensure that end users' needs are learned and clearly match their expectations. Requirements are classified from high-level to detailed that corresponds to business requirements, user requirements, and then system requirements that are the most important. The last is what the system does, how well the system performs, whether it suits user goals and user point of view. Then, after having all the requirements analyzed, it is vital to perform project estimation. I.e. timeline, costs, efficient workforce number, resources to be used, and many more.

## 3) Focus On Planning

Among risks customers and teams are afraid of are missing features and deadlines, rebuilds, overworks, constant clarifications, frequent changes in requirements, and uncontrollable budget. This all can be eliminated if such **Website development phases** as estimating and planning are done reasonably. Estimating and Planning is not just in scheduling product deadlines. It should not give an exact answer to how much time the team will spend on the product. Estimation and planning are always incremental and give a team a feeling of flexibility they could use later (if it is impossible to say the exact date of product release at once).

A **project plan** has more important functions. The team evaluates features, resources, and schedules and finds the best solution for the question "What should we build?" Good **stages of development** and planning always go along with:

- Reducing risks
- Avoiding uncertainty
- Better decision making
- Establishing trust
- Conveying information

The team estimates the costs and the benefits. Should we hire one more software engineer to have this feature done in the release? Should we move the

release to October but have a better product with these new features? You can plan release for September, but change requests happen and release can shift to October.

It is the same as finding optimal solutions currently, but not to think your plan is 100% ideal or put all efforts into planning rather than on development. Planning should concern the planning of activities and tasks, not planning features. And it is also good for looking for forgotten activities. After everything is planned and estimated, it is crucial to make a first sketch of the future app to see how it feels.

#### **4) Prototyping and Design**

Prototyping in **Website development phases** is a fast way to draw out the first design sketches for your app. It should direct to a common vision with a customer over how the app will feel and what iterations there would be. After UI/UX designer can draw the design of the app incorporating the best transitions, animations, styles to make the app feel smooth in using and convenient in navigation, and have an intuitive interface. After UI/UX designers have made a solid prototype, mapped the user flow, it is time to drop the UI part to production. In other words, coding.

#### **5) Development**

The **Website development process** is not mere coding. Every client wants the app to be made on time. The majority of software development teams use backlog – a storehouse of tasks. It is always important to know in advance how much there is to do and how much time development can take. That's why, prior to development, there is always prioritization and estimation of tasks. The most critical tasks at the moment are the most prioritized ones to go into the estimation stage. Estimation helps the team define the time needed to close the task. This time takes into account only pure coding and excludes meetings, discussions and other time spent on development during the project.

Development is done with the technology stack defined at the beginning of the project. Software engineers work side by side with UI/UX designers and quality assurance engineers. Together with a project manager the team will have regular meetings with a client and report on a daily or weekly basis depending on approaches and models of cooperation the company offers.

#### **6) Development and Testing with Scrum**

In Agile methodology, Scrum is the framework. That splits agile app stages are into iterations – one, two, or three-week periods *sprints*. Scrum helps software teams avoid scattered work that lasts for months and does not ensure necessary results. Scrum is ideal for projects with changing requirements, so the ones that need high flexibility from the team, fast updating, and reaction to changes. If you work with scrum teams, you will certainly be introduced to regular meetings for iteration cycle planning, daily status updates, and sprint reviews.

Performance of the project depends on the competency of the team as well as on the right prioritization, expectation management, on-time releases. Struggle over insufficiencies in project management, intuitively chosen tasks for prioritization, never-ending iterations, and more have begun to wane. Software engineers, designers, and testers often use Jira (or other software) boards to see their sprints and backlog. Jira tasks can be categorized in a way like this:

- To do
- In progress
- Ready to deploy
- Ready to test
- Done

QA engineer moves the task to Done or In progress. Deployment of ready code written by engineers happens firstly in the QA environment which is testing the environment for the app.

QA engineers test the developed functionality and if necessary, software engineers polish everything to reach total excellence and ensure the feature works according to acceptance criteria in a bug-free way.

## **7) Deployment and Maintenance**

When software testing is over, the code is clear and no bugs remain, the application can be pushed for final release into the environment where customers can find and use it. The software development team checks the deployment process to eliminate possible issues. When the system is deployed, software companies provide further maintenance of their product and ensure:

- Bug fixing
- Code refining
- Enhancement

## CHAPTER 3: INTRODUCTION TO INTERNSHIP

### 3.1 INTERNSHIP SUMMARY:

In internship activities include performing logical coding tasks. I gained knowledge about Dot Net. I also learned C#, Asp.Net and Asp.Net Core and its advanced concepts. I also learned basic knowledge of understanding the concepts of Angular.

### 3.2 PURPOSE:

Industry experience is often an important part of applying for full time positions. Gaining experience through internship can be helpful for our future scope. Similarly, my purpose was to gain experience and decide my career path so that I can have a clear path towards my goals. Also, I wanted to develop new skills and build a network with professionals.

### 3.3 OBJECTIVE:

A motivated individual with in-depth knowledge of languages and development tools, seeking a position in a growth-oriented company where I can use my skills to the advantage of the company while having the scope to develop my own skills.

To work as a Software Developer applying my knowledge in the field of testing, designing, and maintenance to cater to the specific needs of the people. I wish to work in a team of motivated individuals who wish to work towards the advancement of the company.

### 3.4 TOOLS AND TECHNOLOGY:

I used various Languages in this Internship which I mentioned below with the functions of each tool and library:

- 1) **C#:** It is an object-oriented programming language created by Microsoft that runs on the .NET Framework. C# has roots from the C family, and the language is close to other popular languages like C++ And Java.

C# is an object oriented language which gives a clear structure to programs and allows code to be reused, lowering development costs. As C# is close to C, C++ and Java, it makes it easy for programmers to switch to C# or vice versa.

- 2) **Dot Net:** The **.NET Framework** is a software development framework developed by Microsoft that provides a runtime environment and a set of libraries and tools for building and running applications on Windows operating systems. The framework includes a variety of programming languages, such as C#, F#, and Visual Basic, and supports a range of application types, including desktop, web, mobile, and gaming applications.
- 3) **Asp.Net:** ASP.NET is a web development platform, which provides a programming model, a comprehensive software infrastructure and various services required to build up robust web applications for PC, as well as mobile devices.

ASP.NET works on top of the HTTP protocol, and uses the HTTP commands and policies to set a browser-to-server bilateral communication and cooperation. ASP.NET is a part of Microsoft .Net platform. ASP.NET applications are compiled codes, written using the extensible and reusable components or objects present in .Net framework. These codes can use the entire hierarchy of classes in .Net framework.

- 4) **Asp.Net Core:** ASP.NET Core is the new version of the ASP.NET web framework mainly targeted to run on .NET Core platform.

ASP.NET Core is a free, open-source, and cross-platform framework for building cloud-based applications, such as web apps, IoT apps, and mobile backend. It is designed to run on the cloud as well as on-premises. Same as .NET Core, it was architected modular with minimum overhead, and then other more advanced features can be added as NuGet packages as per application requirement. This results in high performance, require less memory, less deployment size, and easy to maintain.

### **3.5 IMPLEMENTATION PLATFORM:**

#### **3.5.1 Visual Studio (For backend Asp.Net Core/Asp.Net MVC):**

Visual Studio is a powerful developer tool that enables we to complete the entire development cycle in one place. It is an Integrated Development Environment (IDE) developed by Microsoft to develop GUI (Graphical User Interface), console, Web applications, web apps, mobile apps, cloud, and web services. Visual Studio brings advanced editing, debugging, and customization to our everyday programming tasks.

you are developing a web application with Visual Studio using ASP.NET, the backend of your application will typically use the .NET Framework or .NET

Core runtime, along with the C# or Visual Basic programming language. You will also use various libraries, frameworks, and tools to interact with databases, handle user authentication, and perform other tasks.

We are building an ASP.NET MVC application, then our front and backend could (and probably should) be the same project. We are using ASP.NET Core, we can build an ASP.NET Core project to act as an API backend and an Angular project to act as the UI. Currently, Visual Studio includes ASP.NET Core Single Page Application (SPA) templates that support Angular, React. The templates provide a built-in Client App folder in our ASP.NET Core projects that contains the base files and folders of each framework.

## CHAPTER 4: IMPLEMENTATION

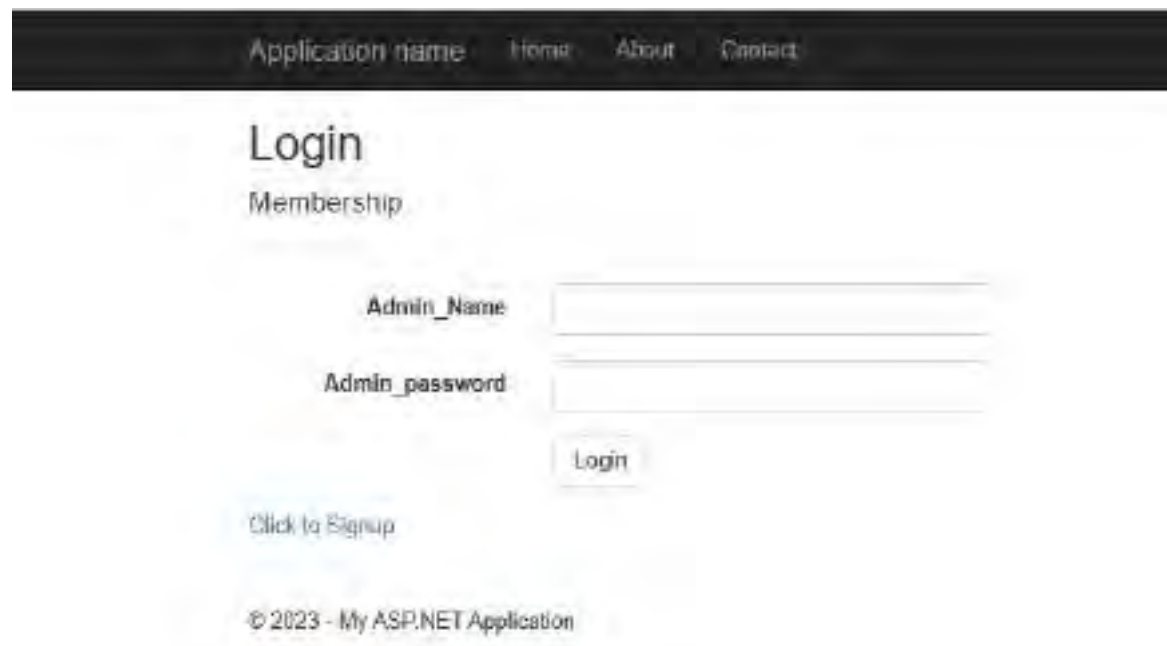
### 4.1 Assignments with C#

- Implement and test your code like.  
**Example: -**
  - 1) Multiply Two Binary Numbers
  - 2) Perform Multiplication of Exponents of Same Base
  - 3) Calculator
  - 4) ATM machine

### 4.2 Assignments with Asp.Net MVC

- ASP.NET MVC is a web framework based on Model-View-Controller (MVC) architecture.
- It enables developers to build dynamic web applications using ASP.NET MVC framework that enables a clean separation of concerns, fast development.
- The Model-View-Controller (MVC) architectural pattern separates an application into three main groups of components: Models, Views, and Controllers.
- This pattern helps to achieve separation of concerns. Using this pattern, user requests are routed to a Controller which is responsible for working with the Model to perform user actions and/or retrieve results of queries.
- ASP.NET MVC is a web application framework that helps developers build web applications using well-established programming architecture and software engineering practices

### 4.2.1 Assignment (1): Login and session management for users in Asp.Net MVC



Application name Home About Contact

## Login

Membership

Admin\_Name

Admin\_password

Login

[Click to Signup](#)

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Fig 4.1 Login page



## Create

UserMaster

Full\_Name

Email

Contact

Designation

Password

Confirm\_Password

Fk\_id

Role\_id

Create

Fig 4.2 Sign up

simple login and registration form along with a simple admin panel in MVC, so that after registration users can easily log in and see their data in the admin panel



### 4.2.2 Assignment (2): Insert/ Update/ Delete Records

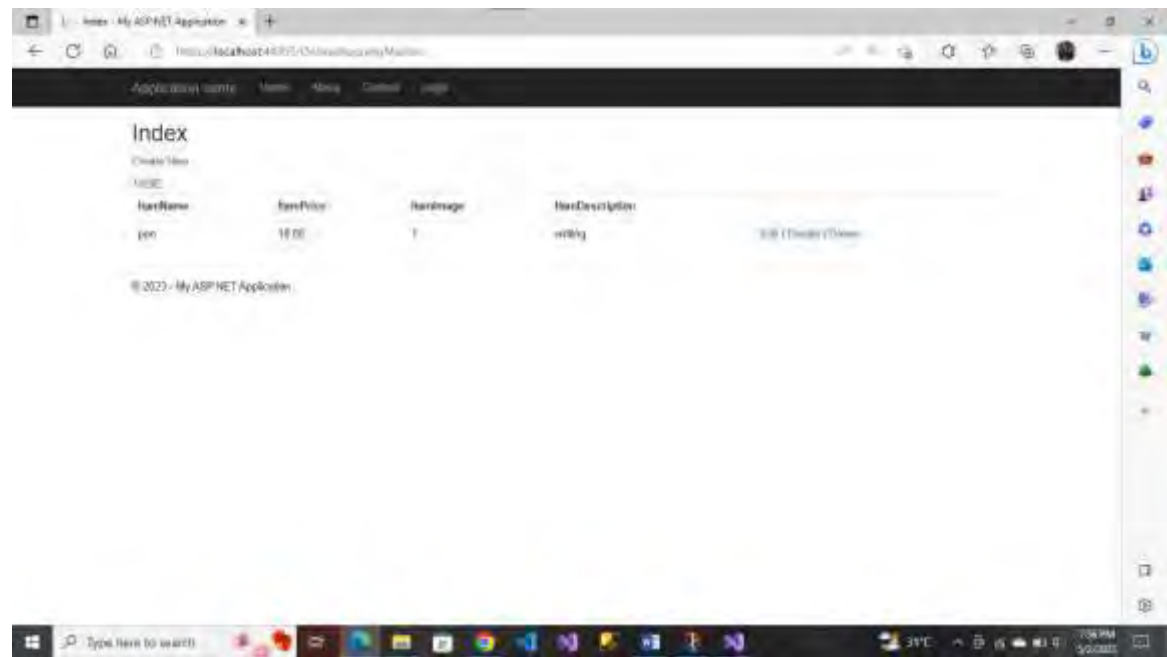


Fig 4.3 Table of Records

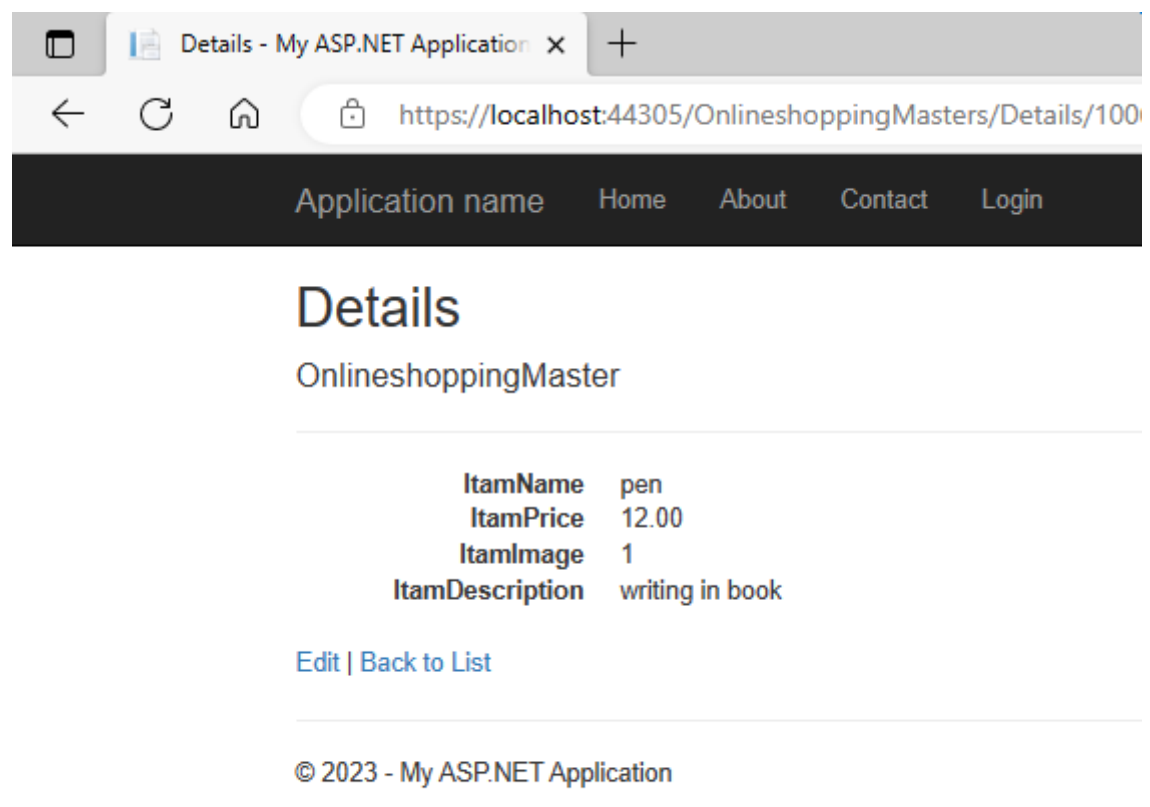


Fig 4.4 Details of Records

Application name Home About Contact Login

## Edit

OnlineshoppingMaster

ItamName

ItamPrice

ItamImage

ItamDescription

[Back to List](#)

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Fig 4.5 Edit Records

Application name Home About Contact Login

## Delete

Are you sure you want to delete this?

OnlineshoppingMaster

ItamName	pen
ItamPrice	12.00
ItamImage	1
ItamDescription	writing in book

| [Back to List](#)

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Fig 4.6 Delete Records

### 4.2.3 Assignment (3): Shopping Data Entry Website



Fig 4.7 Shopping Data Add

This page shopping data add to fill all data than save it than this data show in below page (main page of website)

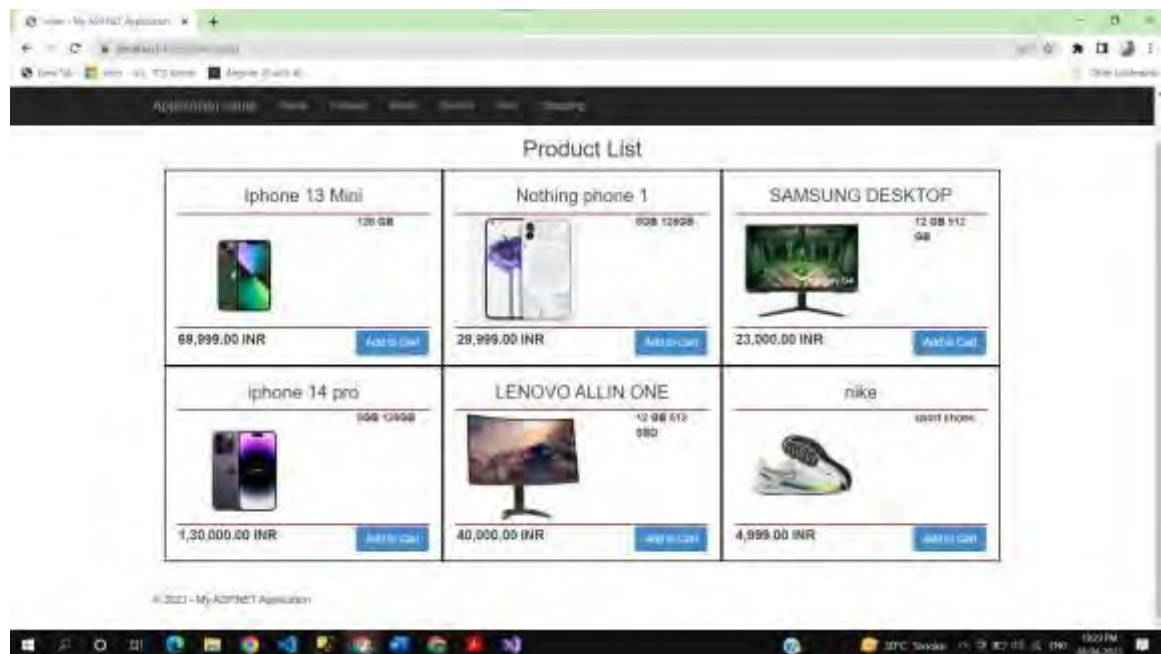


Fig 4.8 Product List

```

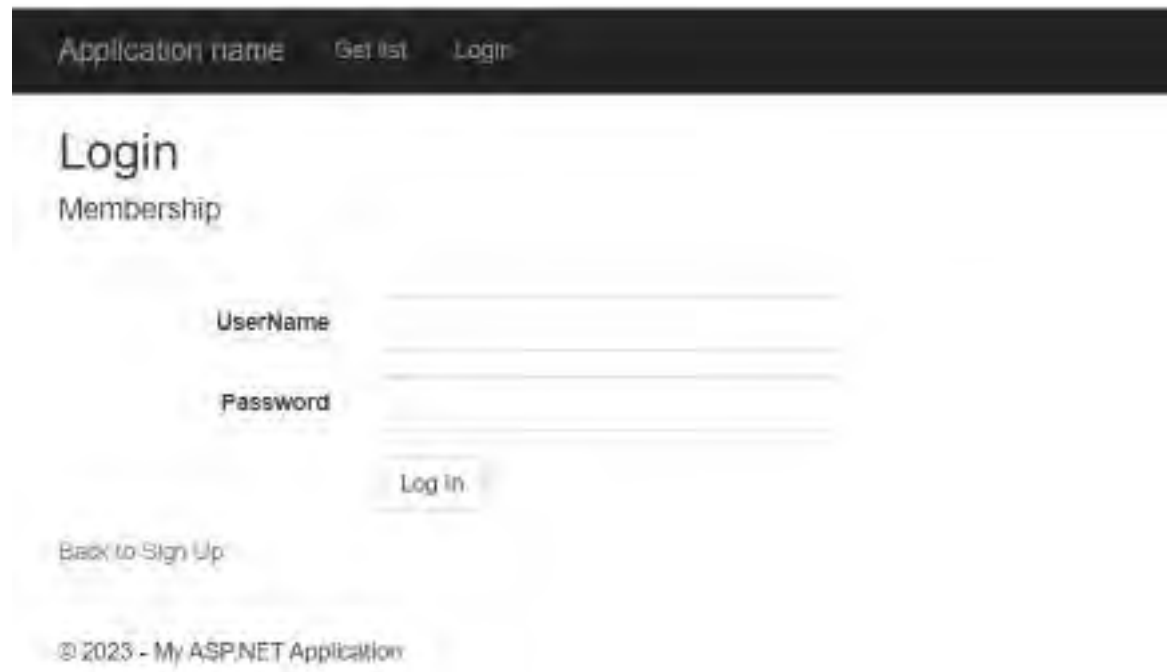
1  using System;
2  using System.Collections.Generic;
3  using System.IO;
4  using System.Linq;
5  using System.Web;
6  using System.Web.Mvc;
7  using WebAppCartDemo.Models;
8  using WebAppCartDemo.ViewModel;
9
10 namespace WebAppCartDemo.Controllers
11 {
12     [Authorize]
13     public class ItemController : Controller
14     {
15         private ECARDDBEntities objECARDDBEntities;
16         // GET: Item
17         public ItemController()
18         {
19             objECARDDBEntities = new ECARDDBEntities();
20         }
21         // GET: Item
22         public ActionResult Index()
23         {
24             ItemViewModel objItemViewModel = new ItemViewModel();
25             objItemViewModel.CategorySelectListItem = (from objCat in objECARDDBEntities.Categories
26                                                         select new SelectListItem()
27                                                         {
28                                                             Text = objCat.CategoryName,
29                                                             Value = objCat.CategoryId.ToString(),
30                                                             Selected = true
31                                                         });
32             return View(objItemViewModel);
33         }
34
35         [HttpPost]
36         public JsonResult Index(ItemViewModel objItemViewModel)
37         {
38             string NewImage = Guid.NewGuid().ToString() + Path.GetExtension(objItemViewModel.ImagePath.FileName);
39             objItemViewModel.ImagePath.SaveAs(Server.MapPath("~/Images/") + NewImage);
40
41             Item objItem = new Item();
42             objItem.ImagePath = "~/Images/" + NewImage;
43             objItem.CategoryId = objItemViewModel.CategoryId;
44             objItem.Description = objItemViewModel.Description;
45             objItem.ItemCode = objItemViewModel.ItemCode;
46             objItem.ItemId = Guid.NewGuid().ToString();
47             objItem.ItemName = objItemViewModel.ItemName;
48             objItem.ItemPrice = (int)objItemViewModel.ItemPrice;
49             objECARDDBEntities.Items.Add(objItem);
50             objECARDDBEntities.SaveChanges();
51
52             return Json(new { Success = true, Message = "Item is added Successfully." }, JsonRequestBehavior.AllowGet);
53         }
54     }
55 }

```

Fig 4.9 Code of how to store image in Folder

This page to code to store the image in folder than to show the main web site. In the Save as type list, select the file format that you want. In the File name box, type a new name for the picture, or just accept the suggested file name. Select the folder where you want to store the image

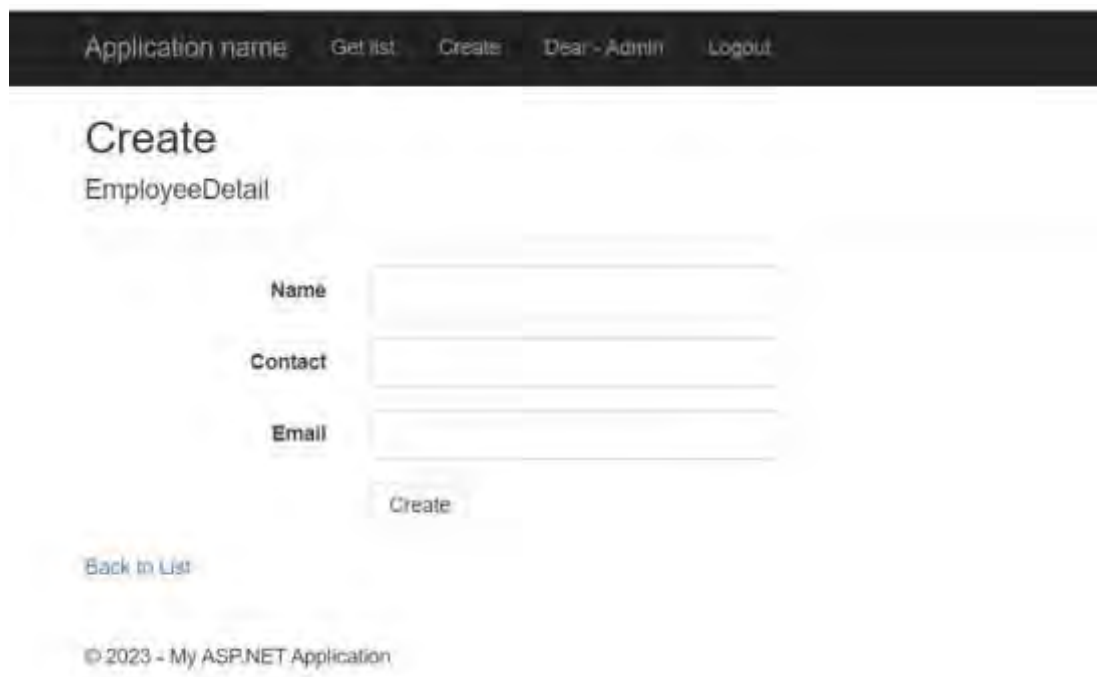
#### 4.2.4 Assignment (4): User Management with Role, login, and access rights using SQL Query & Store Procedure



The screenshot shows the login page of an application. At the top, there is a dark navigation bar with the text "Application name" and two links: "Get list" and "Login". Below the navigation bar, the page title is "Login" and the breadcrumb is "Membership". The main content area contains a form with two input fields: "UserName" and "Password". Below these fields is a "Log In" button. At the bottom of the form, there is a link "Back to Sign Up" and a copyright notice "© 2023 - My ASP.NET Application".

Fig 4.10 Login page

- For Admin
  - 1) It has authority to add, update and delete the data.



The screenshot shows the create page of an application. At the top, there is a dark navigation bar with the text "Application name" and four links: "Get list", "Create", "Dear - Admin", and "Logout". Below the navigation bar, the page title is "Create" and the breadcrumb is "EmployeeDetail". The main content area contains a form with three input fields: "Name", "Contact", and "Email". Below these fields is a "Create" button. At the bottom of the form, there is a link "Back to List" and a copyright notice "© 2023 - My ASP.NET Application".

Fig 4.11 Create page

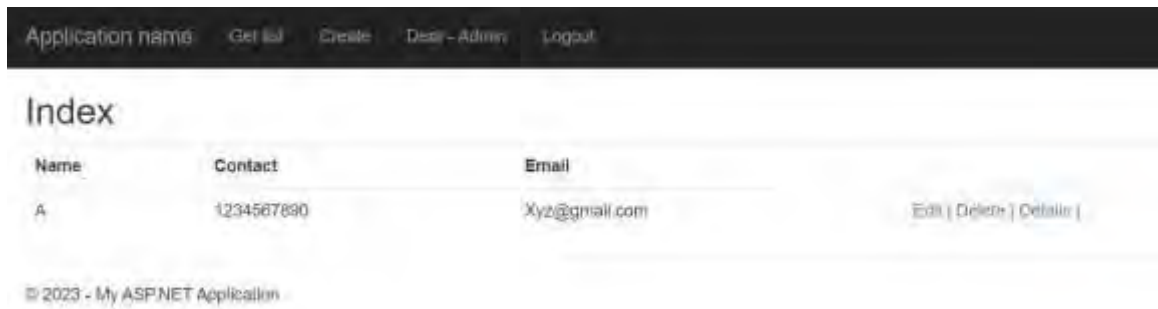


Fig 4.12 Table data which can Edit

- For User
  - 1) It has authority to see only details.

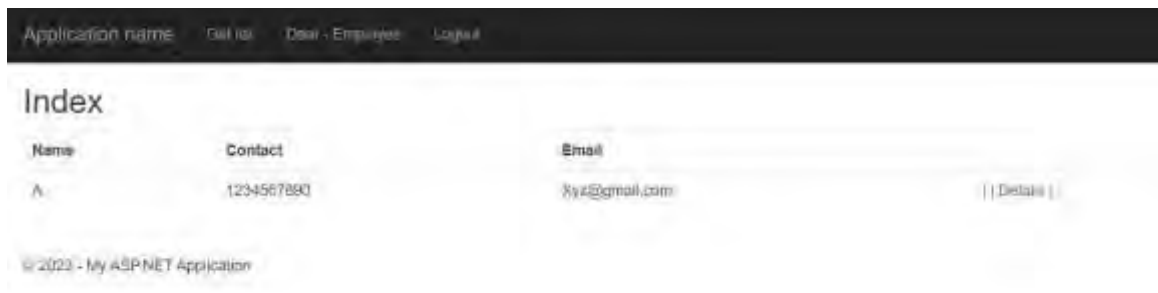


Fig 4.13 Table data which can't Edit

```

</head>
<body>
  <div class="navbar navbar-inverse navbar-fixed-top">
    <div class="container">
      <div class="navbar-header">
        <button type="button" class="navbar-toggle" data-toggle="collapse" data-target=".navbar-collapse">
          <span class="icon-bar"></span>
          <span class="icon-bar"></span>
          <span class="icon-bar"></span>
        </button>
        <@Html.ActionLink("Application name", "Index", "Home", new { area = "" }, new { @class = "navbar-brand" })>
      </div>
      <div class="navbar-collapse collapse">
        <ul class="nav navbar-nav">
          <li><@Html.ActionLink("Get List", "Index", "EmployeeDetails")></li>
          <li><@Html.ActionLink("Create", "Create", "EmployeeDetails")></li>
          <li><@Html.ActionLink("Dear - " + User.Identity.Name, "Dear", "Account")></li>
          <li><@Html.ActionLink("Logout", "Logout", "Account")></li>
          <li><@Html.ActionLink("Login", "Login", "Account")></li>
        </ul>
      </div>
    </div>
  </body>
  
```

Fig 4.14 Role base code

### 4.3 Assignments with Asp.Net core web API

- ASP.NET Core Web API is a framework for building HTTP services that can be accessed from any client including browsers and mobile devices.
- It supports creating web APIs using controllers or using minimal APIs. Controllers in a web API are classes that derive from Controller Base.
- For information on creating web APIs without controllers, see Tutorial: Create a minimal API with ASP.NET Core1.
- ASP.NET Web API is an ideal platform for building RESTful applications.
- ASP.NET Web API is a framework for building HTTP services that can be consumed by a broad range of clients including browsers, mobiles, iPhone and tablets. It is very similar to ASP.NET MVC since it contains the MVC features such as routing, controllers, action results, filter, model binders, IOC container or dependency injection.
- ASP.NET Web API is an extension of WCF REST API. In short, it is a replacement of WCF REST API. It can be used with ASP.NET MVC and other types of Web applications like ASP.NET Web Forms. Also, Web API can be used as a stand-alone Web services application

#### What is API? And why we use it?

- API stands for Application Programming Interface. It is a set of protocols, routines, and tools for building software applications.
- APIs specify how software components should interact and APIs are used when programming graphical user interface (GUI) components.
- A good API makes it easier to develop a program by providing all the building blocks. It also provides a convenient way for developers to access services without having to know how they are implemented.
- APIs can be used to create new applications by combining data from multiple sources.
- They can also be used to simplify complex processes by breaking them down into smaller, more manageable pieces.

### 4.3.1 Assignment (5): To-do List in Asp.net core Web API



Fig 4.15 To-do list with API

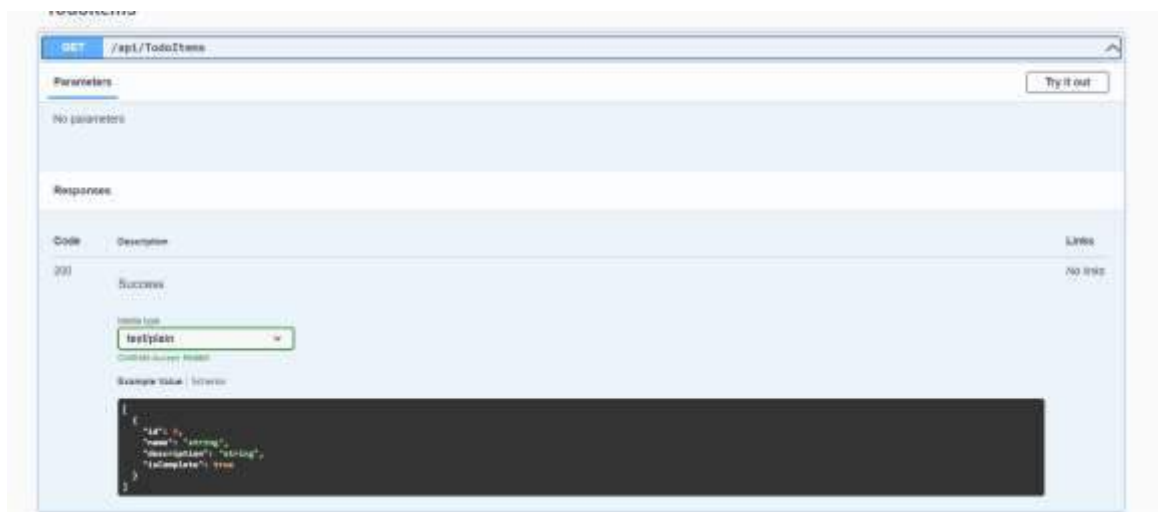


Fig 4.16 To-do list with API (get method)

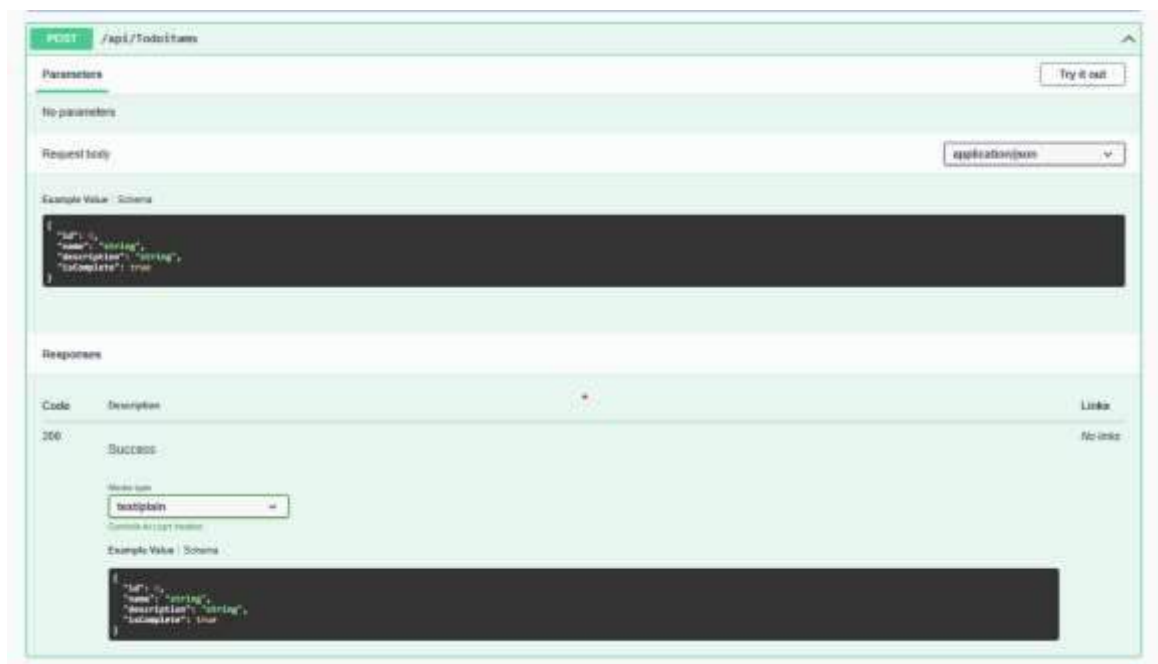


Fig 4.17 To-do list with API (post method)



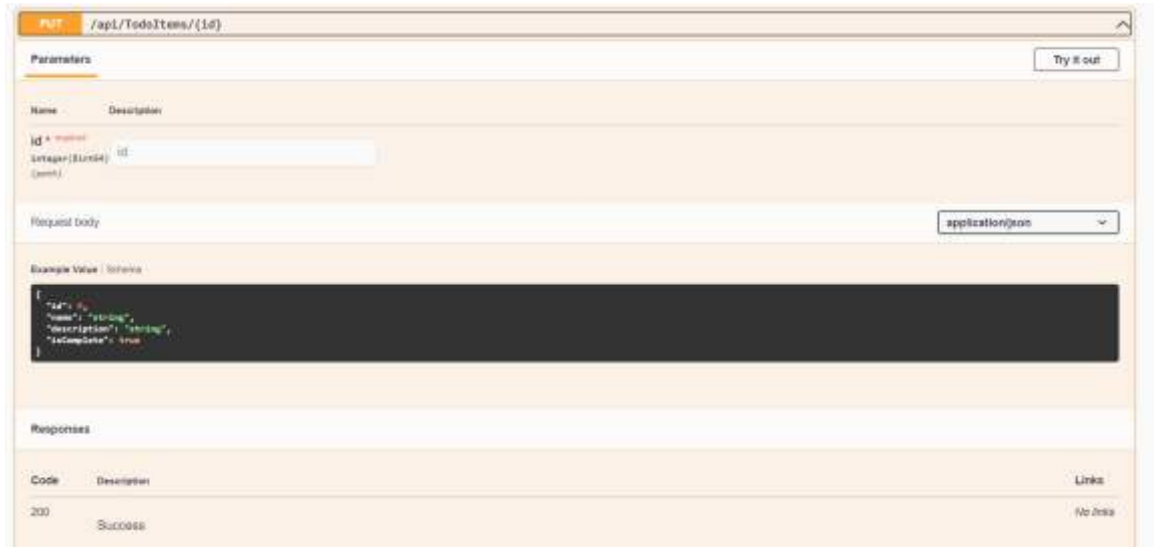


Fig 4.18 To-do list with API (put method)



Fig 4.19 To-do list with API (delete method)

A to-do list is just a list of things you have to-do. That means basically anything and everything can be on your to-do list—but just because you've written your to-dos down doesn't mean your to-do list is actually useful. Effectively tracking when your work is due can help you prioritize and get great work done.

### 4.3.2 Assignment (6): send email to user by using Asp.Net Core Web API

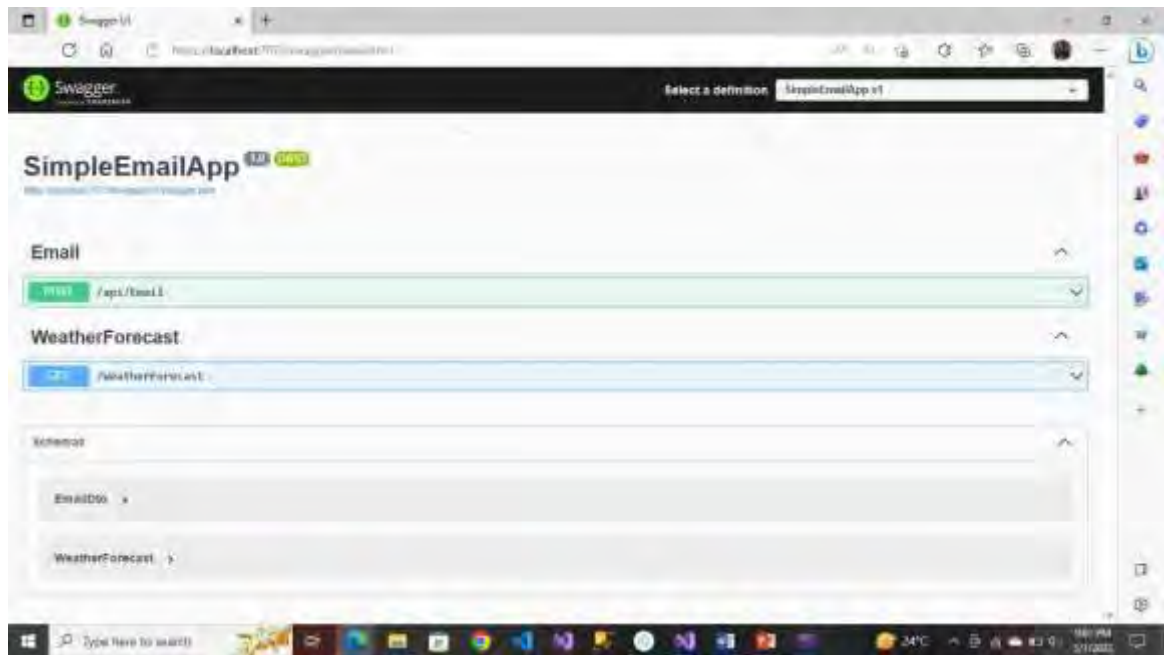


Fig 4.20 Email send with API

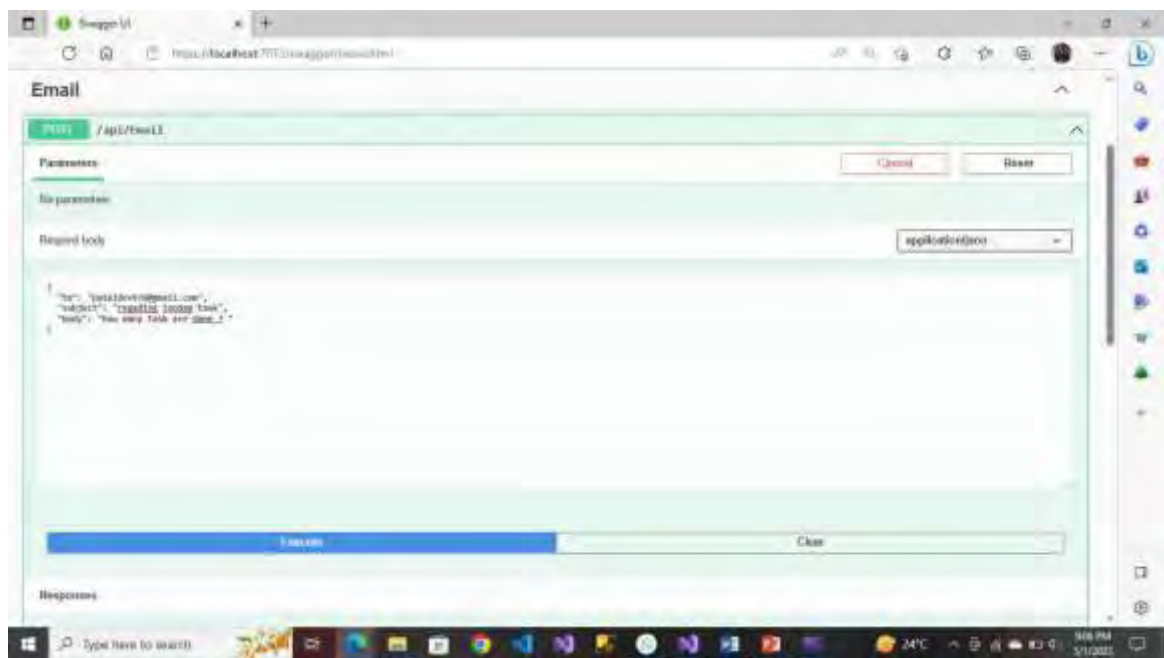


Fig 4.21 Email send with API (get method)

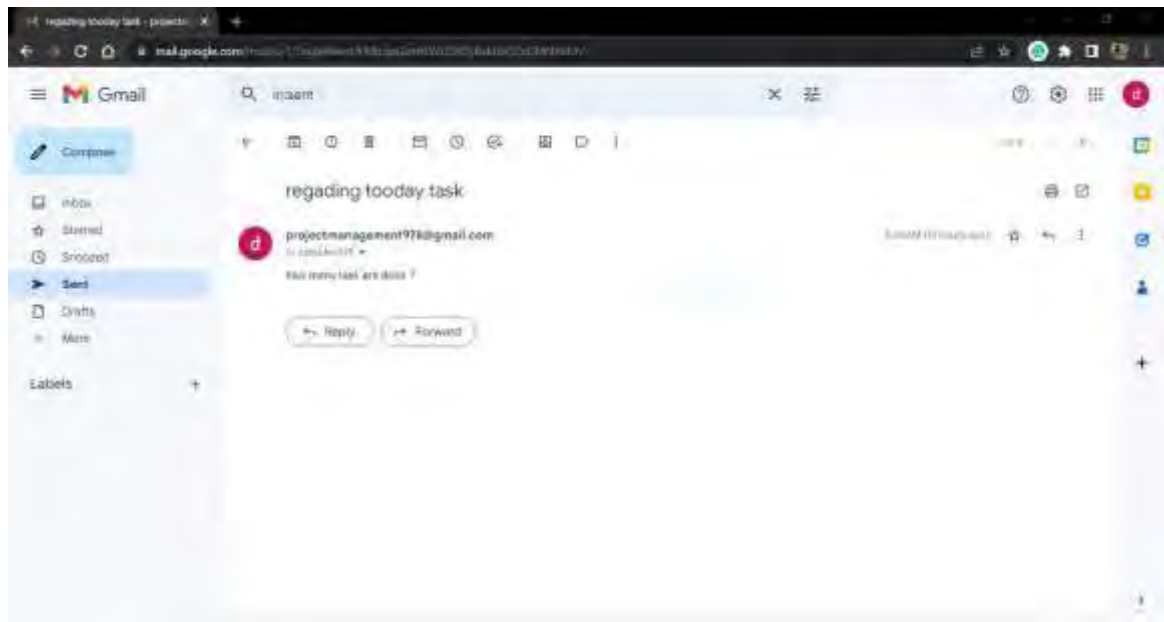


Fig 4.22 Email send with API (user side)

## CHAPTER 5: A Mini Project – Project Management

### 5.1 Quick Summary

- **Project Name:** Project Management
- **Project Description:** Event Handle,
- **Built in:** Asp.net core web API, Sql Database
- **Effort Time:** 8 hour / Day \* 20 Days = 240 Hours
- **Use Cases:** Show project status, how many task completed and team
- **Type:** Web Application

### 5.2 Targeting feature of project management:

- Show project status
- Add project
- Add project team member
- Add task list
- To assign task in particular employee

### 5.3 Database tables:

<b>Organization Master</b>		
<b>Column Name</b>	<b>Data type</b>	<b>Remark</b>
Id	Int	
Name	Varchar	
Details	Varchar	
Email	Varchar	
Address	Varchar	
<b>Project master</b>		
<b>Column Name</b>	<b>Data type</b>	<b>Remark</b>
id	Int	
Client name	Varchar	
Project name	Varchar	
Project details	Varchar	
Leader name	Varchar	
Leader email	Varchar	
Attachment	Varchar	
Starting date	varchar	
Estimated ending date		

<b>Task master</b>		
<b>Column Name</b>	<b>Data type</b>	<b>Remark</b>
id	Int	
Name	Varchar	
Description	Varchar	
Assigned to	Varchar	
Deadline	Varchar	
id	Int	Foreign key
Story point	Int	
Status	Int	Foreign key
<b>User master</b>		
<b>Column Name</b>	<b>Data type</b>	<b>Remark</b>
Id	Int	
Full Name	Varchar	
Email	Varchar	
Contact	Varchar	
Designation	Varchar	
Password	Int	
Confirm password	Int	
Id	Int	Foreign key
Role	Int	Foreign key
<b>Role master</b>		
id	Int	Foreign key
Role	varchar	
<b>Status master</b>		
Id	int	Foreign key
status	Varchar	
<b>Issue master</b>		
<b>Column Name</b>	<b>Data type</b>	<b>Remark</b>
Issue title	varchar	
Description	Varchar	
Date of issue	Varchar	Select date
Reporter name	Varchar	
Reporting to	Varchar	Drop down menu

## 5.4 Website:

Project management involves the planning and organization of a company's resources to move a specific task, event, or duty towards completion. It can involve a one-time project or an ongoing activity, and resources managed include personnel, finances, technology, and intellectual property.

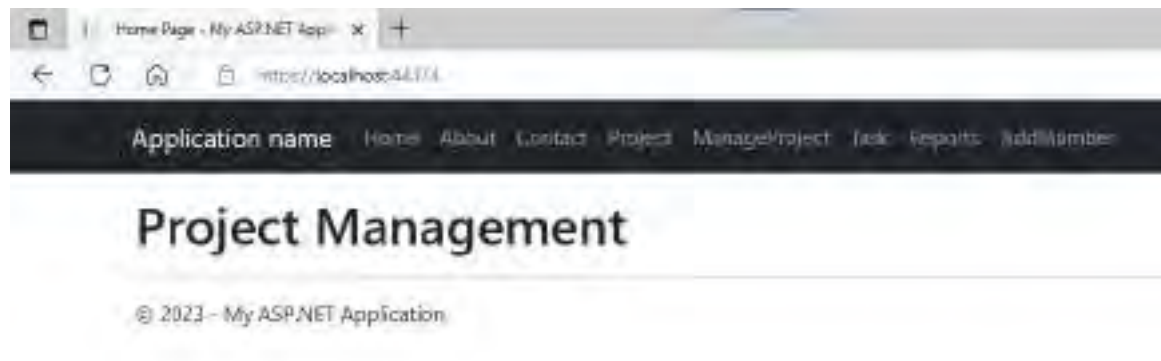


Fig 5.1 Dashboard of Mini project

Project management is the application of processes, methods, skills, knowledge and experience to achieve specific project objectives according to the project acceptance criteria within agreed parameters. Project management has final deliverables that are constrained to a finite timescale and budget.



Fig 5.2 project list

The most straightforward answer is that a project list is a to-do list for a project. You could use a project list as you would any to-do list, creating a list of tasks you need to do today, this week or over the course of a month.

Fig 5.3 create project

Name	Description	Assigned_to	DeadLine	FK_id	
string	string	string	string	3002	<a href="#">Update</a>   <a href="#">Remove</a>
demo	demo	na	na	3002	<a href="#">Update</a>   <a href="#">Remove</a>
string	string	string	string	3002	<a href="#">Update</a>   <a href="#">Remove</a>
task1	demo	member1	na	5001	<a href="#">Update</a>   <a href="#">Remove</a>

Fig 5.4 Task list

The most straightforward answer is that a project list is a to-do list for a project. You could use a project list as you would any to-do list, creating a list of tasks you need to do today, this week or over the course of a month.

The screenshot shows a web form titled "Add New Task" under the heading "Project & Task Manager". The form is labeled "Task Form" and contains the following fields: "Project Name" (text input with "demo" selected), "Project\_Details" (text input), "TaskName" (text input), "Task\_Details" (text input), "Assigned\_to" (dropdown menu with "Demo@gmail.com" selected), "DeadLine" (calendar icon and "dd-mm-yyyy" text), "Story\_Point" (text input), and "Status" (dropdown menu with "Pending" selected). A green "Create" button is positioned below the "Status" field. At the bottom left, there is a "Back to List" link and a copyright notice "© 2023 - My ASPNET Application".

Fig 5.5 Create Task

The screenshot shows a web form titled "Admin Signup" under the heading "Project & Task Manger". The form includes a navigation menu with "Home", "About", "Contact", and "Login" links. The form fields are: "Full Name", "Email", "Contact", "Designation", "Password", "Confirm Password", and "Role\_id\_FK" (dropdown menu). A green "Signup" button is located at the bottom center. A "Back to Login" link is visible at the bottom left.

Fig 5.6 Admin page signup

This form is filled in the organization and after that organization leader creates from and shows list of project and task and also adds company employees.



The screenshot shows the 'Project & Task Manger' application interface. At the top, there is a dark navigation bar with the text 'Project & Task manager' and four menu items: 'Home', 'About', 'Contact', and 'Login'. Below the navigation bar, the page title 'Project & Task Manger' is displayed. Underneath, the heading 'Login' is shown. The login form consists of two input fields: 'Email' and 'Password'. A green 'Login' button is positioned below the password field. A link 'Back to Signup' is located below the login button. At the bottom of the page, the copyright notice '© 2023 - My ASPNET Application' is visible.

Fig 5.7 Admin page login

The screenshot displays the 'Project & Task Manger' application interface for organization signup. The top navigation bar is identical to the previous screenshot, with 'Project & Task manager' and 'Home', 'About', 'Contact', 'Login' menu items. The main heading is 'Project & Task Manger', followed by the sub-heading 'Organization Signup'. The form includes four input fields: 'Name', 'Details', 'Email', and 'Address'. A green 'Signup' button is located below the 'Address' field. A link 'Back to Login' is positioned below the signup button. The footer contains the text '© 2023 - My ASPNET Application'.

Fig 5.8 organization signup

The screenshot shows the 'Project & Task Manger' application interface for user login. The top navigation bar features 'Project & Task manager' and 'Home', 'About', 'Contact', 'Login' menu items. The page title is 'Project & Task Manger', with the sub-heading 'Login'. The login form has two input fields: 'Email' and 'Password'. A green 'Login' button is placed below the password field. A link 'Back to Signup' is located below the login button. The footer text is '© 2023 - My ASPNET Application'.

Fig 5.9 User login



Fig 5.10 User profile

A user profile is a collection of settings and information associated with a user. It contains critical information that is used to identify an individual, such as their name, age, portrait photograph and individual characteristics such as knowledge or expertise

Project_Name	Project_Details	TaskName	Task_Details
demo	demo	done	demo
demo	demo	na	demo
demo	demo	task5	demo
demo	demo	testing 2	demo
testing	testing	task4	testing
testing	testing	testing 2	testing
testing	testing	testing 3	testing
testing	testing	testing1	testing

Fig 5.11 Project and task list

A task list is a prioritized set of activities you (or your team) need to do to complete a project. A task list contains specific tasks assigned to a task and when the task needs to be done. Typically, these lists are created at the start of a project.

A task list is a project management tool that helps professionals keep track of their team's tasks. Task lists often include information such as the primary contact for the project, the professionals working on it and its deadline and status update.

**Project & Task Manager**

### Raise Issue here

Issue Form

Issue\_title:

Description:

Date\_of\_Issue:

Reporter\_Name:

Reporting\_to:

[Create](#)

[Back to List](#)

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Fig 5.12 Issue page

Project member any problem related to project than member can create issue and select particular person to solve it.

**Project & Task Manager**

### Issue List

[Create New](#)

Issue_title	Description	Date_of_Issue	Reporter_Name	Reporting_to	
demo	su	2023-03-27T00:00	demo	demo2	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>

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Fig 5.13 Issue list

This page to show all the issue list in one project .




Fig 5.14 Project status

This page chart page to show peoject status , three type

- 1 Project DONE
- 2 Project Pandding
- 3 Project Running

## References

- [1] Book: “C# in Depth” by Jon Skeet.
- [2] Book: “.NET Platform Architecture” by Alexey Zimarev.
- [3] Book: “The Ng-book — The Complete Book on Angular” .
- [4] Book: “Angular Development with Typescript” by Yakov Fain.
- [5] For the Dot net Tutorial: <https://dotnettutorials.net/>
- [6] For the angular Tutorial: <https://docs.angularjs.org/tutorial>
- [7] Basic of C#:  
[https://www.tutorialspoint.com/csharp/csharp\\_basic\\_syntax.htm](https://www.tutorialspoint.com/csharp/csharp_basic_syntax.htm)
- [8] Basic of Asp.net Core:  
<https://learn.microsoft.com/enus/aspnet/core/tutorials/first-web-api?view=aspnetcore-7.0&tabs=visual-studio>
- [9] Asp.net Tutorial:  
[https://www.tutorialspoint.com/asp.net/asp.net\\_introduction.htm](https://www.tutorialspoint.com/asp.net/asp.net_introduction.htm)



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I  
 Enrollment no:  
190395107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRABHAI PATEL

DIARY OF THE WEEK: Dt: 23/01/2023 TO 27/01/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Zenkins technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer


NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Tamesh Dora

**DESCRIPTION OF THE WORK DONE IN BRIEF**

Day:1 .. first of company introduction, then some small event, and then making task ~~pp~~. some design to software etc.

Day:2 - This day we started with basic Introduction of .NET  
 → we see the Architecture of .NET and its usage  
 → after that one task perform to making ppt about .NET

Day:3  
 → This day we started with basic Introduction of C# and oops  
 → and make ppt about C# and oops



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Day: 4 - Holiday

**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

Day: 5

→ this all basic introduction done then to install the software and then which features use and to making basic console application.


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---

TOTAL HOURS: 45 Hours

D. B. Patel.  
 SIGNATURE OF STUDENT


The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 18/3/22 Date: 27/01/2023

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure 1  
 Enrollment no: 190330107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRABHAI PATEL

DIARY OF THE WEEK: From 30/01/2023 to 03/02/2023

DEPARTMENT: Computer Engineering SEM: 4<sup>th</sup>

NAME OF THE ORGANISATION: Zenkings technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jignesh Desai

**DESCRIPTION OF THE WORK DONE IN BRIEF**

→ This whole week we have perform got programs to implement and test code like

1. Find the largest of Two numbers
2. to Print All the multiples of 17 which are less than 100.
3. Using recursion method.
4. Sum of Two Binary numbers
5. to perform multiplication of Exponents of Same Base.
6. to Accept HEIGHT of a person and Categorize as Taller, Dwarf & Average.



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7. to trim the Given String  
8. perform some Pattern Programs  
**SUPPLEMENTARY NOTES**  
(add additional sheets if required)  
9. demonstrate Boxing operations.  
etc.  
10. find some program search in online  
and then perform.


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---

TOTAL HOURS: 44 HOURS

D. S. Patel  
 SIGNATURE OF STUDENT


The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]

 Signature of officer-in-charge  
 of Dept. / Section / Plant: [Signature]

Date: 18/2/23
Date: 03/02/2023

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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---

Annexure 1  
Enrollment no:  
190390107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRABHAI PATEL

DIARY OF THE WEEK: Dt: 06/02/2023 TO 10/02/2023

DEPARTMENT: Computer Engineering SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: Zemkins technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: MR. Jignesh Daxli


DESCRIPTION OF THE WORK DONE IN BRIEF

6<sup>th</sup> /02/2023

- We created a demo website in ASP NET MVC for .NET tutorial.
- We created website using visual studio
- We added some content regarding .NET ~~etc~~ C#, oop etc.

7<sup>th</sup> feb 2023 :-

- We added login and session management for users in ASP NET MVC website.
- We used database and added features of logging in and logout in website.



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**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

8/02/2023

- We added employee records in our website to know and practice to insert, update and delete employee records.
- we created database for employee records and connected database with website.

9/02/2023 & 10/02/2023

- This two day we created one shopping website to add, delete and update item and user only see the item and Admin can perform item add, delete and update.


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---

TOTAL HOURS: 43.30 Hours

D. B. Patel  
 SIGNATURE OF STUDENT


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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]

[Signature]  
 Signature of officer-in-charge  
 of Dept. / Section / Plant

Date: 18/12/23
Date: 10/02/2023

★ Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I  
 Enrollment no:  
190330107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRAHARAS PATEL

DIARY OF THE WEEK: ID: 13/02/2023 TO 17/02/2023

DEPARTMENT: computer Engineering SEM: 9<sup>th</sup>

NAME OF THE ORGANISATION: Zemkins technologies


NAME OF THE PLANT/SECTION/DEPARTMENT: Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jankesh Dave

DESCRIPTION OF THE WORK DONE IN BRIEF

13/02/2023 > 14/02/2023 > 16/02/2023

- this three day we perform user management with Role, login and access rights using the database first.
- first day we have only sir can explain and some demo make.
- second day we and third day we perform the task.



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**SUPPLEMENTRY NOTES**  
(add additional sheets if required)

16/02/2022 to 17/02/2023

- this two day we perform using user management with role, login and access rights using SQL query & store procedure.
- this task to we are write SQL query and then perform.




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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ બારા સ્થાપિત)

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TOTAL HOURS: 44 HOURS

Dev. R. Patel  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]

 Signature of officer-in-charge  
 of Dept. / Section / Plant: [Signature]

Date: 28/01/21
Date: 17/02/2023

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I  
Enrollment no: 190390107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: PATEL DEV BHUPENDRABHAI

DIARY OF THE WEEK: Dt: 20-02-2023 TO 24-02-2023

DEPARTMENT: Computer Engineering SEM: 4<sup>th</sup>


NAME OF THE ORGANISATION: Zemking technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jinesh Daxil

DESCRIPTION OF THE WORK DONE IN BRIEF

- This hole week we are working Todo application.
- first sir can understand how to making todo app.
- then Todo Application making using .NET core Web API.
- Data enter & than & Data get, PUT, Push and Delete.
- then one topic add from .
- all information enter in from and this information use as Todo Application.
- this whole week we making one Todo Application in .NET core with from.



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TOTAL HOURS: 43.50

D. B. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR.


Signature of Faculty Mentor: [Signature]

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: 18/01/23

Date: 06/03/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1  
 Enrollment no:  
150302107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: PATEL DEV BHUPENDRABHAI

DIARY OF THE WEEK: Dt: 24/02/2023 TO 3/03/2023

DEPARTMENT: Computer Engineering SEM: 4<sup>th</sup>


NAME OF THE ORGANISATION: Zenking technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jignesh Desai

DESCRIPTION OF THE WORK DONE IN BRIEF

- This week we starting one Project
- Project Name is Task management
- Sir can divided two team and then two team different Project
- my team I am 4 People in group.
- then we were find the requirement of Task and Project management
- then all the find requirement after that we making wire fram in Project management.
- then wirefram saw and to making the database basic requirement.

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TOTAL HOURS: 44.50 D. P. Patel  
SIGNATURE OF STUDENT


The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR,

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

P. Chaudhary [Signature]

Date: 18/3/23 Date: 06/03/23

Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure 1  
 Enrollment no:  
190391003031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRABHAI PATEL

DIARY OF THE WEEK: From 06/03/2023 TO 10/03/2023

DEPARTMENT: Computer Engineering SEM: \_\_\_\_\_

NAME OF THE ORGANISATION: Zenking technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer


NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jignesh Daxi

DESCRIPTION OF THE WORK DONE IN BRIEF

A this a hold week we are making the wirefram and database

→ But we discuss to our mentor and then making wirefram.

→ we making database but so many problem a tech facing a and issue after that we are making.

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TOTAL HOURS: 40


S. B. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Date: 18/03/23

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]  
Date: 10/03/2023

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1  
 Enrollment no: 190390107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRABHAI PATEL

DIARY OF THE WEEK: D: 13/03/2023 TO 17/03/2023

DEPARTMENT: Computer Engineering SEM: 4<sup>th</sup>

NAME OF THE ORGANISATION: Zenkins technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jignesh Desai

DESCRIPTION OF THE WORK DONE IN BRIEF

- This week we are working start starting website.
- main website we making all fea features from. ~~and~~
- I am creating mvc application to all features from. like. Home, Page
- ~~then~~ we project add, Task add, and add the employ.





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TOTAL HOURS: 40.50


S.P. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Date: 18/03/23

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]  
Date: 17/03/2023

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1  
 Enrollment no:  
190390107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRABHAI PATEL

DIARY OF THE WEEK: DG: 20/03/2023 TO 24/03/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Zenkun technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jignesh Daxji


DESCRIPTION OF THE WORK DONE IN BRIEF

- we ~~this~~ This week we are ~~are~~ making from than web API making.
- all from connected to the web API and using ASP.NET.
- connect the main application to web API and working condition.
- than we are making inner features add.


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TOTAL HOURS: <u>44.50</u>	<u>S.P. Patel</u> SIGNATURE OF STUDENT
<input checked="" type="checkbox"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR.	
Signature of Faculty Mentor	Signature of officer-in-charge of Dept. / Section / Plant
<u>[Signature]</u> Date: <u>9/5/23</u>	<u>[Signature]</u> Date: <u>24/03/2023</u>
<input checked="" type="checkbox"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.	



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Annexure 1  
 Enrollment no:  
190290107031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRABHAI PATEL

DIARY OF THE WEEK: Dt: 27/03/2023 TO 31/03/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: Zenking technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developed

NAME OF OFFICER-INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jignesh Daxsi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- This week.
- we add the ~~a two~~ four features
- data fetching to database and create ~~add~~ meeting.
- dropdown add in from using webAPI
- ~~add~~ Email sender to user <sup>when</sup> ~~add~~ Employees add.
- ~~add~~ Report feature, ~~is~~ discuss feature.


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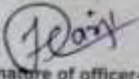
---

TOTAL HOURS: 45.00

  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
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Signature of Faculty Mentor

  
 Signature of officer-in-charge  
 of Dept. / Section / Plant

Date:

Date: 31/03/23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1  
Enrollment no:  
1903901070314

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRABHAI PATEL

DIARY OF THE WEEK: D: 31/4/2023 TO 7/4/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: Zenkins technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Jignesh Desai

DESCRIPTION OF THE WORK DONE IN BRIEF

- Implemented MVC form for status
- It show the pie chart for three fields 'Pending', 'Progress' and 'Done'
- added view for status in Database.
- Implemented API for status
- add pie chart to shows the status of Particular Project.
- Implemented Dropdown functionality to select Particular Project.
- Started work for Home Page.
- In Home Page / Dash Board display the all project and it's tasks.


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TOTAL HOURS: 45


Signature of Student: D.R. Patel  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
 Date: 9/5/23

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]  
 Date: 7/4/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.


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Annexure 1  
Enrollment no: 190360107021

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEV BHUPENDRAGHAI PATEL  
 DIARY OF THE WEEK: DE: 10/4/2023 TO 14/4/2023  
 DEPARTMENT: Computer Engineering SEM: 2<sup>nd</sup>  
 NAME OF THE ORGANISATION: Zenrins technologies  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Developer  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: MR. TIANESH DARIJI

DESCRIPTION OF THE WORK DONE IN BRIEF

- first added view part for Dashboard In Database and Implemented API and form for Dashboard
- we search for the way to Implement the Authentication for which we create a view In Database for which and Implemented the API for it.
- completed the API and created the mvc form. In mvc form It compare the Data from Database and uses Input.
- added the login functionality and sign up for Project.
- created a Role based menu for Admin and member.





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TOTAL HOURS: 44


J.P. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Date: 14/4/23

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]  
Date: 14/4/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 2

**Feedback Form by Industry expert**

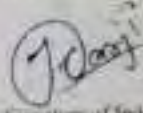
Student Name: Dev Bhupendra bhau Rajel Date: 14/4/2023  
 Work Supervisor: \_\_\_\_\_ Title: DOT NET  
 Company/Organization: Zenkins technologies  
 Enrollment No: 180340197031  
 Internship Address: \_\_\_\_\_  
 Dates of Internship: From 23/01/2023 to 10/04/2023

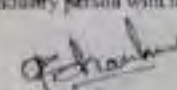
Please evaluate your intern by indicating the frequency with which you observed the following behaviors:


Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives			✓	
Produces high quality work and accepts responsibility			✓	
Uses technical knowledge and expertise			✓	
Analyzes problems effectively			✓	
Communicates well and writes effectively			✓	

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent)

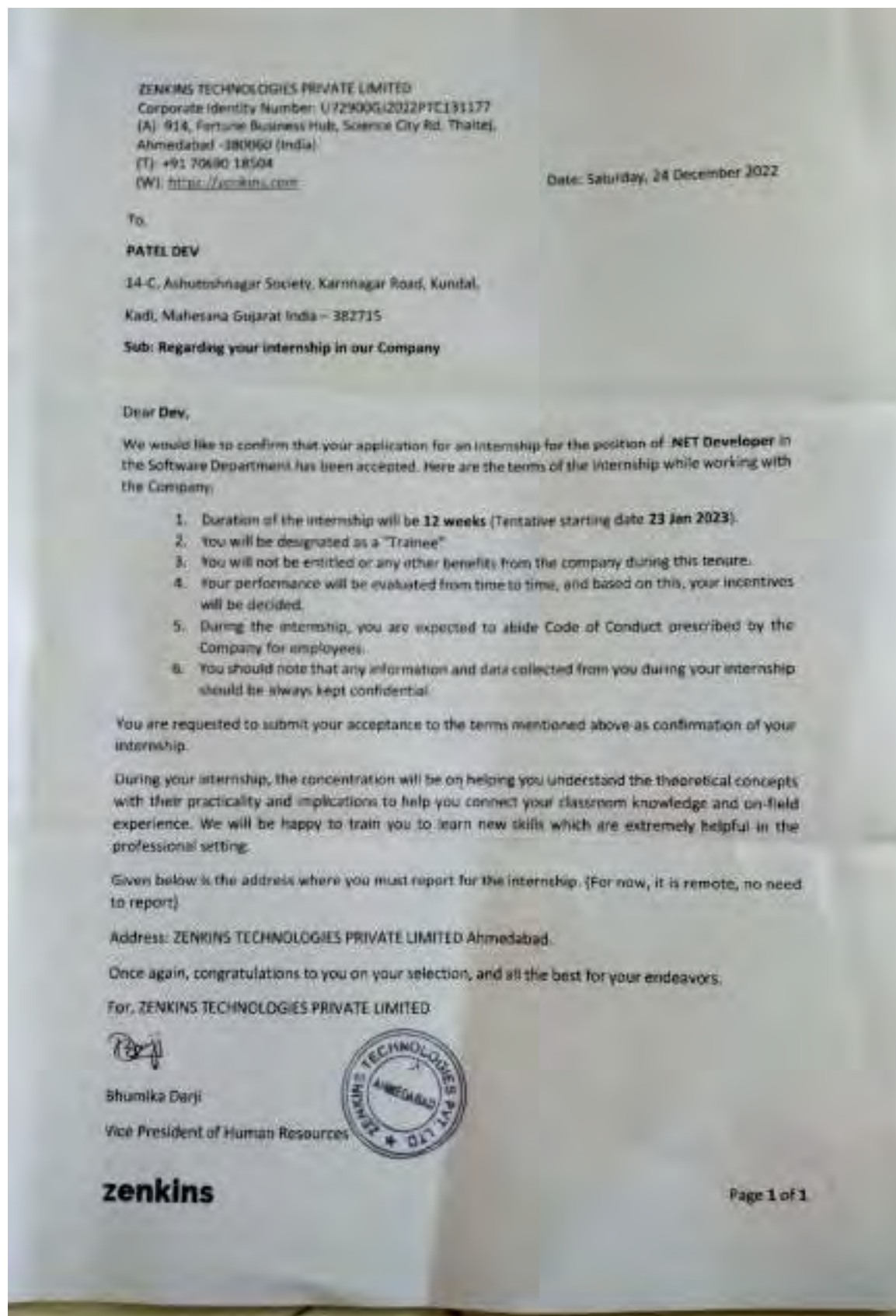
Additional comments, if any:

  
 Signature of Industry person with name and Stamp

  
 Signature of the Faculty Mentor



## OFFER LETTER





**CreArt Solutions PVT LTD.**

**AN INTERNSHIP REPORT**

*Submitted by*

**Dev Patel**

**200390107012**

*In partial fulfilment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at CreArt Solution PVT LTD.** has been carried out by **Dev Patel** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. First Name Last Name

Prof. FirstName Last Name

Internal Guide

Head of Department

## Company Certificate

### Joining Letter:

<h1>INTERNSHIP JOINING LETTER</h1>	
<p>Date: 27<sup>th</sup> July 2023</p>	
<p><i>This is to certify that</i></p>	
<p>Mr/Ms. Dev Patel Enrollment No : 200390107012 College : saffron institute of technology</p>	
<p>has been selected for the 15 days of summer internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at CreArt Solutions, Ahmedabad</p>	
<p>We wish him/her all the best for his future endeavours</p>	
	<p><b>CreArt Solutions PVT LTD.</b> 202, Heritage Horizon, Deep Hotel, Dev Corporate, C D Road Ahmedabad, Gujarat, India - 380009 www.creat.in   hello@creat.in   <b>Office Location:</b> INDIA   USA   UK</p>
<p>Krishnamohan Gupta Director</p>	

## Completion Letter:

<b>INTERNSHIP COMPLETION LETTER</b>	 Date: 10 <sup>th</sup> August 2023
<p><i>This is to certify that</i></p> <p>Mr/Ms. Dev Patel Enrollment No : 200390107012 College : saffron institute of technology</p> <p>has successfully completed the 15 days of summer internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at <b>CreArt Solutions</b>, Ahmedabad.</p> <p>We wish him/her all the best for his future endeavours</p>	
 <hr/> <p>Krishnamohan Gupta Director</p>	<p><b>CreArt Solutions PVT LTD,</b> 202, Heritage Horizon, Opp Hotel Dev Corporate, E.6 Road, Ahmedabad, Gujarat, India - 380009 www.creat.in   hello@creat.in   <b>Office Location:</b> INDIA   USA   UK</p>





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CreArt Solutions PVT LTD.** submitted in partial fulfilment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. & Alkesh Kaba (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**1. Dev Patel**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would like to express my sincere gratitude in completing this internship report, with heartfelt acknowledgment to the individuals who have contributed significantly to my learning journey. First and foremost, I extend my appreciation to Mr. Alkesh Kaba, my esteemed external guide, whose expertise and guidance were invaluable during my 15-day internship focused on Python Django. His insights provided me with a deeper understanding of the subject.

I am equally thankful to Mr. Akshay, my internal guide, for his consistent support, feedback, and mentorship. His assistance played a pivotal role in shaping my practical skills and approach.

I am grateful for the opportunity provided by the organization to apply theoretical knowledge to real-world projects. The hands-on experience garnered during this internship has been invaluable for my professional growth.

Lastly, I want to acknowledge the encouragement and support of my family and friends. Their belief in me has been my driving force throughout this journey.

In conclusion, this internship has been a transformative experience, and I extend my heartfelt thanks to everyone who contributed to its success.

Thank you

## **Abstract**

This report contains the work done by the author during his internship at *CreArt Solutions PVT LTD*. It shows the work I did in the Virtual Internship. In the report, the author discusses the Process of creating web application in python Django. The author also discusses about the mysql, html and css. It also explains what the author learned during this internship period.

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# Chapter 1. INTRODUCTION

## 1.1 COMPANY PROFILE:

Company Name: CreArt Solutions PVT LTD.



CreArt is a privately owned venture of IT Solutions, Digital Marketing, Software Solutions and SEO services formed in 2013. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

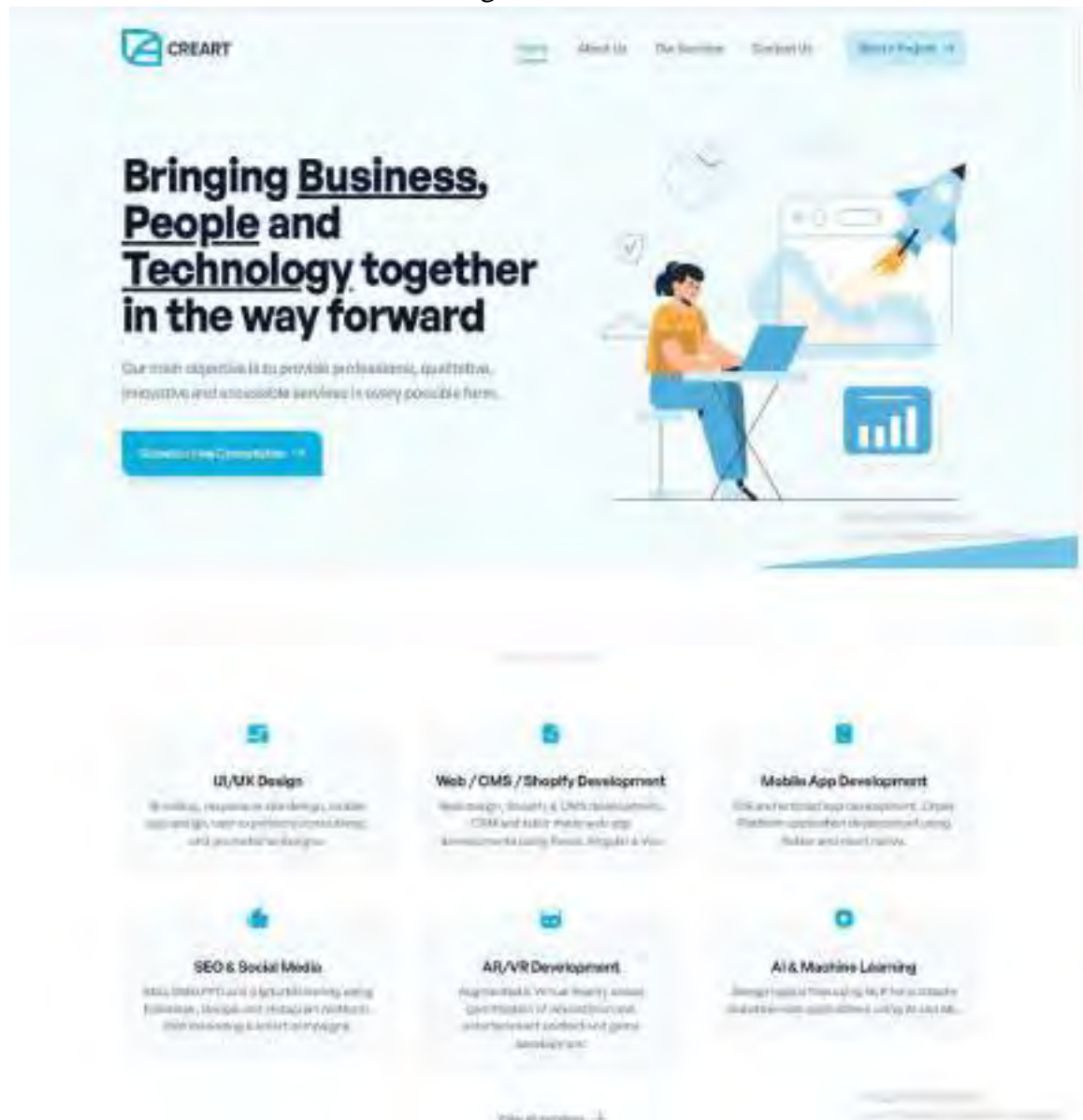
Where does this quality come from? IT Fresher's are knowledgeable but they are not skilful enough to establish themselves into the industry. To make them skilful CreArt incorporates its Corporate Internship Program and nourishes the young brains with the best industrial mentors. CreArt also places some of the Fresher's within its own family and place the rest to the other IT partnering companies which will assemble strong relations within the IT companies.

CreArt is dedicated towards perfection in every aspect. Professionalism is the main ingredient of CreArt. We strongly believe in delivering the best services to the clients till their satisfaction. Main objective of CreArt is to provide professional, qualitative, innovative and accessible services in every possible form.

## 1.2 Website Link and Images

Website Link: <https://creart.in/>

Images of Website





### **1.3 Aim and objective of the Internship:**

Our internship program was conducted from 27-July-2023 to 10-August-2023. During our internship course, we were to be taught about various concepts of the Python and Django Framework from very basic.

We covered different important basics which are used in every programming language. The Goals to be achieved during whole internship course were as follows:

1. Basic Python Programming
2. Django Concepts
3. How to download Xampp and how to use it
4. Make Project

## Chapter 2

# Internship Program

### 2.1 Introduction to Python

Python is a general-purpose interpreted, interactive, object-oriented, and high-level programming language. It was created by Guido van Rossum during 1985-1990.

Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English words frequently whereas other languages use punctuation, and it has fewer syntactic constructions than other languages.

#### Advantages of Python:

**Python is interpreted** - Python is processed at runtime by the interpreter. You do not need to compile your program before executing it. This is similar to PERL and PHP.

**Python is Interactive** - You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.

**Python is Object-Oriented** - Python supports Object-Oriented Style or technique of programming that encapsulates code within objects.

**Python is a Beginner's Language** - Python is a great language for the beginner-level programmers and supports the development of a wide range of applications from simple text processing to WWW browsers to games.



## **Characteristics of Python**

- ❖ It supports functional and structured programming methods as well as OOP.
- ❖ It can be used as a scripting language or can be compiled to byte-code for Building large applications.
- ❖ It provides very high-level dynamic data types and supports dynamic type checking.

## **Applications of Python**

- ❖ Easy to learn
- ❖ A broad standard library
- ❖ Interactive Mode
- ❖ Portable & Extensible
- ❖ Python provides interfaces to all major commercial databases.
- ❖ Python provides a better structure and support for large programs than shell scripting.

## **Name of Python Framework Are,**

- ❖ Django
- ❖ CherryPy
- ❖ Dash + Flask

## 2.2 Learning in the Internship

### Week 1:

During the first week of the internship, the focus was on providing foundational knowledge and understanding of Python basics. This included concepts such as variables, data types, operators, and functions. The emphasis was on building a strong groundwork to comprehend more complex topics later. Through interactive lessons and practical exercises, I gained hands-on experience in writing Python code, declaring variables, creating functions, and using basic programming constructs. This initial exposure laid a solid foundation for the subsequent stages of the internship, enabling me to confidently approach more advanced aspects of Python Django development.

Write some basic program in python like marks entry, convert temperature Celsius to Fahrenheit, what is type casting, what is function and how to declare it etc.



```
def celsius_to_fahrenheit(celsius):  
    fahrenheit = (celsius * 9/5) + 32  
    return fahrenheit  
  
celsius = 100  
fahrenheit = celsius_to_fahrenheit(celsius)  
print(f"{celsius} Celsius is {fahrenheit} Fahrenheit")  
  
celsius_to_fahrenheit(100)
```

Python 3.10.4 Shell

```
C:\Users\user> python main.py  
100 Celsius is 212 Fahrenheit  
100
```



Week 2:

## Django Installation & Project Creation:

- Follow Those 7 step to create Django Project Step

1: Create Virtual Environment – activate/Deactivate

(using this command – python –m venv  
name) Step 2: pip install Django

Step 3: Django-admin startproject project\_name

Step 4: python manage.py runserver

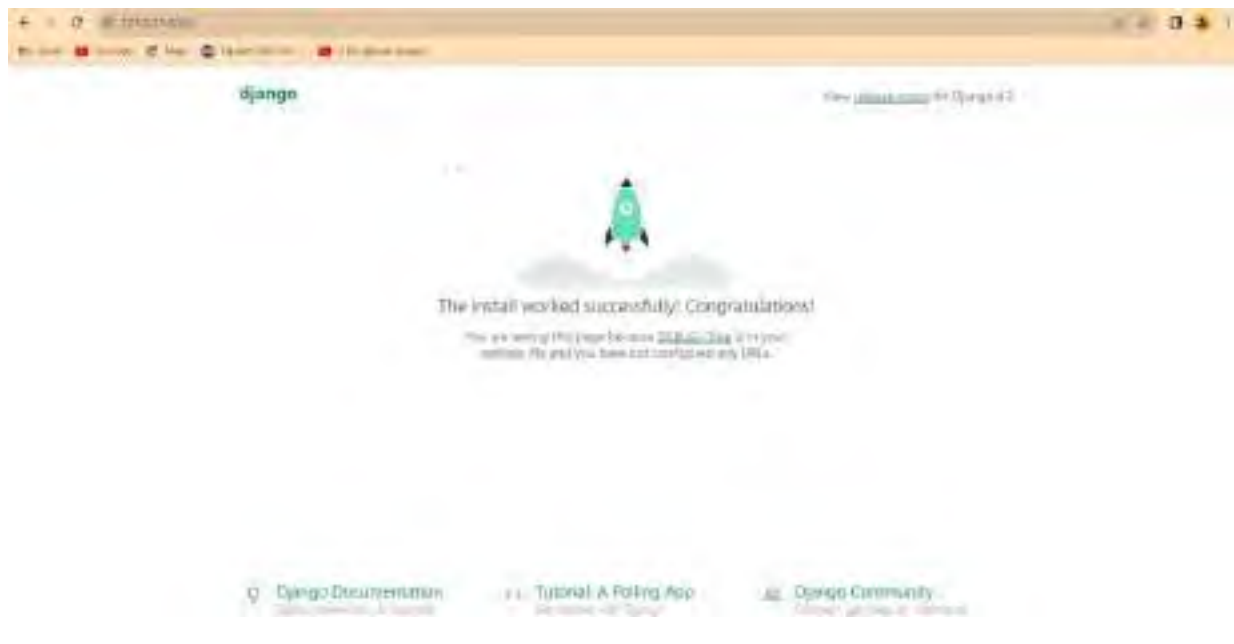
(Run Project using: <http://127.0.0.1:8000/>)

Step 5: pip install mysqlclient

Step 6: Make database connection and do change in settings.py

Step 7: python manage.py migrate –Create Tables in Database

(Check MySQL database – Ready made tables will be include in database)



What is Django and how it works.

During the second week of the internship, the primary focus was on comprehending the process of creating Django projects and gaining insights into their underlying mechanisms. To initiate a new Django project, the `django-admin`` or `python manage.py`` command-line tools are employed. This command sets up the project framework, including fundamental files like settings, URLs, and the management script.

Django projects adhere to the MVC (Model-View-Controller) architectural pattern, known as MVT (Model-View-Template) in Django. Models define the database structure, views handle request processing, and templates manage the presentation layer, fostering separation of concerns.

Key to every project is the `settings.py`` configuration file. It orchestrates crucial aspects such as database connections, installed apps, middleware, and more. URLs are articulated within the `urls.py`` file, dictating the mapping of incoming requests to specific views. For local development and testing, the built-in development server (`python manage.py runserver``) is employed.

Grasping this foundational structure is vital for constructing scalable and maintainable applications. It promotes clean code architecture and collaborative development. Week 2 of the internship significantly emphasized the intricacies of project creation, unveiling the essence of Django's underlying workings.

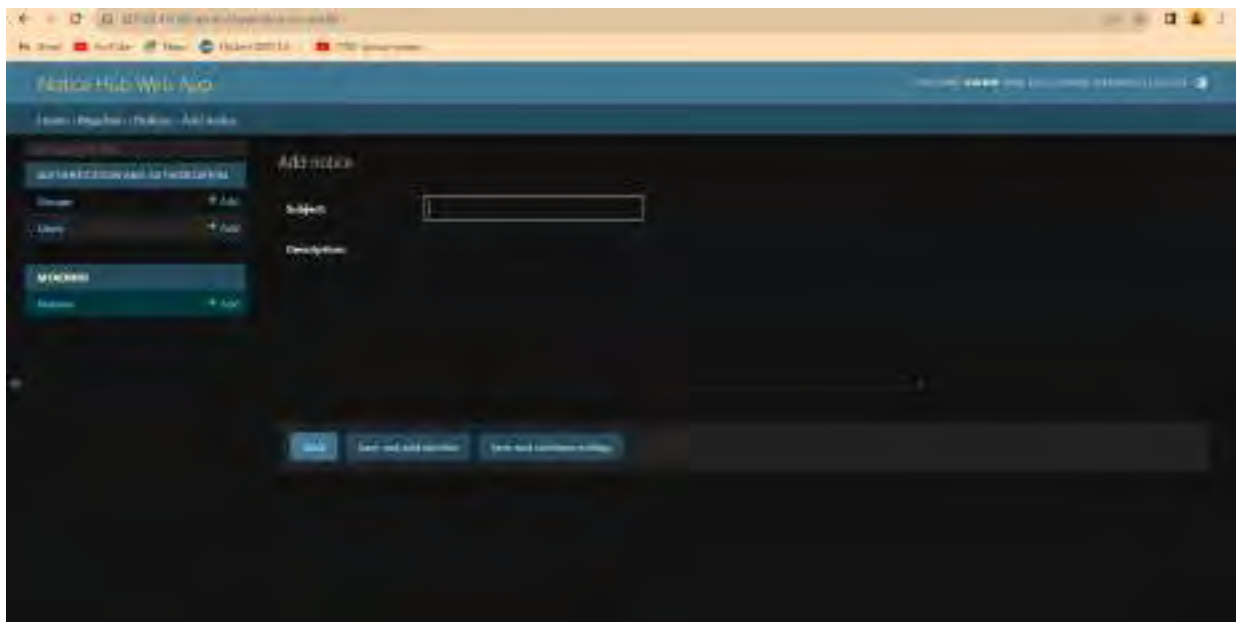
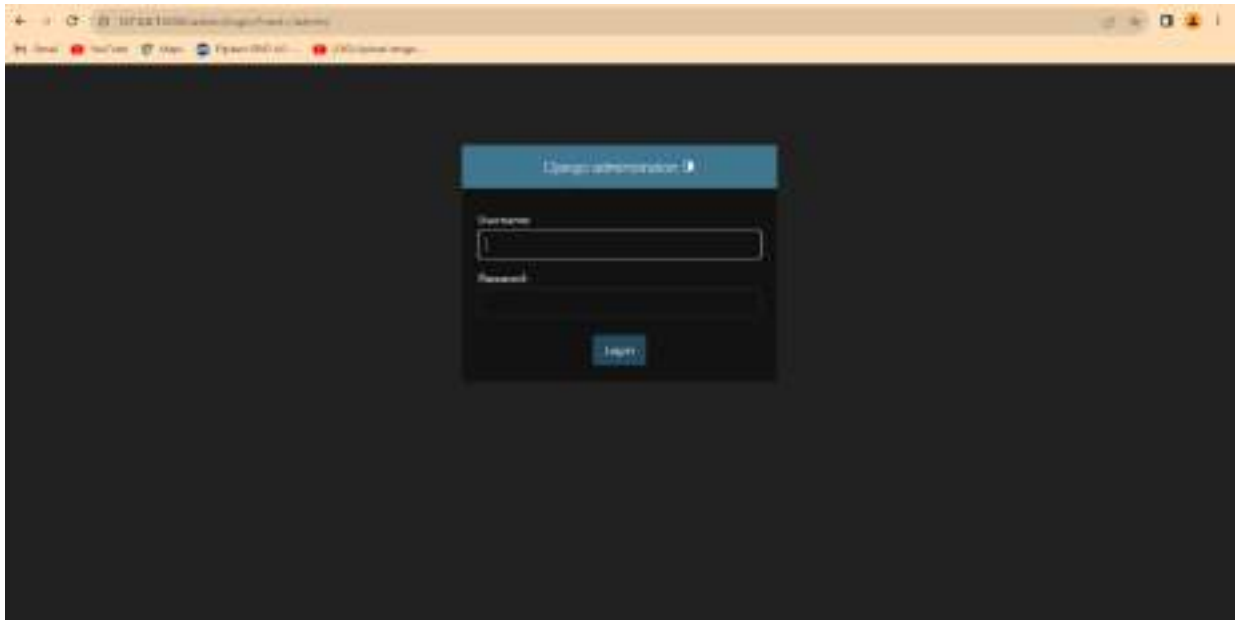
## **2.3 Description of internship experience**

My 15-day internship at creArt Solutions, focusing on Python Django, was an enlightening journey. I delved into the intricacies of web development, learning how to create functional and dynamic applications. Collaborating with the talented team allowed me to gain insights into industry practices and problem-solving techniques. I developed a strong grasp of Django's framework, enhancing my coding skills and project management acumen. From designing models and views to handling URLs and templates, the hands-on experience was both challenging and rewarding. The mentorship and guidance provided by the professionals at creArt Solutions were instrumental in my growth, fostering an environment of continuous learning. This internship solidified my passion for software development and equipped me with practical skills for future endeavors in the field.

## Chapter 3

### Project Work

In my internship, I developed "NoticeHub" using Django. Admins can add notices, which users can then view, streamlining communication and information sharing within the platform.









## **Chapter 4**

### **Overall Experience**

My 15-day internship at CreArt Solutions, where I worked with Python Django, was an amazing experience. Something new happened i now know how the company instructors will teach and it was totally different experience . I got to learn a lot about creating websites and applications. The team was really helpful and taught me many things about how things work in the real world. I learned how to use Django to build different parts of websites, like making sure pages show the right information and creating formsfor users to interact with. The people at CreArt Solutions were like guides, always there to help me when I had questions. This internship showed me how coding can be used to make cool things online and I'm excited to use what I learned in thefuture.

## **Chapter 5**

### **Conclusion**

The internship course was a very useful experience. I gained a lot of new knowledge and skills. Related to our study we learned more about coding and developing projects.

Furthermore, we experienced education is important and we have to be aware of industrial aspects and keep learning new technology. This internship program was not one sided, but it was a way of sharing knowledge, ideas and opinions. We learnt how to make our project live and many other things that we were not aware of. At last, this internship gave us insights and motivation to pursue career in right direction by learning new things.

Overall, I found the Web Development internship experience to be positive, and I'm sure I will be able to use the skills I learned in my career later.

INTERNSHIP AT DEMAZE TECHNOLOGY

**AN INTERNSHIP REPORT**

*Submitted by*

**Dev Bipinbhai Patel**

**190390107032**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University,  
Ahmedabad May, 2023**



# GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 15 May 2023 (12:50:23)

This is to certify that, **Patel Dev Bipinbhai** ( Enrolment Number - 190390107032 ) working on project entitled with **WEB DEVELOPMENT INTERNSHIP** from **Computer Engineering** department of **S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA** had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : Patel Dev Bipinbhai

Name of Guide : Mr. Chetan Ranchudhrai Chaudhari

Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

**Disclaimer :**

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.

# Company Certificate



## TO WHOM IT MAY CONCERN

Date: 03 May 2023

To,  
Patel Dev Bipinbhai  
1/2/75, Kada Darwaja,  
Khajuri Moholla Visnagar

**Sub: Internship completion letter.**

**Dear Dev,**

This is to certify that Dev B. Patel, a student of Saffrony Institute of Technology has successfully completed his internship in the field of web application development as a ReactJS developer from 30th January 2023 to 30th April 2023 (12 weeks) under the guidance of Vraj Patel.

His internship activities include HTML, CSS, JavaScript & ReactJS.

During the period of his internship program with us, he was exposed to different processes and was found diligent, hardworking, and inquisitive.

We wish him every success in his life and career.

**For Demaze Technologies.**

A handwritten signature in black ink is written over a circular stamp. The stamp contains the text "DEMAZE TECHNOLOGIES" around the top edge and "AHMEDABAD" in the center.

**Krupal N. Chaudhary**  
Proprietor

Office: D-814, Ganesh Bldg 11, Jagatpur Road, SG Highway, Gota, Ahmedabad, Gujarat. 382470  
Contact: +91 7016660537 | Gmail: info@demaze.in | Website: demaze.in



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Demaze Technologies** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Vraj Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of Student

Sign of Student

## ACKNOWLEDGMENT

I would like to express our gratitude towards faculty member of college for their kind co-operation and encouragement which help us in completion of this project. I would like to express our special gratitude and thanks to industry persons for giving me such attention and time.

First of all we are very grateful to our internal guide **Prof. Chetan Chauhan** and external guide **Mr. Vraj Patel** who has guided me to accomplish our project and giving their wide experience.

At last my thanks and appreciations also go to colleague in developing the project and people who have willingly helped me out with their abilities.



## **Abstract**

An HRMS (Human Resource Management System) is a software application that manages the HR functions of an organization. It is a central system that integrates various HR processes, employee management, benefits administration, and performance management.

The main objective of an HRMS is to streamline HR tasks and simplify the management of employee data. This system allows HR managers to track employee information, manage employee files, and automate HR processes, such as onboarding, offboarding, and performance reviews.

The HRMS project involves the development and implementation of an HRMS for an organization. The project involves the following stages.

**Requirements gathering:** This stage involves identifying the HR processes and functions that need to be managed by the HRMS. This stage also involves identifying the key stakeholders and understanding their requirements.

**Design:** In this stage, the system design is created based on the requirements gathered in the previous stage. The system design includes the architecture, data model, user interface, and workflow.

**Development:** This stage involves the actual development of the HRMS software. The development team follows the design and implements the features and functionalities identified in the previous stages.

**Testing:** In this stage, the developed system is tested for functionality, usability, and performance. This stage involves various types of testing, including unit testing, integration testing, and acceptance testing.

**Deployment:** In this stage, the HRMS is deployed to the production environment and made available to the end-users.

**Maintenance and Support:** Once the HRMS is deployed, it needs to be maintained and supported. This stage involves fixing bugs, providing user support, and making enhancements to the system.

HRMS project can benefit an organization by streamlining HR processes, reducing manual tasks, improving data accuracy, and providing better insights into employee performance.

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## **Abbreviations**

NPM - Node Package Manager

VSC- Visual Studio Code

NPX- Node Packager Executor

SDK -Software Development Kit

JSON -JavaScript Object Notation

API -Application Programming Interface

CLI- Command Line Interface

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# Chapter 1:- Overview of Company

## 1.0 Overview of company

Demaze Technologies is a team of software professionals experienced in delivering technology consulting and solutions related to website development, application development, artificial intelligence, API development, social media marketing, and graphic designing.

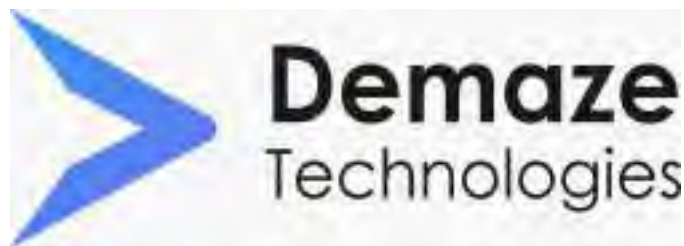


Fig 1.1 Company Logo

## 1.1 History

Demaze Technologies was founded in 2021 by current CEO Krupal Chaudhary and current CTO Vraj Patel with a vision to provide quality service in the area of software development and corporate training. Demaze Technologies was started with a 2-person organisation and now it operates with over 25 employees in it in the time span of just 8 months.

## 1.2 Scope of Work

Demaze Technologies offers website development and maintenance, social media marketing, API development, and Artificial Intelligence solutions as well as provides cross-platform mobile application development solutions using the flutter framework. Performing various kinds of consulting enabled our company to understand the needs of business, both domestic and international. It is the main reason of our advancement in other spheres of business and services.

## 1.3 Company Vision

Currently Be in the company that best understands and satisfies the product, service and self-fulfillment needs of the industry globally. Being a great place to work where people are inspired to be best they can be.

## **1.4 Employee Section.**

- Employees check in /check out & break in / break out
- Detailed reports section.
- leaves Application.
- Attendance
- employee activities
- Hotline
- Manage profile
- Sensation

## **1.5 Admin Section**

- All Employee Detailed Data
- Leave Management
- Comments of Employees
- IP whitelist to use System.

## **Chapter 2:- Different Unit of the Organisation**

### **2.0 Different Unit of the Organisation**

As the company has grown, it was needed to separate various departments to maintain the management and smooth flow of the process. Demaze Technologies has various units to handle different use cases.

### **2.1 Different Departments**

Some departments in the company are as per below:

BU: This unit deals with businesses and management. It is mainly concerned with the development of software for various clients.

IT: This department is used to maintain the IT infrastructure of the company and its employees. They also help with any type of technical issue faced by clients and employees of the company.

HR: Most common department of the company which deals with the human resource management processes like hiring, evaluation for promotion, salary related issues etc.

There are some other departments out there that fall under the BU which handle various types of work.

### **2.2 Sequence of Operation for Manufacturing of Endproduct**

The main product of our company is mostly the software. Software is a very different thing from other industries' end products. Its process is very different. The main flow of software development is as per below:

1. Client requirement understanding: The first step to building something is to know what to build. Especially in the case of software, it is very important to understand the client.
2. Requirement completely as if the requirement changes, then it will create huge problems in later part of the development. Often a requirement document is created which is called client requirement document to make thing clearer.
3. Planning: Second step to build something is to know how to build. In software development, we need to decide the entire flow of the process like which technology stack will be used? Which type of architecture will be used? Etc.



4. Development: After sufficient planning comes the development part. In this part actual software is build. Or at least the part of the software is built in methods like agile delivery method.
5. Review and QA: Internal review and QA is done to ensure the quality of the final product as in software in this case. It also helps to identify the bugs before releasing the software.
6. Release or Deployment: In this phase the software is delivered to the client either the direct code or hosted service.
7. Maintenance: This part comes in picture after the final delivery of the software. This phase includes tasks such as making sure the service is always running, bug fixes etc.

### 2.3 Different Stages of the production

At our company, we mostly use the agile development process in which the software is delivered in different parts or phases which are called sprints.

Each sprint contains the upgraded version of the software, and it is kept upgrading unless we reach the final product.



Fig 2.1 Agile Methodology

The Agile methodology is a way to manage a project by breaking it up into several phases. It involves constant collaboration with stakeholders and continuous improvement at every stage. Once the work begins, teams cycle through a process of planning, executing, and evaluating.

## **Chapter 3:- Introduction of Internship**

### **3.1 Internship Summary**

It was an amazing experience to learn about a technology which is quite trending in today's era. Learning about website development in React.js was a new experience for me and I am glad that I got to learn this technology. Currently, React.js is one of the most popular JavaScript front-end libraries which has a strong foundation and a large community. I have worked on making static home pages as a part of my internship task and finally on the project named Amazon Consulting Services.

### **3.2 Purpose**

I got experience of learning new tools and technology. I learned a systematic approach of completing work on time and cooperating with my colleagues. Industry experience is often an important part of applying for full time positions. Gaining experience through internship can be helpful for our future scope. Similarly, my purpose was to gain experience and decide my career path so that I can have a clear path towards my goals. Also, I wanted to develop new skills and build a network with professionals.

### **3.3 Objective**

The main objectives of this internship are as per below:

- Learned Professional Communication Skills, Corporate Behavior, and Etiquette.
- Improved My Coding Standards and Problem-Solving Skills.
- Learned how to work in a team with help of a collaborative tool such as Git.
- Learned how Agile Methodology for software development is implemented using Jira software.
- Learned About Software Development Life Cycle.
- Learned Advanced HTML and CSS.
- Learned Basic and Advanced JavaScript.
- Learned Basic and Advanced React JS Framework.
- By working on a project, I learn how software is developed using Agile Methodology. Also, I learn how to aggregate our all knowledge and use them in solving real-world problems, and how to work in collaboration as a team.

### 3.4 Scope

The scope for the internship role at my company was to help the already existing project development.

In this regard I was allowed do the following things:

- Learn new technologies and methods.
- Learn and go through existing project's codebase.
- Help existing developers to update the codebase.

We were not allowed to perform certain tasks as follow:

- Do not directly contact with client.
- Do not take more than one project.
- Do not try to break the ongoing things.
- Do not share any confidential information with anyone.

### 3.5 Internship Planning

My internship was mainly divided into three parts:

1. Initial training: This was carried out from 13/01/2022 to 30/01/2022. In this part all the new interns got the common training which included training about the JIRA, Git and VS Code. This part of the training was intended to make us familiar with the technologies used by the company.
2. Project-related training: In this part, project-specific training was given. This training was conducted from 31/01/2022 to 31/03/2022. In this training I got the training about the Advanced HTML and CSS, Basic and Advanced JavaScript, Basic and Advanced TypeScript and Basic and Advanced React JS Framework. It was complete training of the language, from scratch to expert level. It gave me knowledge about how to use all these technologies with its large ecosystem with the proper tools to make sure the code is compliant with the required norms.
3. Project work: They have assigned my project related to React JS Framework named Amazon Consultancy Services eCommerce website that provides a plethora of services such as Amazon Consulting Services, Seller Account Management Services for Amazon, eBay, Walmart, Graphic Designing Services, Social Media Marketing Services, Website Development Services and more. This website has the feature of buying digital services and packages for discount and payment integration.

### **3.5.1 Git**

- Linux Architecture.
  - Git Installation and Configuration.
  - Git basic commands and their use.
  - Git using Bash & VS code.
  - Advanced Commands of Git.
  - Merge Conflicts & How To Solve It.
  - Understanding Of Git Best Practices
- Tools Used: - Git – For version control

### **3.5.2 Jira & VScode**

- Git Installation and Configuration.
  - Introduction to Jira and its working.
  - Working of Jira.
  - Jira Issue types, tickets, cloning, workflow etc.
  - Creating Jira tickets, linking to other issues and tickets etc.
  - Jira and Git Integration.
  - Introduction to Visual Studio Code.
  - Installing necessary extensions in VS-Code.
- Tools Used :- Jira – For Project Management. VS-Code- IDE

### **3.5.3 Advanced HTML & CSS Training**

- Basics concepts of HTML and CSS.
  - HTML5 vs Previous Versions.
  - Meta tags, Canvas, SVG, iFrames, HTML Media etc.
  - Geolocation API, Storage API, Web Socket support, Web Worker API, Error handling.
  - CSS Box Model, Grid, Flex, Transition, Animation.
  - CSS media Query, Web Fonts, Z- Index etc.
  - SCSS – Advanced CSS with more functionality.
  - Hands-on Assignments.
- Tool Used :- VS code .

### 3.1 Screenshot of CSS Box Model

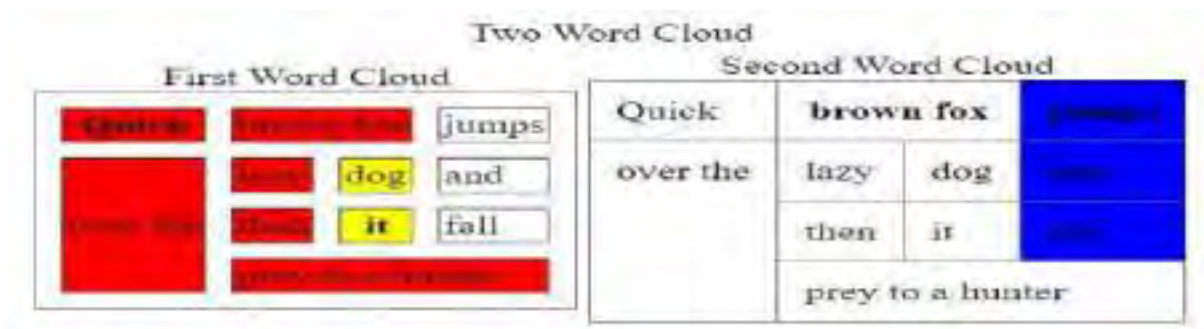


Fig 3.1 Screenshot of CSS Box Model

What is the CSS Box Model? The CSS box model is a container that contains multiple properties including borders, margin, padding, and the content itself. It is used to create the design and layout of web pages. According to the CSS box model, the web browser supplies each element as a square prism.

### 3.2 Screenshot of flex task

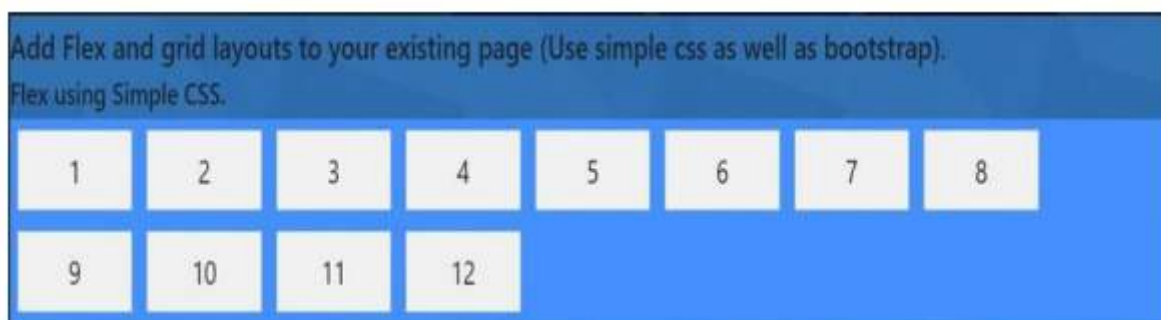


Fig 3.2 Screenshot of flex task

The display: flex; turns the element into a flex container. The justify-content: center; centers the item across the main axis. The align-items: center; centers it across the cross-axis.

### 3.3 Screenshot of grid task



Fig 3.3 Screenshot of grid task

CSS Grid is a layout system that makes designing web pages easier with the help of rows and columns. It uses rows and columns to lay out elements on the web page. It can be used to create a variety of different layout that ranges from simple like a table to complex like a layout of some magazine.

### 3.4 Screenshot of task.



Fig 3.4 Screenshot of task

First task of my project with the help of CSS Whis Shows Login Page for the website.A task description is a document that outlines the key deliverables, milestones, activities, and timelines for a project or initiative.

### **3.5.4 Basic Javascript Training.**

- Basics JavaScript data types, Arrays, Objects, Type conversions etc.
- JavaScript variables, functions, loops, operators, flow control etc.
- JavaScript Document Object Model (DOM) and Browser Object Model (BOM).
- JavaScript ES versions and features along with differences.
- Hands-on Assignments.

Tool Used :- VS-Code

### **3.5.5 Advanced Javascript Training.**

- JavaScript Specials, Constructors, Object references and copying.
- Garbage collection, optional chaining, Array methods, Maps, Sets.
- Date and Time, JSON methods, Recursion, Stack, REST parameters, Spread syntax.
- Decorators and forwarding, call/apply, Arrow functions, Global Object.
- Set timeout and set interval, Prototypes, Inheritance, Error handling.
- Getter and Setter, Classes and Modules, Import/Export.
- Callbacks, Promise, promise chaining, Promise API, Microtasks, Async/await. Events.
- Regular Expressions.
- Storing data in Browser, Network requests, Binary data, files, Infinite Scrolling.
- Cookie, Local Storage, Session Storage, Indexed DB.
- Fetch API, fetch and response types, Form data, Cross-Origin Requests.
- Blob, Custom Events.
- Mocha and Chai.
- Hands-on Assignments.

Tool Used :- VS- Code

### 3.5 Screenshot of blog task



Fig 3.5 Screenshot of blog task

Writing, editing, publishing, and promoting content. Promoting new posts using advertisements, emails, social media, and other methods to alert and attract new readers. Advocating and educating others about interests, products, or services.

### 3.6 screenshot of blog task 2



Fig 3.6 Screenshot of blog task 2

Use your keywords. Using keywords in your blog description will help attract readers and increase your organic CTR



### 3.7 Screenshot of Todo App



Fig 3.7 Screenshot of Todo App

To-do lists offer a way to increase productivity, stopping you from forgetting things, helps prioritise tasks, manage tasks effectively, use time wisely and improve time management as well as workflow.

### 3.5.6 Basic and Advanced React JS Training.

- Introduction to React, Webpack, Babel, NPM.
- Different React Configurations.
- Create React App, data binding, methods, and events.
- Life-cycle methods.
- React Router, Lazy loading
- Authentication and Authorization.
- Hands-on Assignments.

Tool Used :- VS-Code

## Chapter 4 :- System Analysis

### 4.1 Study of Current System.

Team Multiple frameworks have been invented to simplify the web development process, increase flexibility and reduce time to market. Some of the top frameworks and libraries (both backend and frontend) are Express, Django, Angular, React, and jQuery.

### 4.2 Problem and Weakness of Current System.

- Several challenges in web application development are
- User interface and experience
- Scalability
- Performance
- Knowledge of framework and platforms
- Security
- Confidentiality

### 4.3 Requirements of New System.

Component	Minimum	Recommended
Processor	1.9 gigahertz x86 or x64 bit dual core processor	3.3 gigahertz or faster 64 bit dual core processor
Memory	2 GB ram	4GB ram or more

Table 4.1 New System

### 4.4 System Feasibility.

There are no hardware limitations for this system because once the complete system is developed care would be taken while deploying the system so necessary prerequisites are met. The application does demand much reliability and it is fully assured that the information about the user should be secured and flow is maintained and accessed according to the computer.

## **4.5 Selection of Software and Justification.**

Selection of the right tools in the software development is very important and can play huge role in the time and quality of the product. First thing to select in the software development is that which programming language to use. We went with the React JS Library for Frontend and Strapi JS for backend and PostgreSQL for database.

## **4.6 The question arising during the requirement analysis phases is:**

- How many types of user in system?
- What is problem?
- Why is it important to solve the problem?
- What are the possible solutions to the problem?
- What exactly are the data inputs and data outputs by system?
- What are the likely the complexities that might arise while solving the problem?
- Do you have any existing website

## **4.7 Consolidated List of Requirements**

There are such requirements which are listed below:

- Employee check in / checkout
- Employee break in / break out
- View attendance
- View other employees' activity
- Edit profile
- Apply leave
- Hotline
- Comment feature
- Approve Leaves
- Sensation
- Allowed Devices
- Employee List view

## **4.8 Technology and Tools Review**

JavaScript

- JavaScript is a lightweight, interpreted, or just-in-time compiled programming language with first-class function.
- JavaScript is supported at both browser side and server side.

## Node js

- Node js is the runtime environment of JavaScript which allows to run JavaScript on sever side.
- Nodejs is the asynchronous, non-blocking, and single threaded language.

## Express js

- Express is a minimal and flexible Node js web application framework that provides a robust set of features for web and mobile application
- It is used to build a hybrid web application. It is built on the top of the node js so it provides the features of managing servers and managing routes.

## EJS

- EJS is the embedded JavaScript templating engine used by Nodejs. It is used to create a html pages with minimal code with JavaScript.

## MySQL

- MySQL is the relational database management system

## GIT & GITHUB

- It is a open source version control tool.
- It is used to mange small / large project efficiently and with using it we can able to collaborate in team to work together on the same project.
- GitHub is the free to use remote platform to manage our repositories.

## **Chapter 5 :- Introduction to Project**

### **5.1 Project Definition and Overview.**

- Create an eCommerce website for the Amazon consultancy services company that provides different services like seller account management, brand management, promotions, brand store, A9 SEO, PPC advertising, ASIN creation, brand registry and A+ content to Amazon sellers who want to grow their business.
- Amazon sellers can also buy these digital services in wholesale by package feature from which users are supposed to select minimum 4 products to get discount.
- Amazon consultancies usually manage their business with Amazon sellers by calls and messages.

### **5.2 Features of Application.**

- Purchase services from a store.
- Purchase custom packages from the package page.
- Admin can receive orders in the mail and admin panel.
- Users can receive order receipts in their mail.
- Contact admin from the contact page and inquiry section.

### **5.3 Technical Requirements.**

1. Frontend : Reacts JS
2. Backend : Strapi JS
3. Database : PostgreSQL

### **5.4 Assumptions.**

It is assumed that :

- All admin credentials are available to use.

### **5.5 Performance Requirement.**

Any Web Browser: - Latest Version

## **5.6 Security Consideration.**

- The application components should not use any third-party modules or frameworks which have known vulnerabilities.
- To provide the best security, the web application would use JWT authentication tokens.
- To provide HTTPS support the web application would require having its own dedicated HOST with its dedicated IP address and SSL Certificate.

## **5.7 Application Use Cases.**

1. Ability to purchase services
2. Ability to receive notifications.
3. Ability to resolve conflicts.
4. Ability to change services from website admin panel
5. Ability to change packages
6. Ability to receive orders in the mail
7. Ability to send invoice in the user's mail
8. Ability to manage users

## Chapter 6 :- System Architecture

### 6.1 Core Architecture.

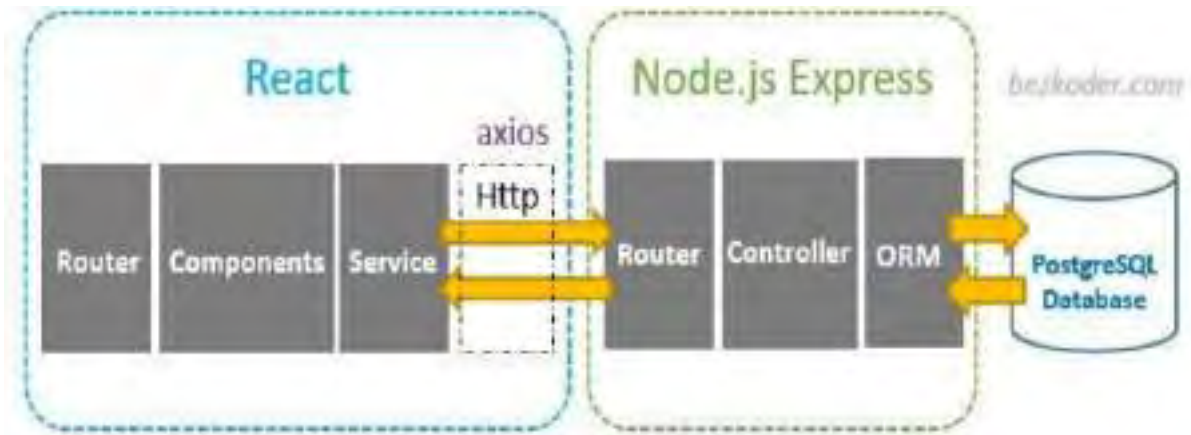


Fig 6.1 Core Architecture

In a browser, the JavaScript engine runs in concert with the rendering engine via the Document Object Model. The use of JavaScript engines is not limited to browsers. For example, the V8 engine is a core component of the Node.js and Deno runtime systems.

### 6.2 UI Architecture.

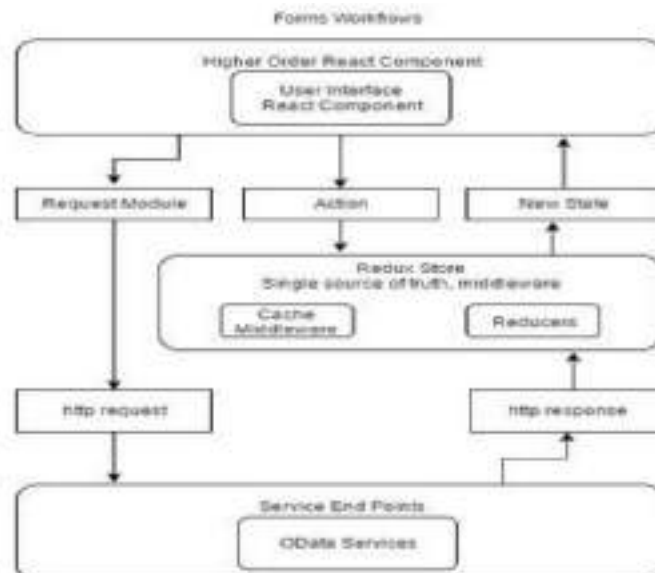


Fig 6.2 UI Architecture

Architecture javascript ui. A UI Architect is a role that we normally ascribe to people that have some sort of 'authority' within a front-end team.

### **6.3 Database Architecture.**

As the project requires a database having features like better support for Parallel merge joins and Parallel aggregation, So the PostgreSQL would be most suitable for this project. PostgreSQL is preferable for this project as a schema for the table is fixed of data models and because of PostgreSQL object-relational feature relation between data models would be well defined. Also, join between data tables would easily be handled in the PostgreSQL database. PostgreSQL performance is utilized best in systems requiring the execution of complex queries. PostgreSQL has roles and inherited roles to set and maintain permissions. PostgreSQL has native SSL support for connections to encrypt client/server communications. It also has Row Level Security.



## Chapter 7 :- Implementation

### 7.1 Implementation Platform and Technology Title.

Amazon Consultancy Service Website.

Frontend:React JS

Backend:StrapiJS

Database: PostgreSQL.

Code Editor: Visual Studio Code

### 7.1 Screenshot of Home Banner.



Fig 7.1 Screenshot of home banner page

Front page of the website , Home Banner for applying in the service.

## 7.2 Screenshot of Service Section

The screenshot shows the 'Amazon SEO Services' page. At the top, there is a navigation menu with links for 'Home', 'About Us', 'Services', 'Our Software', 'Blog', 'Books', and 'Contact Us', along with a 'Fast Inquiry' button. The main heading is 'Amazon SEO Services'. Below this, there is a sub-heading 'Amazon SEO – Rank Higher In Search With Better Keywords'. The page features a central image of a computer monitor displaying a diagram with 'SEO' in the center, surrounded by various icons representing different aspects of search engine optimization. To the right of the monitor, there are several paragraphs of text, including a section titled 'How Are Products Discovered On Amazon?' and another titled 'Title'. At the bottom left, there is a 'Let's Talk' button. The overall layout is clean and professional, with a focus on providing information about the SEO services offered.

Fig 7.2 Screenshot of Service Section

Service page of the website, made for selecting for the consumers. A figure is any representation of information that does rank higher search with better key word.

### 7.3 Screenshot of about us section.



Fig 7.3 Screenshot of about us section

One way to view the about us concept is as a text self-portrait or short autobiography created by a business.

### 7.4 Screenshot of Clients Section

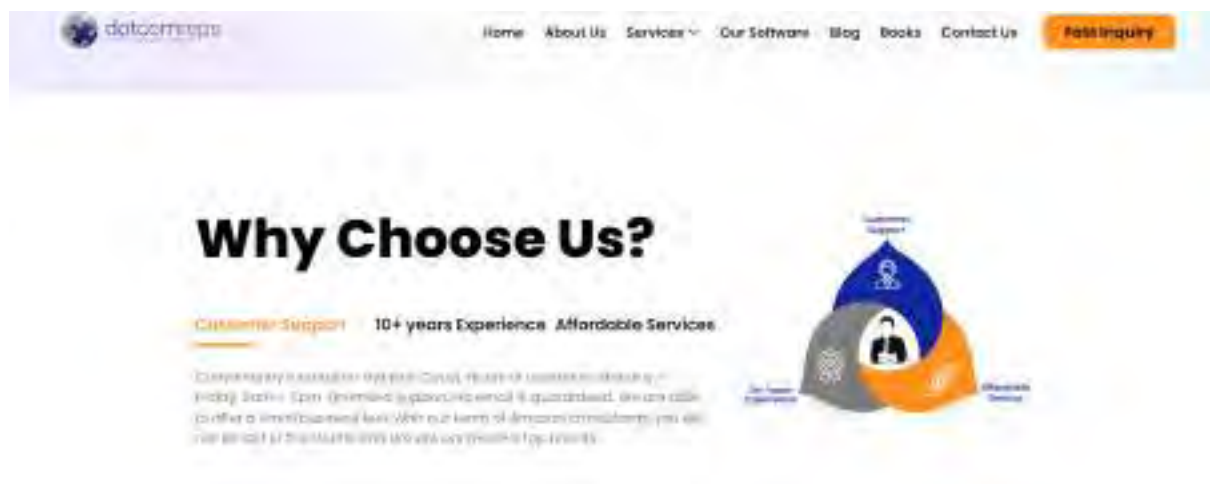


Fig 7.4 Screenshot of Clients Section

Section for Client , this page provide information for the trusted clients.

## 7.5 Screenshot of Contact Section

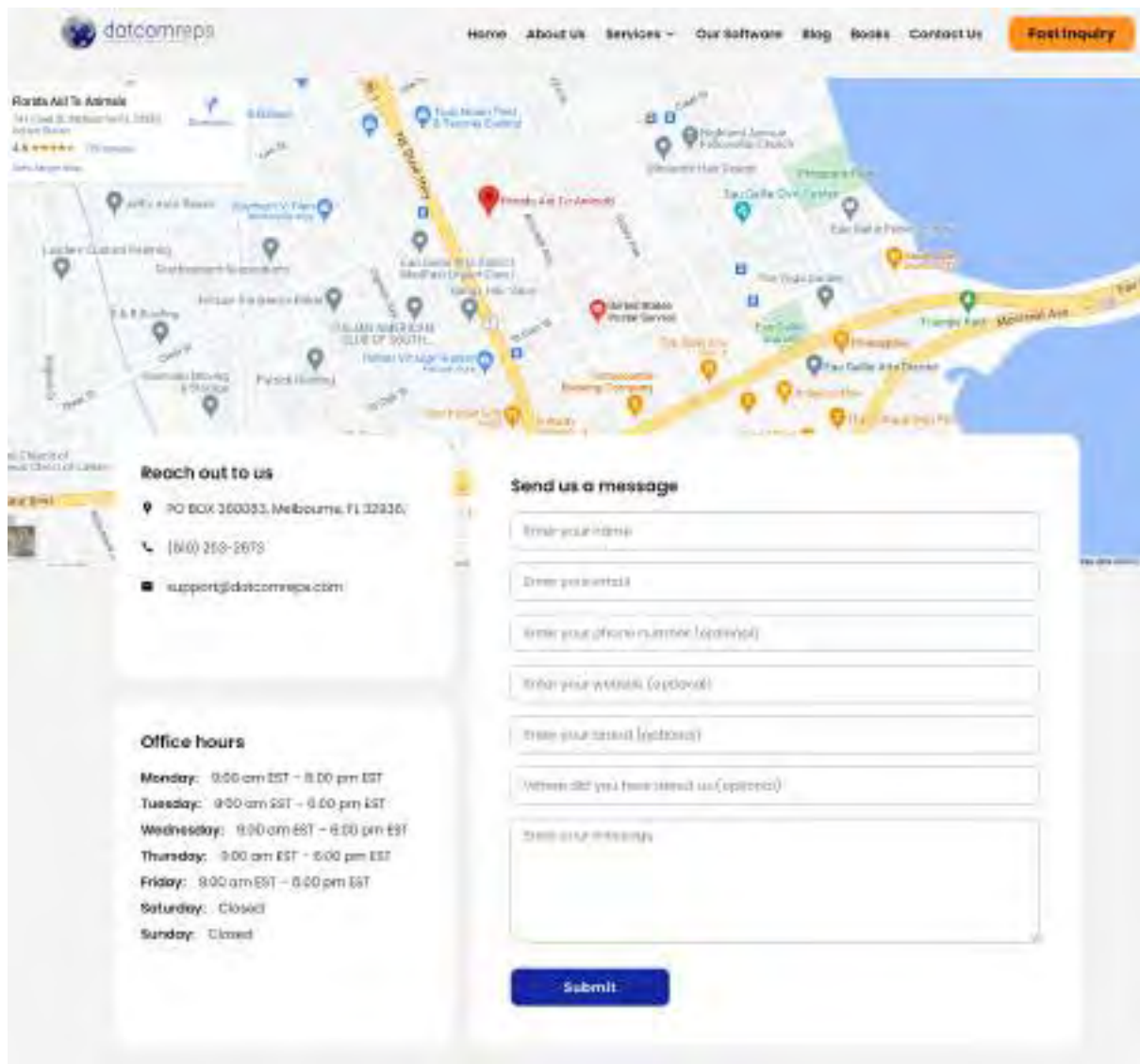


Fig 7.5 Screenshot of Contact Section

I make this page for providing information of contact in detail which is helpful for the company and clients as well.

## Chapter 8 :- Testing

### 8.1 Testing Section.

Once source code has been generated, software must be tested to uncover as many errors as possible before delivery to customers. Your goal is to design a series of test cases that have a high likelihood of finding errors. Software testing techniques provide systematic guidance for designing tests that

- Exercise the internal logic of software components
- Exercise the inputs and outputs domains of the program to uncover errors in program function, behavior, and performance.

During early stages of testing, a software engineer performs all tests. However, as the testing process progresses, testing specialists may become involved. Reviews and other activities can and do uncover errors, but they are not sufficient. Every time the program is executed, the customer tests it! Therefore, you must execute the program before it gets to the customer with the specific intent of finding and removing all errors. To find the highest possible number of errors, tests must be conducted systematically, and test cases must be designed using disciplined techniques.

#### Testing Objectives

- Testing is a process of executing a program with the intention of finding an error.
- A good test case is one that has a high probability of finding an as-yet undiscovered error.
- A successful test is one that uncovers an as-yet undiscovered error.

#### Unit Testing

Unit testing is a software development process in which the smallest testable part of an application, called units, is individually scrutinized for proper operation. Unit testing is often automated, but it can also be done manually. This testing mode is a component of Extreme Programming (XP), a pragmatic method of software development that takes a meticulous approach to building a product by means of continual testing and revision.

Unit testing involves only those characteristics that are vital to the performance of the unit under test. This encourages developers to modify the source code without immediate concerns about how such changes might affect the functioning of the units or the program. Once all the units in a program have been found to be working in the most efficient and error free manner possible, larger components of the program can be evaluated by means of integration testing.

## Sub system testing

After testing each unit, we move on to larger units called sub systems. In subsystem testing we tested the whole Add-on as one system and App as another system. We tested each subsystem and got successful results. We found no error or bug after the final test.

## System Testing

Now, it's time for whole System testing. We have found many cosmetic bugs and minor bugs. We have fixed it and again tested it. We worked on each error and exception that We got while testing and most of them are removed or made such corrections that it will not happen again.

## Recovery Testing

It is a system test that forces the software to fail in a variety of ways and verifies that recovery is properly performed.

## Security Testing

It attempts to verify that protection mechanisms built into a system will, in fact, protect it from improper penetration.

## Performance Testing

It is designed to test the run-time performance of software within the context of an integrated system performance testing occurs throughout all steps in the testing process.

## 8.2 Test Results and Analysis.

Test Case	Test Steps	Expected Result	Actual Result	Status (Pass/Fail)
Login With Valid Credentials	1. Open website 2. Enter Correct Credential 3. Click on Login button.	User should get login successful dialog box.	User should get login successful dialog box.	Pass

Login With Invalid Credentials	<ol style="list-style-type: none"> <li>1. Open website</li> <li>2. Enter Incorrect Credential</li> <li>3. Click on Login button.</li> </ol>	User should get invalid credentials dialog box.	User should get invalid credentials dialog box.	Pass
Logout From the Application	Click on Logout button	User should get redirected to login screen & database should get cleaned	User should get redirected to login screen & database should get cleaned	Pass
Service page	<ol style="list-style-type: none"> <li>1. Open website</li> <li>2. Click on service tab on the menu</li> </ol>	User should be able to see service page details of each service	User should be able to see service page details of each service	Pass
Check out button	<ol style="list-style-type: none"> <li>1. Open website</li> <li>2. Open service page</li> <li>3. Select service</li> <li>4. Check out button</li> </ol>	User should be able to redirect on the cart page	User should be able to redirect on the cart page	Pass

Pay button	<ol style="list-style-type: none"> <li>1. Open website</li> <li>2. Select service and checkout</li> <li>3. Click on pay</li> </ol>	User should be able to redirect on payment gateway page	User should be able to redirect on payment gateway page	Pass
Package page	<ol style="list-style-type: none"> <li>1. Open website and package page</li> <li>2. Choose 4 services from toggle list</li> </ol>	User should be able to choose 4 services and then checkout button should be activated	User should be able to choose 4 services and then checkout button should be activated	Pass

Table 8.2 Test Results

### 8.3 Integration Testing

After checking that every modules are working perfect separately with unit testing the next integration testing are implemented to test that modules/components are working properly with each other or not.

### 8.4 Validation Testing

It is the process of testing that what we are building is the right product or not?



## **8.5 Project Testing**

During systems testing, the system is used experimentally to ensure that the software does not fail. In other words, we can say that it will run according to its specifications and in the way users expect. Special test data are input for processing, and the results examined. A limited number of users may be allowed to use the system so that analyst can see whether they try to use it in unforeseen ways. It is desirable to discover any surprises before the organization implements the system and depends on it.

Software modules are tested for their functionality as per the requirements identified during the requirements analysis phase. if there is an error injected in the design phase then it can be detected in the coding phase because there is the product to be executed ultimately on the machine, so we employ a testing process. During the testing the program to be tested is executed with certain test cases and output of these test cases is evaluated to check the correctness of the program. It is the testing that performs first step in determining the errors in the program.

## **Chapter 9 :- Conclusion and Discussion**

### **9.1 Overall Analysis of Internship Viability**

This Internship will be a very important part of my professional journey as it will be a transitioning step for me from student life to professional life. It has given me insight into how to behave in the professional world and how to make sure that you are running behind in any scenarios like learning new skills or taking the lead.

### **9.2 Data of Continuous Evaluation (CE-I and CE-II)**

Continuous Evaluation – I was done on 26 February 2022 by internal guide Prof. Hetal Joshiyara. In this review mostly the learning and outline for the next weeks were evaluated. It was done with online mode.

Conclusion Evaluation – II was done on 1 APR 2022 by internal guide Prof. Hetal Joshiyara. In this review project work and overall internship, learning was evaluated. It was done with online mode.

### **9.3 Problem Encountered and possible solution.**

Being in the web development department, I handled specialized task which demanded skill sets which had not been taught in the general classroom curriculum in college.

Hence, this was challenging at times when I was faced with new problems which I had not seen before. However, the seniors and mentors were always ready and willing to give their advice and guidance to help me overcome these challenges.

### **9.4 Summary of Internship Work.**

In this Internship, I learned a lot of new technical skills such as Git, Jira, andHTML, CSS, JavaScript, React JS framework along with many non-technical skills such as Teamwork, and Communication Skills and soft skills such as Behavior, and Etiquette.This Internship has been very helpful for the transition of me from Engineering Student to Software Engineer. Also working on a project gave me insight into how to handle clients? How to make sure that your work gets done on time? What can be done to improve the existing code base?Etc

### **9.5 Future Enhancement.**

The Project is in the Production phase, Project have been developed and working fine. I have contributed to this project by implementing Frontend Technology – React. So, this project was a great learning for me to how to reach up to the industry standards of development. In Future, we are planning to develop more customized features in web app.

## **9.6 Assumptions**

- We assume that the system which will prepare by us is easy to use for all end users.
- We assume that the owner of the organization will able to maintain the system very easily.
- We assume that all the features of the system will be work properly in future.

## **9.7 Limitations**

- Users must have an internet connection to use this system.
- Our system does not provide notification.
- Our system does not provide language localization.

## References

<https://www.w3schools.com/html/>

<https://developer.mozilla.org/en-US/docs/Web/HTML>

<https://www.w3schools.com/w3css/default.asp>

<https://developer.mozilla.org/en-US/docs/Web/CSS/Reference>

<https://javascript.info/>

<https://legacy.reactjs.org/>

# **INTERNSHIP AT SCRIPT ALL DNA TECHNOLOGIES**

**AN INTERNSHIP REPORT**

*Submitted by*

**Devki Prakashbhai Hansalia**

**190390107010**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at SCRIPT ALL DNA TECHNOLOGIES** has been carried out by **Devki Prakashbhai Hansalia** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

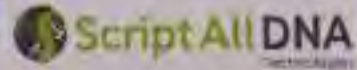
Prof. Upashana Goswami

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



TO WHOM-SO-EVER IT MAY CONCERN

Date: April 28<sup>th</sup>, 2023

HR/SADNA/2022-23/198

This Is To Certify That

Ms. Deyki Hansalia, Enrolment No. 190390107010 a student of S.P.B Patel Engineering college, Saffrony institute of Technology Linch, Mehsana has completed her three months of (January 23, 2023 to April 24, 2023) Internship in the role of Python Developer in the premises of Script All DNA Technologies pvt ltd, Ahmedabad as a part of her academics.

During her internship, she worked under the guidance of Mr. Hiren Patel

She found very punctual and enthusiastic during her internship period. Her overall performance during the training period was found excellent.

We wish her all the best in her future endeavors.

For, Script All DNA Technologies



Hiren Patel  
Authorised person



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

**DECLARATION**

We hereby declare that the Internship report submitted along with the Internship entitled **Internship at Script All DNA Technologies** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bona fide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Mr. Hiren Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Devki Prakashbhai Hansalia**

\_\_\_\_\_



## ACKNOWLEDGMENT

I feel fortunate to have had the opportunity to intern with Script All DNA Technologies, as it provided me with valuable learning experiences and professional development. Meeting and learning from the talented and inspiring individuals who guided me during my internship was an added bonus, and for that, I am truly grateful.

I would like to express my sincere appreciation to Mr. Hiren Patel, the Senior Software Developer, and Mr. Mahesh Pipalia, the CEO, for their unwavering support and guidance throughout my internship at Script All DNA Technologies. Despite their busy schedules, they took the time to motivate and assist me every step of the way, and for that, I am deeply grateful. Their mentorship and teachings have been invaluable, and I intend to carry the lessons I learned from them throughout my career. Their sessions were truly inspiring, and I found every single one of them enjoyable. Their vast knowledge and experience have undoubtedly motivated me to strive for excellence in all my future endeavors.

I would like to extend my heartfelt gratitude to Prof. Akshay Kansara, Head of the Computer Engineering Department, and my Internal Guide Prof. Upashana Goswami of the same department, for their invaluable advice and guidance. I take this moment to acknowledge their contributions in providing me with this opportunity, which I consider a significant milestone in my career development. I am committed to utilizing the skills and knowledge gained during this experience to the best of my ability and continuing to work towards improving them in order to achieve my career objectives.

I perceive this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objectives.

## ABSTRACT

*Sharing files is a crucial part of transferring data, which involves providing access to various resources. However, the current system's manual process of uploading and downloading files can be time-consuming and increase user workload. To address this issue, a new system has been proposed that aims to streamline file sharing, reduce manual work, and improve efficiency. By implementing the new system, users can expect a significant reduction in their workload and an increase in productivity.*

*A new system has been developed to address this problem and provide a seamless and precise solution for users. This new system aims to significantly reduce the amount of manual work required by the user compared to the current system. The benefits of this new system are clear, as it reduces the workload of the user to a great extent and provides a more efficient solution for file sharing.*

*With the implementation of this new system, end users can now securely upload and download files in the Windows operating system.*

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## LIST OF ABBREVIATIONS

IT	Information Technology
RCM	Revenue Cycle Management
MySQL	My Structured Query Language
DB	Database
ML	Machine Learning
AI	Artificial Intelligence
API	Application Programming Interface
OS	Operating System
IDE	Integrated Development Environment
RDBMS	Relational Database Management System
GPL	General Public License
HTTP	Hypertext Transfer Protocol
JSON	JavaScript Object Notation
CSV	Comma – separated values
XML	Extensible Markup Language

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## CHAPTER 1.0 OVERVIEW OF THE COMPANY

### 1.1 COMPANY PROFILE

Script All DNA Technologies was established in 2013 and it is a software development company founded by a group of seasoned software professionals who aimed to deliver cutting-edge and dependable software solutions to clients across the globe. The company has a clear vision and mission to provide innovative and customized software solutions to businesses and organizations worldwide, addressing their unique needs and challenges. [7]

Initially, Technologies was founded as a small team of developers located in Hyderabad, India. The company primarily focused on offering web and mobile application development services to clients in the local region. As the company grew, it expanded its operations and started serving clients from various parts of the world.



Figure 1.1 Company Logo

As the company progressed, it broadened its horizons by offering customized software development, software testing, and maintenance services, with a specific focus on meeting the needs of clients in various industries and regions. The company has since developed a strong reputation for delivering exceptional software solutions that are custom-fit to meet the specific needs of clients. As a result, it has gained a loyal customer base and a strong industry presence.



With a strong commitment to delivering innovative and reliable software solutions, the company has grown to a team of over 100 employees, including software developers, designers, project managers, and quality assurance specialists. Its client base has expanded to various industries, such as healthcare, education, e-commerce, and finance, and it continues to adapt to the changing technology landscape to meet their evolving needs.

## 1.2 DIFFERENT SCOPE OF WORK

Script All DNA Technologies is a next-gen healthcare technology company that specializes across three different domains – Healthcare Products, IT Services and Solutions, and Revenue Cycle Management (RCM). [7]

In healthcare, the company strives to provide global access to healthcare through smart technology that is feasible for healthcare providers. They believe in caring along with curing and aim to make healthcare more accessible.

In the IT domain, Script All DNA Technologies uses their technology-focused processes and business domain knowledge to deliver personalized IT solutions to clients across various industries such as transportation, education, pharmaceuticals, and agriculture.

In terms of RCM, the company offers comprehensive medical billing solutions to healthcare organizations of all sizes, spanning a wide range of specialties. Their customized services help streamline and optimize the entire RCM process for clients.

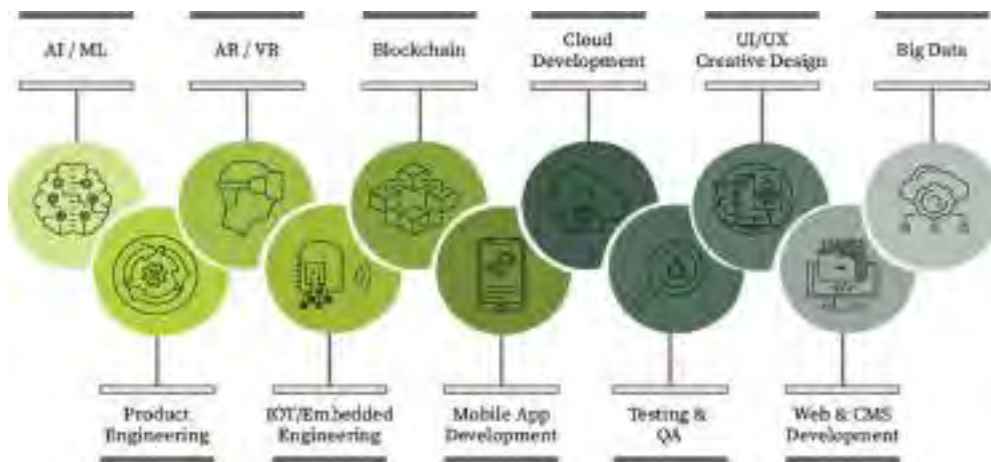


Figure 1.2 Different Scope of Work

### 1.3 Organization Chart

The client contacted the development team to assign project tasks, and they further divided the work among the project manager, team leader, developers, designers, and quality assurance team. Each team member has specific responsibilities that are critical to the success of the project.

The project manager is responsible for planning, organizing, and managing resources to complete the project within the given timeframe and budget. They ensure that the project is progressing as planned and that the team is meeting project milestones.

The team leader is responsible for supervising the development team, coordinating project activities, and ensuring that the team is meeting project requirements. They also provide technical support to the team and communicate project progress to the project manager.

Developers are responsible for writing and testing code, debugging and troubleshooting issues, and ensuring that the project's technical requirements are met. They must collaborate closely with the design team to ensure that the project's user interface is intuitive and user-friendly.

The designer team is responsible for creating the visual design elements, including layout, graphics, and typography. They ensure that the design is consistent with the client's branding and that it meets the project's technical requirements.

The quality assurance team is responsible for testing the project's functionality and ensuring that it meets the specified requirements. They must identify any issues or defects in the project and communicate them to the development team for resolution.

Overall, each team member's role is crucial to the success of the project, and effective collaboration and communication among them are essential to deliver a high-quality product to the client.

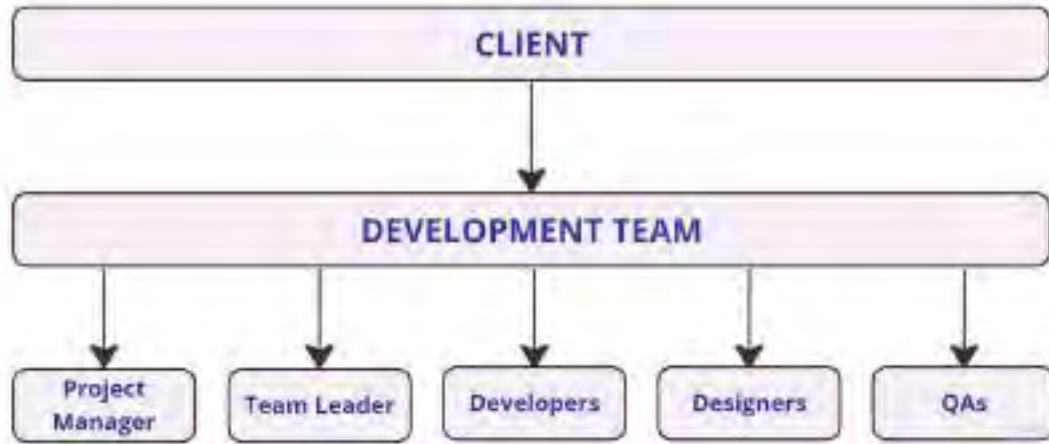


Figure 1.3 Organization Chart

## **CHAPTER 2.0 Overview of different unit of the organization and Layout of the production in the Company**

### **2.1 Overview of different process in company**

**Software Developers Department:** The Software Developer department is responsible for writing code to create software products. They collaborate with other departments to ensure that software solutions meet business requirements, quality standards, and client needs. They work on various stages of software development, from designing and coding to testing and documentation.

**Design Department:** The Design department creates user-friendly and intuitive software interfaces that focus on the user's visual experience. They build a logical flow of interactions and create design solutions that are both aesthetically pleasing and functional. They work closely with developers to ensure that the design is implemented properly.

**Quality Assurance Department:** The Quality Assurance department is responsible for ensuring the quality of software products. They test software features and functionalities to identify bugs and defects. They work with developers to define corrective measures and ensure that the software development process meets quality standards.

**Business Analysis Department:** The Business Analysis department works with stakeholders to understand their needs and translate them into technical specifications. Their main responsibility is to gather, analyze, and document business requirements for software projects. They act as a bridge between the business and IT teams to ensure that software solutions meet the needs of the business.

### **2.2 Technical specifications used in each department**

For the production and development of software, technical specifications used in every unit are following:

- In server - side development, Python is a popular programming language, often utilized in conjunction with Flask and Django frameworks.

- JavaScript is commonly used for client side scripting and user interface development, along with React and Angular frameworks.
- MySQL and MongoDB is utilized as a relational database management system for organizing and storing data collections.
- The company also engages in multiple ML and AI projects, in which Deep Learning, Block chain, Flutter and Tensorflow technologies plays a significant role.
- As cloud storage solutions, the company makes use of both Microsoft Azure and Amazon Web Services.

### 2.3 Schematic layout of sequence of operation for manufacturing of end product

Script All DNA Technologies follows a 6 – step process in which it consistently strives to delivers best by utilizing experience, expertise, and ensuring transparency at each stage of production



Figure 2.1 Process of operation for end product

## 2.4 Details about each stage of production

- **Ideation and Conceptualization:** The company conceptualizes and ideates technological solutions based on the needs of client's requirements and prevailing market trends.
- **Service Architecture:** The task involves documenting crucial elements pertaining to infrastructure, networking and data, with a focus on enabling mobility, access, and security.
- **Design and Development:** It involves concluding the designs, overseeing the logistics and team resources, and guaranteeing that the development is accomplished within the designated timeframe.
- **Quality Assurance:** The focus is on maintaining quality standards by conducting system testing, functional testing, and user acceptance testing.
- **Service Delivery:** The objective is to provide the final solution and service to the client and assist with necessary setup and training.
- **Sustainable Engineering:** The aim is to ensure the evolution and sustainability of various platforms, while also meeting new software demands and needs.

## **3.0 Introduction to Internship and Project Management**

### **3.1 Internship Summary**

Opportunity to apply theoretical knowledge to practical solutions is what take us to internship. File sharing plays a vital role in modern business and personal communication. File sharing is a crucial aspect of data transfer, which involves the exchange or granting of access to various resources such as documents, multimedia, and computer programs. It enables individuals and teams to collaborate and work more efficiently by sharing files online and accessing them from any location at any time. The current system suffers from a major drawback of manual uploading and downloading tasks that are time – consuming and can increase the workloads for users. This manual process can lead to inefficiencies and errors. A proposed solution to address the issue of manual file sharing and increase efficiency is the implementation of a new streamlined system. This system would aim to automate the process of file sharing, reducing the amount of manual work required and ultimately resulting in a significant reduction in user workload. The new system would be designed to simplify the process of uploading and downloading files by providing a user-friendly interface that would allow users to easily upload and share files with other. This would save time and reduce errors caused by manual tasks, such as emailing files back and forth.

### **3.2 Purpose**

A novel approach has been put forward to facilitate effortless and protected sharing of files while minimizing manual labor and boosting productivity. This system aims to reduce the amount of work users have to do by streamlining file sharing processes, ensuring data security, and enabling swift and hassle-free transfers.

A new system has been developed to address the issues in the current system by providing a seamless and precise workflow that significantly reduces manual work for users. This system aims to streamlines user tasks by eliminating unnecessary manual steps, thereby enhancing user experience and increasing productivity.

The proposed system offers several benefits which are mentioned below:

- Seamless upload and download capabilities through a simple right – click service.
- The ability to perform a single upload and multiple downloads.
- The system incorporates token authorization to ensure secure and uninterrupted transmission of data.
- Significant reduction in manual work for users.
- Making interactions with the system straightforward and hassle-free.

### **3.3 Objective**

The objective of PasteAnywhere is to develop a secure and user-friendly solution for seamlessly copying and pasting information across multiple devices. This solution places a strong emphasis on the safety and ease of use of the system, ensuring that users can interact with it without any difficulty. It simplifies the transfer of files and images between devices by eliminating the need for additional software or complex – setup procedures. Furthermore, it prioritizes the security and integrity of the transferred file throughout the process. To achieve this goal, the project applies local network sharing, and user authentication which help in providing additional layer of security to the transferred files. The project also employs advanced techniques such as hashing, compression, and encryption algorithms to further secure the transferred process. This solution aims to simplify the transfer process and make it accessible to everyone, regardless of their technical expertise. By doing so, PasteAnywhere provides a valuable tool for anyone who need to transfer information across devices. The system's ease of use, reliability, and security make it an ideal solution for anyone who needs to transfer file between devices, whether it's for work, personal, or academic purposes.

### **3.4 Project Scope**

The project aims to provide user with a comprehensive solution for copying and pasting data between different devices. The primary objective is to offer a platform – agnostic solution that can be implemented across a wide range of devices and operating systems, including desktops, smartphones, tablets, and laptops. This approach ensures that the solution is accessible to everyone, regardless of the devices or operating systems they use.



Project offers a versatile solution that can be used in a wide range of scenarios, both personal and professional.

In professional settings, the system can be particularly valuable for teams working on collaborative project, allowing members to share files and information quickly and efficiently. It makes it possible for colleagues to copy text from their desktops and paste them onto their laptops.

For personal use, the system allows users to copy images, and files between their various devices, making it easier to stay organized and productive on the go. For instance, users can copy file from their laptops and paste it on their smartphone while commuting or working somewhere else like coffee shop.

Furthermore, in today's time of social media it can be also used to simplify the process of sharing content on social media platforms, allowing users to copy images from one devices and paste them directly onto another. This can be particularly useful for marketers, bloggers, and social media influencers who need to share content across multiple platforms simultaneously.

In summary, PasteAnywhere offers a flexible solution that can be utilized in a variety of scenarios, whether for personal use, professional collaboration, or social media management. By simplifying the process of copying and pasting file between devices, the system helps users to stay organized, productive and efficient.

### 3.5 Technology Used

- **PyCharm:** It is a software development environment designed specifically for Python programmers, offering a comprehensive set of tools for coding, testing and debugging. It also includes support for popular web development frameworks like Flask and Django, providing pre-configured templates and tools for building web applications. <sup>[2]</sup>
- **Python:** Python is a high-level programming language that is designed to be easy to learn and use, yet powerful enough for complex projects. Its popularity has been fueled by its simplicity, readability, and versatility, as well as the availability of a vast library of pre-built modules and packages that can be used to accelerate the development process. <sup>[1]</sup>

- **Flask:** Flask is a versatile and powerful web framework that provides developers with the tools and flexibility they need to build high-quality web applications quickly and efficiently. Flask has a small code base and a simple API that makes it easy to understand and use. [5]
- **Django:** Django is a Python-based web framework that prioritizes quick development, practical design, and creating clean and reusable code. Django offers a comprehensive suite of tools that enable developers to work with databases, handle user authentication, and construct sophisticated web applications. [3]
- **MySQL:** MySQL is designed to handle large and complex data sets and can be easily integrated with various programming languages. An open-source relational database management system, MySQL is widely used for web applications due to its high scalability, impressive performance, and user-friendly interface. [4]
- **Postman:** Postman is a platform that facilitates collaboration for API development. Its suite of tools includes API design, testing, and documentation features, as well as functionality for monitoring the security and performance of APIs. Its user - friendly interface makes it easy for teams to work together on API development projects, and it supports integration with version control systems like GitHub. [7]
- **GitHub:** GitHub is a powerful platform that streamlines collaborative software development and provides teams with the tools they need to manage complex projects. It is widely used in the software development community and has become an essential tool for many developers and organizations.

### 3.6 Internship and Project Planning

Project planning is a crucial part of project management that involves the use of tools such as Gantt charts to plan and track progress within a project. The first step in project planning is to define the project scope and determine the best methods for completing the project.

Once this is done, the different tasks required to complete the project are identified and their duration is estimated. These tasks are then grouped into a work breakdown structure, which provides a clear and detailed overview of the project's different phases and milestones.

Project planning is important for organizing different areas of a project, including project plans, workloads, and the management of teams and individuals. It helps project managers

to ensure that everyone involved in the project has a clear understanding of their responsibilities, deadlines, and deliverables, which helps to keep the project on track and within budget.

In order to successfully manage a project, it is crucial to have a detailed plan in place before beginning its implementation. Project planning enables the team to work in a systematic and organized manner, and helps ensure that the project is completed on time and within budget.

When planning a project, it is important to consider a number of factors, including the estimated cost, duration, effort required, scheduling, manpower, resource allocation, and risk management. By taking all of these factors into account, project managers can develop a comprehensive plan that outlines the project's scope, objectives, and milestones.

One effective approach to project planning is to take a time-based approach, where a set of deadlines is established to complete specific tasks. These deadlines help to create a clear and defined timeline for the project, which can be used to monitor progress and make adjustments as needed.

The internship learning and project completion is estimated to require a total effort of 500 hours, which will be distributed over a period of 12 weeks. This includes all the necessary activities such as development, testing, documentation, and any revisions that may be needed.

The project timeline can also be influenced by the selection of backend technologies. For instance, using an established framework like Flask and Django for the backend can have a positive impact on the overall timeline.

The iterative model with initialization, planning, requirements, design, implementation, verification, evaluation, and deployment (IPRDI-VED) is a cyclical approach to software development that emphasizes continuous feedback, collaboration, and flexibility.

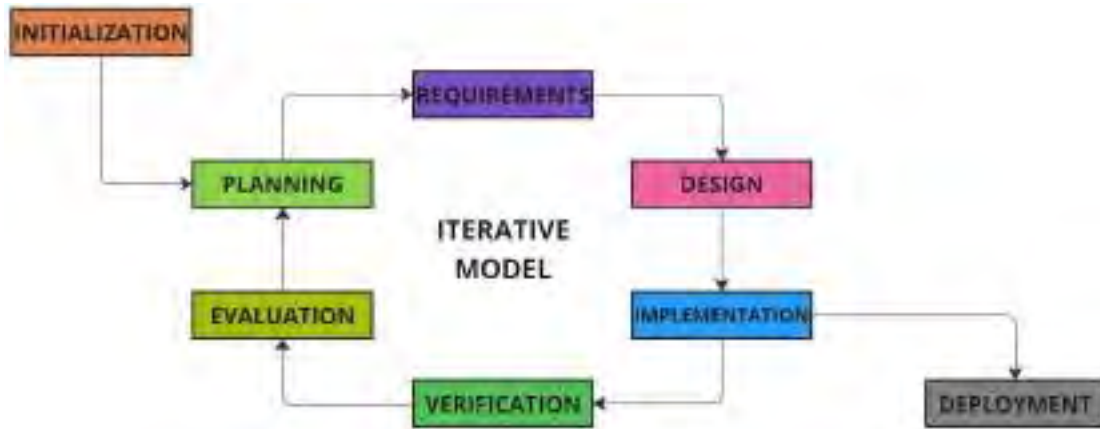


Figure 3.1 Iterative Model

### 3.7 Internship and Project Scheduling

In this section, I have organized the tasks and time requirements for my internship learning and project implementation. The time period has been divided into four groups of three weeks each, allowing for a comprehensive understanding of the entire 12-week journey and the simultaneous tasks that were completed.

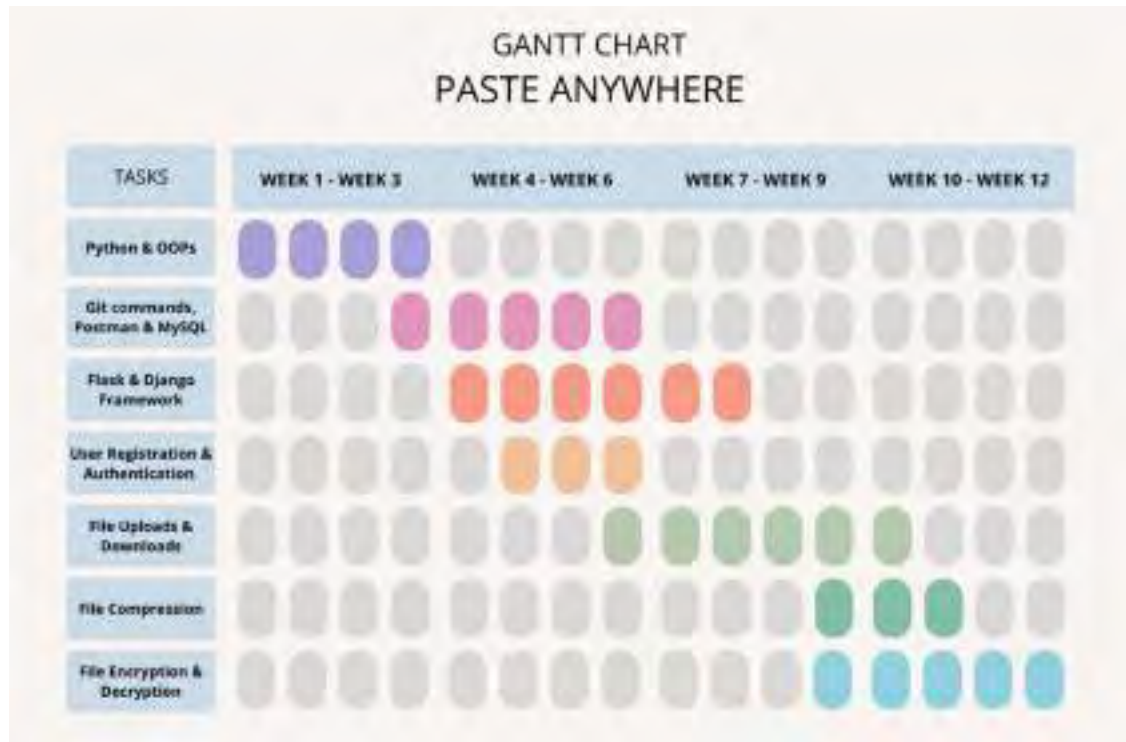


Figure 3.2 Project Scheduling (Gantt Chart)

## **4.0 System Analysis**

### **4.1 Study of Current System**

As part of my internship, I was assigned the project of developing a new file management system. After conducting a thorough analysis of existing systems, it became clear that although several file management systems already exist, they are limited to file transfers within a single device only.

To address this limitation, the new file management system being developed aims to provide a more precise and seamless file management experience. It will offer features beyond standard keyboard shortcuts like ctrl-c and ctrl-v, and instead focus on providing a user-friendly interface and streamlined workflow for transferring and organizing files across multiple devices.

Overall, the goal is to create a comprehensive and efficient file management solution that simplifies the process of managing files across different devices, allowing users to easily access and organize their files regardless of where they are stored.

### **4.2 Problem and Weaknesses of Current System**

The current file management system has various limitations that can cause difficulties for users. One of the major issues is the heavy reliance on manual work, where users have to manually upload and download files, resulting in time-consuming and tedious tasks that can overload the user.

Another issue is the lack of seamless integration, which can cause data to be uploaded incorrectly or with delays. This can ultimately lead to decreased productivity, causing frustration and inefficiency among users.

Therefore, there is a need to develop a new file management system that can streamline the process, reduce user workload, and result in a more efficient and user-friendly experience. The new system should aim to automate most of the file management tasks, minimize manual input, and integrate seamlessly with other systems, resulting in a more streamlined workflow.

The goal is to provide a system that allows users to focus on their core tasks while the system takes care of the file management tasks. This would enhance productivity and reduce user overload, making the system more efficient and user-friendly. Overall, the new system should be designed to simplify file management and enhance user experience, leading to increased productivity and improved efficiency.

### **4.3 Requirements of New System**

#### **Functional Requirements for PasteAnywhere**

- The feature of copying text, images, and files from one device and pasting them onto another device is enabled.
- The transfer of copied data between devices is made secure by utilizing encryption algorithms.
- The system offers cross-platform compatibility, providing support for Windows, macOS, Linux, Android, and iOS operating systems.
- The system allows for the copying and pasting of data between devices that are connected to different networks or Wi-Fi connections.
- The system provides the option to store copied data on a cloud server, allowing for easy access to the data in the future.

#### **Non – Functional Requirements for PasteAnywhere**

- The system delivers high performance with rapid transfer speeds.
- The system features a user-friendly interface with straightforward instructions and easy-to-use features.
- The system is compatible with a diverse range of web browsers and devices.
- The system ensures reliable and secure transfer of data, with minimal risk of data loss or corruption.
- The system has minimal impact on device battery life and performance.

## Hardware Requirements

Table 4.1 Hardware Requirements

HARDWARE	USED REQUIREMENTS
Microprocessor	Intel® Core™ i5-8250U (1.6 GHz base frequency, up to 3.4 GHz with Intel® Turbo Boost Technology, 6 MB cache, 4 cores)
Memory	8GB DDR4-2400 SDRAM
Hard Drive	1TB 5400 rpm SATA

## Software Requirements

Table 4.2 Software Requirements

SOFTWARE	USED REQUIREMENTS
Language	Python
Framework	Flask, Django
Database	MySQL

## 4.4 System Feasibility

A feasibility study is an analysis of the practicality of developing a software product and how beneficial it will be for the organization. The study is conducted to assess the feasibility of the software product in terms of its development, implementation, and the project's contribution to the organization's overall goals.

The purpose of the feasibility study is to determine whether the software product will be a suitable investment in terms of resources and time, and whether it can provide the desired outcomes for the organization. During the study, various factors such as technical feasibility, economic feasibility, operational feasibility, and legal feasibility are evaluated to determine the viability of the software product.

Overall, a feasibility study is a crucial step in the software development process, as it provides insights into the software's potential success and helps organizations make informed decisions about investing resources and time into its development.

### **Types of Feasibility Study**

- **Technical Feasibility**

In Technical Feasibility current resources both hardware software along with required technology are analyzed/assessed to develop project. This technical feasibility study gives report whether there exists correct required resources and technologies which will be used for project development.

Along with this, feasibility study also analyses technical skills and capabilities of technical team, existing technology can be used or not, maintenance and up-gradation is easy or not for chosen technology etc. Hence, the system should be maintained from time to time.

- **Operational Feasibility**

Operational feasibility is another critical aspect of the feasibility study, which evaluates whether the system can be efficiently operated and used by its intended users. The operational feasibility study evaluates the user interface design and ensures that it is easy to navigate and understand.

Moreover, operational feasibility examines the system's reliability, availability, and maintainability to ensure that it can consistently deliver the required services to its users. The System is to be developed for any user who wants to use it. We want our system user friendly and easy to use.

The administrator also may be non-technical, so the user interface will be designed in such a way that it gets comfortable for non-technical person to operate easily.

- **Economic Feasibility**

Economic feasibility is a crucial aspect of the feasibility study, which evaluates whether the system's benefits outweigh its costs.

This study involves analyzing the cost of developing the system, including hardware and software resources, design and development costs, operational costs, maintenance, and support costs, and other associated expenses.



It helps organizations make informed decisions about whether to proceed with the project or not, based on the expected return on investment and the ability to cover the development costs.

- **Scheduling Feasibility**

Scheduling feasibility ensures that the project is completed on time, within budget, and meets the project's objectives and requirements.

Moreover, scheduling feasibility also involves assessing the availability of resources, including human resources, hardware, and software resources, required to complete the project on time. It also evaluates the risks associated with the project's schedule, such as potential delays due to unforeseen circumstances or changes in requirements.

It provides a roadmap for project development, allowing project managers to track progress and make necessary adjustments to the project plan to meet the project's objectives. The project was quite feasible when it comes to scheduling.

#### **4.4.1 System's Implementation using the current system**

I used various technologies to build the system, such as Django-Flask for the back-end, SQL for the database, and Postman for API testing. Although I created the system from scratch, I first analyzed the current system to understand its initiation. The project definition was given by the company, but I was responsible for implementing the system.

#### **4.4.2 System's Integration with other systems**

Our system was developed with the capability to run on any operating system and web browser due to its built-in browser compatibility. Furthermore, it was designed to be highly scalable, allowing for new features to be seamlessly incorporated while preserving the existing functionality.

Initially, the project was designed for single file uploads and downloads. However, we later updated the system to include the ability to upload and download multiple files. This was achieved without compromising the system's overall performance. As a result of this flexibility, we have the potential to integrate new features in the future to enhance the system's capabilities.

## 4.5 Features of New System

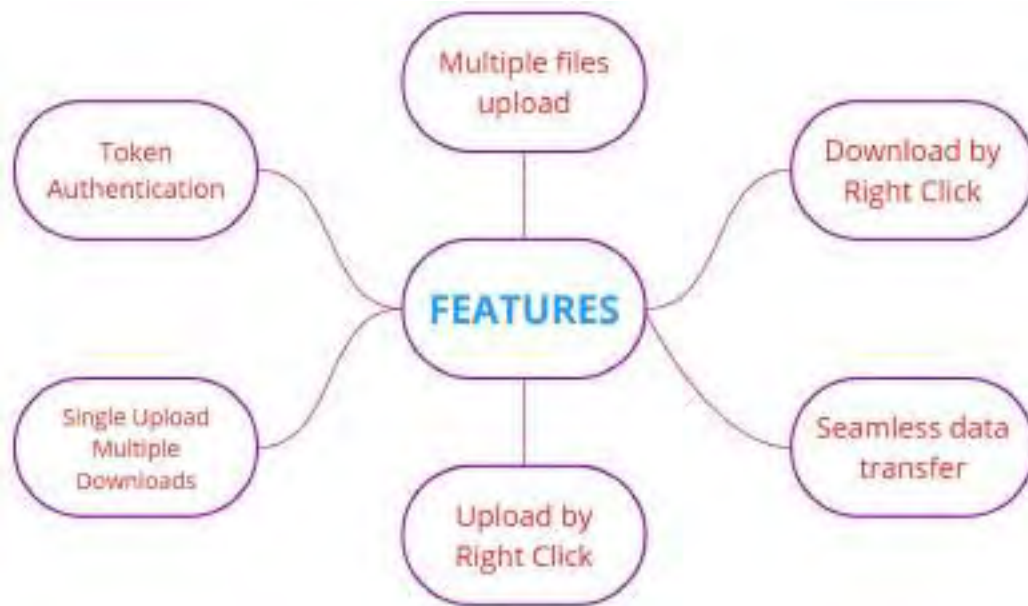


Figure 4.1 Features of System Develop

## 5.0 System Design

### 5.1 System Design and Methodology

The process of system design is essential in the development of any software application, as it outlines the structure, behavior, and functionality of the system.

By breaking down complex requirements into smaller, more manageable components, the design plan ensures that the application performs as intended, resulting in a positive user experience and enhanced efficiency.

Designing a system requires a thorough analysis of business processes and user requirements, including the selection of appropriate technologies and tools for building the system. This ensures that the system is built with optimal resources, leading to better performance, scalability, and maintainability.

A well-designed system is easier to develop, test, and maintain, and it results in an improved user experience and increased efficiency.

Ultimately, system design defines the environment in which a software system operates and enables effective communication about external factors that impact the system.

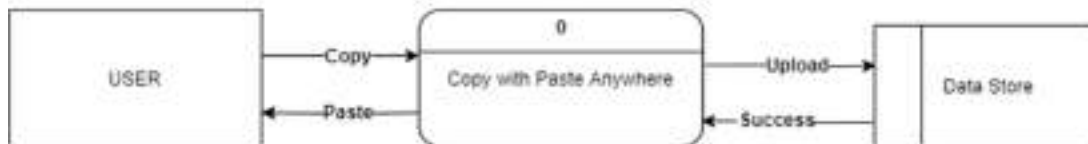


Figure 5.1 Copy Context Diagram



Figure 5.2 Paste Context Diagram

## 5.2 System Design

The term "system architecture" encompasses the complete layout and arrangement of a computer system, comprising its hardware and software elements, as well as the ways in which they communicate and interact.

This aspect of system development is critical in achieving a dependable, expandable, and efficient computer system. It involves making informed design choices that consider the system's unique requirements, limitations, and objectives, as well as its communication with other systems and the outside world.

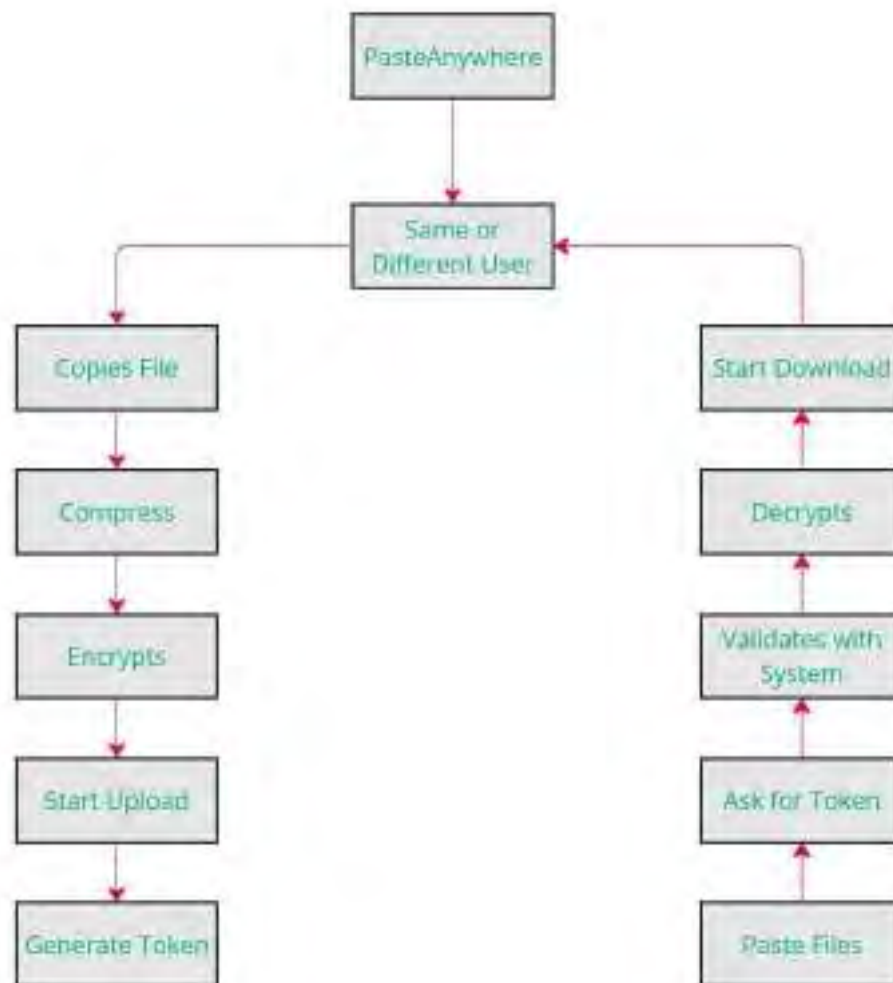


Figure 5.3 System Architecture

### 5.3 Database Design

- Establishing a database is a vital aspect of developing an application, as it allows for structured storage, organization, and retrieval of data. In this system, the database is utilized to store a range of information, including user details, file records, user copy and paste history, and token data.
- Database creation is an integral part of application development, providing the means to develop dynamic and resilient applications that can efficiently handle and harness significant amounts of data within this system.



Figure 5.4 List of Tables Created

- The following table is the User table, where all the user registration details are stored upon registration and also user details are validated at the time of login. It includes the user's username, password, and email address.



Figure 5.6 Design of User Table from Workbench

```
mysql> select * from user;
```

user_id	user_name	user_email	user_password
1	devki	hdevki2910@gmail.com	devki
2	trial1	trial@gmail.com	trial
3	dev	dev@gmail.com	dev

Figure 5.6 Design of User Table from MySQL  
Command Line

- The following table is the File table, where all the file uploaded details are stored upon file uploaded by user after login. It includes the user's username, user email, Filename and its corresponding file token generated.



Figure 5.7 Design of File Table from Workbench

```
mysql> select * from file;
```

file_id	file_user_name	file_user_email	file_otp	file_name
1	devki	hdevki2910@gmail.com	882593	Screenshot (892).png
2	devki	hdevki2910@gmail.com	266641	Screenshot (912).png

Figure 5.8 Design of File Table from MySQL  
Command Line

Table: user

Columns:

- user\_id
- user\_name
- user\_email
- user\_password

user_id	user_name	user_email	user_password
1	dev1	dev1@dev.com	dev1
2	dev2	dev2@dev.com	dev2
3	dev3	dev3@dev.com	dev3
4	dev4	dev4@dev.com	dev4
5	dev5	dev5@dev.com	dev5
6	dev6	dev6@dev.com	dev6
7	dev7	dev7@dev.com	dev7
8	dev8	dev8@dev.com	dev8
9	dev9	dev9@dev.com	dev9
10	dev10	dev10@dev.com	dev10
11	dev11	dev11@dev.com	dev11
12	dev12	dev12@dev.com	dev12
13	dev13	dev13@dev.com	dev13
14	dev14	dev14@dev.com	dev14
15	dev15	dev15@dev.com	dev15
16	dev16	dev16@dev.com	dev16
17	dev17	dev17@dev.com	dev17
18	dev18	dev18@dev.com	dev18
19	dev19	dev19@dev.com	dev19
20	dev20	dev20@dev.com	dev20
21	dev21	dev21@dev.com	dev21
22	dev22	dev22@dev.com	dev22
23	dev23	dev23@dev.com	dev23
24	dev24	dev24@dev.com	dev24
25	dev25	dev25@dev.com	dev25
26	dev26	dev26@dev.com	dev26
27	dev27	dev27@dev.com	dev27
28	dev28	dev28@dev.com	dev28
29	dev29	dev29@dev.com	dev29
30	dev30	dev30@dev.com	dev30

Figure 5.9 Records of User Table

Table: file

Columns:

- file\_id
- file\_user\_name
- file\_user\_email
- file\_size
- file\_name

file_id	file_user_name	file_user_email	file_size	file_name
1	dev1	dev1@dev.com	1024	Screenshot (1).png
2	dev1	dev1@dev.com	2048	Screenshot (2).png
3	dev1	dev1@dev.com	512	123.jpg
4	dev2	dev2@dev.com	1024	TODO.txt
5	dev3	dev3@dev.com	2048	calc1.png
6	dev4	dev4@dev.com	3072	register1.php
7	dev5	dev5@dev.com	4096	login1.png
8	dev6	dev6@dev.com	512	image1.jpg
9	dev7	dev7@dev.com	6144	TODO.txt
10	dev8	dev8@dev.com	7168	login2.png
11	dev9	dev9@dev.com	8192	dev1 script.pdf
12	dev10	dev10@dev.com	9216	GOLDEN TIMEFRAME
13	dev11	dev11@dev.com	10240	dev1 PDF THEFRAME

Figure 5.10 Records of File Table

### 5.3 Input/output and Interface Design

#### 5.3.1 Data flow diagram

##### ➤ DFD (Copy)

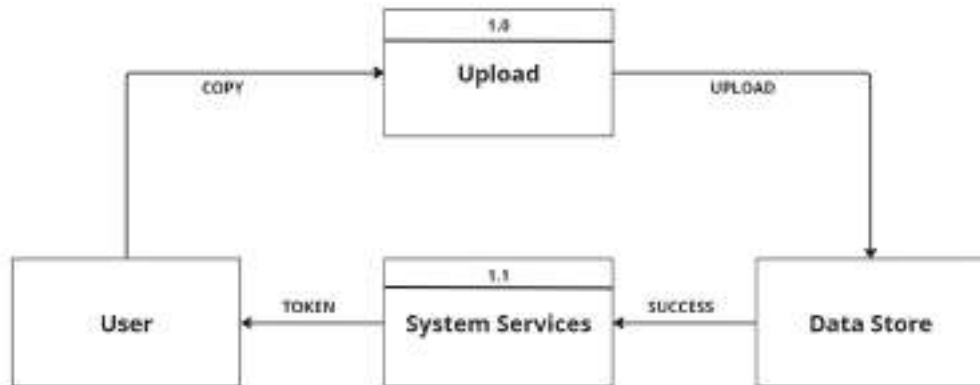


Figure 5.11 Data Flow Diagram of Copy

##### ➤ DFD (Paste)

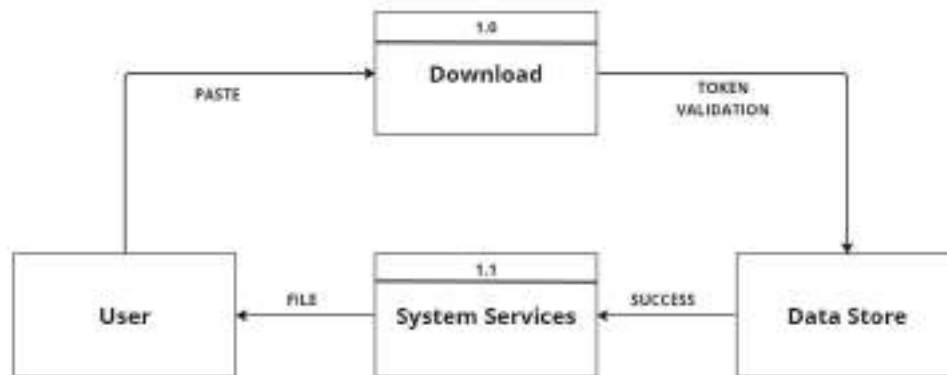


Figure 5.12 Data Flow Diagram of Paste



### 5.3.2 System Flow Diagram

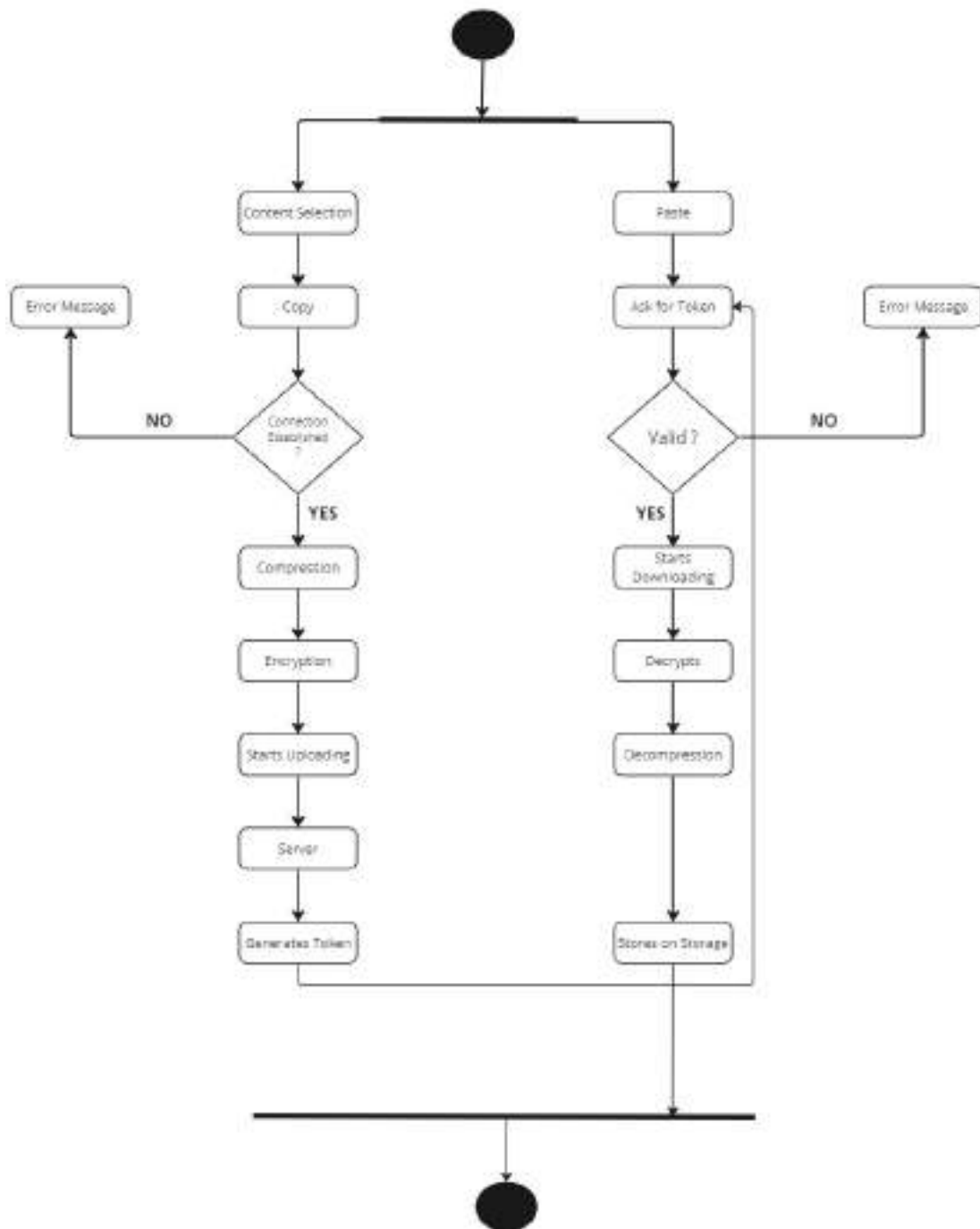


Figure 5.13 System Flow

### 5.3.3 Sequence Diagram

The diagram displays a chronological sequence of messages and interactions arranged vertically from top to bottom, while the progression of time is represented horizontally from left to right. It may utilize loops, conditions, and other control structures to depict intricate behavior.

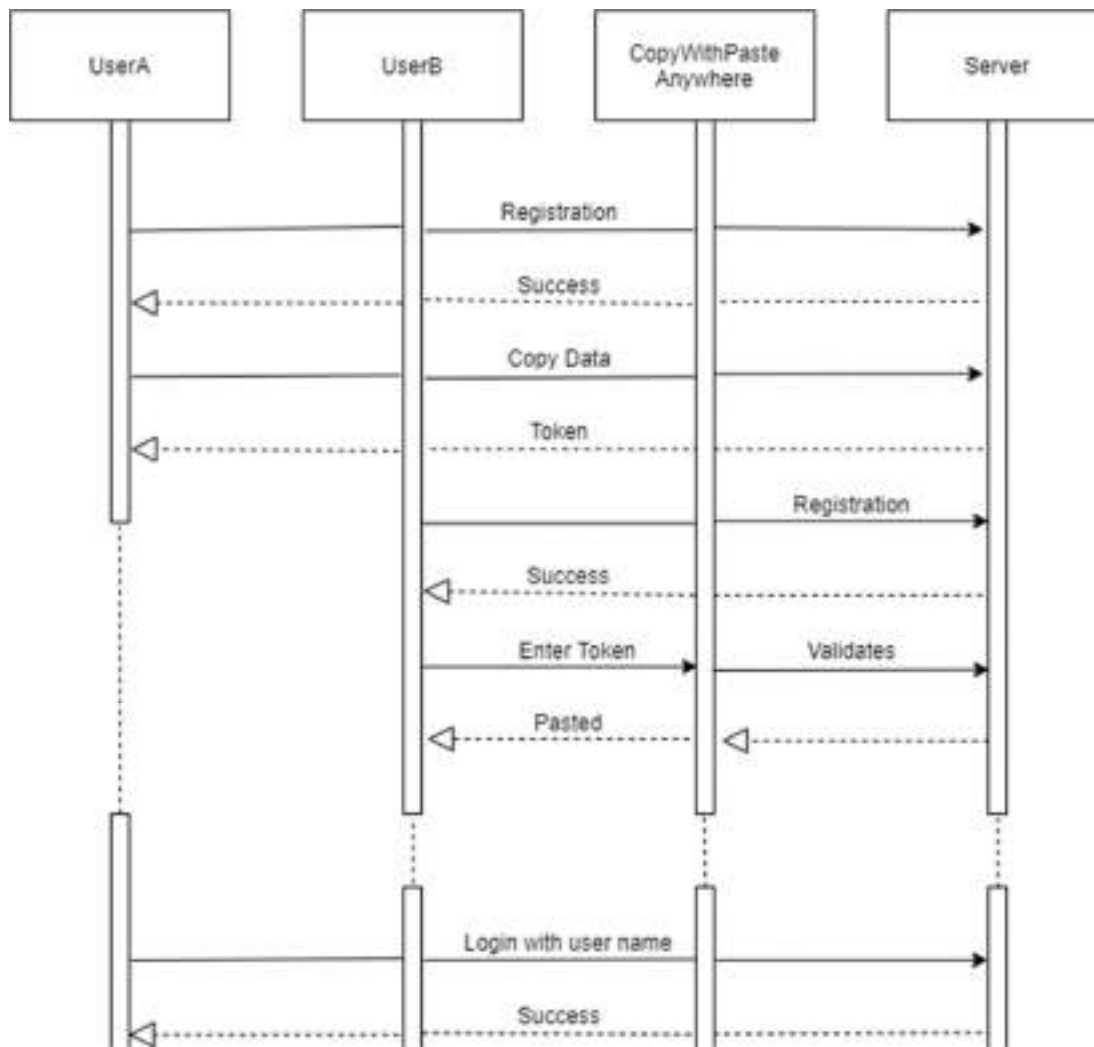


Figure 5.14 Sequence Diagram

## 6.0 Implementation

### 6.1 Implementation Platform

I have utilized PyCharm for coding the Server Side functionalities, MySQL for the database management, and Postman for testing the API.

- PyCharm is an IDE primarily designed for Python programming language. It offers a comprehensive set of features and tools to assist developers in creating high - quality Python applications. Some of the essential features of PyCharm include code completion, debugging, syntax highlighting, code formatting, refactoring, and version control integration. With code completion, developers can easily write their code by utilizing PyCharm ability to suggest the correct syntax and method signatures.
- MySQL Server is an open-source relational database management system (RDBMS) that is widely used for managing and storing data. MySQL is popular among developers and businesses alike, due to its ease of use, high performance, and scalability. It is developed by Oracle Corporation and is available under the GPL. MySQL Server supports a wide range of operating systems, including Windows, Linux, and macOS. It also supports various programming languages, such as Python, Java, PHP, and more.
- Postman is a widely-used tool that simplifies the process of testing and debugging APIs. It provides a user-friendly interface that enables developers to create, send, and analyze HTTP requests to API endpoints. Postman's intuitive interface simplifies the creation of requests and allows developers to examine the responses received from the API. Postman also supports a variety of data formats, including JSON, XML, and CSV, making it easy to work with different APIs.

## 6.2 Process and Module Specifications

After completing the system design phase, the next step was to start implementing the ideas, layout, features, and functionalities of the system based on the requirements.

Prior to implementing the main project, I had experience working on small project during the internship, such as a Library Management System. As a result, some of the functionalities in the main project, such as login, signup, and logout, were already familiar to me and easy to implement. Therefore, my task was to implement the remaining functionalities of the entire project.

The development of the project involves the use of both Flask and Django web frameworks, with communication between the frontend and backend facilitated through an API.

In my role as a Backend intern, I am responsible for creating the API. To achieve this, I have developed a REST API that supports various HTTP methods, including POST, GET, PUT, and PATCH. These methods enable the API to handle different types of requests and perform corresponding actions.

### **Signup API**

The first step in implementing the project was creating a sign-up API, which allows users to create a new account by submitting their username, password, and email in JSON format. The API uses the HTTP POST method to receive data from the front-end and stores the user's information in a user table in the database.

If the registration is successful, the back-end will send a response with a status code of 200 and a message of "User Created Successfully". This response confirms that the user's account has been created and they can now log in to the application. If the Signup is not successful, then message consist of Invalid credentials are provided from frontend.

### **Login API**

This API allows users to log in to the application by providing their user email and password from the front-end. The API uses the HTTP POST method to receive data from the front-end.

Once the API receives the user's login information, it checks whether the user exists in the database. If the user exists, the API generates a JSON Web Token (JWT) that encodes the user's username. The token is then included in the response to the front-end, along with a status code indicating that the login was successful.

Users must include this token in the headers of subsequent requests to access other pages of the application. This token verifies that the user is authorized to access the page they are requesting. If the user does not exist, the API sends a response with a status code of 401 and a message of "Invalid login credentials".

### **File Upload API**

Now Authorization is completed and then I implement the Upload file API. The route first retrieves the authorization token from the request headers and decodes it using the application's secret key. It then retrieves the username associated with the token from the database.

If a valid user is found, the route retrieves the files from the request and saves them to the server's "uploads" folder. Here User can upload multiple files. After selecting multiple files, all selected files are compressed into one zip file.

It generates a unique 4-character token to use as an OTP for further downloading the file. For downloading file user need to provide token to system.so as soon as User uploads the file one token is generated and Email is sent to the user containing the token and Zip file name. If the files are not uploaded, then the route returns a response with a message of "no files uploaded". If no user is found, it returns a response with a message of "no user exists".

### **Download Files API**

Here The route first checks for the presence of a JWT token in the request header. If a token is present, it decodes the token to extract the username of the user making the request.

The code then uses the username to look up the corresponding user in the database. If the user is found, the code looks for the token of the file to be downloaded in the JSON data sent with the request.

If the token is found, the code looks up the corresponding file object in the database using the token. If the file object is found, the code constructs the file path of the zip file that contains the requested files. If any of the required parameters are not found or an error occurs, the code returns an appropriate JSON response with an error message.

### **Logout API**

This is an API endpoint for user logout. The endpoint accepts a POST request and expects an authorization token to be present in the request headers.

The token is then decoded using the Flask app's SECRET\_KEY and verified against the database to ensure that it belongs to a valid user. If the token is valid, the user is logged out successfully, and a JSON response containing a success message and status code 200 is returned. If the token is invalid or missing, an appropriate error message with status code 401 is returned.

## 6.3 Outcomes

### Login Page

Upon launching the application, the user is presented with the login page as the initial view. If the user has previously registered, they can log in by providing their email and password credentials. Alternatively, if the user is new to the application, they can register themselves by navigating to the sign-in page.



Figure 6.1 Login Page

So, after providing Login Credential, user can Log in. After complete login User can view the home page.



Figure 6.2 Home Page

The application's navigation bar offers access to four main pages: Send file, Get file, About us, and Logout. To upload a file, the user must click on the Send file page from the navigation bar.



Figure 6.3 Send File

To upload files, the user can either click on the file selection icon or drag the file into the designated area. Upon clicking the icon, the application will prompt the user to select a file from their local device.

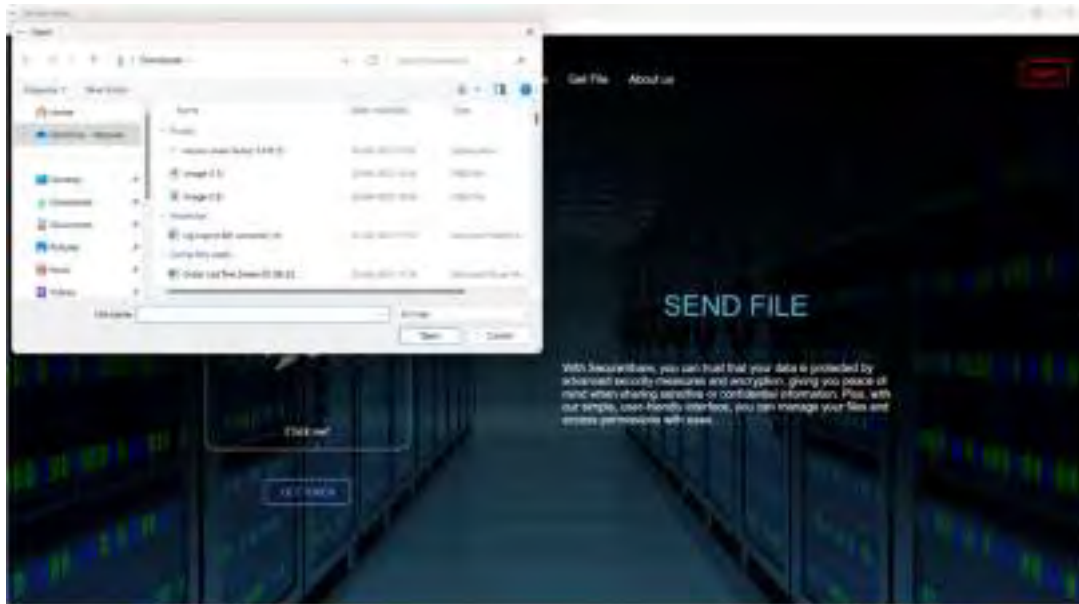


Figure 6.4 File Selection

So, after selecting File, user click on Get Token option in order to generate token. After token is generated one alert box will be generated that displays, Please Check your Email.

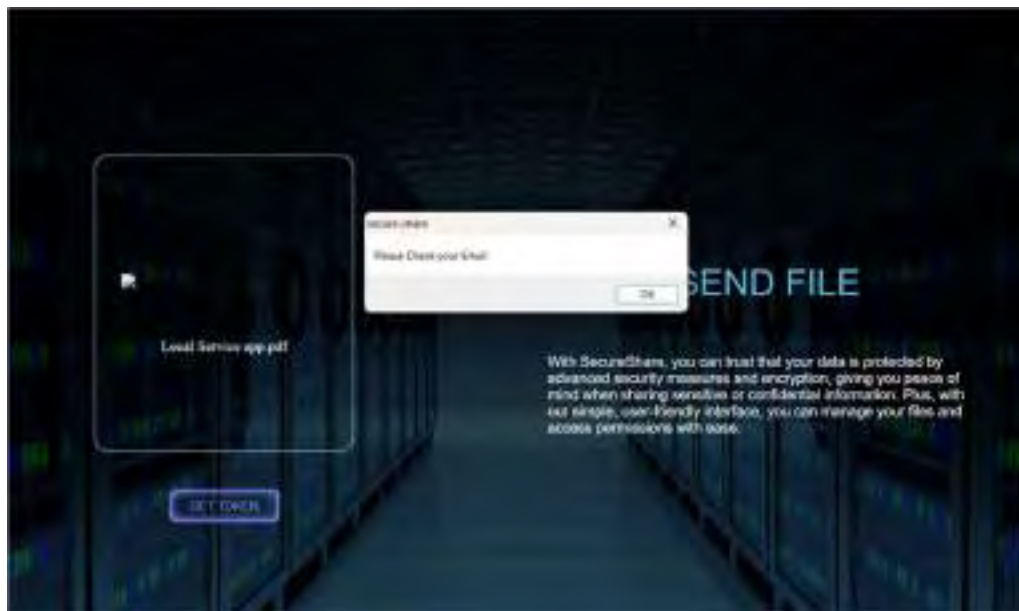


Figure 6.5 Generate Token



After Generation of Token, An Email is sent to the user from system. Email consists of Token and Filename.

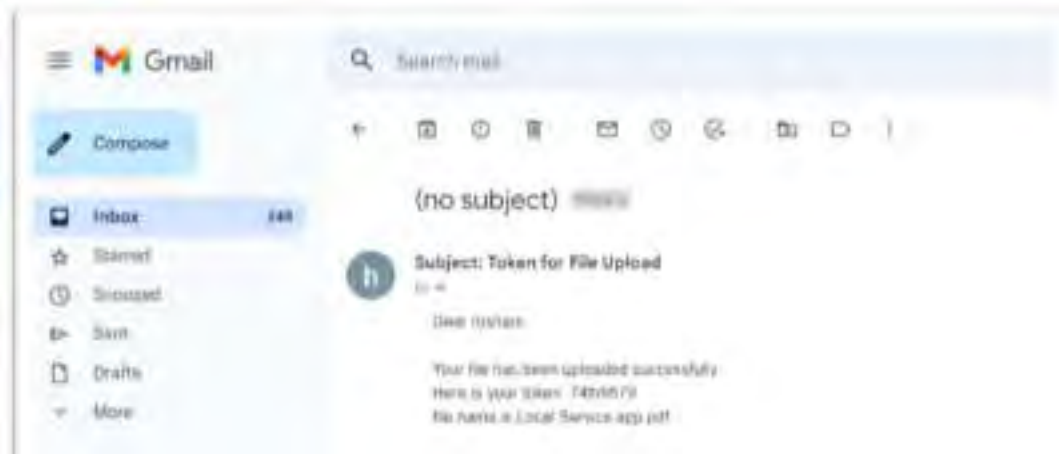


Figure 6.6 Token Send through Email

User will get this email. After getting Email user can go back to application for downloading the file.



Figure 6.7 Download File

For Downloading Files user have to provide the filename and token.so token and filename is provided to user by email.



Figure 6.8 Providing Download Credentials

## 6.4 Result Analysis

After investing a considerable amount of time and effort in designing and programming the software, we have successfully developed a fully functional web application that matches our envisioned system. Upon comparison with the current desktop application, the following features can be identified:

- The web application boasts an attractive and smooth user interface that enhances the user experience and improves navigation.
- The application is user-friendly and easy to browse through, ensuring that users can easily access the required features and functionalities.
- The web application offers the same set of functions and features as the desktop application, ensuring consistency across both platforms.
- The buttons located on the side panel offer users easy access to relevant pages, streamlining the application's navigation.
- User identification and authentication measures are in place to maintain user privacy and ensure secure access to the application.
- Users who have worked on the desktop application were able to seamlessly transition to the web application, indicating its ease of use and smooth functioning.

Overall, the development of the web application has proven to be a successful endeavor, resulting in a user-friendly, feature-rich, and attractive platform that can offer users an improved experience compared to the current desktop application.

## 7.0 Testing

### 7.1 Testing Strategy

The testing plan for Paste Anywhere application is takes into consideration following factors.

- **Scope of testing:** The testing will cover all the features, such as user authentication, which verifies the identity of users before allowing them to access the system; file uploading, which enables users to upload files to the system; file downloading, which allows users to download files from the system, and token generation, which generates secure tokens for user identification and authorization purposes.
- **Testing methods:** The testing approach will involve a combination of manual and automated methods. Manual testing will focus on assessing user experience, verifying functionality, integration, regression, and acceptance testing. Automated testing will focus on testing repetitive tasks and non-functional aspects.
- **Test Environment:** Multiple test environments, including development, testing, staging, and production, will be established with distinct hardware and software configurations tailored to their specific needs.
- **Test cases:** They will be developed to cover the following scenarios -
  - **Priority:** The priority assigned to the test cases will depend on their significance and criticality to the project.
  - **Time Schedule:** The test schedule will be developed taking into account the prioritization of test cases, resource availability, and project timelines.
  - **Execution:** Testing activities will be carried out according to the test schedule, and the test results will be documented and monitored.
  - **Defect Reporting and Tracking:** Any defects identified during testing will be communicated to the development team, and their resolution will be tracked and monitored.
  - **Retesting:** After the defects are resolved, the corresponding areas will be retested to verify that the issues have been resolved.

- **Sign-off:** At the end of the testing process, a sign-off will be conducted to confirm that all requirements have been fulfilled and the software application is ready for deployment.

## 7.2 Test Results and Analysis

### 7.2.1 Test Cases

- Test cases are a collection of precise and specific instructions or actions that are executed to assess and confirm the functionality, features, or requirements of the software.
- Test cases specify the precise inputs, anticipated outputs, and requisite testing conditions needed to conduct the testing process.
- The primary goal of test cases is to verify that the software application operates in accordance with the specified requirements and specifications.
- Each test case contains the following elements:
  - **Test case ID:** A unique identifier for the test case.
  - **Test case description:** A description of what the test case will test.
  - **Pre-conditions:** The conditions that must be fulfilled before the test can be performed.
  - **Expected results:** The expected outcome or output of the test.
  - **Actual results:** The actual outcome or output of the test.
  - **Pass/Fail criteria:** The criteria for determining whether the test has passed or failed.
  - **Test data:** Any input data or specific test data required to execute the test.
- Test cases play a critical role in the software testing process by providing a systematic approach that covers all possible scenarios, helping to identify and address any defects or issues before the software is released to end-users.

### 7.2.2 Test Outcomes

The test case outcomes for various functionalities in application are mentioned below:

Table 7.1 Test Cases for PasteAnywhere

TEST ID	MODULE	TEST CONDITION	EXPECTED OUTPUT	ACTUAL OUTPUT	RESULT
T001	Registration	Correct User Details	Registration Successful	Expected	Pass
T002	Registration	Blank Username or Password	Registration Unsuccessful	Expected	Pass
T003	Login	Correct Email and Password	Login Successful	Expected	Pass
T004	Login	Incorrect Email or Password	Login Unsuccessful	Expected	Pass
T005	Login	Blank Email or Password	Login Unsuccessful	Expected	Pass
T006	Login	Case Sensitivity	Login Unsuccessful	Expected	Pass
T007	File Uploading	Uploading Single File	User will receive Email containing Token and File name	Expected	Pass
T008	File Uploading	Uploading Multiple Files	User will receive Email containing Token and zip File name	Expected	Pass
T009	File Downloading	Providing correct Token and filename	Download the file	Expected	Pass

T010	File Downloading	Incorrect Token and Filename	Unable to download the file	Expected	Pass
T011	File Downloading	Blank filename or token	Unable to download the file	Expected	Pass

## 8.0 Conclusion and Discussion

### 8.1 Overall Analysis of Internship

During my 12-week internship at Script All DNA Technologies and my work on the Paste Anywhere project, I gained valuable insights and experiences that allowed us to evaluate my performance:

- I was exposed to the industry culture and its practices, which broadened my knowledge of software development and its nuances.
- I gained an understanding of the immense effort required to create a successful software application, and the various aspects involved in the process.
- I had the opportunity to learn new programming languages, such as Django and Flask, and applied my knowledge in practical scenarios.
- I received continuous feedback and guidance throughout the development process, which proved to be incredibly helpful in making an efficient system.
- We learned how to work effectively in a team, collaborating and coordinating with each other to achieve common goals.
- I developed the web application from scratch, and our hard work resulted in an application that provides an engaging and user-friendly experience to users.
- The system I created is capable of storing, displaying, and updating data in the database, and I am confident that it can scale up to accommodate more users and data in the future.
- I successfully implemented the file upload and download feature across multiple devices, making it easy for users to access and share their files.
- The desktop application users were able to use the web application efficiently, which demonstrates the compatibility and consistency of the application across different platforms.

### 8.2 Dates of Continuous Evaluation

Date of First Continuous Evaluation (CE – I): 18<sup>th</sup> March, 2023

Date of First Continuous Evaluation (CE – I): 6<sup>th</sup> May, 2023



### 8.3 Problems Encountered and Possible Solutions

Throughout my internship and development process, I encountered several challenges. However, the guidance and support of my mentors made it easier for me to overcome them.

- One of the major difficulties I faced initially was the technical language barrier. As Django and Flask were completely new languages for me, I found it challenging to work with them. Nevertheless, the step-by-step training provided by the company helped us overcome this obstacle.
- During the course of my internship, I encountered several challenges while working on the desktop application. There were certain aspects of the application that were hard for us to comprehend, but with the help of the team, we were able to gain a better understanding of the system.
- Additionally, while coding, I encountered certain errors that were difficult to comprehend, but the team assisted us in rectifying them and making the system better.
- During the testing phase, certain flaws in the system were pointed out, and we were unsure about how to address them. However, our mentor provided us with guidance on how to resolve these issues, which helped us to make the system more efficient.

### 8.4 Summary of Internship and Project Work

Upon devoting significant time and effort towards the creation of our web application, I felt a sense of accomplishment in creating a comprehensive file management system. The application allowed users to seamlessly upload files on one device and download them on another. Our team focused on creating a user-friendly interface that prioritized data security and privacy for users.

My 12 - week internship at Script All DNA Technologies was an extraordinary chance for us to learn and acquire hands-on experience with the industry's working methodologies and techniques. It broadened my understanding of the vast range of opportunities available in the industry, and working under the guidance of an experienced mentor like Mr. Hiren Patel was a great privilege. During the project, I gained insights into every aspect and effort involved in the development process.

## References

Throughout the project, we sought assistance from various external sources to help us achieve our goals. Here are some of the sources we utilized:

1. *The official home of the Python Programming Language*. (n.d.). Retrieved from python: <https://www.python.org/>
2. *The Python IDE for Professional Developers*. (n.d.). Retrieved from Pycharm: <https://www.jetbrains.com/pycharm/>
3. *The web framework for perfectionists with deadlines*. (n.d.). Retrieved from Django: <https://www.djangoproject.com/>
4. *The world's most popular open source database* . (n.d.). Retrieved from MySQL: <https://www.mysql.com/>
5. *Welcome to Flask - Flask Documentation (2.3.x)*. (n.d.). Retrieved from Flask: <https://flask.palletsprojects.com/>
6. Script All DNA Technologies: <https://scriptalldna.com/>
7. *Postman API Platform*. (n.d.). Retrieved from Postman: <https://www.postman.com/>



Annexure 1

Enrollment no:  
190370107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Preakashbhai Hansalia

DIARY OF THE WEEK: Dt: 23/01/2023 TO 29/01/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Script All DNA Technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

I started from scratch learning the basics of python variable, loops, conditions, class objects and methods. I was asked to learn their standard naming conventions and along with their use. And also how to replace one element by other. For example, using individual tuples for some problem and instead of that how we can make a list of tuples. Asked to solve one problem where in graph of x and y coordinates find all the y coordinates in increasing order irrespective of its corresponding x value. Then further taught difference of coding in college and industry. Further I learned about creating virtual environment and its use. Along with how to perform debugging in Pycharm IDE. And also finding negative case in the code, i.e conditional check on every line of code. And also along with hands on programming I was given training on soft skills like SWOT Analysis, importance of time management and team work and how to collaborate with other team mates.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 36 hours

Dethi  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Date: 18/03/2023

Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 30/01/2023

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 1

Enrollment no:  
190390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashbhai Hamsalia  
DIARY OF THE WEEK: Dt: 30/01/2023 TO 05/02/2023  
DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Script All DNA Technologies  
NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

In the second week tasks assigned are installing and setting up virtual Ubuntu. And also maintaining one document where write all the errors which come across coding. And solved some problems from Hackerrank and LeetCode. And also I explore more on OOPs concept. Then it was assigned to build a Library Management System using OOPs concept. Functionalities added were User validation & New User registration, Adding a Book, Issue Book, Return Book and display list of available books and show statistics. And also I explore CHATGPT developed by Open AI. And also I had a session with HR executive regarding how to write email in the professional world.

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TOTAL HOURS: 45 hours

Denki  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Ghoshan

Date: 18/03/2023

Signature of officer-in-charge  
of Dept. / Section / Plant

Gate

Date: 06/02/2023

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:  
190390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashbhai Hansalia

DIARY OF THE WEEK: Dt: 06/02/2023 TO 12/02/2023

DEPARTMENT: Computer Engineering SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: Script All DNA Technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

In this week first it was assigned to create an account in GITLab. Then following task were given: Clone, Create branch of your name, Push your branch to the Repository, Create new branch from previous branch and add library Management System code and Pull Request. Then further code was reviewed and feedback were given and changes were done accordingly further. And also it was asked to have a look about gitignore. And then in session with team leader we were assigned to install MySQL and learn & explore its basic commands and CRUD operations.

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)



TOTAL HOURS: 45 HOURS

Devki  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

*[Signature]*

Date: 13/02/2023

Signature of officer-in-charge  
of Dept. / Section / Plant

*[Signature]*

Date: 13/02/2023

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure I

Enrollment no:  
190390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashbhai Hansalia  
DIARY OF THE WEEK: Dt: 13/02/2023 TO 19/02/2023  
DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Script All DNA Technologies  
NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

So this week I first performed a library management system by connecting it to a MySQL database. Then further task was to explore SQLAlchemy library and have a look at insertion, creation and deletion operation. And then perform it on library management system. Then we had a session with the team leader regarding what connects frontend and backend, i.e API and discuss its parameter like status, URL, request, header, endpoints, etc. And also I had a session with HR Executive where watched a video on Mumbai Dabbawalas that how they coordinate and manage all its work.



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TOTAL HOURS: 45 hours

Denki  
SIGNATURE OF STUDENT

☉ The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date: 18/03/2023

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date: 20/02/2023

☉ Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1

Enrollment no:  
190390107010

### STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Devki Prakashbhai Hansalia  
DIARY OF THE WEEK: Dt: 20/02/2023 TO 26/02/2023  
DEPARTMENT: Computer Engineering SEM: 5<sup>th</sup>  
NAME OF THE ORGANISATION: Script All DNA Technologies  
NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

#### DESCRIPTION OF THE WORK DONE IN BRIEF

- So this week I started implementing a library management system with the Flask framework.
- I was asked to combine all concepts like OOPs, MySQL connectivity, SQLAlchemy and flask to create an API.
- So I created my API with POST and GET method.
- I got familiar with Postman because before handing over to frontend developer I need to recheck from my side.
- Initially I used NGROK to create link further I was asked to use IP address.
- So when testing with frontend developer there comes an error (cross origin Resource sharing) error so I resolved it with CSRF token and cross origin.
- And further I go through documentation of JWT token for login and logout.



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TOTAL HOURS: 45 hours

Devki  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR



Signature of Faculty Mentor

Prasanna

Date: 18/03/2023

Signature of officer-in-charge  
of Dept. / Section / Plant

Rata

Date: 27/02/2023

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Annexure 1

Enrollment no:  
190390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashbhai Hansalia

DIARY OF THE WEEK: Dt: 27/02/2023 TO 05/03/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Script All DNA Technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- So this week was learning and exploring new concept that was JWT tokenization.
- So first I created login and logout method for library management system using JWT token where a token is generated during login and that token should be passed for logout.
- Further I created API for forgot password where mail is sent with the link where token is attached to reset password.
- And then all the above API along with the library Management System API are given to frontend developer. So finally system was ready.
- And further I was asked to explore Django framework.



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TOTAL HOURS: 45 hours

Dewki  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor

U. Shrawan

Signature of officer-in-charge  
of Dept. / Section / Plant

Datta

Date: 18/03/2023

Date: 06/03/2023

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Annexure 1

Enrollment no:  
190390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashbhai Hansalia

DIARY OF THE WEEK: Dt: 06/03/2023 TO 12/03/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Script All DNA Technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

→ First thing in this week I did was I had a meeting with the team leader and was assigned to learn the Django python framework.

→ And I explored following concepts in Django:

Model, Serializer, URL, views, response, Admin, settings.py, manage.py.

→ Further I install Django then create firstproject and inside it apps.

→ Also I performed some hands on by creating API connecting it to database and testing it through Postman.



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TOTAL HOURS: -----

36 hours

Devki

-----  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 18/03/2023

Date: 13/03/2023

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Annexure I

Enrollment no:  
190390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashbhai Hansalia

DIARY OF THE WEEK: Dt: 13/03/2023 TO 19/03/2023

DEPARTMENT: Computer Engineering SEM: 8th

NAME OF THE ORGANISATION: Script All DNA Technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

→ This week I started with Paste Anywhere project.

→ The system is about a user upload file and a unique token gets generated and another user can download file by giving file name and token generated.

→ I created API for login, logout and new user registration.

→ Then further creating API for uploading and downloading file and also connecting to database to store information regarding files.

→ Later I implement this system with frontend after testing it in postman.



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TOTAL HOURS: 45 hours

Devki  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Signature of officer-in-charge  
of Dept / Section / Plant

[Signature]

Date: 18/03/2023

Date: 17/03/2023

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Annexure I

Enrollment no:  
190390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashibhai Hansalia

DIARY OF THE WEEK: Dt: 20/03/2023 TO 26/03/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Script All DNA Technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

- This week was full of working everything on linux system.
- In this week I installed many things on linux like Git, MySQL, Postman, etc.
- First I tried basic git commands like cloning, new branch creation, push and merge & some file handling commands.
- I was assigned to implement Library Management System in linux using Django framework.
- created following API: Login and Logout User, Sign Up User, Add book, Issue Book and Return Book.



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TOTAL HOURS: 45 hours

Devki  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Sata

Date:

Date: 27/03/2023

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Annexure 1

Enrollment no:  
190890107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashbhai Hansalia

DIARY OF THE WEEK: Dt: 27/03/2023 TO 02/04/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Script All DNA Technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

- First I explored custom User Model in Django.
- Django has its own administration portal you can access it by appending /admin to URL.
- Also I tried simple JWT Authentication of Django.
- And also explored serializers in Django in Custom User Model.
- Further I started implementing PasteAnywhere project in Django.
- I created Login, Logout, signup and Upload file API and testing it on Postman.



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TOTAL HOURS: 45 hours

Devki  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR



Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 03/04/2023

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Annexure I

Enrollment no:  
170390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Devki Prakashbhai Hamealia

DIARY OF THE WEEK: Dt: 03/04/2023 TO 09/04/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Script All DNA Technologies

NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

→ New week started with new task. We had session with team leader where new project idea was discussed.

→ Creating an application where user can see all the nearby business registered for their online business. Basically providing platform to local shops and retailers to expand their business online.

→ So, I explored similar platforms and note down it's PROs and CONS.

→ The two very similar platform are ByNearBuy and MagicPin. I created presentation on mention two case studies.

→ And besides this, I explored more on OpenCV python library.



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TOTAL HOURS: 36 hours

Devi  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Sat

Date:

Date: 10/04/2023

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Annexure I

Enrollment no:  
190390107010

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Deuki Prakashbhai Hansalia  
DIARY OF THE WEEK: Dt: 10/04/2023 TO 17/04/2023  
DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Script All DNA Technologies  
NAME OF THE PLANT/SECTION/DEPARTMENT: Python Developer  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Hiren Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- I continued with last week task. List out the domain of business can register and grouping them accordingly.
- I almost explored OpenCV library. So I was asked by team leader to first try face recognition.
- After recognizing, the task comes of identifying entity.
- It has major 3 steps: dataset collection, training model and detection.
- For the initial stage I used haarcascade model for detection.



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TOTAL HOURS: 45 hours

Devki  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR



Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

Sat

Date:

Date: 17/04/2023

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 2

Feedback Form by Industry expert

Student Name: Devki Prakashbhai Hansalia

Date: 28<sup>th</sup> April, 2023

Work Supervisor: Himen Patel

Title:

Company/Organization: Script All DNA Technologies

Enrollment No: 190390107010

Internship Address: 806 - 808, Satyamev Eminence, Science City Rd, Sola, Anandnabad

Dates of Internship: From 23<sup>rd</sup> January, 2023 to 23<sup>rd</sup> April, 2023

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise				✓
Analyzes problems effectively				✓
Communicates well and writes effectively				✓

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):

Additional comments, if any:

Signature of Industry person with name and Stamp:



*Himen Patel*

Signature of the Faculty Mentor

# **INTERNSHIP AT INTECHBIT**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Devkumar Brijeshkumar Patel**

**190390107033**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INTECHBIT** has been carried out by **Devkumar Brijeshkumar Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay kansara

Internal Guide

Head of Department

## Company Certificate



Date: 02<sup>nd</sup> May, 2023

### TO WHOM IT MAY CONCERN

This is to certify that **Devkumar Brijeshkumar Patel** has successfully completed a 3-month internship in Web Development in Java at **INTECHBIT**.

Dev joined the internship program on **25th Jan 2023** and completed it on **1st May 2023**, during which he worked on various projects and tasks that required him to use Java programming language and web development technologies.

During his time at INTECHBIT, Dev has shown dedication, hard work, and professionalism. He has been a valuable member of our team, contributing to several projects and demonstrating an ability to work independently and as part of a team.

We would like to commend Dev for his commitment to learning and for being a proactive participant in the internship program. We believe that he has the skills and knowledge to excel in his future endeavors in web development.

Warm regards,

Bhavesh Patel

IntechBit

FOR, INTECHBIT

  
PARTNER

Intechbit, Ahmedabad  
Phone: 079-46006666

info@intechbit.com  
www.intechbit.com

## PMMS Certificate



# GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 03 May 2023 (10:45:26)

This is to certify that, **Patel Devkumar Brijeshkumar** ( Enrolment Number - 190390107033 ) working on project entitled with **Smart SMS** from **Computer Engineering** department of **S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA** had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : Patel Devkumar Brijeshkumar

Name of Guide : Mr. Chetan Rameshdas Chaudan

Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

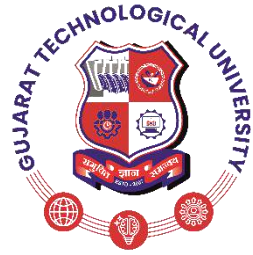
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**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INTECHBIT** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Bhavesh Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Devkumar Brijeshkumar Patel**



## **ACKNOWLEDGMENT**

The internship opportunity I had with **INTECHBIT** was a great chance for learning and professional development. Therefore, I consider myself as a lucky individual as I was provided with an opportunity to be a part of it. Specifically, I would like to thank **Bhavesh Patel** sir for his dedication towards to train the students in internship. I would also like to thank my Internal Guide **Prof. Chetan Chauhan** sir for helping us through our internship by giving us the necessary suggestion and advice along with their valuable co-ordination in completing this Internship.

In this internship I was enjoyed a lot to learn so many different things about technology and various concepts. During this internship we had started from the scratch to better understanding of Advance concepts for that thank to **INTECHBIT** team.

## **ABSTRACT**

This report contains the work done by me during my internship at **INTECHBIT** as a Java developer intern. With the help of my mentor, I learn about spring boot, one of the most well-liked Java frameworks, throughout this internship. We can write less code with Spring Boot compared to other Java frameworks like Spring. I worked on several CRUD (Create, Read, Update, Delete) activities to see how boilerplate code is reduced using Spring boot as a starting point or small assignment to grasp this framework. We intend to launch a real-time project known as **Smart SMS** and **WAPP** that will make use of DLT templates and WA templates to send single or bulk messages to subscribers simultaneously. You can send messages in a variety of ways, such as text messages, group messages, and CSV messages.

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## **ABBREVIATIONS**

JSP	Java Server Page
MVC	Model View Controller
SQL	Structural Query Language
DBMS	Database Management System.
REST API	Representational State Transfer API
API	Application Programming Interface
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
JS	Java Script
SMS	Short Message/Messaging Service
DLT	Distributed Ledger Technology
CRUD	Create, Read, Update, Delete operations

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## **CHAPTER 1: OVERVIEW OF THE COMPANY**

### **1.1 COMPANY PROFILE**

Established in 2016, incorporation with our parent IT company, **INTECHBIT**. has managed to make its own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, Domain & Hosting services, SMS services etc.

In the last six years, we have delivered all projects on time and with near-perfect accuracy to our clients all over the India. We have dedicated teams of skilled and dedicated developers. Our developers, who are always eager to take on new challenges and learn new skills, are the heart of this company.

Our goal is to keep up with the industry's exponential growth. Our mission is to deliver the best products with the highest quality every quarter, and our vision is to create a product with the highest quality.

### **1.2 SERVICE PROVIDE**

#### **1.2.1 Mobile Apps Development**

Everyone loves to have fast and quick way to get what he or she wants. We Provides mobile application development services to all the clients.

#### **1.2.2 Web Design & Development**

Design it is not only colors and fonts. In this includes the information architecture, user interface.

#### **1.2.3 Responsive Design**

We think this is not surprise for you. But it is almost the most important component for a successful web.

#### **1.2.4 Desktop Application**

Our desktop applications help businesses meet their respective requirements and provide a competitive advantage in the growing market.

### **1.3 MISSION AND VISION OF THE COMPANY**

INTECHBIT works with people to create their business grow using information and Technology. Our team is master in Information Technology and Business, so it is easy to provide client best services.

Our moto is to grow your business and you achieve your goal. We provide hassle free solution without any bugs. Also work on to increased client's satisfaction.

Also, concentrate on to decrease customers cost and fulfill their needs.

We have developed collaboration schemas that provide our clients control over the entire process and give them the capability to influence the result. Our team and the way we select it, and the wide range on the domains and skills that we cover.

The result of this gives our clients, uncompromised quality, and Timely delivery.

## **CHAPTER 2: INTERNSHIP PROJECT DETAILS**

### **2.1 PROJECTS**

1. Smart SMS System
2. WAPP Message

### **2.2 PURPOSE**

The purpose of developing a smart SMS system web application is to enable businesses to send and receive bulk SMS messages online, as well as to automate SMS campaigns, notifications, reminders, and more.

A smart SMS system web application can also provide features such as personalization, attachments, delivery reports, upload CSV file attachment, surveys, vouchers, and WhatsApp integration.

A smart SMS system web application can help businesses increase sales and customer satisfaction, as well as reduce costs and save time.

### **2.3 OBJECTIVE**

The objective of a smart SMS system is to provide a convenient and effective way of communicating information to many people using mobile technology. A smart SMS system can have different objectives depending on the context and purpose of the communication. For example, some possible objectives are:

1. To disseminate useful information such as notices, updates, reminders, and alerts to a target audience.
2. To enhance safety performance by monitoring and improving safety goals and objectives in aviation SMS.

### **2.4 SCOPE**

A smart SMS system's scope refers to the variety of consumers, services, locations, and technology that it can support. Depending on the requirements and goals of the organization using the smart SMS system, the system's scope can change. Basically, main goal is to reduce burden of customer and enhance user experience.

## 2.5 TECHNOLOGIES

- Spring Boot (Java Framework)
- JSP
- HTML
- CSS
- JavaScript
- MySQL
- MongoDB
- Software tools: IntelliJ, SQLyog, MongoDB Compass, notepad++, Postman, etc.

Thos are different technologies which used to developing smart SMS and WAPP Message system.

## **CHAPTER 3: SYSTEM ANALYSIS**

### **3.1 INTRODUCTION TO SYSTEM**

Smart SMS system is a project that aims to develop a web application that can send and receive bulk SMS messages online, as well as to automate SMS campaigns, notifications, reminders, and more. The project also intends to provide features such as personalization, attachments, delivery reports, surveys, vouchers, and Group manage.

### **3.2 LIMITATION OF EXISTING SYSTEM**

In existing smart SMS application do not have any facilities for DLT template. According to governance guidelines it is mandatory to implement this in SMS system and old application working on old technology and codes it requires latest technology.

### **3.3 OBJECTIVE OF NEW SYSTEM**

- Implementing DLT template in system application.
- Implementing manager to manage DLT template.
- Integrate all system components with DLT template
- Changing new UI of smart SMS System.
- Using MongoDB for database management.

### **3.4 REQUIREMENTS OF NEW SYSTEM**

#### **3.4.1 Functionality and Non-functionality Requirements**

<b>FUNCTIONAL</b>	<b>NON-FUNCTIONAL</b>
SMS Service	Usability
Easy dashboard	Security
Campaign reports	Performance
Group manager	Responsive design

*Table 1.1 Functional and Non-functional Requirements*

Table 1.1 shows various requirements in form of functional and non-functional way. Those requires to developing new Smart SMS system.

### 3.5 SOFTWARE AND HARDWARE REQUIREMENTS

Software	Hardware
Java version 17	Laptop or Desktop with windows OS
IntelliJ	min 4GB RAM
MongoDB	Internet connectivity
HTML, CSS, JS	Web Browser
Text editor notepad ++	
SQLyog database	

*Table 1.2 Software and Hardware Requirements*

Above table 1.2 shows some software and hardware requirements which helpful to understanding developing process of project.

### 3.6 FEATURES AND MODULES/ COMPONENTS OF NEW SYSTEM

- DLT Template
- WA Template (Similar to DLT template)
- WA Template history
- Send Attachments with send message
- Manage setting
- WA BOT Master
- Login Log
- Organization/ Department/ Tags Master

All sent messages are saved in a database and displayed in the application's message history interface.

There are numerous additional features, including Create, Update, Delete, and Select. Which also known as CRUD operations of the spring boot. CRUD operation is one of the important features of the spring boot. These operations are performed by using http protocols and annotations.

These are operations that are carried out on one or more records or messages. As well as application provides additional services for admin.

## **CHAPTER 4: IMPLEMENTATION**

### **4.1 IMPLEMENTATION PLATEFORM / ENVIRONMENT**

- IntelliJ (With JDK setup)
- Notepad ++
- SQLyog (With new connection)
- MongoDB Compass (Connected with localhost)
- Postman
- Browser (Local server localhost:3000)
- Spring Initializr

### **4.2 PROCESS / PROGRAM / TECHNOLOGY / MODULES**

#### **SPECIFICATION(S)**

In the beginning, I worked on an older version of this project to better understand its functionality and to learn more about spring boot. As a result, I worked on two versions of this project at the same time. These are referred to as smart SMS and WAPP.

Process for implementing Smart SMS:

- DLT Template User/Admin
- Bulk DLT Template Upload
- Campaign log history User/Admin
- Keyword and Master keyword User/Admin

Process for implementing WAPP:

- Send WA (for sending messages)
- Message history User/Admin
- WA Template
- WA Template history
- Manage Setting
- Incoming message history User/Admin
- WA-BOT master
- Login log
- Organization / Department manager



- Tag master User/Admin

## 4.3 TASKS / RESULTS / OUTCOMES / TESTING

### 4.3.1 Implementation Of “SMART SMS V9”

#### 4.3.1.1 Task 1: Implementation of DLT Template

DLT template added in following modules

- Quick message
- CSV message
- Group message
- Quick URL message
- Send Link CSV

According to government regulations, a DLT template must be added and approved by the government. By just picking a template, you can send many messages at once.

Modules that do not have facilities like DLT are listed. It is our responsibility to include the DLT template in all the modules mentioned above.

#### 4.3.1.2 Outcome

After added that by selecting DLT template from list messages will dynamically change according to template body.



Figure 1.1 Add DLT in quick message before

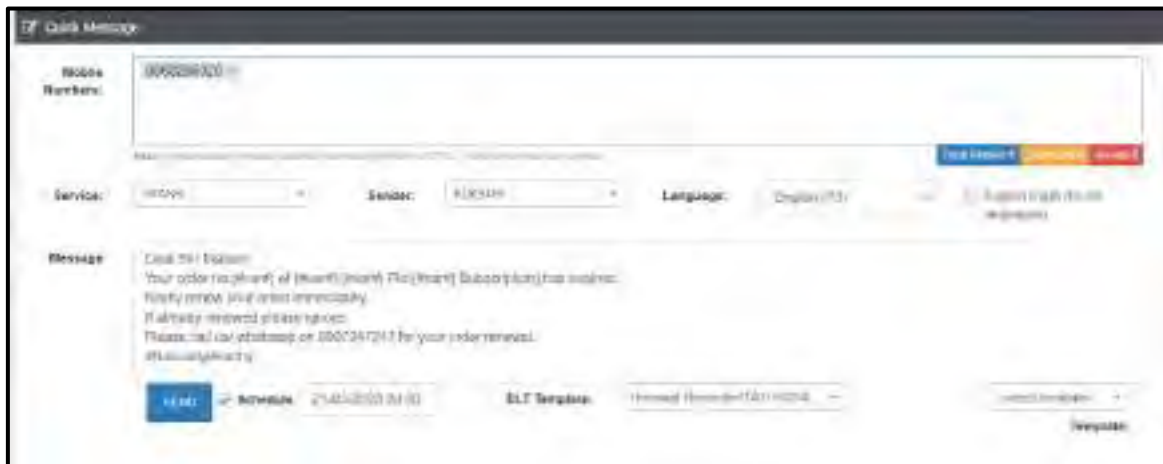


Figure 1.2 Message Appended after selecting DLT template

Figure 1.2 demonstrates how a user can add numerous numbers to a message to send it to multiple mobile numbers. Other options include service, sender ID, and the choice of several languages.

The message can also be scheduled for publication by the user.

#### 4.3.1.3 Task 2: Implementation of “DLT Manage”

It is kind of history of generated DLT templates where Admin can manage template.

Those following tasks are completed.

- a. Create DLT template.
- b. Enable select function for selecting multiple templates.
- c. Enable Single template delete button.
- d. Enable Delete multiple selected templates.

Before adding DLT template in various modules it is need to implement DLT message where admin or user and create multiple DLT template.

This page called as DLT Manage which implemented by CRUD operation of spring boot.

#### 4.3.1.4 Outcome

Figure 2.1 shows selected DLT template from the template list.



Figure 2.1 Selecting multiple DLT template from list



Figure 2.2 Alert message after template deleted successfully

New DLT templates that have been created are listed in the DLT Manage page. Multiple DLT template selection options are shown in Figure 2.1. There is a delete option available after choosing numerous DLT templates from the list, as shown in figure 2.2, allowing you to remove those templates from the list.

#### 4.3.1.5 Additional feature

Creating “Bulk DLT” upload module where user can upload multiple templates at a time.

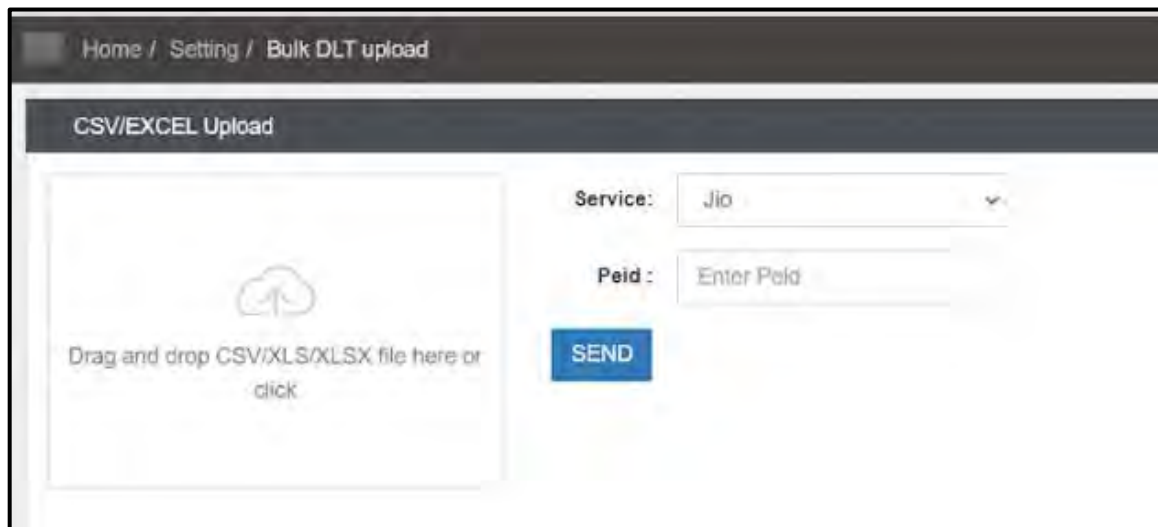


Figure 3.1 Created Bulk DLT upload

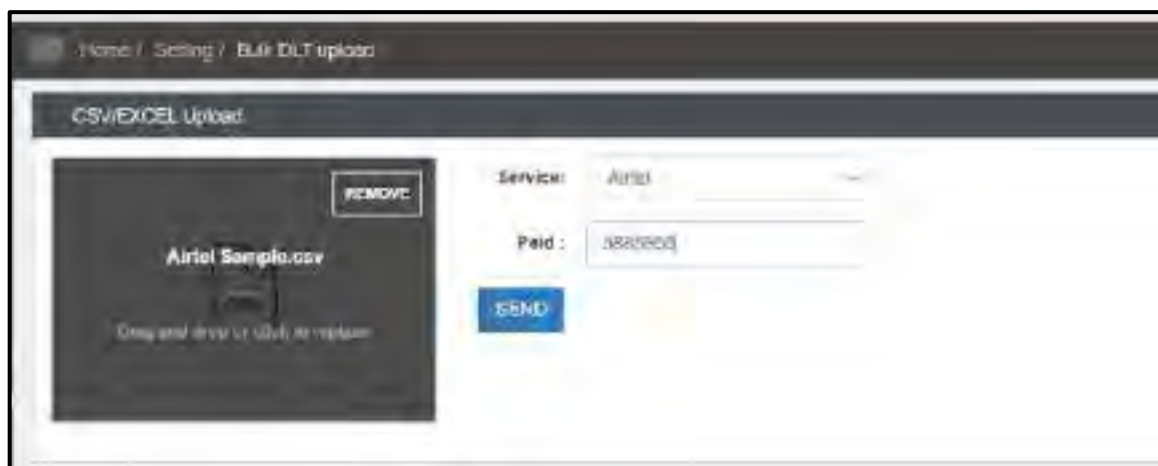


Figure 3.2 After csv file uploaded

We included "BULK DLT" upload modules for the extra functionality so that users could generate DLT templates by including other types of files like CSV, XLS, and XLSX.

Figure 3.1 illustrates the drag-and-drop upload option for various file types. Just choose the type of service after adding the file user, then input their PID. Figure 3.2 after that displays the uploaded file and other information that is prepared to send such files to create additional DLT templates.

#### 4.3.1.6 Task 3: Working on “Campaign log history”

Campaign log is basically history of all previous sent message data. So, adding PEID and DLT template id in campaign log.

Creating this log for both Admin and User.

Two files are there:

Campaign Log -> for admin only -> view all users previous sent data

User's Campaign Log -> for user

#### 4.3.1.7 Outcome

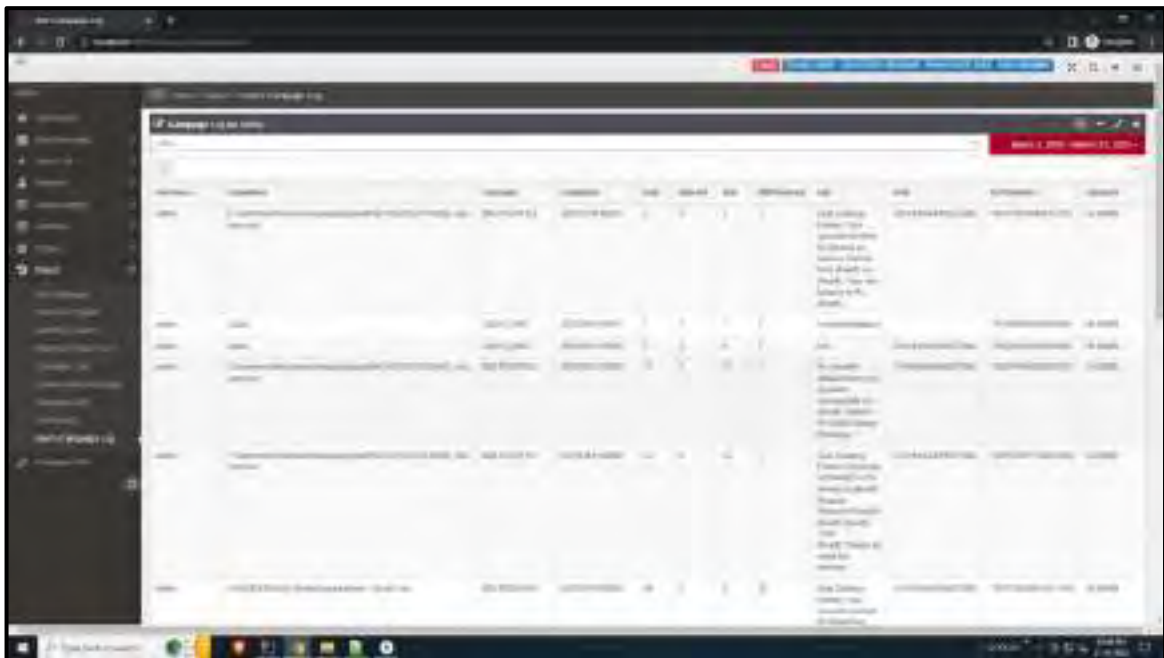


Figure 4.1 Admin side camp log history

The admin's campaign log is shown in Figure 4.1. Admin has access to all user data here. The "select by username" option is another one that is offered. This is helpful when an administrator needs to view users' data simultaneously.

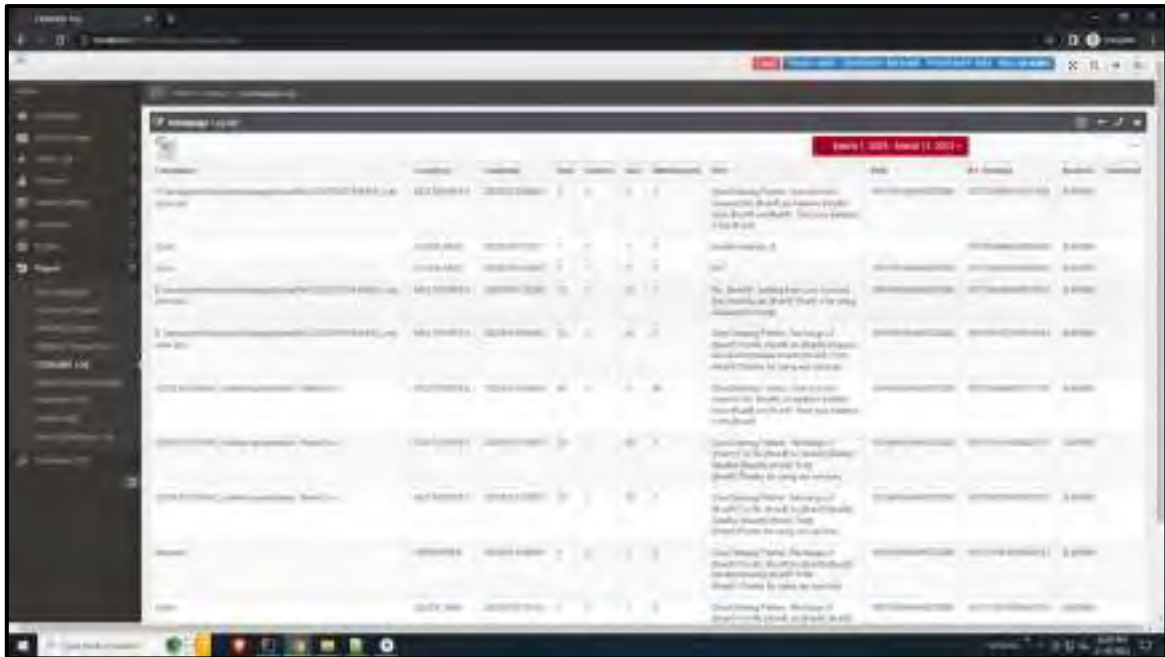


Figure 4.2 User Side camp log history

Figure 4.2 denotes user's campaign log. Where user can only access their own log data. In above figure admin is user so only admin data will appear in campaign log list.

#### 4.3.1.8 Task 4: Creating Keyword Master

This module was developed for incoming SMS. When the user clicks "create master keyword," they can create keywords. This module also displays a list of newly created keywords, allowing the administrator to manage them and extract data from them.

To update any created keyword, enable the edit button as well. All the options are available in the Action menu. One keyword master is for administrators, while the other is for users. Users can only access those specific data/keywords while admin can access all the users' keywords.

#### 4.3.1.9 Outcome

Below figure 5.1 shows list of created keywords with their details. If user wants to create new keyword, then it will create by clicking on "Generate Master Keyword". Figure 5.2 shows form to creating new keyword.

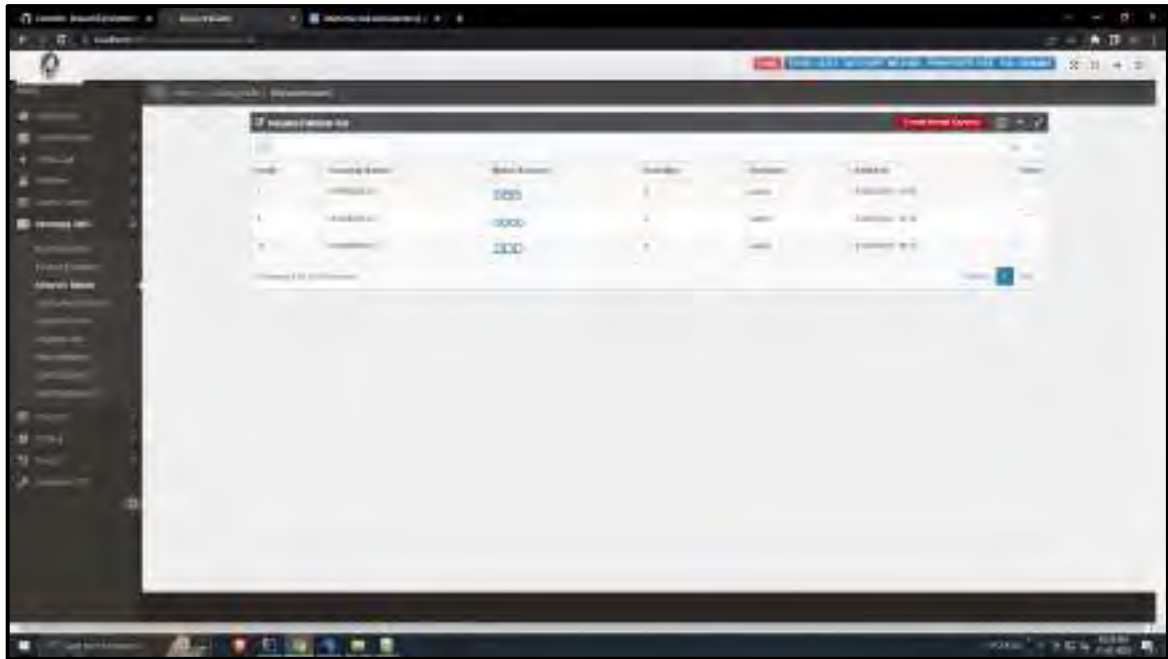


Figure 5.1 List of keywords

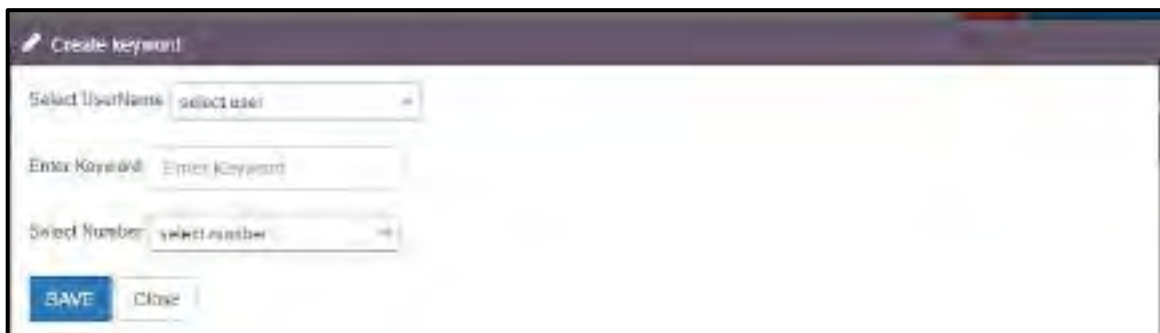


Figure 5.2 Creating Keyword

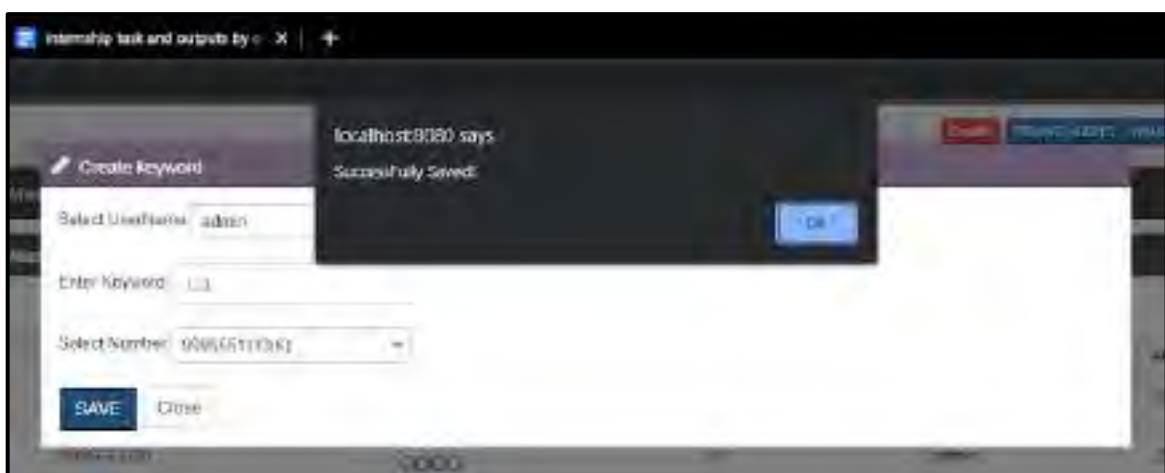


Figure 5.3 Keyword added successfully

This figure 5.3 shows success alert message after creating new keyword.

### 4.3.2 Implementation Of “WAPP”

#### 4.3.2.1 Task 5: Adding “WA Template” In Send WA

When a user chooses a template, the message for that template should be filled out in the message body of the send WA interface along with other information, such as images, videos, PDFs, URLs, and call numbers.

In this interface ‘file pond’ used for uploading any file using JavaScript. Where file will upload and download automatically. ‘get’ function is also used here.

#### 4.3.2.2 Outcome

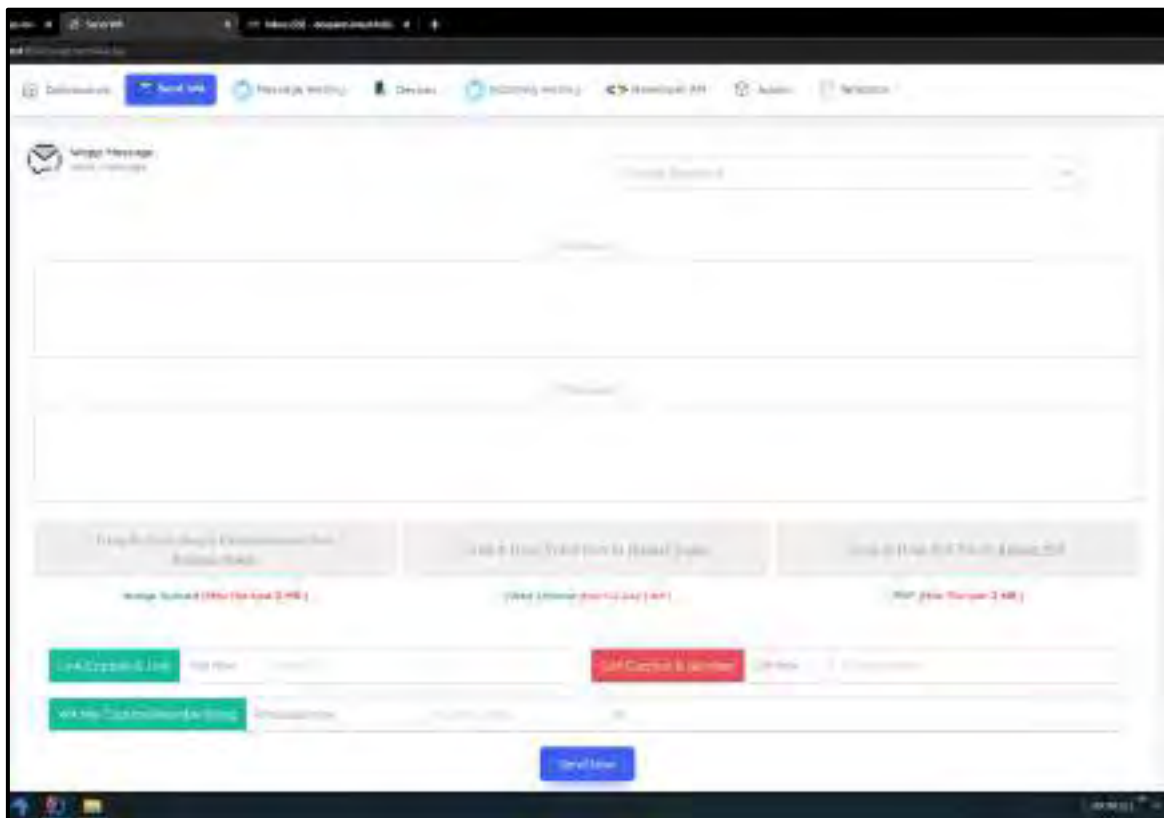


Figure 6.1 Added select template box

Figure 6.1 shows implementation of WA template and put selection box the WA template in Send WA message.

The "Select template" button's primary function is to automatically add formatted messages and other data when a template is chosen.



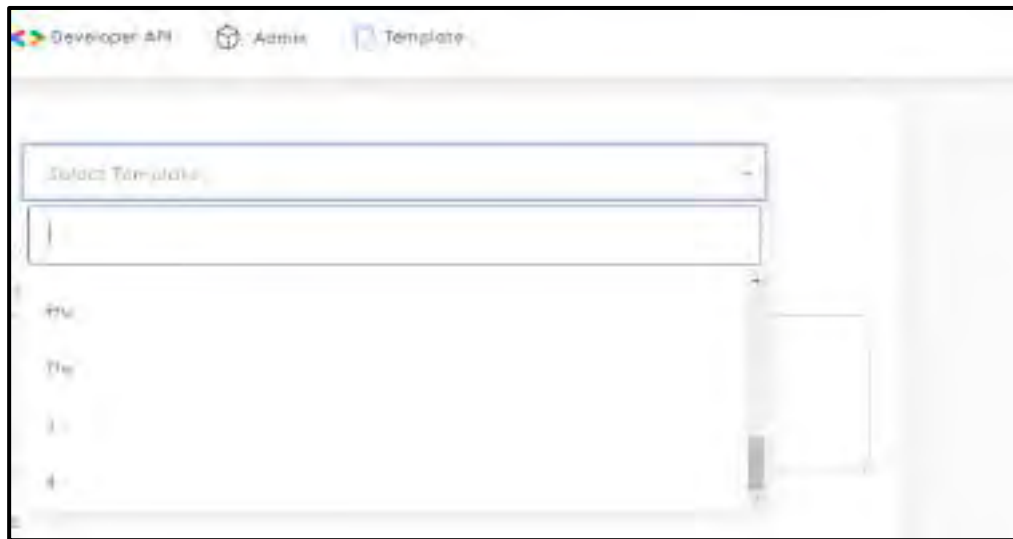


Figure 6.2 Template selection Box

Once the pick option has been clicked, a list of WA templates from the MongoDB collection is displayed.

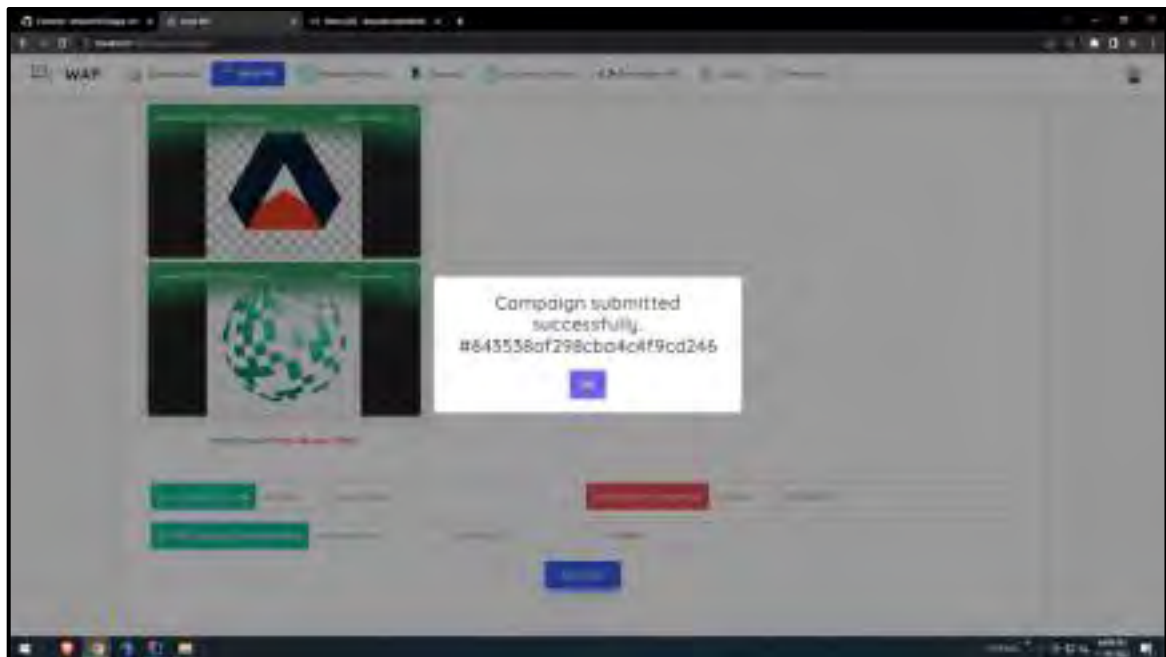


Figure 6.3 After sending message successfully

After clicking on “Send Now” button one pop-up message shown which can be seen in above figure 6.3.

#### 4.3.2.3 Task 6: Implementation of WA-Bot Master

For creating keyword WA Bot master is used. To create new WA Bot there are many fields are there like,

1. Select master Bot Id
2. Keyword
3. Key Action

keyword action, this is dynamic selection box where other selection procedures are based on the what action are you selected in keyword action.

There are following options are available in key action menu.

- a. Template
- b. Text
- c. Forward URL

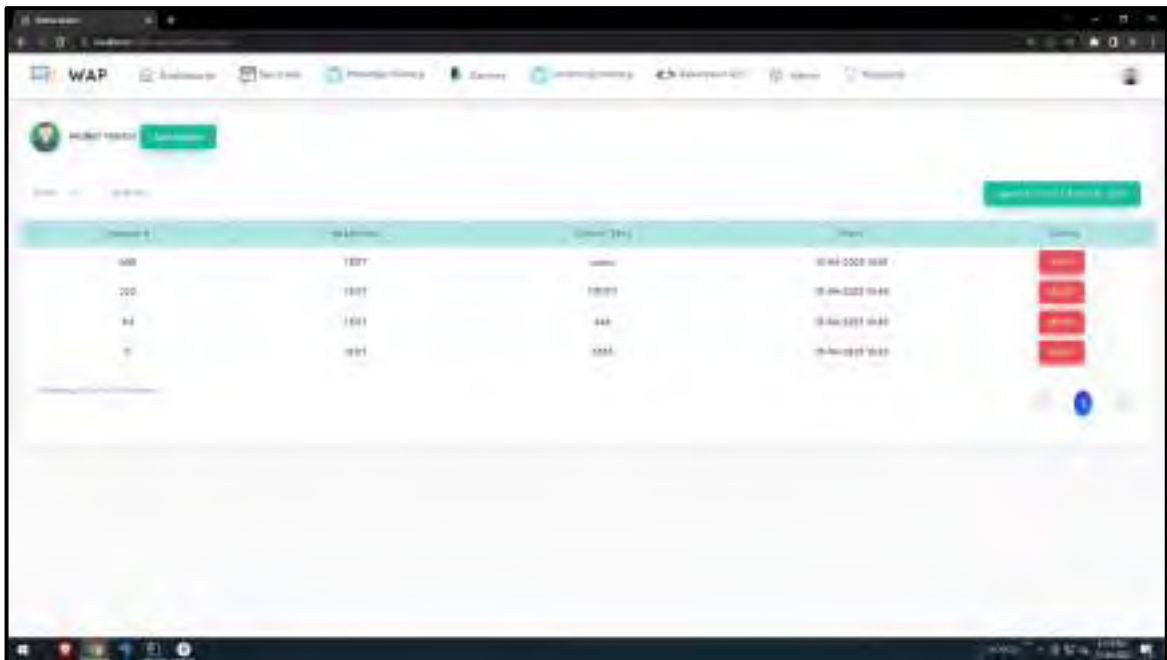
Main aim to implementation of the WA-Bot master is to creating various keywords with their keyword actions. Action will be in any form like in text, URL and in form of template.

This form is different from other because fields of the form change according to input details like, if user select template than there is no need to show text fields which reduce the user experience and quality of the product.

In this CRUD operation is performed for implementation. Where user can create WA-Bot and read, update, and delete them.

Below figures are sequentially shows the processes of the generating new WA-Bot.

#### 4.3.2.4 Outcome



Keyword ID	Keyword	Action	Date	Options
100	TEST	action	2024-02-22 10:00	Delete
200	TEST	action	2024-02-22 10:00	Delete
300	TEST	action	2024-02-22 10:00	Delete
400	TEST	action	2024-02-22 10:00	Delete

Figure 7.1 List of Keywords

### Add WaBot

MasterBot

--Select MasterBot Id--

Keyword

Enter keyword

Key Action

--Select Keyaction--

Select Template

Select Template

Action text

Enter Text here

Discard
Save

Figure 7.2 Page for creating new Keyword

The steps for establishing a new keyword are listed below. If the user chooses the Template action, a Template selection box will appear, and if the user chooses the Text or Forward URL action, a text area will appear.

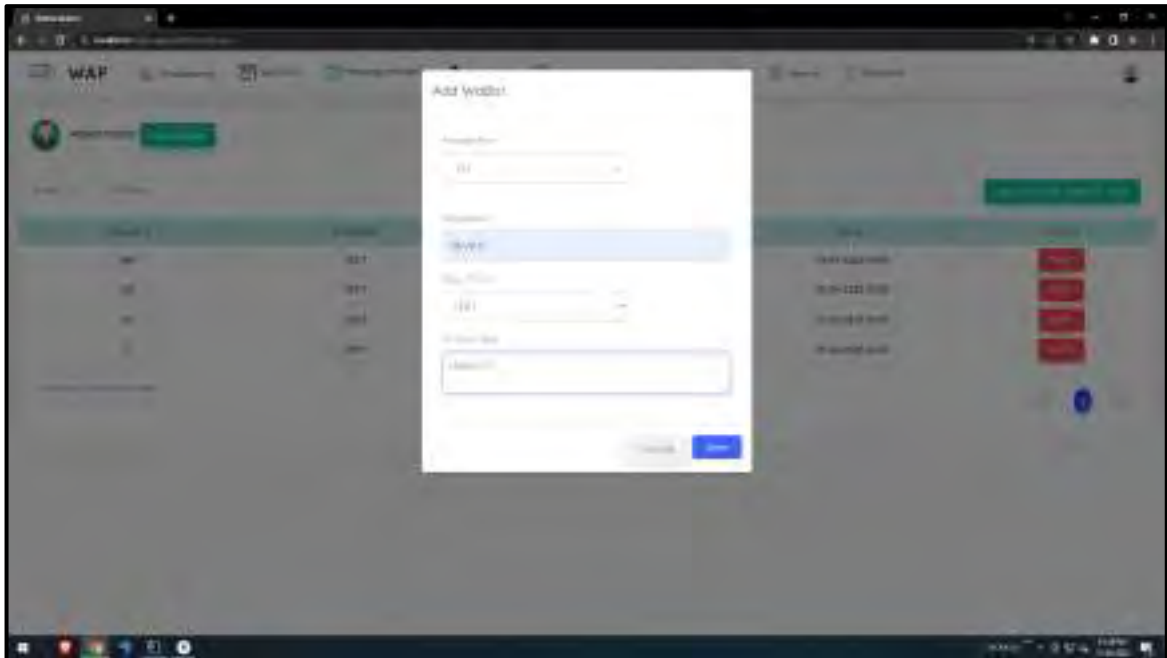


Figure 7.3 Selecting text as an action

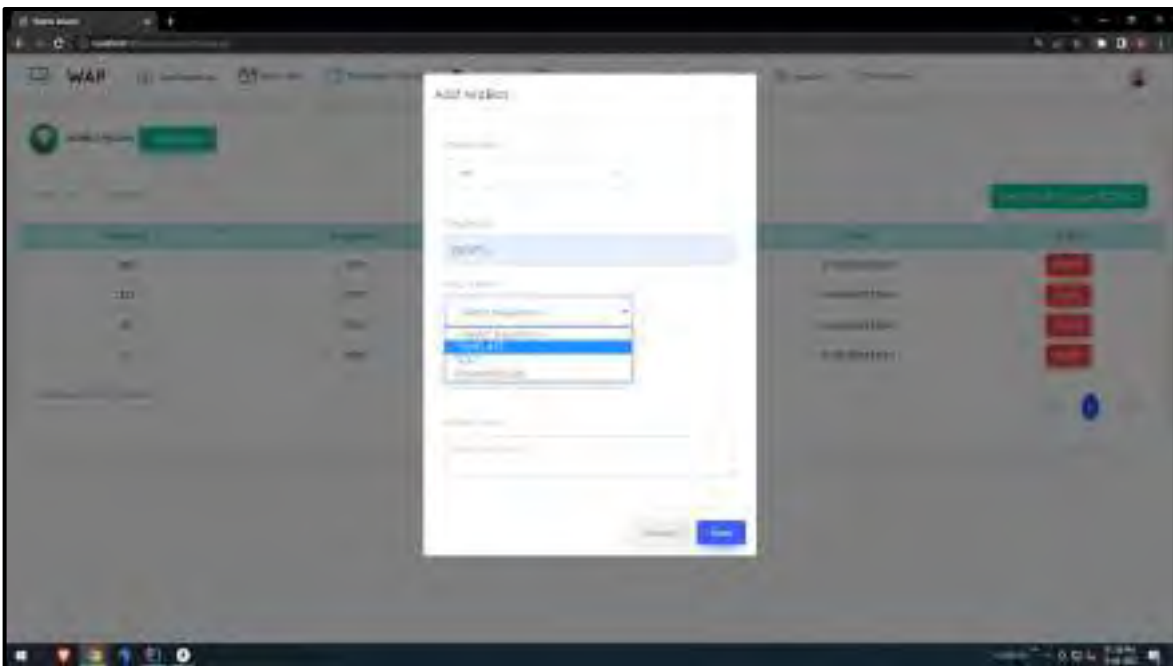


Figure 7.4 Options for keyword action

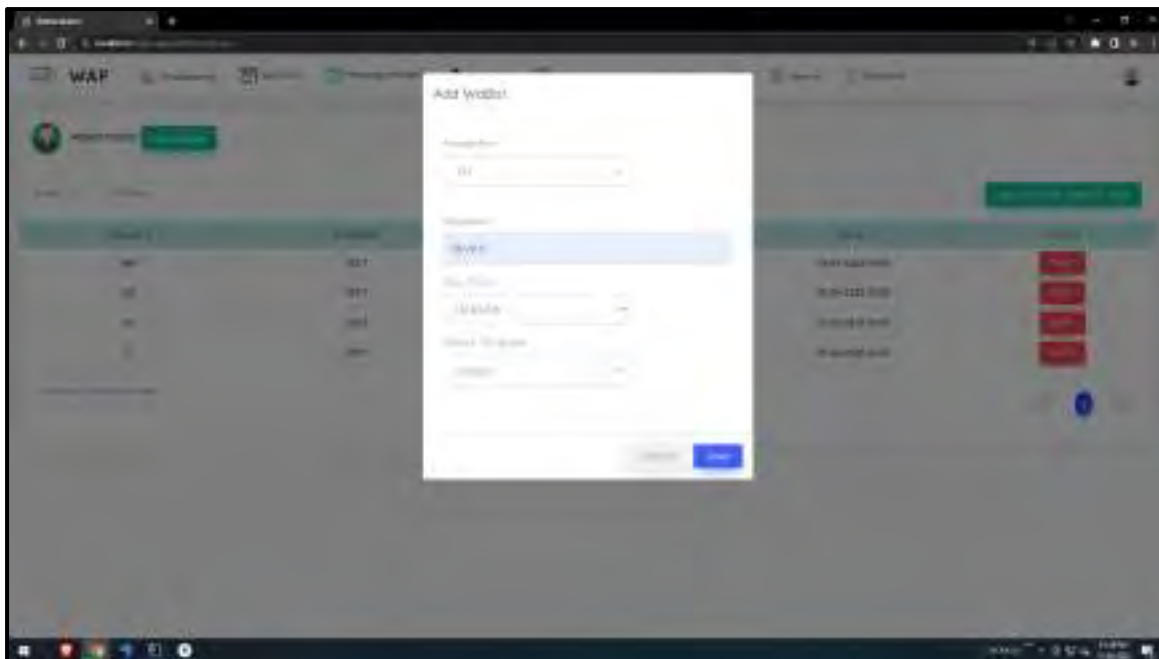


Figure 7.5 Selecting template as an action

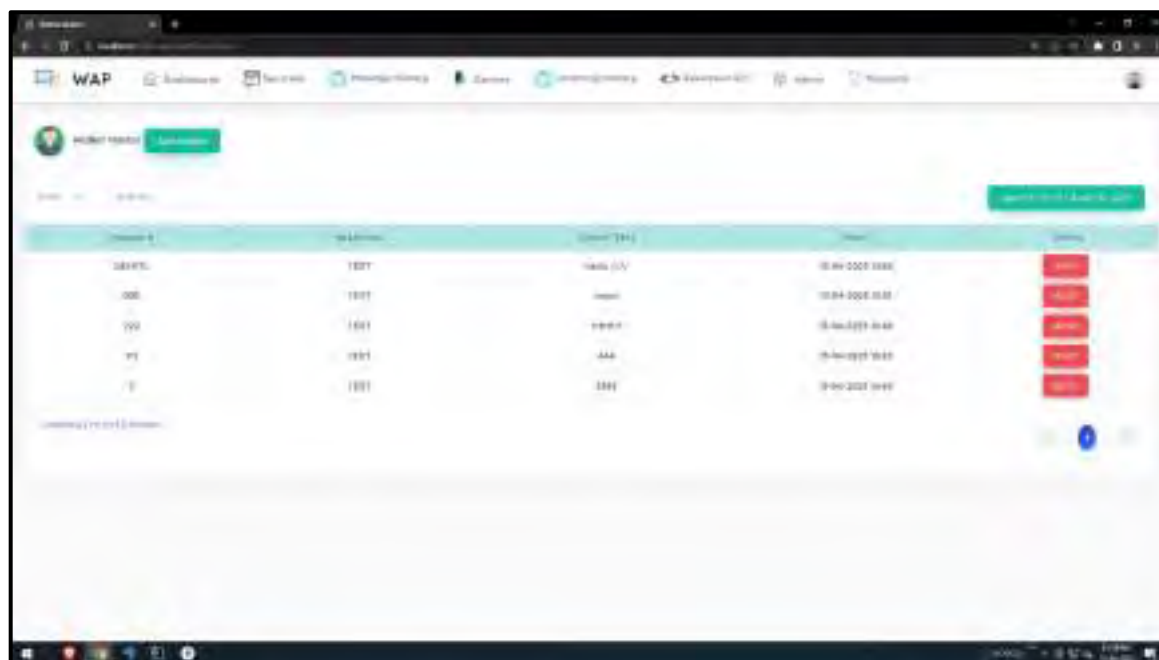


Figure 7.6 Result of keywords list after added

Above figure 7.6 shows final list of all keyword with date of creation. Which also contain which action type is used to create keyword. Admin can also delete keywords by using delete button.

#### 4.3.2.5 Task 7: Implementation “Login log”

A login log is a history of all log files that shows when users logged in and out.

**Data table from DB:** “login log” and “users”

**Files:** “loginlogreport.jsp/js”

**Controller class:** “User Controller class”

**Method name:** getLoginlog1

**Path:** “. getLoginlog/”

There are following things presented in table

1. IP Address
2. Notes
3. Login On (date)
4. User name

Username comes from users table and other columns come from login log table.

**Problem:** other data in this project come from the mongo db and here data will come from database using SQL query so method change according that.

Also, data comes according to the selection of date and user.

For administrators, an additional section displays login log information based on the user’s name they have chosen from the pick user option.

In login log report it also collects IP address of the system which user used for login into system. Using get mapping it also collects User details and validate username with database and listed in to logon log report.

In below figures which shows output while performing the task. Where admin checking login log report of the users.

### 4.3.2.6 Outcome

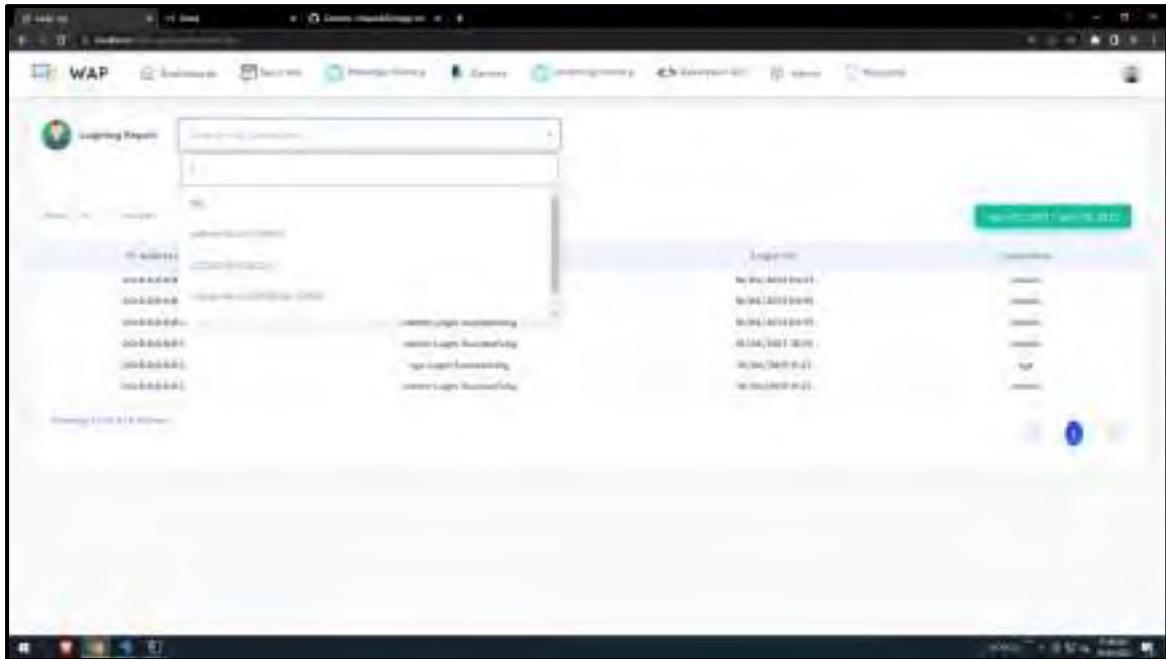


Figure 8.1 Searching user for login log data

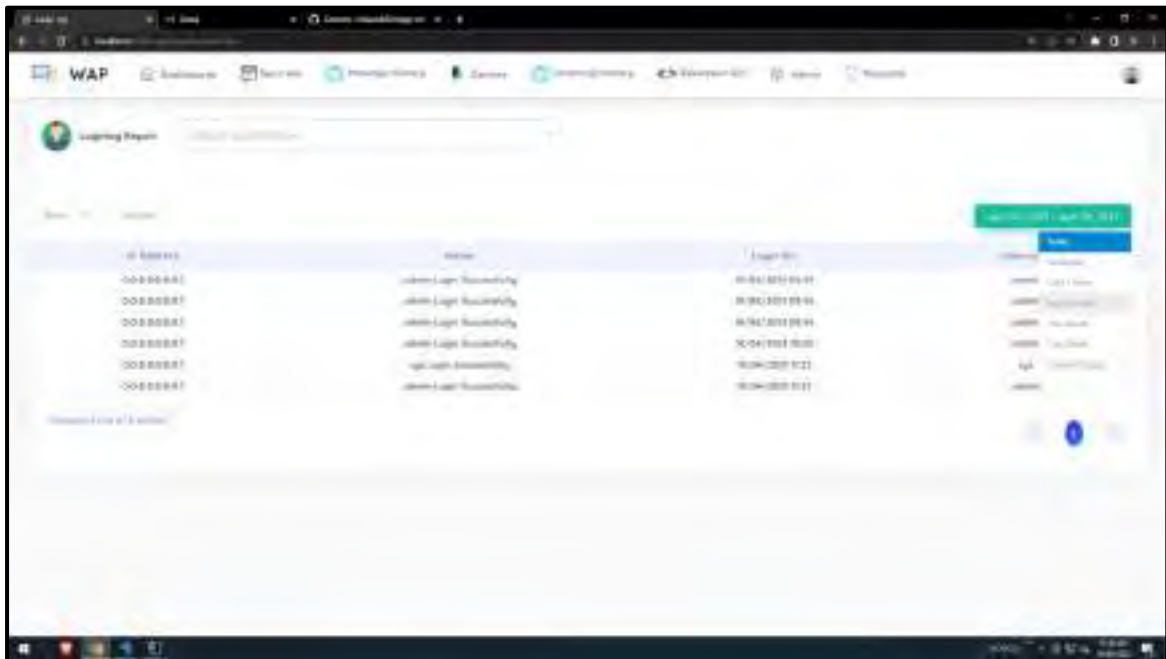


Figure 8.2 List of Login Log data

Admin can check login history by two methods first is by select by user and second is select by range of date. Above figure 8.1 and 8.2 shows outcomes of these two methods.

#### 4.3.2.6 Task 8: Working on Department

Project file for the department was added, and it contains the necessary fields (such as name, note, and organization id).

Each row contains an edit and delete button for the action, which is dependent on the organization ID. Therefore, organization names are displayed depending on their IDs when choosing an organization.

The list of departments in the table includes the added departments.

#### 4.3.2.7 Outcome

On clicking on the Add Department button one form generated where user can create new department with the help of organization id.

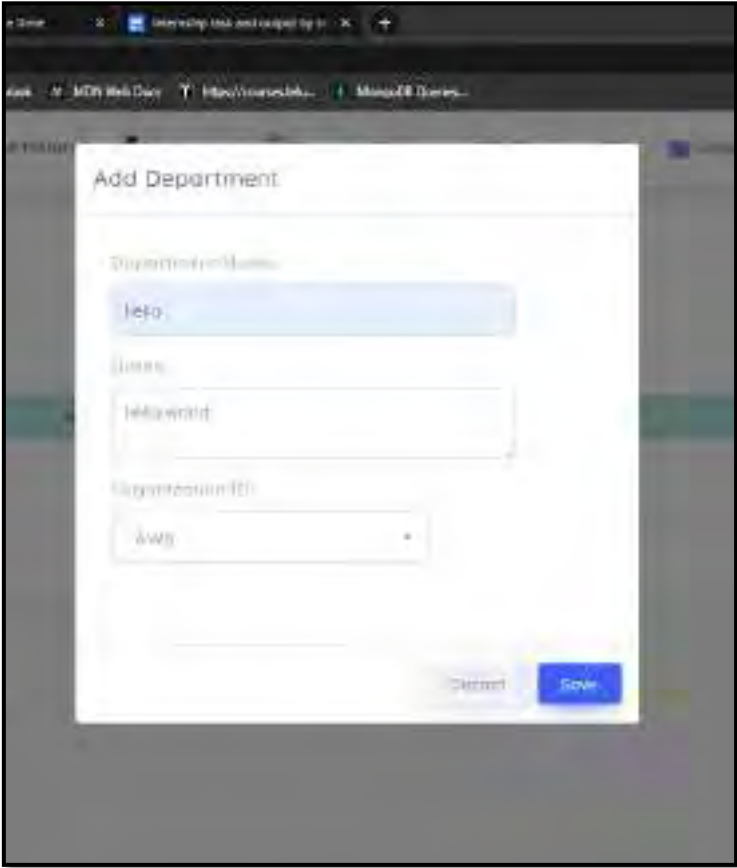
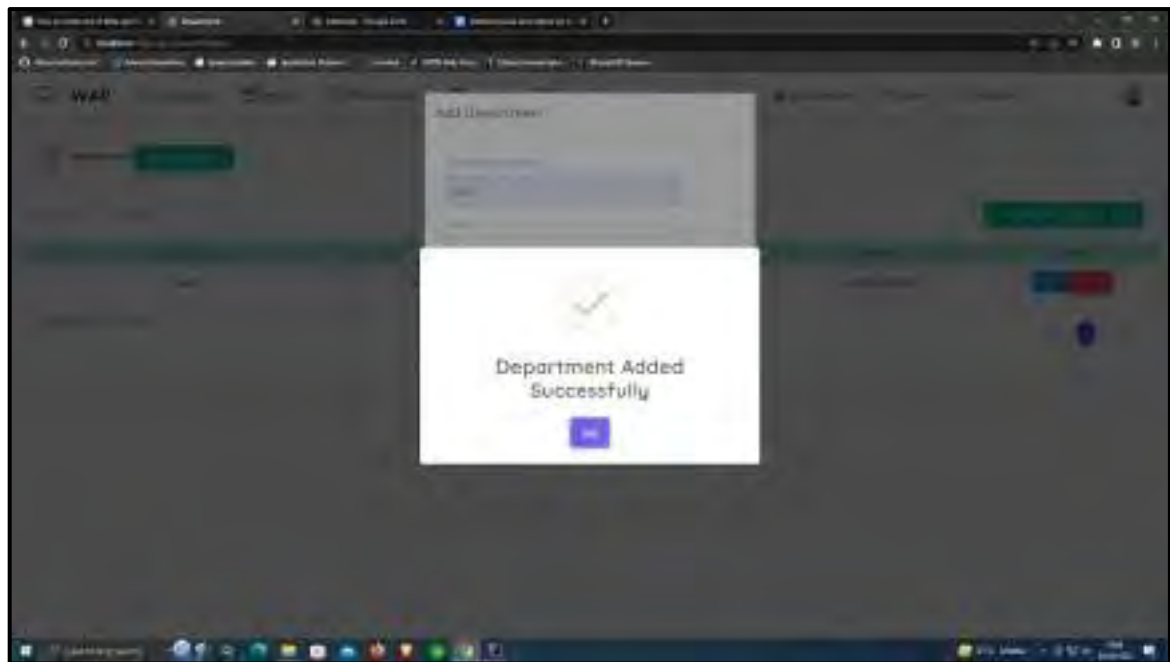
A screenshot of a web browser displaying a form titled "Add Department". The form is centered on the page and has a white background. It contains three input fields: "Department Name" with the text "Info", "Notes" with the text "Info word", and "Organization ID" which is a dropdown menu currently showing "Info". At the bottom right of the form, there are two buttons: "Cancel" and "Save". The browser's address bar shows "http://localhost:3000/" and the page title is "Add Department".

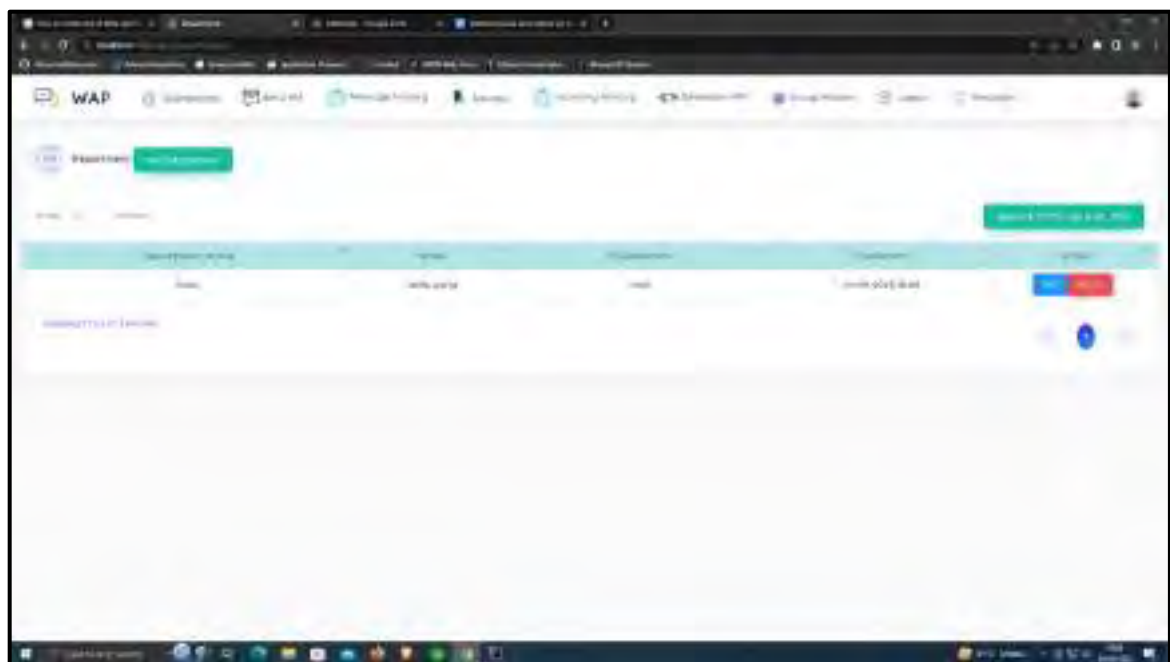
Figure 9.1 Form for adding new department

Here in selecting Organization ID organization name is shown in selecting list and it stored as an organization ID in backend.





*Figure 9.2 Success message after added department*



*Figure 9.3 List of Departments*

Organization names are displayed in the department history, which also offers the ability to edit and delete numerous departments at once. When a department is created, its location is updated.

## **CHAPTER 5: TESTING**

We used the spiral testing approach for this project's software testing. This testing includes four different types of testing.

1. Unit Testing (Code)
2. Integration Testing (Design)
3. Validation Testing (Requirement)
4. System Testing (System engineering)

All the clients' requirements were met during this testing, and everything else was running smoothly. While such changes are not necessary for the project, there are some difficulties that arise during the system testing phase.

- Reduce the size of database
- Increase security

### **5.1 SOLUTION OF PROBLEM 1: DATABASE**

#### **5.1.1 Problem**

Required to maintain the Database's size. Due to the use of mongo, a document-oriented database, object ids are not in increasing order and instead take the form of strings with a significant length, which requires a lot of storage.

#### **5.1.2 Solution**

There are some possible solutions to overcome with size of database

- Because they contain large data items, some modules need to convert object Ids from String to long.
- Because Mongo does not provide auto-increment for ids. so, creating counters that store ids and perform as increment ids which must be stored into counter collection in mongo DB.

### 5.1.3 Outcome

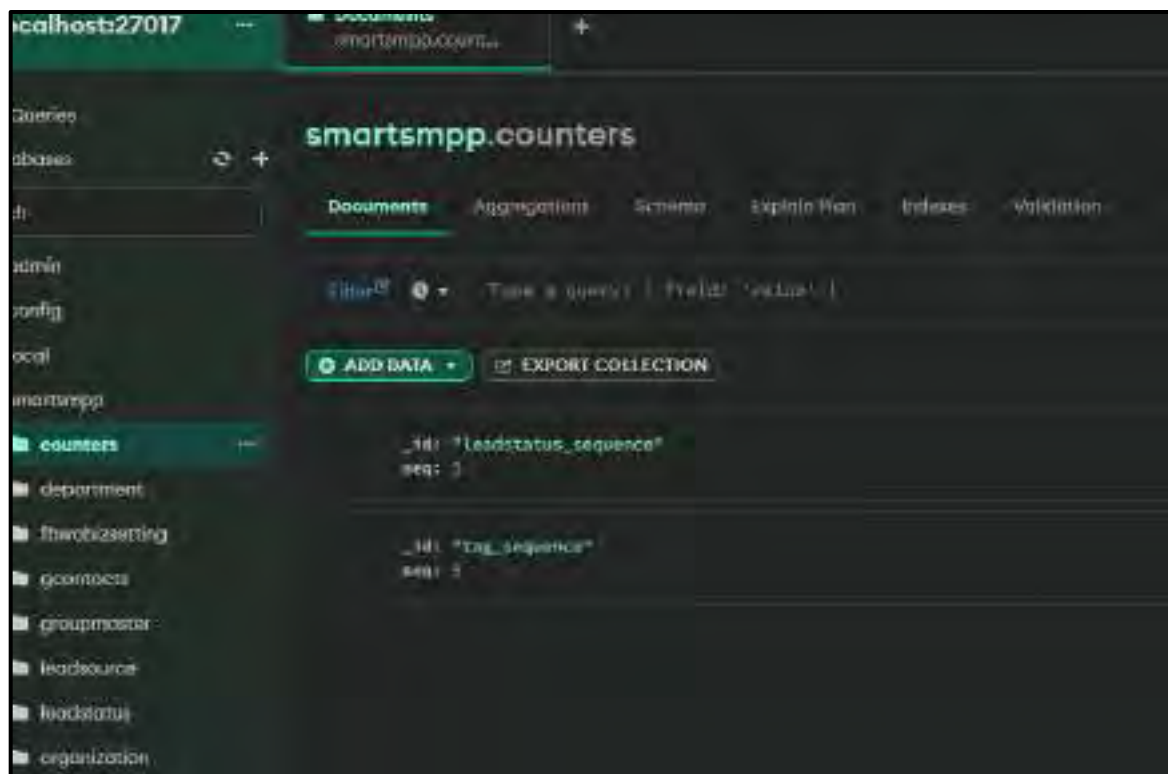


Figure 10.1 Counter Collection in Mongo DB

This figure 10.1 shows mongo db collection of counters. It counts each id of various modules like status id, tag id, source id, department id and many more.

## 5.2 SOLUTION OF PROBLEM 2: SECURITY

### 5.2.1 Problem

Any user who has access to the admin key can easily update or delete data. Any validation method will not be able to fix the issue.

### 5.2.2 Solution

Because Spring Boot offers a variety of features, one of those that is most important is security, which is supported by Spring Boot through annotations in the model and controller classes.

There are two things are adding in project.

1. Created separate methods for admin in controller.
2. Use annotation of `@PreAuthorize("hasAnyRole('ROLE_ADMIN')")`

## **CHAPTER 6: CONCLUSION AND DISCUSSION**

### **6.1 OVERALL ANALYSIS OF INTERNSHIP / PROJECT**

The Smart SMS system that was developed using the Spring Boot framework of Java has likely involved the use of several technologies that are commonly used in software development. Some of the technologies that used in the development of the Smart SMS system includes a set of tools and features for building web applications quickly and easily.

The Smart SMS system was built using the Spring Boot framework of Java, which provides a set of tools and features for building web applications quickly and easily. The Spring Initializr is ultimately a web application that can generate a Spring Boot project structure for you. It does not generate any application code, but it will give you a basic project structure and either a Maven or a Gradle build specification to build your code with.

The Smart SMS system likely used RESTful web services for exchanging data between the server and client. It used database technologies such as MySQL and MongoDB to store and manage data. Git is a version control system that may have been used to manage the source code of the Smart SMS system and collaborate with other team members.

### **6.2 SUMMARY OF INTERNSHIP / PROJECT WORK**

In conclusion, my experience working on the Smart SMS system / WAPP project during my internship has been a fantastic learning opportunity. I was able to gain useful skills in software development, project management, and teamwork throughout the internship. I was given the chance to work with a group of experts who not only excelled in their individual fields but also guided and mentored me throughout the project.


I was in the role of creating and testing the Smart SMS system / WAPP as part of the project, which offered businesses a more effective and efficient way to communicate with their clients.


Overall, the internship has given me a priceless experience that has aided in my professional and personal development. I am appreciative of the chance to work on such a fascinating and important project, and I am eager to use the knowledge and abilities I have acquired in my career.

## **REFERENCES**

1. Spring Boot Reference Documentation
2. Book of Build your API with Spring
3. <https://developer.mozilla.org/en-US>
4. <https://stackoverflow.com/questions/tagged/spring-boot>
5. <https://start.spring.io>
6. <https://www.geeksforgeeks.org/rest-api-architectural-constraints>
7. <https://www.javatpoint.com/spring-mvc-tutorial>
8. <https://www.mongodb.com/docs/manual/tutorial/query-documents>
9. <https://www.w3schools.com/sql/default.asp>
10. <https://getbootstrap.com/docs/5.0>

**APPENDIX****Annexure 1**

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	Annexure 1 Enrollment no: <u>190390101033</u>
<b>STUDENT'S WEEKLY RECORD OF INTERNSHIP</b>	
NAME OF STUDENT: <u>DEV KUMAR BRIJESHKUMAR PATEL</u>	
DIARY OF THE WEEK: Dt: <u>25/01/2023</u> TO <u>29/01/2023</u>	
DEPARTMENT: <u>COMPUTER ENGINEERING</u> SEM: <u>8<sup>TH</sup></u>	
NAME OF THE ORGANISATION: <u>INTECHBIT</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>INFORMATION &amp; TECHNOLOGY</u>	
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>BRAYSHI PATEL</u>	
<b>DESCRIPTION OF THE WORK DONE IN BRIEF</b>	
<p><u>DAY-01</u>:- computer set-up (installing required soft)          - creating accounts (gmail, git hub etc)          - setting environment and configuration on system.</p> <p><u>DAY-02</u>:- Basic Java concepts.          - datatype variables } explore &amp; exercises          - control statement          - syntax</p> <p><u>DAY-03</u>:- Java concepts } concepts + exercises          - methods          - functions          - Java keywords          - Including Basic programming of above concepts.</p>	





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TOTAL HOURS: 27 hours -----

S.Patel  
-----  
SIGNATURE OF STUDENT


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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor  Date: <u>18/3/23</u>	Signature of officer-in-charge of Dept. / Section / Plant  Date: <u>08/02/2023</u>
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Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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Annexure 1	
Enrollment no: <u>130390107033</u>	
<b>STUDENT'S WEEKLY RECORD OF INTERNSHIP</b>	
NAME OF STUDENT: <u>DEVKUMAR BRIJESHKUMAR PATEL</u>	
DIARY OF THE WEEK: Dt: <sup>27</sup> <u>30/01/2023</u> TO <sup>04</sup> <u>05/02/2023</u>	
DEPARTMENT: <u>COMPUTER ENGINEERING</u> SEM: <u>૬<sup>th</sup></u>	
NAME OF THE ORGANISATION: <u>INTECHBIT</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>INFORMATION &amp; TECHNOLOGY</u>	
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>BHAVESH PATEL</u>	
DESCRIPTION OF THE WORK DONE IN BRIEF	
<p><u>DAY-04</u>: - oops concepts of Java - Solving basic problems</p> <p><u>DAY-05</u>: - SQL concepts (structured query language) - creating database and table of employee. - adding some attributes - perform various tasks (insert, delete, drop, update etc)</p> <p><u>DAY-06</u>: Database connectivity - understand portion of JDBC (Java database connectivity) - complete exercise</p> <p><u>DAY-07</u>: - Exploring diff types of databases - MySQL, Oracle, H2 etc. - understands diff b/w these databases and use cases</p> <p><u>DAY-08</u>: - Java Networking Terminologies (clearing concepts) - Identify these Terminologies on the running projects.</p> <p><u>DAY-09</u>: Servlet (understanding of process) - creating registration form using GET &amp; POST method.</p>	





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TOTAL HOURS: 54 hours -----


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*S.P. Patel*  
 SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor  
*S.P. Patel*  
 Date: 18/02/23

Signature of officer-in-charge  
 of Dept. / Section / Plant  
*S.P. Patel*  
 Date: 08/02/2023

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Annexure I  
 Enrollment no:  
190390107033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEVKUMAR BRIJESHKOMAR PATEL

DIARY OF THE WEEK: From 05/02/2023 TO 11/02/2023

DEPARTMENT: Computer Engineering SEM: 3<sup>rd</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

DAY-10:- Revision of servlet

- learning of JSP (Java server page)
- Task:- create login page using JSP elements.
  - login page
  - welcome page

} components of web.

DAY-11:- Continue to work on JSP

- Task:- create Registration page using JSP.
- including all necessary fields.
- redirect to home page.


DAY-12:- JSP (Java server Faces)

- understanding of JSP
- understanding of MVC (model, view, controller)

DAY-13:- Implementation of Employee Management PPS

- using fields
  - A) ID
  - B) Emp Name
  - C) Emp Age

} help in model.




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**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

DAY -14:- Understanding of Spring framework

- Importance of Spring over core Java.
- What is tightly and loose coupling
- Other features of Spring framework.



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TOTAL HOURS: 45 HOURS

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<p>Signature of Faculty Mentor</p> <p><i>[Signature]</i></p> <p>Date: <u>18/3/23</u></p>	<p>Signature of officer-in-charge of Dept. / Section / Plant</p> <p><i>[Signature]</i></p> <p>Date: <u>13/02/2023</u></p>
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Annexure I  
 Enrollment no: 190390107033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEVKUMAR BRIJESHKUMAR PATEL

DIARY OF THE WEEK: Dt: 12/02/2023 TO 18/02/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

DAY-15:- Application of spring & spring boot framework


- Implementation of tightly coupling & loose coupling
- By creating various games like
  - A) Mario game
  - B) Super mario game
  - C) Pac man game

} These are game classes.

- which handle by Game Runner class.
- creating Gaming Console interface for loose coupling

DAY-16:- IoC container (Inversion of control) & Autowiring.

- task:- creating some basic classes whose IoC need.
- Understanding of bean factory.



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**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

DAY-17:- Learning basic annotations in spring framework

- A) @ primary
- B) @ Qualifier
- C) @ component

} create simple project where it used.

DAY-18:- Two main Annotations


- A) Lazy annotation
- B) Eager annotation

} task is to implement it.

DAY-19:- Topic:- spring Boot Scopes:

- A) singleton - create only one obj instance per ToC
- B) prototype - many obj instances per spring ToC

- Task:- perform that and checking their output on console log.  
what is diff b/w them.



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TOTAL HOURS: 45 Hours -----

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*[Signature]*  
 SIGNATURE OF STUDENT

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<p>Signature of Faculty Mentor</p> <p style="text-align: center;"><i>[Signature]</i></p> <p>Date: <u>18/1/23</u></p>	<p>Signature of officer-in-charge of Dept. / Section / Plant</p> <p style="text-align: center;"><i>[Signature]</i></p> <p>Date: <u>20/02/2023</u></p>
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Annexure 1  
 Enrollment no:  
190390101033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEVKUMAR RAJESHKUMAR PATEL

DIARY OF THE WEEK: Dt: 19-07-2023 TO 25-07-2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT / IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAYESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

- Working on spring boot project, spring boot with MongoDB.  
 - Implementing REST API using advanced concepts of SQL like.  
     A) JDBC  
     B) Spring JDBC  
     C) JPA  
     D) Spring JPA  
     E) Hibernate.

DAY-20) - First Spring boot project  
 - understand & Implement CRUD operation using various dependencies - (spring web, mySQL & JDBC driver, devtool etc)

DAY-21) used other annotation like @entity, @service & @controller  
 try to use those annotation in MVC files.





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**SUPPLEMENTARY NOTES**

(add additional sheets if required)

DAY 22) JPA (Java persistence API)

- used following annotations

@Entity, @Id, @Column and Entity manager  
used for perform various task (CRUD task)

DAY 23) Implementing hibernate instead of JPA in previous project.


- learn dependency injection

DAY 24) spring boot with mongo db.

project name:- "Job posting"

- creating account on mongo website
- creating cluster
- connect mongo compo with IP address
- connect mongo db with spring boot project.

Outcome:- creating 'first' REST API for Job posting where  
methods used are GET and POST.





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TOTAL HOURS: 45 Hours S.P. Patel  
SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor  Date: <u>18/3/23</u>	Signature of officer-in-charge of Dept. / Section / Plant  Date: <u>27/02/2023</u>
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Annexure I  
Enrollment no: 190390167033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DEVKUMAR BAJTESHWAR PATEL

DIARY OF THE WEEK: DI: 26-02-23 TO 04-03-2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 5th

NAME OF THE ORGANISATION: INTUCHBT

NAME OF THE PLANT/SECTION/DEPARTMENT: WCB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

- working on mongoDB, spring security, SQL query, mapping.
- And starting work on live project.
- project name:- "Smart SMS system"
- DAY-25:- spring boot + mongoDB part-2:
  - working on FILTERS in mongo compass
  - Task:- creating first API
  - project name:- Company posting /management
  - DB name:- simple-training
  - document name:- Companies
  - Importantly methods:- GET, POST, GET by ID.
  - Aggregation.
- Lambda:- used to boilerplate the code
  - no need to generate getter and setter and many more.



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SUPPLEMENTRY NOTES  
(add additional sheets if required)

DAY-26: spring security.

- understood 3 important terms in spring security.
- Authentication, Authorization, Filter
- understood process of Authentication.

DAY-27: creating query & custom query to get data from DB.


- understood various methods & keywords.
- implementation of that.

DAY-28: Mapping in spring boot

- understood of various relationship b/w various attributes.
- implementation
- DB name: employee

DAY-29: working on live project

- project name: "Smart SMS"
- exploring the project
- try to analyze the code & structure of project
- understood mvc concept in this project



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TOTAL HOURS: 45 Hours


*Ripatel*  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor  
*[Signature]*  
 Date: 18/3/23

Signature of officer-in-charge  
 of Dept. / Section / Plant  
*[Signature]*  
 Date: 06/03/2023

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7<sup>th</sup>

Annexure I  
 Enrollment no:  
10330107033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: PATEL DEVKUMAR BRIJESHKUMAR

DIARY OF THE WEEK: DI: 05/03/2023 TO 11/03/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: INTECH BIT

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

- Performing tasks on live project.
- project Name :- Smool SMS
- Task :- Adding DLT Template in project.
  - Because it is mandatory thing according to government guide-lines.
  - DLT = Diagnostic Log and Trace
- DAF-30 :-
  - Added DLT in files.
  - create DLT template field in Quick message file where it fetch template id and adding in smsqueue table in DB.
  - Every DLT template have own msg which inserting in msg field whenever it select.



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**SUPPLEMENTRY NOTES**  
 (add additional sheets if required)

DAY-31:-

- Added DLT template in csv message file. (jsp file)
- Here both template id and peid both are fetched from the DLT template table as an entity id.
- working :- user upload csv file / xls file which had contact numbers and then choose particular DLT temp and send it which can stored in enaqueue. in db.

DAY-32:-

- project has another version and task is to implement some thing (DLT temp) in all other file.
- I added DLT temp in quick msg, csv msg and group msg in index.jsp.
- index.jsp is used to reach another version of smart sms.





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TOTAL HOURS: 27 Hours Patil  
SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor  Date: <u>18/11/23</u>	Signature of officer-in-charge of Dept. / Section / Plant  Date: <u>13/03/2023</u>
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Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure 1  
 Enrollment no: 190390107033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: PATEL DEVKUMAR BRIJESHKUMAR

DIARY OF THE WEEK: Dt: 17/03/2023 TO 18/03/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: WEB DEVELOPMENT / IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF


- Project name:- Smart SMS.
- Task:- Adding DLT template in various field.

DAY-33: Added dlt template in quick url message and send csv msg.

- url componend in new compare to old file
- generated new url automatically added at the end of msg before send it.

DAY-34: created new method A) get campaign data By Admin  
 B) get campaign data By User.

- controller class name:- ReportController.java
- campaign file is like history of every send data/msg.
- generated msg by quick msg, csv msg, group msg those template id and pack is reflected in campaignlog table



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**SUPPLEMENTARY NOTES**  
 (add additional sheets if required)

DAY 35: Used JPA Repository to reduce the length and complexity of code.  
 → service class name:- GuiService.java  
 → Service Implementation class:- GuiServiceImpl.  
 Outcome:- Instead of using query everytime used service class and used those method instead of query.

DAY 36: Added four services in UploadBulkDLT.jsp which provides service

A) Jio	- has xls file	}	<
B) Airtel	- has csv file		
C) Vi	- has csv file		
D) Smartfong	- has xls file		

DAY 37: Added delete option for multiple file  
 task:- Analysis of scheduling file how delete bin function works on  
 Hadoop and how we can use. Had in DLT template Admin file.



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TOTAL HOURS: 45 HOURS -----

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*Aspatel*  
 SIGNATURE OF STUDENT


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Signature of Faculty Mentor: *[Signature]*

Date: \_\_\_\_\_

Signature of officer-in-charge  
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 Date: 20/03/2023

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Annexure I  
 Enrollment no:  
190390101043

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: PATEL DEVKUMAR BRIJESH KUMAR

DIARY OF THE WEEK: Dt. 19/03/2023 TO 25/03/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: IT / WEB DEVELOPMENT

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

DAY-38:- working on "smart sms"

- Added select and delete option in DLTTemplate Admin.jsp
- By clicking on select, data on particular page are selected and clicking on delete btn selected data are deleted.
- This is on Admin side.

DAY-39:- working on DLT template:-

Tasks: 1) Implementation of select and delete btn at backend.

2) Added BULK DLT upload and DLT manage btn in setting and left panel.

3) removed dlt template by using ajax in "index.jsp".

DAY-40:- working on "Incoming sms" module.

- It has various functionalities.



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**SUPPLEMENTARY NOTES**  
(add additional sheets if required)

Task:- data are read in string format so converted into int.

→ used type casting ⇒ Integer.parseInt() method.

Task-2:- enabled edit btn at Incoming Master.

Obj-41:- working on 'keyword master' in Incoming sms module.


Task: 1) Data of keyword master not shown in their interface,  
so fixed that

2) enabled edit btn in keyword master.

Obj-42:- 1) Updated query method in service class from normal word SQL.

2) only Admin can see all user's created keyword, subkeyword  
user only allowed to see their own generated keywords  
and allowed to edit them.

3) created 'user keyword master' and  
Admin keyword master.



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TOTAL HOURS: 45 Hours: -----

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*S.P. Patel*  
 SIGNATURE OF STUDENT

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<p>Signature of Faculty Mentor</p> <p style="text-align: center;"><i>P. Chaudhary</i></p> <p>Date: _____</p>	<p>Signature of officer-in-charge  of Dept. / Section / Plant</p> <p style="text-align: center;"><i>[Signature]</i></p> <p>Date: 27/03/2023</p>
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Annexure 1  
 Enrollment no:  
197390107033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: PATEL DEVKUMAR BRIJESHKUMAR

DIARY OF THE WEEK: Dt: 26/03/2023 TO 01/04/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: ૬<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: IT/ WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

project :- "Smart SMS"  
working on Incoming SMS module.

DAY-43 :- - enabled 'edit' btn in incomingMasterList User  
 - changed query in incoming master  
 - fixed Action Date.  
 - recalled user and Admin hotel master

DAY-44 :- - completed "UserTicket master", only user can see their own data.  
 - fixed "Keyword Info"  
 By changing JSQL to update new query where need data by  
 "ajon" file format

DAY-45 :- previous task was completed but it gives only subkey word name  
 instead master key words names  
 - fixed that problem by changing query.



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SUPPLEMENTARY NOTES  
(add additional sheets if required)

DAY-46:- - Testing all modules in "Incoming message"  
 - fixed incoming list.  
 - changed code in Admin setting  
 fixed SMTP, HTTP gateway.

DAY-47:- working on new project  
 - project name:- WAAP.  
 - Technology used:- Java, MongoDB.  
 - created new wa template.  
 - user enters values like template name,  
 message,  
 other details.  
 - This template format used will be used in main message page.





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TOTAL HOURS: 45 Hours -----

*[Signature]*  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor  Date: <i>[Signature]</i>	Signature of officer-in-charge of Dept. / Section / Plant  Date: 03/04/2023
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Annexure 1  
 Enrollment no:  
190390101033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: PATEL DEVKUMAR BRIJESH KUMAR

DIARY OF THE WEEK: Dt: 02/04/2023 TO 08/04/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8th

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: IT / WEB DEVELOPMENT

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: BHAVESH PATEL


**DESCRIPTION OF THE WORK DONE IN BRIEF**

working on:- "wapp" project

DAY-48:- Added "templates" in sendwaf page  
 - It provides template for messages, which created by "waf template".

DAY-49:- updated "send waf"  
 - After clicked on template and select them only msg will filled up  
 - other fields like msg, video, pdf, waf mo, url link doesn't filled up.  
 - used "formData" and get function it resolved.

DAY-50:- 1) Fixed edit template:  
 2) Alignment of all components in  
 a) send waf  
 b) waf template  
 c) edit template.



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**SUPPLEMENTARY NOTES**  
(add additional sheets if required)


- link not showed in template history and also not shown
- fixed that to changes in get fun and template controller
- Also fixed all other things - updated that

DAY 01:- Added delete function in "In history Admin".  
&  
fixed img, vid, pdf uploading problem

- Adding delete btn for single row delete
- Added multiple select and delete all selected rows. function.

DAY 02:- -Tried to fix img uploading issues.  
- changes on get fun and controller now img steped to upload itself and you can change img and upload them which updates successfully.

- created "manage setting" which similar to "manage user" working:- admin can create various setting by using this fun and it will created by filling form



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TOTAL HOURS: 49 hours. -----

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*R. Patel*  
 SIGNATURE OF STUDENT

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Signature of Faculty Mentor  <i>[Signature]</i> Date:	Signature of officer-in-charge of Dept. / Section / Plant  <i>[Signature]</i> Date: 10/04/2023
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Annexure 1  
 Enrollment no: 190390107033

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: PATEL DEVKUMAR BRIJESHKUMAR

DIARY OF THE WEEK: DE: 09/04/2023 TO 16/04/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: INTECHBIT

NAME OF THE PLANT/SECTION/DEPARTMENT: IT/ WEB DEVELOPMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: BHARVESH PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

Project :- "WAPP" project

DAY-53 :- completed "Fbwobiz setting"


- saved document by this setting shown in table format
- created "delete" btn and "select" function.

DAY-54 :- worked on user side message history and incoming history

- 1) Added select and delete fun in "In history" by user side
- 2) Added select and delete fun in "message history" by user side

DAY-55 :- worked on robot master.

- created various field from robot master.
- enabled edit btn and delete btn with their functionality.



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**SUPPLEMENTARY NOTES**  
 (add additional sheets if required)

DAY-56: - completed pending task of yesterday.

- formatted "usa bot" form interface
- enabled delete function in "usa bot master".

DAY-57: - worked on 'login log'

- created field like
  - username
  - Email Noted
  - mobile number/IP Address
  - day-wise Login on
  - Password
  - Action
- data comes from "login-log" table from database.



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TOTAL HOURS: 45 Hours Ripatel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

<p>Signature of Faculty Mentor</p> <p style="text-align: center;"><u>[Signature]</u></p> <p>Date:</p>	<p>Signature of officer-in-charge of Dept. / Section / Plant</p> <p style="text-align: center;"><u>[Signature]</u></p> <p>Date: 17/04/2013</p>
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## Annexure 2



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Annexure 2

**Feedback Form by Industry expert**

Student Name: DEV KUMAR BRIJESHKUMAR PATEL Date: \_\_\_\_\_

Work Supervisor: \_\_\_\_\_ Title: \_\_\_\_\_

Company/Organization: INTECHBIT

Enrollment No: 19039007033

Internship Address: C-407, GINEMBA GARDY-11, JANATI PUR RD, AHMEDABAD


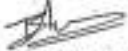
Dates of Internship: From 25<sup>th</sup> Jan 2023 to 3<sup>rd</sup> May 2023

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise				✓
Analyzes problems effectively				✓
Communicates well and writes effectively				✓

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent) Excellent

Additional comments, if any:

Signature of Industry person with name and Stamp: **FOR, INTECHBIT**  
  
**BHAVESH PATEL**  
 Signature of the Faculty Mentor   
**PARTNER**



## Joining Letter



Date: 27<sup>th</sup> January, 2023

To,

Respected Sir/Madam

Subject: Joining Letter

Dear Sir/Madam,

We are pleased to select Mr. Dev Patel as a project trainee in **INTECHBIT**, who is in the final year in your institute. We have offered him training for six months where the stipend would be Rs. 5000/- per month. Based on his performance, we will also offer him employment after his training is successfully completed. He will be entitled to a monthly remuneration of up to Rs. 25,000 (Rupees Twenty-five thousand only) per month in 1st year which indicates Cost to Company (CTC). His salary will be reviewed after a period of 12 months as per his performance.

He will be working in the Web Development Department under the guidance of the Department Head during the project.

Sincerely,

FOR, INTECHBIT



**PARTNER**

Bhavesh Patel

Intechbit, Ahmedabad  
Phone: 079-46006666

info@intechbit.com  
www.intechbit.com

## Proof of Attendance Letter



Date: 02<sup>nd</sup> May, 2023

**Proof of attendance at internship completion**

Dear Sir/ma'am,

I am writing this letter to confirm that **Devkumar Brijeshkumar Patel**, a student of **Saffrony Institute of Technology**, has completed a 3-month internship in web development in Java at IntechBit. The internship began on 25<sup>th</sup> Jan 2023 and completed it on 1<sup>st</sup> May 2023.

As the supervisor of Dev, I can confirm that they attended the internship regularly and participated actively in all aspects of the program. They completed all assigned tasks on time and showed a high level of dedication and commitment to their work.

Therefore, it is my pleasure to confirm that Dev successfully completed the 3-month internship program in web development in Java. I highly recommend them for any future opportunities that may be relevant to their skills and expertise.

Sincerely,

Bhavesh Patel

IntechBit

FOR, INTECHBIT



PARTNER

Intechbit.Ahmedabad  
Phone: 079-46006666

info@intechbit.com  
www.intechbit.com

# **INTERNSHIP AT DATAVIZZ**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Dharitri Manvirkumar Patel**

**190390107034**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

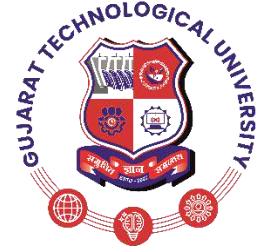


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at DataVizz** has been carried out by **Dharitri Manvirkumar Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

**Prof. Chetan Chauhan**  
Internal Guide

**Prof. Akshay Kansara**  
Head of Department

## Company Certificate



### Subject: Internship Offer Letter

Hello Ms. Dharitri Patel

We are glad to inform you, that you would be working with us as a **Software Engineer - Intern** from **27<sup>th</sup> February 2023** to **31<sup>st</sup> August 2023**, with a stipend amount of **Rs. 6,000** per Month at Our Ahmedabad Location.

On successfully, completion of the internship, Based on your performance you would be given Job Offer from our side.



## PMMS Certificate



### GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII. ACADEMIC YEAR 2022-2023

Date of certificate generation : 14 May 2023 (23/03:28)

This is to certify that, *Patel Dharitri Manvirkumar* ( Enrolment Number - 190390107034 ) working on project entitled with *Python Intern* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student: Patel Dharitri Manvirkumar

Name of Guide: Mr. Chetan Rameshbhai Chavhan

Signature of Student: \_\_\_\_\_

\*Signature of Guide: \_\_\_\_\_

**Disclaimer :**

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at DataVizz** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Ms. Hima Soni (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Dharitri Manvirkumar Patel**

\_\_\_\_\_

## **ACKNOWLEDGEMENT**

I would like to express my sincere gratitude to everyone who has supported me throughout my internship at DataVizz. Firstly, I would like to thank the CEO of DataVizz, Mr. Ankit Sheth, for providing me with the opportunity to work with such a talented team and gain valuable experience in the field of data governance and analysis.

I am also grateful to my company guide, Ms. Hima Soni, for her guidance, support, and encouragement throughout my internship. Her insights and expertise were invaluable in helping me to complete my project tasks successfully.

Furthermore, I would like to extend my heartfelt thanks to my institute guide, Prof. Chetan Chauhan, for his continuous support and valuable feedback. His guidance helped me to stay on track and ensured that my project met the standards set by my university, Gujarat Technological University.

I would also like to thank my mentor, Dr. Sumit Shah, for his mentorship and guidance during my academic journey. His advice and support have been instrumental in guiding me into the corporate world and preparing me for the challenges and opportunities that lay ahead.

Finally, I would like to thank all the staff members at DataVizz for creating a welcoming and conducive environment for me to work in. The knowledge and skills I have gained during my internship will undoubtedly be invaluable in my future endeavors.



## **ABSTRACT**

*The objective of the internship was to gain practical experience in the field of data analysis and to assist enterprises in improving the quality of their data.*

*The project involved the use of various technologies such as Docker, Maven, Node.js, Yarn, Java, TypeScript, and Python to develop and deploy a data quality testing system.*

*The concept of data catalog, data governance, and data quality were key components of the project. The project aimed to help enterprises improve their data quality and make informed decisions based on accurate data. The objectives of the project were to improve the accuracy, completeness, consistency, and validity of enterprise data.*

*Overall, the internship provided valuable experience in data analysis, project management, and collaboration with a team of professionals.*

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## Chapter 1 OVERVIEW OF THE COMPANY

### 1.1 HISTORY:

DataVizz is a 3-year-old company. An amalgamation of technology and business analytics – DataVizz is the magic that happened between the two. DataVizz has earned many names like Data Analysts, Technology Consultants, Data Visualizers, and the list goes on.

A few years ago, Ankit Sheth, the brain behind DataVizz, dreamt a dream of taking up the challenge of bringing all the existing solutions for Cloud-Native Development, Cloud Infrastructure, and DevOps, onto a single platform. This idea blossomed from the need of the hour for developers who had to use multiple tools for managing data. In September 2018, DataVizz dawned, and since then, DataVizz has been making the best use of Data and Visualization. Figure 1.1 shows the logo of DataVizz.



Fig. 1.1 DataVizz Logo [1]

### 1.2 MISSION AND VISION OF THE COMPANY:

DataVizz stands on these ‘Pillars of Application Delivery’:

- Experience
- Specialization
- Collaboration
- Agility
- Automation and
- Quality.

DataVizz has always kept its best foot forward with knowledge, expertise, and specialization.

### 1.3 DIFFERENT PRODUCT/ SCOPE OF WORK:

**CLOUD.WORKS:** Cloud Consulting, Serverless Development, Cloud Native Engineering, API Integrations, DevOps, AWS Experts

**DATA.WORKS:** Data Discovery & Transformation, Visualization & Business Intelligence, Serverless Analytics, Modeling & Custom Analytics, Tableau Experts

**SIEM.WORKS:** SIEM Engineering, SOAR Engineering, Splunk Managed Services, Splunk Developer

**VOICE.WORKS:** VUI Design, Alexa App Development, Google Action Development, Alexa Developer

## **Chapter 2 INTRODUCTION TO INTERNSHIP**

### **2.1 INTERNSHIP SUMMARY:**

During my internship, I had the opportunity to immerse myself in the corporate world as a computer engineering student. My primary goal was to gain hands-on experience and learn how various tasks are executed within a professional setting. I aimed to understand the different roles involved in project management, improve my time management skills, and explore real-world scenarios to apply my technical knowledge effectively. The exposure to various technologies, project management techniques, and collaboration tools enriched my understanding of the industry and enhanced my professional capabilities.

### **2.2 PURPOSE:**

The purpose of my internship was to bridge the gap between theoretical knowledge gained in my academic studies and its practical application in a professional environment. By engaging in real-world projects and tasks, I sought to enhance my understanding of industry practices, develop problem-solving abilities, and learn to adapt to the demands and challenges of a corporate setting. Furthermore, I aimed to gain insights into the work culture, team dynamics, and professional etiquette expected in the field of computer engineering.

### **2.3 OBJECTIVE:**

The main objective of my internship was to gain practical knowledge and experience in utilizing various technologies commonly employed in the industry. By actively participating in project work, I aimed to deepen my understanding of tools such as Docker, Git, Python, Java, TypeScript, Maven, Machine Learning models, Node, Yarn, Postman, Dask, and more. This objective allowed me to familiarize myself with the best practices and techniques employed in software development, data analysis, and project management.

### **2.4 SCOPE:**

The scope of my internship was primarily focused on the practical application of technologies and techniques relevant to computer engineering. By engaging in tasks and projects within the organization, I had the opportunity to learn about different aspects of software development, data analysis, and project management. I aimed to gain knowledge in areas such as version control, containerization, programming languages, and data processing frameworks. The internship provided me with a platform to explore these areas and understand how they contribute to the overall success of projects.

## **2.5 TECHNOLOGY:**

Throughout my internship, I had the privilege of learning and working with a wide range of technologies. These included Docker, a containerization platform that allows for efficient deployment and management of applications. Additionally, I gained practical experience with Git, a version control system widely used in collaborative software development projects. I also delved into programming languages such as Python, Java, and TypeScript, which are crucial for developing a variety of applications.

In the realm of data analysis, I had the opportunity to work with Machine Learning models, which enable intelligent decision-making through pattern recognition and prediction. Furthermore, I learned about Maven, a build automation tool used for managing dependencies in Java projects. Additionally, I gained experience with Node and Yarn, which are integral for efficient development and package management in JavaScript projects.

To test and validate the functionality of applications, I used Postman, an API testing tool that aids in the verification and documentation of APIs. Lastly, I explored Dask, a parallel computing library that facilitates the processing of large-scale datasets efficiently.

### **2.5.1 Docker**

Docker is an open-source platform that enables developers to build, ship, and run distributed applications in containers. Containers provide a lightweight and consistent way to package an application and its dependencies into a single unit that can run on any machine with Docker installed. Figure 2.1 shows docker logo.





Fig 2.1 Docker Logo [2]

The popularity of Docker can be attributed to its several benefits for developers and organizations. Some of the benefits of using Docker in a project are:

1. **Consistency:** Docker containers provide a consistent environment for an application to run in, regardless of the underlying infrastructure. This makes it easier to deploy and scale applications across different environments.
2. **Portability:** Docker containers can be easily moved from one environment to another, such as from development to production, without requiring any changes to the application or its dependencies.
3. **Isolation:** Docker containers provide an isolated environment for an application to run in, which ensures that it does not interfere with other applications running on the same machine.
4. **Resource Efficiency:** Docker containers are lightweight and require fewer resources compared to traditional virtual machines. This makes it easier to run multiple applications on a single machine.
5. **Security:** Docker provides several security features, such as container isolation and image signing, which make it easier to secure your applications and infrastructure.

In summary, Docker is a powerful technology that simplifies the process of building, shipping, and running distributed applications. Its popularity can be attributed to its consistency, portability, isolation, resource efficiency, and security benefits, which make it an ideal choice for modern application development and deployment.

## 2.5.2 Maven

Maven is an open-source build automation tool that is primarily used for Java projects. It provides a way to manage project dependencies, build and package applications, and manage project documentation. Maven uses a Project Object Model (POM) to manage project information and dependencies. Figure 2.2 shows Maven logo.



Fig 2.2 Maven Logo [3]

The primary reason for using Maven is to automate the build process and manage project dependencies. Maven simplifies the build process by providing a uniform way to build and package applications, which makes it easier to share and distribute them. Some of the benefits of using Maven in a project are:

1. **Dependency Management:** Maven makes it easy to manage project dependencies by automatically downloading and resolving them. This ensures that the project has all the required dependencies to build and run the application.
2. **Standardization:** Maven provides a standardized build process, which makes it easier for developers to work on different projects with similar structures. This reduces the learning curve for developers and ensures consistency across projects.
3. **Plugin-based Architecture:** Maven uses a plugin-based architecture, which enables developers to easily extend its functionality. There are many plugins available for Maven that can be used to perform tasks such as code analysis, testing, and deployment.
4. **Integration with IDEs:** Maven integrates well with popular IDEs such as Eclipse and IntelliJ IDEA, which makes it easier to manage projects from within the IDE.
5. **Continuous Integration:** Maven works well with continuous integration tools such as Jenkins and Travis CI, which makes it easier to automate the build and testing process.

### 2.5.3 Node & Yarn

Node.js is an open-source, cross-platform JavaScript runtime environment. It allows developers to run JavaScript code outside of a web browser, making it a popular choice for building server-side applications. Node.js provides an event-driven, non-blocking I/O model that makes it well-suited for building scalable, real-time applications. Node.js is built on the V8 JavaScript engine, which provides fast performance and efficient memory usage. Figure 2.3 displays logo of Node.js.



Fig 2.3 Node.js Logo [4]

Yarn is a package manager for Node.js that was developed by Facebook. It provides a fast, reliable, and secure way to manage project dependencies. Yarn is built on top of the npm registry, which means it can install any package from the npm registry as well as packages from Git repositories.



Fig 2.4 Yarn Logo [5]

Some benefits of using Node.js in a project are:

1. **Scalability:** Node.js is well-suited for building scalable, real-time applications because it provides an event-driven, non-blocking I/O model.
2. **Performance:** Node.js is built on the V8 JavaScript engine, which provides fast performance and efficient memory usage. Yarn is known for its fast performance, especially when compared to the npm package manager.
3. **Package Management:** Yarn provides a fast, reliable, and secure way to manage project dependencies. It uses a lockfile to ensure that the project has consistent dependencies across different environments.

4. **Offline Support:** Yarn provides offline support, which means it can install packages even when there is no internet connection.

#### 2.5.4 Java

Java is a high-level programming language that was first introduced in 1995 by Sun Microsystems. It is an object-oriented language and is designed to be platform-independent, meaning that the same code can be run on different operating systems. Figure 2.5 shows Java's logo.



Fig 2.5 Java Logo [6]

Java is widely used for developing applications, particularly for the web and mobile devices. It provides a wide range of libraries and frameworks that can be used to develop applications quickly and efficiently. Some of the benefits of using Java for a project are:

1. **Platform independence:** As mentioned earlier, Java is designed to be platform-independent, meaning that the same code can be run on different operating systems without any modifications.
2. **Object-oriented:** Java is an object-oriented language, which means that it provides a way of organizing code into reusable objects. This makes it easier to maintain and modify code.
3. **Garbage collection:** Java has an automatic garbage collection feature that helps to manage memory usage and improve the performance of the application.
4. **Rich API:** Java provides a vast collection of APIs (Application Programming Interfaces) that can be used to develop complex applications quickly.
5. **Security:** Java provides built-in security features that can be used to protect applications from viruses, malware, and other security threats.

### 2.5.5 TypeScript

TypeScript is a programming language that is a superset of JavaScript. It was developed by Microsoft and released in 2012. TypeScript extends JavaScript by adding features such as static typing, interfaces, and classes. Figure 2.6 shows TypeScript's logo.



Fig 2.6 TypeScript Logo [7]

TypeScript is widely used for developing large-scale applications, particularly for the web. It provides a way of catching errors at compile-time rather than at runtime, which can help to reduce bugs and improve the quality of code. Some of the benefits of using TypeScript for a project are:

1. **Static typing:** TypeScript adds static typing to JavaScript, which can help to catch errors early on in the development process. This can help to reduce bugs and improve the quality of code.
2. **Object-oriented features:** TypeScript supports object-oriented programming concepts such as classes, interfaces, and inheritance. This makes it easier to organize code into reusable and maintainable modules.
3. **Tooling support:** TypeScript is supported by a wide range of tools, including IDEs, text editors, and build tools. This makes it easy to integrate TypeScript into existing development workflows.
4. **Improved readability:** TypeScript code is often easier to read and understand than pure JavaScript code. This can help to reduce confusion and improve collaboration among developers.

5. Backward compatibility: TypeScript is designed to be compatible with existing JavaScript code. This means that developers can gradually migrate existing codebases to TypeScript without having to rewrite everything from scratch.

### 2.5.6 Python for Data Quality Checks

Python is a high-level, interpreted programming language widely used for machine learning and data science applications. Python provides various libraries and tools that can be used to perform data quality checks, data analysis, and modeling. Python's machine learning libraries such as Scikit-learn, Tensorflow, Keras, PyTorch, etc., are popularly used for building machine learning models.



Fig 2.7 Python Logo [8]

The benefits of using Python for ML models to perform data quality checks in a project include its ease of use, readability, and simplicity. Python's syntax is clean and concise, making it easier to write, read, and maintain code. Additionally, Python has a vast and active open-source community, providing access to numerous libraries and packages to accomplish various tasks easily.

Furthermore, Python's machine learning and data science libraries make it well-suited for data quality checks, data analysis, and modeling. Python's libraries such as Pandas, NumPy, Matplotlib, Seaborn, etc., can be used for data preprocessing, cleaning, visualization, and analysis, making it easier to build models and draw insights from data.

### 2.5.7 Git

During my internship, I had the opportunity to work on several technologies, one of which was Git. Git is a distributed version control system that allows developers to track and manage changes to their codebase. In this report, I will discuss the features and benefits of Git, as well as its implementation and usage during my internship project.

**Overview of Git:**

Git was developed by Linus Torvalds in 2005 as an open-source version control system. Since then, it has become one of the most widely used version control systems in the software development industry. Git is a distributed version control system, meaning that each developer has a complete copy of the codebase and can work independently without needing to connect to a central server.

**Features of Git:**

**Branching and Merging:** Git allows developers to create branches of their codebase, which allows them to work on different features or fixes without interfering with the main codebase. Once the changes are complete, developers can merge the branches back into the main codebase.

**Commit History:** Git maintains a detailed commit history, which allows developers to track changes to the codebase over time. This feature is particularly useful when debugging issues or reverting changes.

**Collaboration:** Git makes collaboration between developers easier by allowing multiple developers to work on the same codebase simultaneously. This is achieved through branching and merging, as well as pull requests and code reviews.

**Implementation of Git in my Internship Project:**

During my internship, we used Git as our version control system for our project. We set up a repository on a remote Git server and all developers were given access to the repository. We created multiple branches for different features, and each developer was responsible for working on their own branch.

We used Git commands such as `git clone`, `git add`, `git commit`, `git push`, `git pull`, and `git merge` to manage our codebase. We also used Git to collaborate on code changes by creating pull requests and reviewing each other's code.

**Benefits of Using Git:**

**Improved Productivity:** Git allows developers to work on different features independently, which increases productivity by reducing conflicts and enabling parallel work.

**Reduced Risk:** Git's commit history and branching features reduce the risk of losing code or introducing bugs by providing a complete record of changes and the ability to revert to previous versions.

**Collaboration:** Git facilitates collaboration between developers by enabling them to work on the same codebase simultaneously, review each other's code, and merge changes.

The three main sections of a Git project: the working tree, the staging area, and the Git directory. The sections are explained in the Figure 2.8.

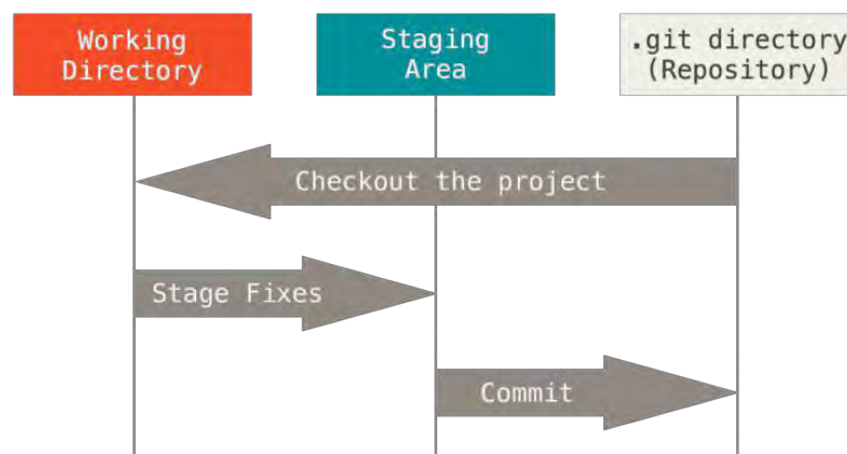


Fig 2.8 Three Main Sections Of Git Project [9]

The working tree is a single checkout of one version of the project. These files are pulled out of the compressed database in the Git directory and placed on disk for you to use or modify.

The staging area is a file, generally contained in your Git directory, that stores information about what will go into your next commit. Its technical name in Git parlance is the “index”, but the phrase “staging area” works just as well.



The Git directory is where Git stores the metadata and object database for your project. This is the most important part of Git, and it is what is copied when you clone a repository from another computer.

The basic Git workflow goes something like this:

1. You modify files in your working tree.
2. You selectively stage just those changes you want to be part of your next commit, which adds only those changes to the staging area.
3. You do a commit, which takes the files as they are in the staging area and stores that snapshot permanently to your Git directory.

If a particular version of a file is in the Git directory, it's considered committed. If it has been modified and was added to the staging area, it is staged. And if it was changed since it was checked out but has not been staged, it is modified. In Git Basics, you'll learn more about these states and how you can either take advantage of them or skip the staged part entirely.

## **2.6 INTERNSHIP PLANNING:**

During the first month of my internship, I underwent common training alongside other interns. This training provided a foundation for understanding the company's policies, procedures, and work culture. It also introduced me to the overall structure of the organization and its core values. This phase was crucial in setting the stage for a successful internship experience.

Following the initial training, the subsequent two months were dedicated to technology-specific training. This phase aimed to equip me with the necessary skills and knowledge required for my assigned projects. Through specialized training sessions, I gained proficiency in utilizing the technologies mentioned earlier, enabling me to contribute effectively to the tasks and projects assigned to me.

## **2.7 INTERNSHIP SCHEDULING:**

Throughout my internship, a structured schedule was followed to ensure efficient workflow and effective time management.

- The project was organized into sprints, with each sprint lasting 2 weeks.
- At the end of each sprint, the team delivered pre-decided working deliverables.
- The project was managed using Jira Software and Confluence pages for documentation and planning.
- Daily stand-up and stand-down meetings were held to ensure effective communication and coordination between team members.
- Till now, all deliverables are completed within the estimated time frame, with all objectives and requirements met.

## **Chapter 3. PROJECT DESIGN**

### **3.1 PROJECT DESIGN & METHODOLOGY:**

The project design phase involves defining the overall architecture and structure of the project. This phase is critical as it lays the foundation for the entire development process. A systematic and structured approach is essential to ensure that the project design meets the requirements and is scalable, flexible, and maintainable.

Our project's design follows a modular approach, where different components of the system are designed separately and then integrated to form the complete system. We followed the Agile methodology, which allowed us to work in sprints and focus on iterative development. This approach helped us to quickly adapt to changing requirements and ensure that we deliver the project on time.

### **3.2 PROCESS DESIGN:**

Process design involves defining the flow of the system, including data inputs, processing, and outputs. This phase is critical as it helps to ensure that the system can perform the required tasks and meet the business requirements.

Our project's architecture consists of a mysql database for storing data in the form of tables. The data is then indexed and searched using elasticsearch, which allows for quick search and retrieval of data. The api layer is used to connect the user interface with the mysql database, elasticsearch, and other integrated data sources. Finally, an automation management tool is used to automate various processes and workflows.

The process design involved designing each component of the system, including the data storage, search, api layer, and automation management tool. We also had to ensure that the system was scalable and could handle large volumes of data and traffic.

For the quality checks, we first came up with algorithms that performed the needed tasks.

Some of the minor checks which were required to be implemented were:

- Whether the data meets the required standards to consider it as “up to date”/ “most recent” data or not. Figure 3.1 shows the algorithm to perform the same.

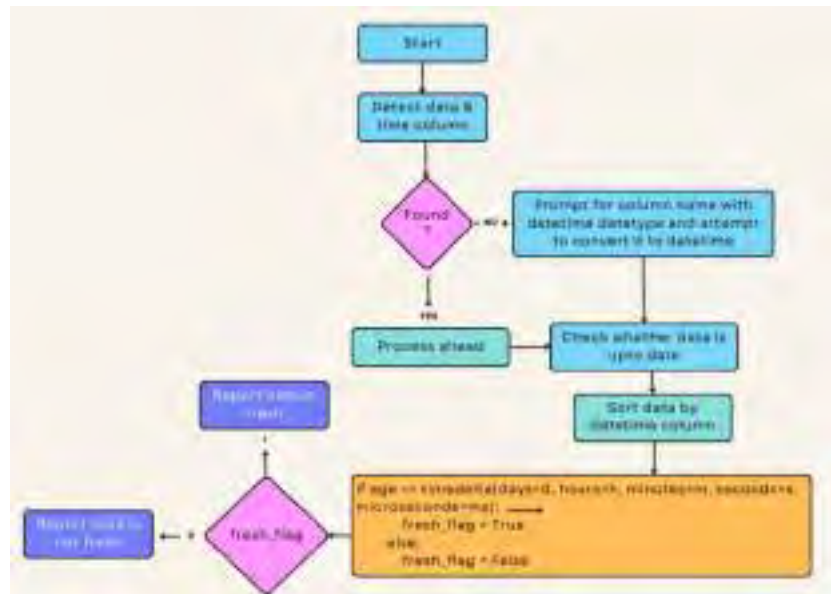


Fig 3.1 Algorithm to check whether the data is up to date or not

- Whether the updated data is sufficient or not. Figure 3.2 shows the algorithm for the check.



Fig 3.2 Algorithm to check whether the data is sufficient or not

- Whether the data had outliers or not. Figure 3.3 shows the required algorithm.



Fig 3.3 Algorithm to check whether data has outliers or not

### 3.2 INPUT / OUTPUT AND INTERFACE DESIGN:

The input/output and interface design phase involves designing the user interface and the inputs and outputs of the system. This phase is critical as it helps to ensure that the system is easy to use and provides the required outputs.

Our project's user interface was designed using React, a popular JavaScript library for building user interfaces. The user interface includes various forms and reports, allowing users to input and output data as required.

Samples of forms and reports were designed and integrated into the system to provide users with a seamless experience. We also had to ensure that the system was secure and that access was controlled based on user roles and permissions.

Overall, the system design and methodology, process design, and input/output and interface design were critical components of our project. By following a structured and systematic approach, we were able to ensure that the system met the requirements and was scalable, flexible, and maintainable.

## Chapter 4. IMPLEMENTATION

The implementation phase involved setting up the required platform and environment for our project and developing the necessary process, program, technology, and modules. The following sections provide more details on these aspects.

### 4.1 IMPLEMENTATION ENVIRONMENT:

Visual Studio Code (VS Code) was an essential tool for my internship project. Its versatility, user-friendly interface, and rich feature set made it ideal for efficient development and coding. VS Code supported multiple programming languages, allowing me to seamlessly switch between different languages within the same editor. The integrated terminal provided a convenient way to execute commands and run code without switching between different windows. The extensive library of extensions in VS Code enhanced its functionality, providing language-specific support, version control integration, and productivity tools tailored to my project needs. The built-in debugger in VS Code made it easy to identify and fix issues during development. Git integration simplified version control, enabling efficient code management and collaboration. VS Code's customization options allowed me to personalize the editor's layout, theme, and shortcuts, creating a coding environment that suited my preferences and boosted productivity. Below figure shows the logo of Visual Studio Code.



Fig 4.1 Visual Studio Code Logo [10]

In summary, Visual Studio Code's versatility, integrated features, debugging capabilities, Git integration, and customization options made it an invaluable tool for my internship project. It facilitated efficient coding, streamlined workflows, and contributed to the successful completion of my project. For our project, we required several tools and technologies such as Docker, Node.js, Yarn, Maven, Make, Java, Python, ANTLR, and







reliability. With Great Expectations, one can easily set up automated data quality checks, enabling them to identify and address any issues promptly.[11]

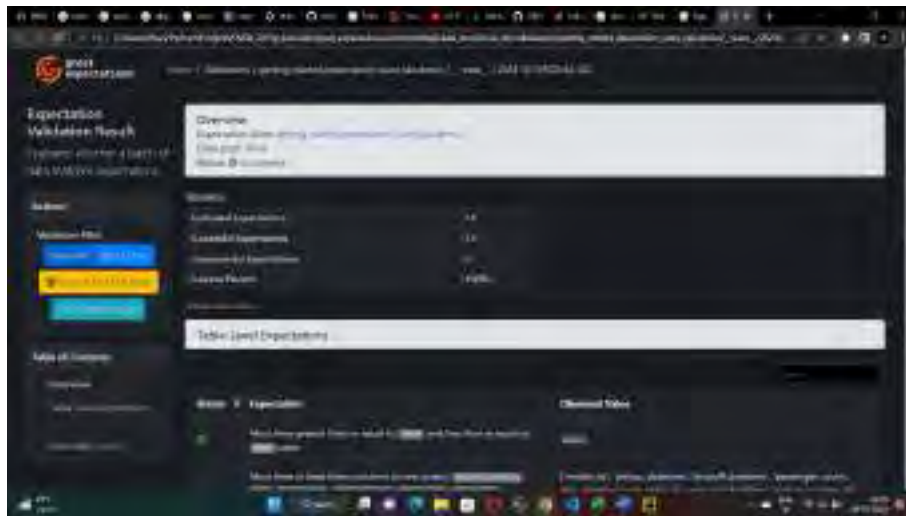


Fig 4.5 Creating a Validation suite using Great Expectations

Figure 4.6 shows the table level expectations.



Fig 4.6 Table-Level expectations

Figure 4.7 shows the list of all automatically generated expectations in the expectation suite. These are created through the help of profiler in Great Expectations. Since Great Expectations provides a bunch of expectations out of the box, for the selected or the column in concern, it comes up with expectations that can be applied to the column through its profile.



Fig 4.7 Expectations for column passenger\_count

Figure 4.8 depicts the validation results when the above generated expectation suite was applied to a different dataset. It shows that the test failed.

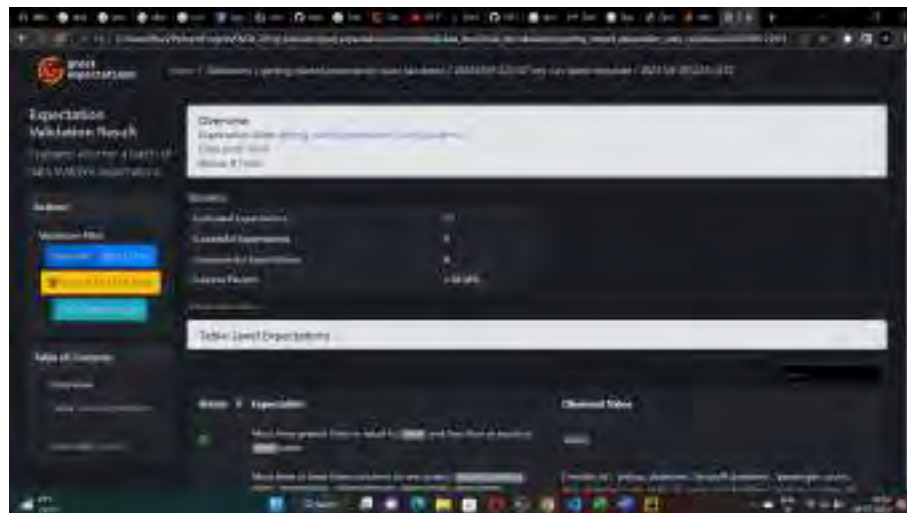


Fig 4.8 Validation Result on Different Dataset

Figure 4.9 and Figure 4.10 show case that the new dataset met the table-level expectations but failed to meet the validations sets which were generated for column passenger\_count. Reason being that the new dataset had values other than 1, 2, 3, 4, 5 and 6 for column passenger\_count.



Fig 4.9 Table-level Expectations Passed



Fig 4.10 Several Expectations Failed on Column-level

During the implementation phase, we encountered some challenges related to the build process. We observed that the build process took a longer time to display outputs. Additionally, if certain node modules did not get downloaded during the build process, the build failed.

Despite these challenges, we were able to successfully develop and integrate the UI and API module with the other modules developed by our team members.

#### 4.4 RESULT ANALYSIS:

We analyzed the results of our implementation and compared them with our initial expectations. We found that we were able to successfully develop a functional UI-API module that met our initial requirements.

However, we also identified several areas for improvement, such as optimizing the build process to reduce the time required to display outputs and finding ways to make the build process more robust to handle errors related to missing node modules.

Overall, the implementation phase was a crucial part of our project, and it enabled us to develop and integrate the necessary modules to create a functional system.

## **Chapter 5. CONCLUSION AND DISCUSSION**

### **5.1 OVERALL ANALYSIS OF INTERNSHIP:**

The internship was a great learning experience for me, as I got the opportunity to work on several new technologies and concepts. We had daily scrum meetings where we discussed our progress and the challenges faced. During the course of the internship, I learned about data quality, data governance, and data cataloging, which were new concepts to me.

In conclusion, the internship provided me with valuable experience and knowledge, and I am grateful for the opportunity to work on this project.

### **5.2 SUMMARY OF INTERNSHIP WORK:**

During my internship, I had the opportunity to work as a computer engineering student in the corporate world. I gained valuable experience and knowledge in various areas of the field. Through hands-on projects and training, I deepened my understanding of technologies such as Docker, Git, Python, Java, TypeScript, and more. Additionally, I honed my skills in project and time management, participated in daily stand-up meetings, and utilized tools like Teams Planner and Jira for effective planning and collaboration. This internship provided me with practical insights and a solid foundation for my future career as a computer engineer.


## REFERENCES


### Website References:

- [1] DataVizz Website: <https://datavizz.in/>
- [2] Docker website: <https://docs.docker.com/get-started/overview/>
- [3] Maven Documentation: <https://maven.apache.org/guides/>
- [4] Node.js Documentation: <https://nodejs.org/en/docs>
- [5] Yarn website: <https://yarnpkg.com/getting-started>
- [6] Java Documentation: <https://docs.oracle.com/en/java/>
- [7] TypeScript: <https://www.typescriptlang.org/docs/>
- [8] Python: <https://www.python.org/doc/>
- [9] Git: <https://git-scm.com/book/en/v2/Getting-Started-What-is-Git%3F>
- [10] Visual Studio Code Documentation: <https://code.visualstudio.com/docs>
- [11] Great Expectations Documentation: <https://docs.greatexpectations.io/docs/>

## APPENDIX

### Annexure-I

	<b>GUJARAT TECHNOLOGICAL UNIVERSITY</b> (Established under Gujarat Act No. 20 of 2007) ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)
	Annexure I Enrollment no: <u>190390107034</u>
<b>STUDENT'S WEEKLY RECORD OF INTERNSHIP</b>	
NAME OF STUDENT: <u>DHABIRI MANVIKUMAR PATEL</u>	
DIARY OF THE WEEK: Dt: <u>13/2/2023</u> TO <u>19/2/2023</u>	
DEPARTMENT: <u>COMPUTER ENGINEERING</u> SEM: <u>8<sup>th</sup></u>	
NAME OF THE ORGANISATION: <u>DATAVIZZ</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>PYTHON INTERN DEPARTMENT / UNDER ENGINEERING DEPT.</u>	
NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>HIMA SONI.</u>	
<b>DESCRIPTION OF THE WORK DONE IN BRIEF</b>	
<p>           I learnt Python from an industry's perspective. First I revised the basics of Python such as classes, objects, data types, loops, inheritance, polymorphism, encapsulation etc. Then learnt why error handling is so important. Learnt why it is necessary to code optimally and why to opt for modular programming. Not just reducing the LOC (line of code) can help, because in Python, there might be a function already made to replace a for loop that would help in code optimization &amp; would save time. When given a task to optimize some code and the way to do it was by applying the concept of list- concatenation.         </p>	



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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ હેઠળ સ્થાપિત)

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TOTAL HOURS: 45 hours SIGNATURE OF STUDENT: [Signature]


The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor: [Signature] Signature of officer-in-charge  
of Dept./ Section / Plant: [Signature]

Date: 18/03/2023 Date: 27/2/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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ગુજરાત અધિનિયમ ૨૦:૨૦૦૭ દ્વારા સ્થાપિત।

Annexure 1  
 Enrollment no. 190390107034

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARITRI MANVIKUMAR PATEL

DIARY OF THE WEEK: DE 20/2/2025 TO 26/2/2025

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: DATAVIZZ

NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT UNDER ENGINEERING DEPARTMENT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI

**DESCRIPTION OF THE WORK DONE IN BRIEF**


Learned about Machine Learning and Data Analysis. Started with revising some of the basic ML models for supervised, unsupervised learning then some advanced clustering algorithm and tried finding their use cases from a developer's point of view. Learned how python's visualization/charting libraries help in visualizing some important data that might be hard to explain verbally or in hand-written format. Learned about the statistics that goes behind any data science task like std. deviation, z score, hypothesis testing, significance level & type I and type II errors, A/B testing etc.



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦-૨૦૦૭ વારા સ્થાપિત)

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TOTAL HOURS: 45 hours

  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor

Signature of officer-in-charge  
of Dept. / Section / Plant

DATE: 18/03/23

Date: 27/2/23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1  
 Enrollment no. 190340107034

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARTI MANVIKUMAR PATEL

DIARY OF THE WEEK: Dt: 27/3/2023 TO 5/3/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: DATAVIZ2

NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT UNDER ENGINEERING DEPT.

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI

DESCRIPTION OF THE WORK DONE IN BRIEF

Explored Git and worked with RegEx. It started with orientation. I was introduced to other interns with whom I was going to work as a team. I was asked to explore Git. learnt Git for version control and collaboration with others. Explored staging environment, commit, branching, merging, fork, push and pull from a Git platform and many other concepts. Completed tasks that were given to test my Git knowledge. We were then asked to explore regular expressions, their importance and usage so I explored 're' module of python which is used for regex with its functions, metacharacters, special sequences, sets etc. from its documentation.



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TOTAL HOURS: 115 hours SIGNATURE OF STUDENT: [Signature]

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of officer-in-charge  
of Dept. / Section / Plant: [Signature]

Date: 18/03/23 Date: 6/3/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિનિયમ ક્રમ ૨૦ ૨૦૦૭ દ્વારા સ્થાપિત)

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Annexure A  
Enrollment no  
190390107034

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARITRI MANVIKUMAR PATEL

DIARY OF THE WEEK: IN: 6/3/2023 TO 12/3/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 2<sup>th</sup>

NAME OF THE ORGANISATION: DATAVIZZ


NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT UNDER ENGINEERING DEPT.

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

We were given a NLP task to complete. The task involved performing EDA, then finding keywords that led to classification among the categories.

Second task was to extract tables from PDF's using python library ~~but~~ <sup>and</sup> also listing out which libraries can be used to solve the task along with their limitations and advantages. Third task was to perform EDA on the given dataset and finding insights from the dataset ~~at~~ at the end of the task. Then we were assigned a task to test our refer knowledge. I completed all these tasks ~~well~~ and gained much deeper knowledge on the topics concerned.



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---


TOTAL HOURS: 35 hours SIGNATURE OF STUDENT D. M. P.

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 18/03/21 Date: 13/3/23

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Annexure I  
 Enrollment no:  
190390107034

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DIHARITRI MANVIKKUMAR PATEL

DIARY OF THE WEEK: Dt: 13/3/2023 TO 19/3/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: DATAVIZZ

NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT  
UNDER ENGINEERING DEPT.

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

I learnt why setting up an environment for a project is important and how to do so. I learnt ways on how to get the packages /libraries that are required for the project into the local machine. Was introduced to docker containers - package of software that includes everything which would be needed to run an application: its code, system tools, system libraries and settings. Then I explored how to doing multithreading to my python environment because python doesn't support multithreading. I learnt about Bash.



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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦-૨૦૦૭ હેઠળ સ્થાપિત)

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TOTAL HOURS: 45 hours SIGNATURE OF STUDENT: [Signature]


The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: 18/05/23 Date: 18/5/23

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Annexure 1  
 Enrollment no:  
190370107034

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARITRI MANVIKUMAR PATEL

DIARY OF THE WEEK: Dt: 20/3/2023 TO 26/3/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: DATAVIZZ

NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT UNDER ENGINEERING DEPT.

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

This week I learnt in depth about the Docker technology. How images are built and distributed. I learnt and performed tasks that involved pulling docker images from docker.hub, then bringing the container up based on the image, enabled users on local network to access my container/service running on my localhost. Then, for data quality, we researched the current quality standards and learnt about and finalized some tentative quality checks that we plan on providing through our product. Two of these checks, we implemented in csv files but ~~so~~ without using ML - only a program.



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦-૨૦૦૭ અન્ન સ્થાપિત)

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TOTAL HOURS: 45 hours. SIGNATURE OF STUDENT: [Signature]

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: \_\_\_\_\_ Date: 24/3/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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ગુજરાત અધિનિયમ ક્રમક: ૨૦-૨૦૦૭ બાબતે સ્થાપિત

Annexure I  
 Enrollment no.  
170310107034

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARTI MANVIKUMAR PATEL

DIARY OF THE WEEK: DO: 27/3/2023 TO 2/4/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>


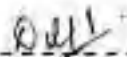
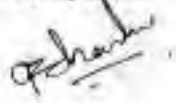

NAME OF THE ORGANISATION: DATAVIZZ

NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT  
LEADER ENGINEERING DEPT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SOLI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

This week we gathered requirements that we wanted as features in our project and started planning on how to achieve those goals. With some clarity, and after discussing it with our CEO, we divided our team into 3 teams - each working on bringing some feature or display at the end of 2 sprints. Our sprints were of 2 weeks long. The 3 teams were - UI and API team, Data Quality checker team and Integration & deployment team. We looked & understood how software development cycle works and prepared our tasks and to do lists accordingly. For the development phase of our project, we would need our laptops to setup with the required development environment so we set up that environment.

	<p align="center"><b>GUJARAT TECHNOLOGICAL UNIVERSITY</b>          (Established under Gujarat Act No. 20 of 2007)          ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી          (ગુજરાત અધિનિયમ ક્રમ(ક): ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)</p>
TOTAL HOURS: <u>45 hours</u>	 SIGNATURE OF STUDENT
<p align="center"> <input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is  <b>EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR</b> </p>	
Signature of Faculty Mentor 	 Signature of officer-in-charge of Dept. / Section / Plant
Date:	Date: <u>31/3/23</u>
<p align="center"> <input checked="" type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about          his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.       </p>	



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ થી સ્થાપિત)

Annexure I

Enrollment no:


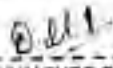

190390107034


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARTRI HANVIKUMAR PATEL  
 DIARY OF THE WEEK: Dt: 3/4/2023 TO 9/4/2023  
 DEPARTMENT: COMPUTER ENGINEERING SEM 8<sup>th</sup>  
 NAME OF THE ORGANISATION: DATAVIZZ  
 NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT  
INDEX ENGINEERING DEPT.  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

In the 3 teams, my primary working responsibility was to look after our project's UI and API segments. For frontend, we searched for our language and finalized Typescript, React components, JSON schemas and antd for styling. we prepared the updated format of login page, notifications, alerts, forms, display cards, navigation bar, search bar etc. we finalized which pages we would want & started working on delivering those pages. Sometimes our environment would not support our task, so in between, we even reset our system's development. Because UI and APIs are dependent on backend, we also discussed & performed tasks with other teams working on the project.

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TOTAL HOURS: <u>45 કલાક</u>	 SIGNATURE OF STUDENT
<input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is <b>EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR</b>	
Signature of Faculty Mentor	 Signature of officer-in-charge of Dept. / Section / Plant
Date:	Date: <u>7/4/23</u>
<input type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.	



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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦ ૨૦૦૭ અન્વયે સ્થાપિત)

Annexure 1  
 Enrollment no. 190390107034

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: DHARTIRI MANVIKUMAR PATEL

DIARY OF THE WEEK: Dt. 10/4/2023 TO 16/4/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>


NAME OF THE ORGANISATION: DATAVIZZ

NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON UNDER INTERNAL ENGINEERING DEPT.

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

This week included tasks such as integrating UI with backend, ~~code~~ programming and debugging, changing certain wireframes and solving the project's build failure. Our team had prepared a wireframe of how a particular page would look like with all its components and I was supposed to start bringing that wireframe on UI. But our development made - project build got failed due to some uninstalled packages in node module so I tried to debug it. After many attempts, after discussing the issue with our CEO, we got the build failure issue resolved by possibly the missing dependencies, duplicating some of the environment package's version etc.



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ બરા સ્થાપિત)

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TOTAL HOURS: 55 hours. SIGNATURE OF STUDENT: D. Shah


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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: [Blank] Date: 14/4/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure I  
 Enrollment no: 190390101030

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARITRI MANYIRKUMAR PATEL  
 DIARY OF THE WEEK: DI: 17/4/2023 TO: 23/4/2023  
 DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>  
 NAME OF THE ORGANISATION: DATAVIZZ  
 NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT UNDER ENGINEERING DEPT  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI


**DESCRIPTION OF THE WORK DONE IN BRIEF**

One of the integrations was the Glue catalog. For establishing connection with it, the integration team required certain fields in the form component as compulsory and addition of some other required credentials. Since the UI is backend driven, making proper schema for integrations and then changing the backend integration and ingestion code as per the requirement got what we wanted. Because some of our tasks required more space, we opted for our company's server to host our services and for that we learnt how to establish connection with the server.




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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS: 115 HOURS SIGNATURE OF STUDENT: 

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor: SIGNATURE OF OFFICER-IN-CHARGE  
of Dept. / Section / Plant: 

Date: Date: 21/4/23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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ગુજરાત અધિનિયમ ક્રમાંક ૨૦,૨૦૦૭ દ્વારા સ્થાપિત

Annexure 1  
 Enrollment no: 190390107034

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARITRI MANVIKUMAR PATEL

DIARY OF THE WEEK: Dt: 24/4/2023 TO 30/4/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: DATAVIZ2

NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON- INTERN DEPARTMENT  
UI/UX ENGINEERING DEPT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SENI

DESCRIPTION OF THE WORK DONE IN BRIEF

Got 2 out of 4 quality checks on UI from Backend  
 Created the required wireframe by using axml and  
 library and it's sandbox helped in trying out  
 the UI components. Got the entire project into  
 the required colors, fonts, alignment and other  
 styling features. Worked with Data Quality team  
 to get their pipeline ready for testing. Tried  
 to perform unit tests on backend and frontend.  
 Upon test case failure, solved some errors and rest  
 of them discussed with the team to get solution

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	<p align="center">ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦ ૨૦૦૭ દ્વારા સ્થાપિત)</p>
<p>TOTAL HOURS: <u>50 hours</u></p>	<p align="right"><u>D. Shah</u> SIGNATURE OF STUDENT</p>
<p align="center"><input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR</p>	
<p>Signature of Faculty Mentor</p>	<p align="right">Signature of officer-in-charge of Dept. / Section / Plant</p>
<p>Date:</p>	<p align="right">Date: <u>28/4/23</u></p>
<p><input type="radio"/> Grading of Work, for trainees may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.</p>	



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Annexure I

Enrollment no:

190390107034

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: DHARITRI MANVIKUMAR PATEL

DIARY OF THE WEEK: DI: 4/5/2023 TO 7/8/2023

DEPARTMENT: COMPUTER ENGINEERING SEM: 8<sup>th</sup>


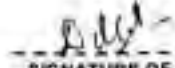
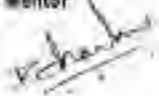

NAME OF THE ORGANISATION: DATAVIZZ

NAME OF THE PLANT/SECTION/DEPARTMENT: PYTHON INTERN DEPARTMENT  
UNDER ENGINEERING DEPT


NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: HIMA SONI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

Solved the last sprint errors and ~~also~~ gave a demo of the first 2 sprints deliverables. After a thorough discussion with ~~my~~ our CEO, we finalized certain changes, and planned out what needs to be done before starting the new sprints worked on improvement of UI, worked on solving some integration errors. Performed tests but failed, so tried to solve those errors. Planned out deliverables of next sprints it's targets to be achieved, anticipated problems that we might face, and came up with a collective solution to overcome them.

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TOTAL HOURS: <u>45 hours</u>	 SIGNATURE OF STUDENT
<input checked="" type="radio"/> The above entries are correct and the grading of work done by Trainee is <b>EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR</b>	
Signature of Faculty Mentor 	 Signature of Officer-in-charge of Dept. / Section / Plant
Date:	Date: <u>6/5/23</u>
<input checked="" type="radio"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.	

## Annexure-II



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**Annexure 1**

**Feedback Form by Industry expert**

Student Name: DHARTI M. PATEL      Date: 5/5/2023  
 Work Supervisor: HIMA SONI      Title: SR SOFTWARE ENGINEER  
 Company/Organization: DATAVIZZ  
 Enrollment No: 190390107034  
 Internship Address: 709- ONE WORLD WEST, OPP BOPAL BRIS, AMBLI, BOPAL,  
 Dates of Internship: From 13/2/2023 to 7/5/2023 AHMEDABAD-58

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise			✓	
Analyzes problems effectively				✓
Communicates well and writes effectively			✓	

Overall performance of student intern: (Needs improvement/ Satisfactory/ Good/ Excellent):  
Excellent

Additional comments, if any: Problem solver, attitude of giving 100%, Simple

Signature of Industry person with name and Stamp: Hima Soni  
5/5/23

Signature of the Faculty Mentor: P. Chandra  
06/05/23

# **Internship at Wobot Intelligence Pvt Ltd**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Dhruvi Bhavsar**

**190390107001**

*In fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*in*

**Computer Engineering**

**S.P.B Patel Engineering College**

**Linch, Mehsana - 384435**



**Gujarat Technological University, Ahmedabad**

**(May 2023)**





## **S.P.B Patel Engineering College**

**Linch, Mehsana - 384435**

### **CERTIFICATE**

Date: 06 - 05 - 2023

This is to certify that the internship report submitted along with the internship entitled **Wobot Intelligence Pvt Ltd** has been carried out by **Dhruvi Bhavsar** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Science & Engineering, 8<sup>th</sup> Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Internal Guide

**Prof. Upashana Goswami**

Head of Department

**Prof. Akshay Kansara**

# **GTU CERTIFICATE**

# COMPANY CERTIFICATE



## To Whom It May Concern

This is to certify that **Dhruvi Anilkumar Bhavsar**, a student of S.P.B Patel Engineering College has successfully completed her internship in the field of **Computer Vision** from **1st February 2023** to **30th April 2023** under the guidance of **Chintan Rajnikant Patel**.

Her internship activities include:

- Training computer vision models
- Working closely with the data science team for appropriate dataset curation
- Working on challenging problem statements to fine-tune models with Huge Dataset
- implementation of the SOTA architectures for model training
- Working closely with the R&D team towards improving model accuracy and precision for CCTV cameras

During the period of her internship program with us, she has been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish her every success in her life and career.

**Wobot Intelligence Pvt Ltd**

A handwritten signature in black ink, appearing to read 'Barkha Sharma'.

**Barkha Sharma**

Title: Chief Human Resources Officer

**Wobot Intelligence Private Limited**

Registered Office: Kharsa No. 372/74, 2nd floor, Sultanpur, MG Road New Delhi- 110050

Mob:- 7428098123 Website: [www.wobot.ai](http://www.wobot.ai)

CIN No: U74999DL2017PTC327783



## **S.P.B Patel Engineering College**

**Linch, Mehsana - 384435**

### **DECLARATION**

We hereby declare that the Internship report submitted along with the Internship entitled **at Wobot Intelligence Pvt Ltd** submitted in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering to Gujarat Technological University, Ahmedabad is a bonafide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Chintan Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student  
**Dhruvi Bhavsar**

Sign of Student

## ACKNOWLEDGEMENT

I would like to convey my heartfelt gratitude to **Chintan Patel** (Computer Vision Engineer - II) for his direction and assistance in completing my internship. I would also like to thank **Wobot.ai** for providing me with this wonderful opportunity to work as a Computer Vision intern. This internship would not have been accomplished without their help and insights.

I am thankful to our **H.O.D Prof. Akshay Kansara** from Computer Engineering Department, S.P.B. Patel engineering college, who provided insight and expertise that greatly assisted the project work.

I sincerely thank to **Prof. Upashana Goswami** (Computer Engineering Department) for the unconditional and overwhelming support during the entire session of study and development, also for guiding us throughout the internship period. All the faculties from our department provided us with a favorable environment and necessary guidance, without them we would not have achieved our goal. They have always been available for us despite their busy schedule and were always a great source of inspiration for us.

## ABSTRACT

*This report contains the work done by me during my internship at **Wobot Intelligence Pvt Ltd**. As a computer vision intern, I learned various Computer vision-related tools and technologies that are used in the industry. I have explored many state-of-the-art Computer Vision models and Applications. In this report, I have discussed the process that I followed for the implementation of the real-time project **Safety Shoe Classification Use-case Development**.*

*In the field of Machine Learning and Computer Vision, the dataset is the most significant part of any application. The performance of any model depends very much on the quality of the data. In my internship, I learn how to collect data from open sources, how to pre-process it, how to increase the data quality, and Data augmentation.*

*During this internship period, I learned image processing using OpenCV and worked with different Python libraries and frameworks. I learned to design Neural Network for the classification tasks. I also learned to optimize the performance of the model by hyperparameter tuning.*

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## **Abbreviations**

<b>CV</b>	<b>Computer Vision</b>
<b>NLP</b>	<b>Natural Language Processing</b>
<b>DL</b>	<b>Deep Learning</b>
<b>ML</b>	<b>Machine Learning</b>
<b>UX</b>	<b>User Experience</b>
<b>App</b>	<b>Application</b>
<b>API</b>	<b>Application Programming Interface</b>
<b>PC</b>	<b>Personal Computer</b>
<b>XML</b>	<b>Extensible Markup Language</b>
<b>CSV</b>	<b>Comma Separated Value</b>
<b>JSON</b>	<b>JavaScript Object Notation</b>
<b>S3</b>	<b>Simple Storage Service</b>
<b>AWS</b>	<b>Amazon Web Service</b>
<b>AD</b>	<b>Anomaly Detection</b>

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## CHAPTER 1- OVERVIEW OF COMPANY

### 1.1 History

CEO- Adit Chhabra

Wobot.ai is a Developer of an AI-based video analytics software designed to monitor human activity recorded via CCTV cameras. The company's platform detects the changes and deviations in standard operating procedures and automatically lists them and makes them trackable for all relevant stakeholders in the organization, enabling clients to track their business operations.



Wobot.ai enables vision-based process compliance by plugging its AI-first SaaS tool into existing CCTV cameras. It has helped organizations in Food, Hospitality, Manufacturing, Retail, and Pharma to reduce the cost of monitoring, and risk of non-compliance, and improve customer NPS.

Services provided by Wobot.ai:

- Artificial Intelligence
- Computer Vision
- Intelligent Automation
- Robust Reporting

Wobot.ai provides AI Video Intelligence for:

- Food Service (QSR) Computer Vision
- Manufacturing
- DriveThru
- Food Processing
- Hospitality
- Retail

## **1.2 Different Products/ Scope of Work**

Computer Vision Engineer

Data Engineer

Data Scientist

DevOps

Cloud Engineer

Python Developer

Front-End Engineer

Machine Learning Engineer

Technical Lead

Talent Acquisition Executive / Sr Talent Acquisition Executive / HR

Business Development Executive

Content Writer

Project Manager

Graphics Designer

## **1.3 Capacity of company**

2023 - Wobot Family Reached to 150+ Members

## **CHAPTER 2- INTRODUCTION TO PROJECT / INTERNSHIP AND PROJECT / INTERNSHIP MANAGEMENT**

### **2.1 Project / Internship Summary**

CV is a field of artificial intelligence (AI) that enables computers and systems to derive meaningful information from digital images, videos and other visual inputs — and take actions or make recommendations based on that information. If AI enables computers to think, computer vision enables them to see, observe and understand.

CV uses a combination of technologies to analyze and understand video data with computers. In surveillance and security industry applications, the primary goal of computer vision is to automate human supervision. The ability to capture and digitize real-life scenes provides new opportunities to detect threats better and earlier, quantify risk, and provide real-time security assessments. My project is one of the applications of CV in surveillance to detect the violation when the person is not wearing safety boots in ROI.

### **2.2 Purpose**

Video summarization is a process that allows people to quickly gain an understanding of the content and key messages within a video without needing to watch it in its entirety. With the widespread use of security cameras in public places, AI video analysis and scene understanding with computer vision have become essential features of surveillance systems. Visual data from camera streams contain rich information compared to other information sources such as mobile location, GPS, radar signals, etc. Large-scale video analytics systems are able to collect statistical information about the status of road traffic, public places, buildings, or private areas. AI vision algorithms are used to perform video summarization, synopsis generation, and content-based video retrieval. In video surveillance, the historical data output of the deep learning models can be used to identify specific events.

## **2.3 Objective**

The goal of this project is to monitor activity using the client's camera, stream the data to a server via the cloud, and process it using cutting-edge Deep Learning models to detect the person crossing the line and extract shoe patch to classify the shoe in one of the two classes, identify the non-safety shoe violation in ROI, and raise a ticket for the occurrence of the violation on the staging dashboard to notify the client about the violation.



## 2.4 Technology

### 2.4.1 Python

Python is a dynamic, interpreted (bytecode-compiled) language. There are no type declarations of variables, parameters, functions, or methods in source code. This makes the code short and flexible, and you lose the compile-time type checking of the source code. Python tracks the types of all values at runtime and flags code that does not make sense as it runs.

Python is also known as a general-purpose programming language, as it is used in the domains given below:

- Web Development
- Software Development
- Game Development
- AI & ML
- Data Analytics

Python provides many frameworks such as Pandas, Numpy, Keras, Tensorflow, Pytorch, and OpenCV for the implementation of ML and DL algorithms.

### 2.4.2 Docker

Docker is a software platform that allows you to build, test, and deploy applications quickly. Docker packages software into standardized units called containers that have everything the software needs to run including libraries, system tools, code, and runtime. Using Docker, you can quickly deploy and scale applications into any environment and know your code will run.

Using Docker lets you ship code faster, standardize application operations, seamlessly move code, and save money by improving resource utilization. With Docker, you get a single object that can reliably run anywhere. Docker's simple and straightforward syntax gives you full control. Wide adoption means there's a robust ecosystem of tools and off-the-shelf applications that are ready to use with Docker.

### 2.4.3 OpenCV

OpenCV is an open-source library that is supported by multiple platforms including Windows, Linux, and MacOS, and is available for use in multiple other languages as well; however, it is most commonly used in Python for Machine Learning applications, specifically in the Computer Vision domain.

Some of the Applications of OpenCV:

1. Interaction with images and videos.
2. Stitching images together in satellite and web maps.
3. Image scan and alignment, medical image noise reduction.
4. Object localization, detection, recognition, and analysis using the image or video as input.
5. Security systems and surveillance or monitoring requirements.
6. Camera calibrations and 3D image reconstruction.

### 2.4.4 MLflow

MLflow is an open-source platform to manage the ML lifecycle, including experimentation, reproducibility, deployment, and a central model registry. MLflow currently offers four components:

- MLflow Tracking
- MLflow Projects
- MLflow Models
- MLflow Registry

### **2.4.5 Visual Studio Code**

Visual Studio Code is a code editor in layman's terms. Visual Studio Code is "a free-editor that helps the programmer write code, helps in debugging and corrects the code using the intelli-sense method ". In normal terms, it facilitates users to write the code in an easy manner. Many people say that it is half of an IDE and an editor, but the decision is up to to the coders. Any program/software that we see or use works on the code that runs in the background. Traditionally coding was used to do in the traditional editors or even in the basic editors like notepad! These editors used to provide basic support to the coders.

Till recent times, there's hardly been an IDE or code editor that has been so user-friendly that even first-time users can use each and every feature without any hassles. The coding-friendly feature and code error recognition also helps users a long way into making the code more efficient and error-less.

### **2.4.6 Triton-Server**

Triton Inference Server, part of the NVIDIA AI platform, streamlines and standardizes AI inference by enabling teams to deploy, run, and scale trained AI models from any framework on any GPU- or CPU-based infrastructure. It provides AI researchers and data scientists the freedom to choose the right framework for their projects without impacting production deployment. It also helps developers deliver high-performance inference across cloud, on-prem, edge, and embedded devices.

### **2.4.7 Grafana**

Grafana open-source software enables you to query, visualize, alert on, and explore your metrics, logs, and traces wherever they are stored. Grafana OSS provides you with tools to turn your time-series database (TSDB) data into insightful graphs and visualizations. The Grafana OSS plugin framework also enables you to connect other data sources like NoSQL/SQL databases, ticketing tools like Jira or ServiceNow, and CI/CD tooling like GitLab.

## 2.5 Project / Internship Planning

In Implementing any Use-case in the CV the whole pipeline of the use-case is made before its actual implementation. The plan of the project helps the team to work as per the schedule and helps to successfully complete the project. The use-case development pipeline is very similar to ML pipeline.

### 2.5.1 Project / Internship Development Approach and Justification

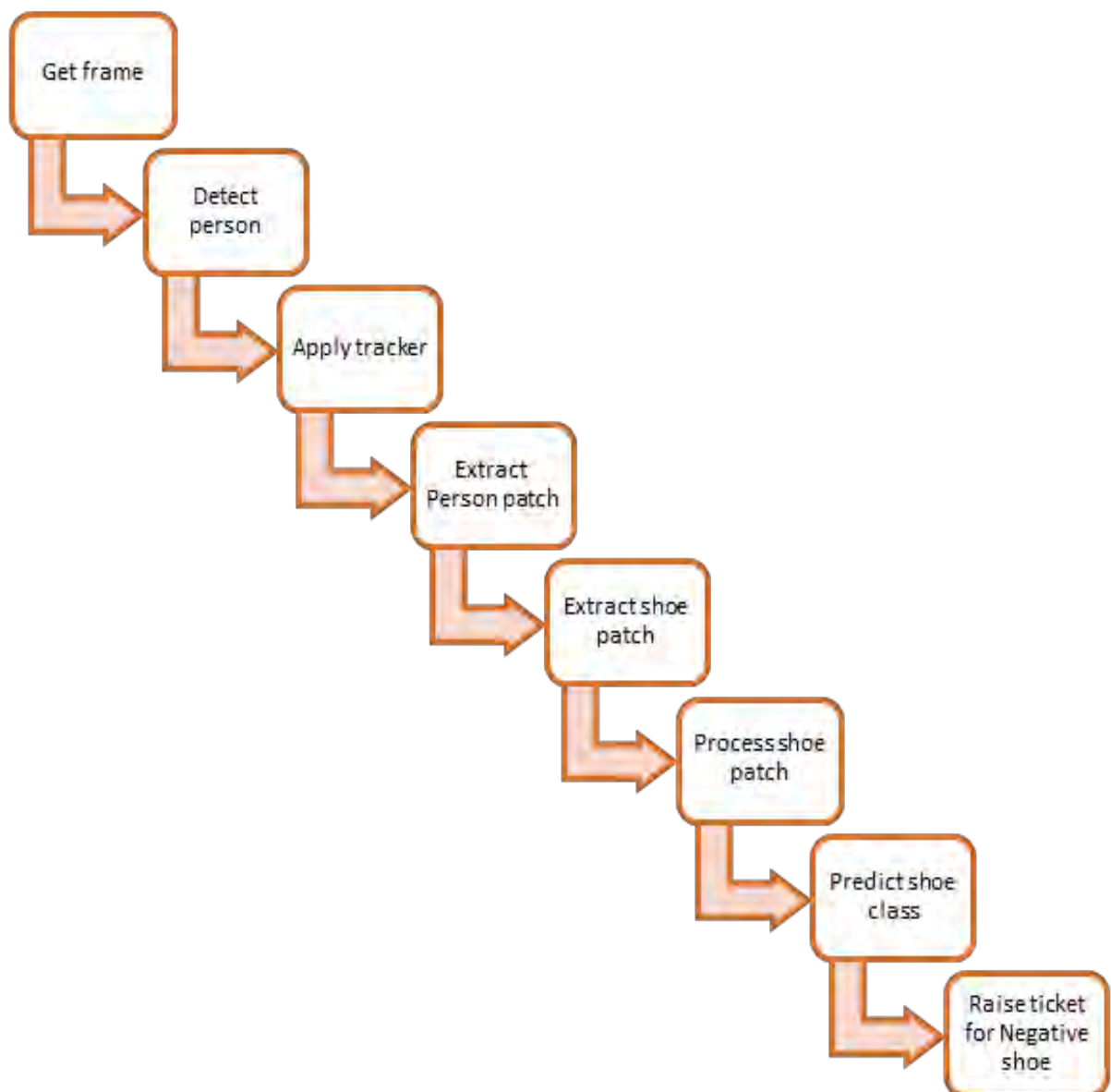


Fig 2.1 Use-case Pipeline

### 2.5.2 Use-case Implementation Flow



Fig 2.2 Implementation Flow Diagram

- The above diagram describes the four main steps that I have followed to implement this project.
- In this report I have described this four steps in detail.

## CHAPTER 3 - RESEARCH

### 3.1 Literature Review

To develop the model for shoe classification, I started by reading work done previously. I read a few research papers and explored different object-detection models. Below I have added the comparison table for object-detection models.

Model	Backbone	size	FPS (V100)	AP	AP50	AP75	APS	APM	APL
Faster R-CNN+++	ResNet-101-C4	-	-	34.9	55.7	37.4	15.6	38.7	50.9
Faster R-CNN w FPN	ResNet-101-FPN	-	-	36.2	59.1	39	18.2	39	48.2
Faster R-CNN by G-RMI	Inception-ResNet-v2	-	-	34.7	55.5	36.7	13.5	38.1	52
Faster R-CNN w TDM	Inception-ResNet-v2-TDM	-	-	36.8	57.7	39.2	16.2	39.8	52.1
YOLOv2	DarkNet-19	-	-	21.6	44	19.2	5	22.4	35.5
SSD513	ResNet-101-SSD	-	-	31.2	50.4	33.3	10.2	34.5	49.8
DSSD513	ResNet-101-DSSD	-	-	33.2	53.3	35.2	13	35.4	51.1
RetinaNet	ResNet-101-FPN	-	-	39.1	59.1	42.3	21.8	42.7	50.2
RetinaNet	ResNeXt-101-FPN	-	-	40.8	61.1	44.1	24.1	44.2	51.2
YOLOv3	Darknet-53	-	-	33	57.9	34.4	18.3	35.4	41.9
Faster R-CNN on FPN	ResNet-101	-	-	36.2	-	-	18.2	39.0	48.2
YOLOv3 + ASFF*	Darknet-53	608	45.5	42.4	63.0	47.4	25.5	45.7	52.3
EfficientDet-D0	Efficient-B0	512	98.0	33.8	52.2	35.8	12.0	38.3	51.2
EfficientDet-D1	Efficient-B1	640	74.1	39.6	58.6	42.3	17.9	44.3	56.0
YOLOv4	CSPDarknet-53	608	62.0	43.5	65.7	47.3	26.7	46.7	53.3
YOLOv4-CSP [	Modified CSP	640	73.0	47.5	66.2	51.7	28.2	51.2	59.8
YOLOv3-ultralytics2	Darknet-53	640	95.2	44.3	64.6	-	-	-	-
YOLOv5-M	Modified CSP v5	640	90.1	44.5	63.1	-	-	-	-
YOLOv5-L	Modified CSP v5	640	73.0	48.2	66.9	-	-	-	-
YOLOv5-X	Modified CSP v5	640	62.5	50.4	68.8	-	-	-	-
YOLOX-DarkNet53	Darknet-53	640	90.1	47.4	67.3	52.1	27.5	51.5	60.9
YOLOX-X	Modified CSP v5	640	57.8	51.2	69.6	55.7	31.2	56.1	66.1

Table 3.1 Object-Detection Model Comparison

## 3.2 Comparison of Approaches

There are several classification models used for such tasks so to start with I compared the classification models by considering the type and complexity of dataset that I am going to have for this use-case.

For the task of shoe classification, we have decided to start with EfficientNetB0.

Reason for choosing EfficientNetB0 architecture:

- Compared to other models achieving similar ImageNet accuracy, EfficientNet is much smaller. For example, the ResNet50 model in Keras application has 23,534,592 parameters in total, and even though, it still underperforms the smallest EfficientNet, which only takes 5,330,564 parameters in total.

Model	Year	Number of Parameters	Top-1 Accuracy
VGG-16	2014	138 Million	74.5%
ResNet-50	2015	25 Million	77.15%
Inception V3	2015	24 Million	78.8%
EfficientNetB0	2019	5.3 Million	76.3%
EfficientNetB7	2019	66 Million	84.4%

Table 3.2 Classification Model Comparison

## 3.3 Approaches Explored

As the dataset was complex and unbalanced, I also explored other approaches for image classification to deal with unbalanced datasets.

### 3.3.1 Anomaly Detection

**Anomaly Detection** is a binary classification identifying unusual or unexpected patterns in a dataset, which deviate significantly from the majority of the data. The goal of anomaly detection is to identify such anomalies, which could represent errors, fraud, or other types of unusual events, and flag them for further investigation. It is used when events for one of the two classes are not known or not available to add it to the training datasets.

There are many different methods in AD, from which I have explored:

1. One-Class Classification
2. Self-Supervised Anomaly Detection
3. Supervised Anomaly Detection

### 3.3.2 Few-Shot Learning

**Few-Shot Image Classification** is a computer vision task that involves training machine learning models to classify images into predefined categories using only a few labeled examples of each category (typically  $< 6$  examples). The goal is to enable models to recognize and classify new images with minimal supervision and limited data, without having to train on large datasets. (typically  $< 6$  examples).

I have explored Siamese Network for the classification task. In this approach I also read about triplet loss and arcface loss.

### 3.3.3 Zero-Shot Learning

**Zero-shot learning (ZSL)** is a problem setup in ML where, at test time, a learner observes samples from classes that were not observed during training, and needs to predict the class that they belong to. Zero-shot methods generally work by associating observed and non-observed classes through some form of auxiliary information, which encodes observable distinguishing properties of objects. For example, given a set of images of animals to be classified, along with auxiliary textual descriptions of what animals look like, an artificial intelligence model which has been trained to recognize horses, but has never been given a zebra, can still recognize a zebra when it also knows that zebras look like striped horses.

I have explored the **Language-Vision Transformer** model for this task.



## CHAPTER 4 – DEVELOPMENT

### 4.1 Create Dataset

I have started the development by dataset creation. The dataset creation was divided in mainly into two parts mentioned below:

#### 4.1.1 Data Collection

To collect the data for my use-case I have written a script that detects the shoes in video frames, extracts it from the frame and saves it on the destination. Then I ran the script on the video recordings provided by data-team and created the dataset for the Positive class shoe (safety shoe) and Negative class shoe(other footwear). I have also done web-scraping and collected some data from open-source.

The dataset size was 4000+ samples:

- Positive set: 2000
- Negative set: 2000

#### 4.1.1 Data Pre-Processing

- After collecting data, I have done curation of data to remove poor quality data samples.
- I have performed similarity check to remove redundant samples.
- Then I used denoising models to improve the quality of image data.
- After that, to increase the dataset size I applied augmentations. I have applied augmentations such as Random crop, flip, Masking, sharpening, Gaussian Blur, etc.
- To improve the quality and increase the size of negative set, I have used style transfer model and created synthetic data samples.
- Below I have attached the sample images of my dataset.

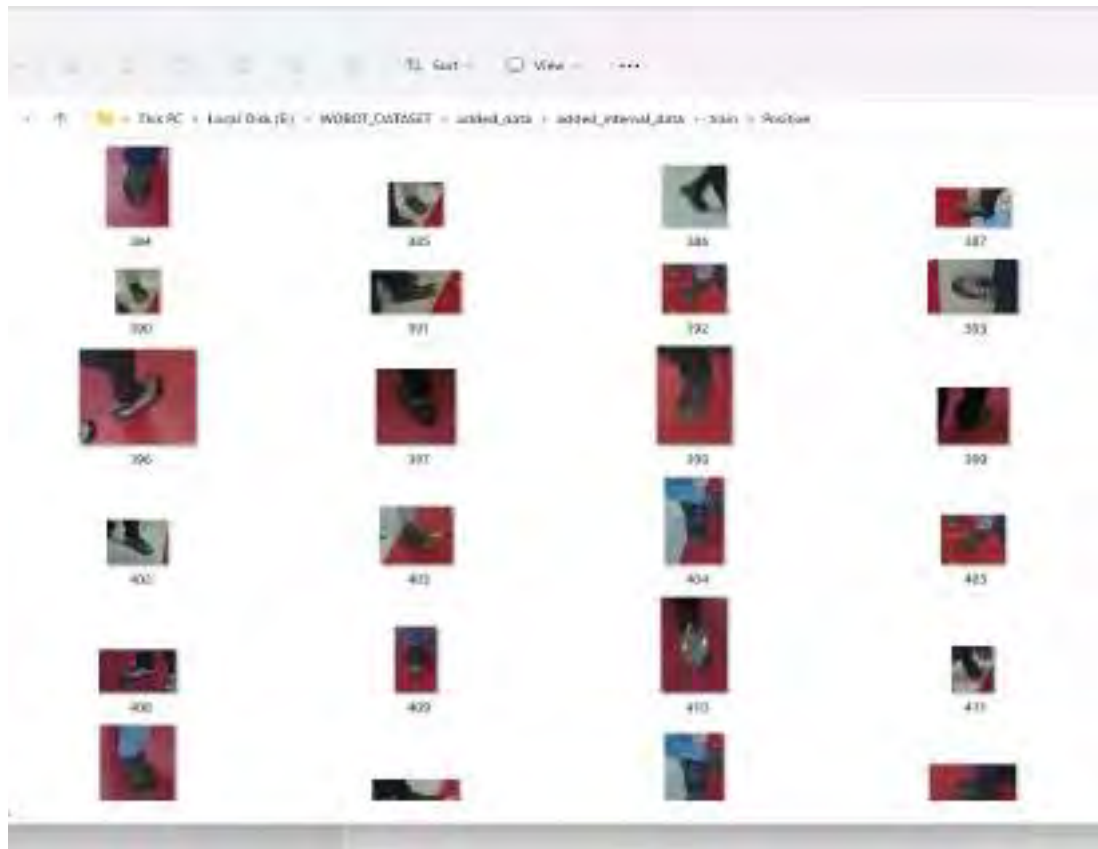


Fig 4.1 Positive Class Samples

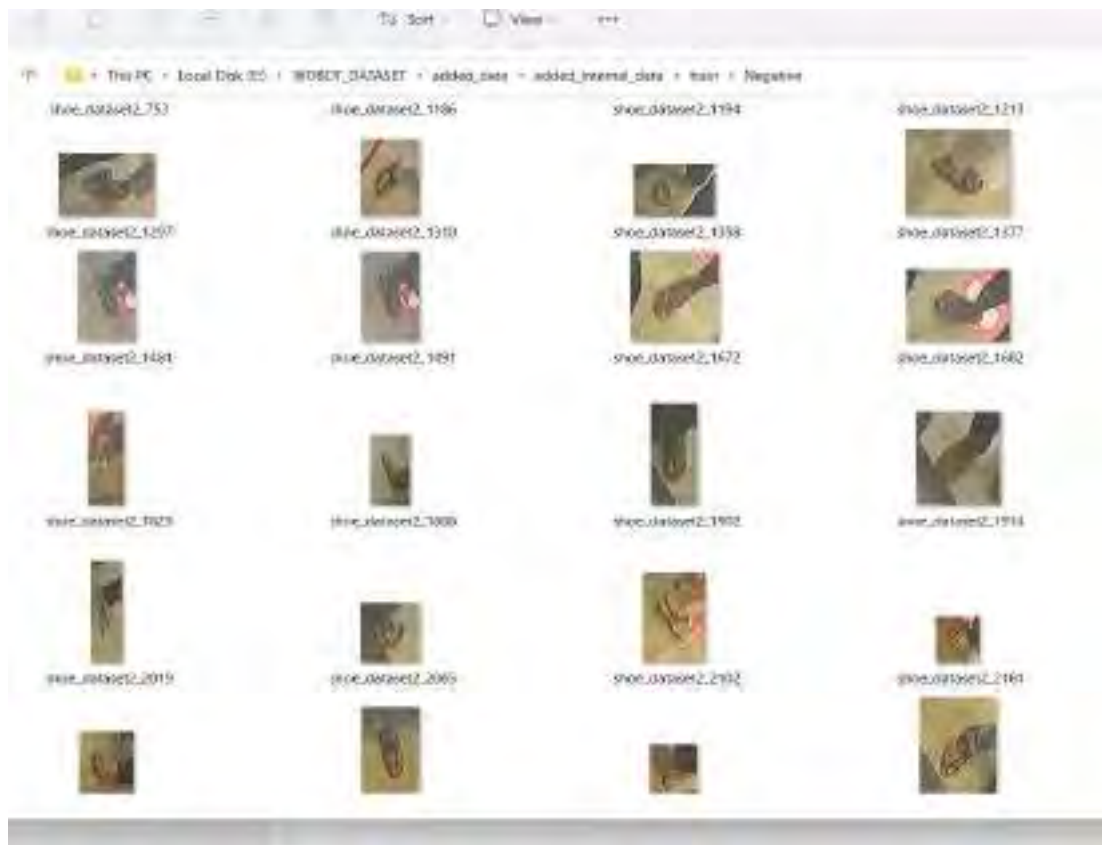


Fig 4.2 Negative Class Samples

## 4.2 Model Training

### 4.2.1 Experiments Performed

**Experiment 1:** I started with EfficientNetB0, I trained a few models with different data augmentations for different numbers of epochs. I logged all the training on MLflow.

**Experiment 2:** I have trained a few models of Resnet18 with different data augmentations for different numbers of epochs. I logged all the training on MLflow.

**Experiment 3:** I have trained a few models of Lenet with different data augmentations for different numbers of epochs. I logged all the training on MLflow.

**Experiment 4:** I have applied AD and trained a One-Class Classification model with Resnet18 backbone and k-nearest neighbors and Random Forest as the classifier.

**Experiment 5:** I have also trained one model by applying Self-Supervised AD using Lenet as encode-decoder architecture.

**Experiment 6:** I have applied AD and trained a model for Semi-Supervised AD with Resnet18 backbone.

**Experiment 7:** I have applied a few-shot learning approach and trained one Triplet-Network with triplet loss and one Triplet-Network with Arcface loss.

**Experiment 8:** In the last experiment, I used the Language-Vision Transformers model for our use-case as the application of zero-shot learning.

### 4.3 Model Optimization

To improve the performance of the models I have done hyperparameter tuning and performed some changes in model architecture to get the desired results.

#### **Hyperparameter tuning:**

- I have increased the number of epochs.
- I have tried different loss functions (i.e. softmax, sigmoid, focal loss).
- I have tried different optimizers (i.e. Adam, SGD).
- I have experimented with learning rate and dropout.
- I applied early stopping to prevent the models from overfitting.

#### **Changes in Architecture:**

- I have tried layer freezing for different layers while transfer learning with resnet18 and EfficientNetB0.
- I added more convolution layers to improve the feature extraction.
- I have tried adding attention to simple architecture to improve the performance.

#### **Played with color-space:**

- I have used some color changes related to data augmentations to improve and prevent the model from getting color biased.
- I have experimented with augmentations such as color-jitter and HSV (Hue Saturation Value).

#### **Conclusion:**

The optimization steps have increased the model performance significantly.

- For EfficientNet and Resnet18 it increased the accuracy of the rate ~10-12%.
- For Lenet it increased the accuracy of the rate by ~15-20%
- For AD approaches it has shown an increment of ~10-15%.

## CHAPTER 5 – EVALUATION

### 5.1 Model Evaluation Metrics

I have taken into account four indicators when assessing the shoe classification model.

1) Accuracy

- The accuracy metric is one of the simplest Classification metrics to implement, and it can be determined as the number of correct predictions to the total number of predictions.

$$Accuracy = \frac{\text{Number of Correct Predictions}}{\text{Total number of predictions}} \dots\dots\dots(5.1.1)$$

2) Precision

- The precision metric is used to overcome the limitation of Accuracy. The precision determines the proportion of positive prediction that was actually correct. It can be calculated as the True Positive or predictions that are actually true to the total positive predictions (True Positive and False Positive).

$$Precision = \frac{TP}{(TP + FP)} \dots\dots\dots(5.1.2)$$

3) Recall

- It is also similar to the Precision metric; however, it aims to calculate the proportion of actual positive that was identified incorrectly. It can be calculated as True Positive or predictions that are actually true to the total number of positives, either correctly predicted as positive or incorrectly predicted as negative (true Positive and false negative).

$$Recall = \frac{TP}{TP + FN} \dots\dots\dots(5.1.3)$$

4) Grad-Cam Results

- The Grad-CAM technique utilizes the gradients of the classification score with respect to the final convolutional feature map, to identify the parts of an input image that most impact the classification score. The places where this gradient is large are exactly the places where the final score depends most on the data.

## 5.2 Model Comparison & Grad-Cam

### Model 1: EfficientNetB0

**Reason of choice:** The model showed more accuracy than other models. It was also comparatively smaller than the other mentioned models, with lesser parameters, which was more suitable for our small dataset.

**Conclusion:** After performing 10+ experiments, the model was not able to extract any features from our dataset, and was possibly bigger than necessary for this dataset.

#### GradCAM results:

##### Positive-



Fig 5.1 Gradcam results on Positive set for EfficientNet

##### Negative-



Fig 5.2 Gradcam results on Negative set for EfficientNet

Precision: 82%

Recall: 82%

Accuracy: 60%

### Model 2: ResNet18

**Reason of choice:** Resnet was smaller and efficient.

**Conclusion:** Performance was similar to EfficientNetB0, and it was unable to extract the desired features from our dataset.

#### Gradcam results:

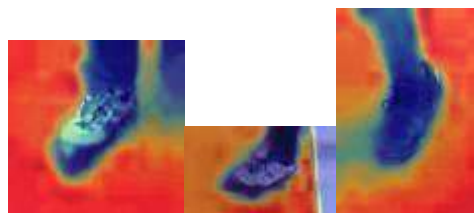


Fig 5.3 Gradcam results on Positive set for ResNet18

Precision: 88%

Recall: 88%

Accuracy: 65%

### Model 3: LeNet

**Reason of choice:** LeNet is a small, sequential model which was suitable for the data size being worked with.

Experiments:

1. Added convolutional layers to the existing architecture
2. Data Augmentation (I.e. HueSaturationValue, RandomContrast)

**Conclusion:** LeNet performs well on negative class, and predicts well 50% of the time on positive class.

**GradCAM results:**

**Positive-**



Fig 5.4 Gradcam results on Positive set for Lenet

**Negative-**

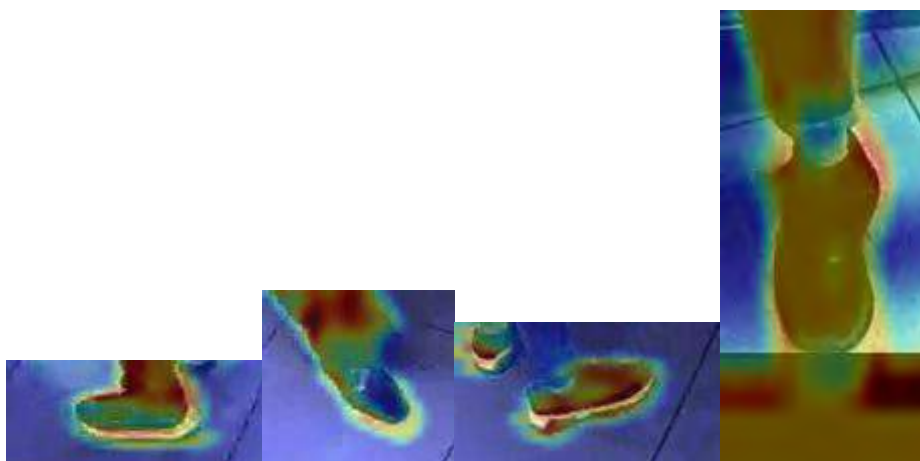


Fig 5.5 Gradcam results on Negative set for Lenet

Precision: 86%

Recall: 86%

Accuracy: 75%

**Model 4: One-Class Classification**

**Reason of choice:** The dataset was containing very few samples for negative class, and Negative class instances are not definable, to handle this imbalance in dataset I trained one-class classification model.

**Conclusion:** Trained One-Class model is biased to the class on which it is trained. It did not perform well and gives random predictions.

Precision: 71%

Recall: 70%

Accuracy: 60%

**Model 5: Self-Supervised AD**

**Reason of choice:** The dataset was containing very few samples for the negative class, and Negative class instances are not definable, And the target object is very small and it is difficult to extract features for these small objects. Encoders are better feature extractors.

**Conclusion:** Encoders are very complex architectures and require large data for training. Due to the mall dataset size, it did not perform well.

ROC value: 80%

**Model 6: Triplet Network**

**Reason of choice:** Triplet Networks implement triplet loss which can handle the data containing features that are hard to distinguish. It can perform detailed feature extraction.

**Conclusion:** It did not perform well due to the poor quality of the images.

Accuracy: 60%

**Model 7: Language-Vision Transformers**

**Reason of choice:** Language-Vision Transformers can classify objects into categories even for which it is not trained.

**Conclusion:** Language-Vision Transformers has shown the most promising results and performed well for both the Positive as well as Negative classes.

Accuracy on Positive class: 94%

Accuracy on Negative class: 81%



**MLflow logs of performed experiments:**

Run Name	Created	Duration	Source	Models	Metrics		
					accuracy	precision	recall
efficientnet_b0_feature_exp17	1 month ago	4.2h	train.py	tensorflow	0.821	0.671	0.730
efficientnet_b0_feature_exp17	1 month ago	18.0min	train.py	tensorflow	0.803	0.614	0.709
efficientnet_b0_feature_exp16	1 month ago	8.8min	train.py	tensorflow	0.831	0.662	0.671
efficientnet_b0_feature_exp15	1 month ago	9.4min	train.py	tensorflow	0.825	0.684	0.595
efficientnet_b0_feature_exp14	1 month ago	8.7min	train.py	tensorflow	0.846	0.709	0.662
efficientnet_b0_feature_exp13	1 month ago	5.4min	train.py	tensorflow	0.835	0.657	0.686
efficientnet_b0_feature_exp12	1 month ago	10.5min	train.py	tensorflow	0.81	0.66	0.601
efficientnet_b0_feature_exp11	1 month ago	7.9min	train.py	tensorflow	0.871	0.82	0.629

Fig 5.6 MLflow logs of Experiments

Run Name	Created	Duration	Source	Models	Metrics		
					accuracy	precision	recall
webnetattentionSE_RESNET_imbalanced_0	1 month ago	54min	train.py	tensorflow	0.822	0.629	0.795
webnetattentionSE_RESNET_imbalanced_0	1 month ago	2.4min	train.py	tensorflow	0.572	0.563	0.511
webnetattentionSE_RESNET_large_dataset	1 month ago	23.7min	train.py	tensorflow	0.968	0.968	0.967
webnetattentionSE_RESNET_large_dataset	1 month ago	28.6min	train.py	tensorflow	0.926	0.923	0.927
webnetattentionSE_RESNET_large_dataset	1 month ago	37.9s	train.py	-	-	-	-
webnetattentionSE_RESNET_large_dataset	1 month ago	1.4s	train.py	-	-	-	-
webnetattentionCBAM_large_dataset_0	1 month ago	17.4min	train.py	tensorflow	0.979	0.977	0.961
webnetattentionCBAM_large_dataset_0_exp4	1 month ago	34.6min	train.py	tensorflow	0.957	0.953	0.961

Fig 5.7 MLflow logs of Experiments

## CHAPTER 6 – DEPLOYMENT

Based on the evaluation the performance of the **Language-Vision Transformer** model was best on my dataset. So, I decided to deploy that model in a staging environment to test it on the real-time RTSP of a client.

### 6.1 Model Conversion

To get the inference in the staging environment I have to host the model on Triton-Inference-Server. To increase the inference speed and reduce the memory foot-prints of the trained model I have to convert the model to ONNX runtime.

**ONNX Runtime is a cross-platform inference and training machine-learning accelerator.**

**ONNX Runtime inference** can enable faster customer experiences and lower costs, supporting models from deep learning frameworks such as PyTorch and TensorFlow/Keras as well as classical machine learning libraries such as scikit-learn, LightGBM, XGBoost, etc. ONNX Runtime is compatible with different hardware, drivers, and operating systems, and provides optimal performance by leveraging hardware accelerators where applicable alongside graph optimizations and transforms.

The model conversion has increased the inference speed by 10X.

### 6.2 Host Model

After performing conversion to .onnx I have to host the model on triton-server so that by making grpc requests to the model I can infer the outputs for RTSP frames.

An ONNX model is a single file or a directory containing multiple files. By default the file or directory must be named model.onnx. This default name can be overridden using the *default\_model\_filename* property in the model configuration.

Triton supports all ONNX models that are supported by the version of ONNX Runtime being used by Triton. Models will not be supported if they use a stale ONNX opset version or contain operators with unsupported types.

A minimal model repository for a ONNX model contained in a single file is:

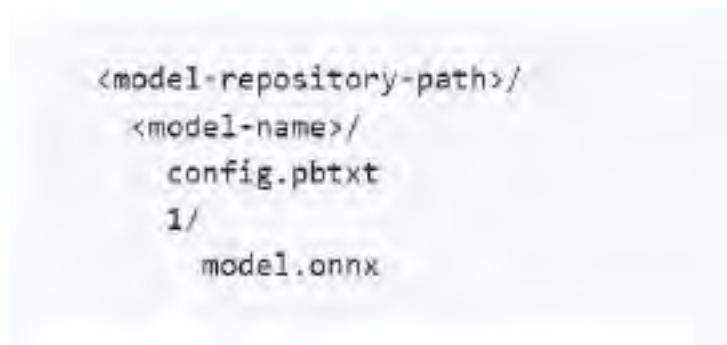


Fig 6.1 Repository Format to Host Model on Triton

### **Docker command to host model:**

```
docker run --gpus="device=0" --rm -p 8018:8000 -p 8019:8001 -p 8020:8002 -v
/home/dhruvi/safety-shoe-detector/model_repository/Vit-l-14-336-onnx:/models --name
dhruvi_MODELDEV_onnx nvcr.io/nvidia/tritonserver:22.07-py3 tritonserver --model-
repository=/models --strict-model-config=false --model-control-mode=explicit --load-
model=vision
```

### **6.3 Deploy Use-case in Staging**

To deploy the Use-case in staging, I first implemented triton inference script and integrated it with use-case pipeline. I tested it on video for debugging and then created a bitbucket repository for use-case and pushed it to remote bitbucket.

I then merged it to staging branch and build a docker image for use-case. I pushed that image to the DockerHub to create use-case container on cloud. I set environment variables required to run the usecase and deploy the use-case to the staging environment.

### **Docker command to Build Use-case image:**

```
docker build -f Dockerfiles/server.Dockerfile --build-arg GROUP_ID=$(id -g
${USER}) --build-arg USER_ID=$(id -u ${USER}) -t Dhruvi_modeldev_vit .
```

### **Docker command to run the Use-case:**

```
docker run -it --cpus="0.7" --memory="1000m" --name dhruvi_MODELDEV_staging -v
/home/dhruvi/safety-shoe-detector_vit:/app --net host dhruvi_model_dev_vit:latest
```

## 6.4 Outputs

After deploying the model in staging, I schedule the task on client's RTSP and ran it for few days. The use-case have raised the ticket on staging dashboard when violation occurred in defined ROI.

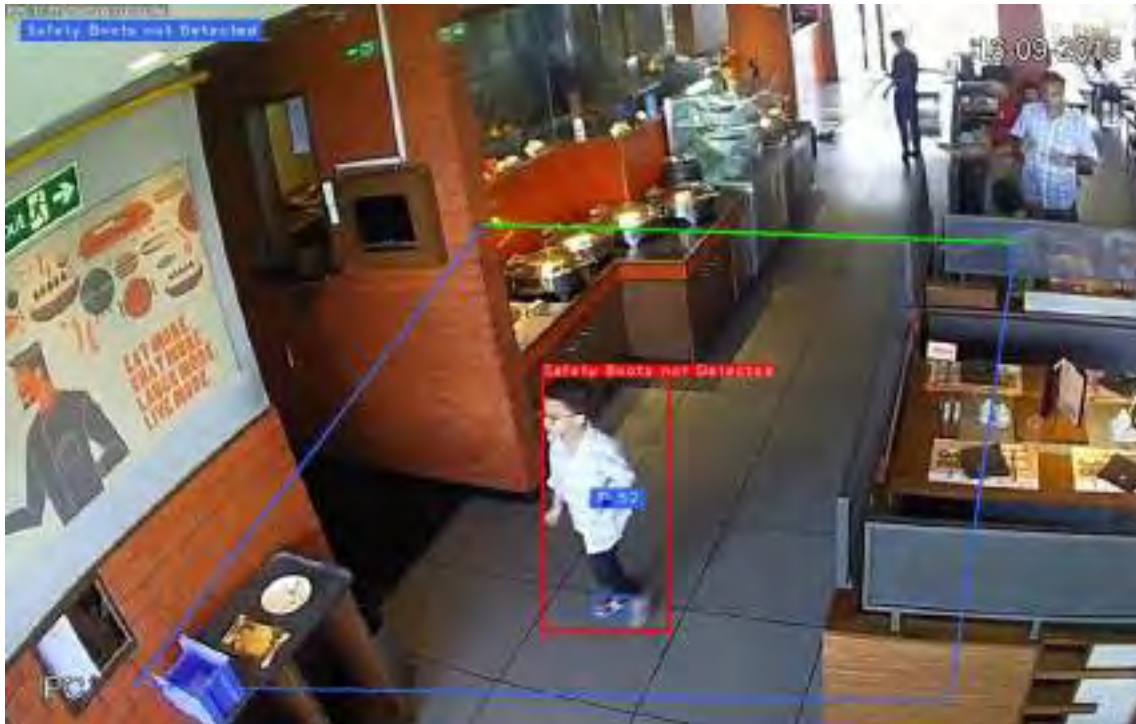


Fig 6.2 Ticket raised for person wearing sandals

## CHAPTER 7 - LEARNING FROM INTERNSHIP

### Tools Learned

- I learned tools used in the industry such as Docker, Triton-Server, ONNX Runtime, VS code, Linux etc. I got a deep understanding and hands-on experience of image processing using OpenCV. I got hands-on experience with various Python frameworks (i.e. Tensorflow, Pytorch, Keras).

### Approaches Learned

- I learned to design a use-case pipeline. I explored different techniques for model optimization. I learned to deal with poor-quality CCTV data. I got an end-to-end understanding of Neural-Networks and CV applications such as image classification, object-detection, and image-segmentation. I got the chance to implement Explainable AI. I have also explored model quantization.

### Soft-Skills Learned

- In this internship period, I learned communication skills, presentation skills, and documentation skills. I also learned leadership skills.

## **CHAPTER 8 - CONCLUSION AND DISCUSSION**

### **8.1 Overall Analysis of Internship / Project Viabilities**

It was a wonderful experience. I have learned a lot from this internship. I have come to know how the industry works. I learned to implement the end-to-end computer vision application from development to deployment. I also learned to write neat and efficient code which met the industry standards. I had grown technically as well as non-technically.

### **8.2 Dates of Continuous Evaluation (CE-I, CE-II, CE-III)**

CE - 1 : 18th March, 2023

CE - 2 : 6th May, 2023

### **8.3 Summary of Internship / Project work**

In this period of time, I had learned a lot from a technical point of view and learned the processes, tools, technologies which comes in Computer Vision. Complexity of tools and technologies ranges from basic to difficult. I had learned various technologies. I worked on state-of-the-art computer vision models and approaches.

Learned office etiquette from seniors and non-technical sessions on skills, and found insights from the sessions of our CEO based on life lessons.

## REFERENCES

- Boesch, G. (2023, January 2). *Top 18 Applications of Computer Vision in Security and Surveillance* - *viso.ai*. viso.ai. <https://viso.ai/applications/computer-vision-applications-in-surveillance-and-security/>
- *What is Docker?* | AWS. (n.d.). Amazon Web Services, Inc. <https://aws.amazon.com/docker/>
- *MLflow - A platform for the machine learning lifecycle*. (n.d.). MLflow. <https://mlflow.org/>
- *Triton Inference Server*. (2020, March 18). NVIDIA Developer. <https://developer.nvidia.com/nvidia-triton-inference-server>
- *Introduction to Grafana* | *Grafana documentation*. (n.d.). Grafana Labs. <https://grafana.com/docs/grafana/latest/introduction/>
- Hui, J. (2019, March 26). *Object detection: speed and accuracy comparison (Faster R-CNN, R-FCN, SSD, FPN, RetinaNet and . . .)* Medium. <https://jonathan-hui.medium.com/object-detection-speed-and-accuracy-comparison-faster-r-cnn-r-fcn-ssd-and-yolo-5425656ae359>
- *Zero-shot learning* - *Wikipedia*. (n.d.). Zero-shot Learning - Wikipedia. [https://en.wikipedia.org/wiki/Zero-shot\\_learning](https://en.wikipedia.org/wiki/Zero-shot_learning)
- *Performance Metrics in Machine Learning* - *Javatpoint*. (n.d.). [www.javatpoint.com](http://www.javatpoint.com). <https://www.javatpoint.com/performance-metrics-in-machine-learning>
- T. I. S. (2023, February 27). *server/model\_repository.md at main · triton-inference-server/server*. GitHub. <https://github.com/triton-inference-server/server>

# **INTERNSHIP AT RADIXWEB**

**AN INTERNSHIP REPORT**

*Submitted by*

**Dhruvi Rajeshbhai Patel**

**200390107504**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE  
SAFFRONY INSTITUTE OF TECHNOLOGY**



**Gujarat Technological University, Ahmedabad**

**May, 2023**





S.P.B. PATEL  
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## CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Internship at Radixweb** has been carried out by **Dhruvi Rajeshbhai Patel (200390107504)** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Prof. Akshay Kansara

Internal Guide

Prof. Akshay Kansara

Head of Department

## Company Certificate



Date: 28th April, 2023

### ONGOING TRAINING CERTIFICATE TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Dhruvi Patel** (EC: 2748) is currently working as Trainee Software Engineer in PHP with Radix Software Services Pvt. Ltd Ahmedabad since 1st February, 2021.

Warm Regards,



Yours Sincerely,

(Company Stamp & Authorized Signature)



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**DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Radixweb** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Mrs. Varsha Oberoi (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

Dhruvi Rajeshbhai Patel

## **ACKNOWLEDGMENT**

I would to thank Mr. Mayur Rayal and Mrs. Mansi Soni and HR team of RadixWeb – Radix Software Services PVT LTD for providing me with the opportunity to undertake my internship within the organization.

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I would like to thank the entire Radixweb family for making my internship an enriching experience. The organization has provided me with a valuable learning experience, which will undoubtedly benefit me in my future endeavors.

I am extremely grateful to the department staff members and friends that helped me in completing this internship successfully.

Thank you all once again for your support and guidance.

Sincerely,

Dhruvi Rajeshbhai Patel  
(200390107504)

## **Abstract**

Industrial training is an important phase of a student's life. A well planned, properly executed and evaluated industrial training helps a lot in developing a professional attitude. It develops an awareness of industrial approach to problem solving, based on a broad understanding of process and mode of operation of organization.

The purpose and inspiration for this industrial training is to assist me, a student studying computer science, acquire a responsiveness to the abstract self-disciplinary nature of problems by providing me with discipline, skills, teamwork, and technical knowledge through an appropriate training environment.

I was appointed by RadixWeb for a twelve-week training period as a trainee software engineer to carry out and manage the business's web development initiatives. I've worked with Git, Redmine, HTML, CSS, Bootstrap, Tailwind CSS, Docker, JavaScript, jQuery, Typescript, SQL, PHP during this industrial training. These tools are necessary for the production and development of web applications.

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## Abbreviations

QA	Quality Assurance
CSS	Cascading Style Sheets
SQL	Structured Query Language
PHP	Hypertext Preprocessor
HTTP	HyperText Transfer Protocol
SDLC	Software Development Life Cycle
HTML	Hypertext Markup Language
GB	GigaByte
DOM	Document Object Model
AJAX	Asynchronous JavaScript
DML	Data Manipulation Language
DQL	Data Query Language
XML	Extensible Markup Language
JSX	JavaScript XML

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## CHAPTER 1: - OVERVIEW OF THE COMPANY

### 1.1 HISTORY

RadixWeb is a software development company based in Ahmedabad, India, with additional offices in the United States and the United Kingdom. The company was founded in 2000 and has since become a leading provider of software development and IT outsourcing services.

RadixWeb offers a wide range of services to clients in various industries, including custom software development, web application development, mobile app development, cloud computing, software testing, and maintenance and support. The company has expertise in various technologies, such as .NET, PHP, Python, Angular, React, Node.js, and more.

RadixWeb has a team of over 700 skilled professionals, including software engineers, project managers, and quality assurance specialists. The company has received various awards and recognitions for its services, including the Stevie Business Awards for Innovation in Technology Development, the best IT Consulting Company Award by Globe Business Awards, the most Innovative IT Company of 2022 by TITAN Business Awards, the Great Place to Work India, 2021 Certification, and the International Association of Outsourcing Professionals (IAOP) award.

RadixWeb is committed to delivering high-quality software solutions to its clients, and has established a reputation for excellence in the industry. The company prides itself on its customer-centric approach, and its ability to deliver innovative and cost-effective solutions that meet the unique needs of each client.



Fig. 1.1 RadixWeb Logo  
(Courtesy of <https://radixweb.com/>)

## 1.2 DIFFERENT PRODUCTS

### OnPrintShop



Fig 1.2 OnPrintShop Logo  
(Courtesy of <https://www.onprintshop.com/>)

OnPrintShop is a web-to-print solution developed by RadixWeb that enables printing companies to create and manage online stores for their customers. It is a comprehensive solution that includes features such as product personalization, design templates, order management, and payment processing.

The solution is designed to cater to the needs of printing companies that want to expand their business by offering online printing services to their customers. With OnPrintShop, printing companies can create customized online stores for their customers where they can order products such as business cards, brochures, flyers, and more.

OnPrintShop offers a range of features that enable printing companies to create a seamless online shopping experience for their customers. The solution includes a powerful product personalization tool that enables customers to customize their products with text, images, and graphics. The solution also includes a wide range of design templates that customers can choose from to create their customized products.

Order management is also a key feature of OnPrintShop, with the solution offering a range of tools to manage orders efficiently. The solution includes order tracking, order history, and shipping integration with leading logistics providers.

Payment processing is also streamlined with OnPrintShop, with the solution supporting multiple payment gateways to enable customers to pay for their orders securely.

Overall, OnPrintShop is an excellent solution for printing companies looking to expand their business by offering online printing services. The solution offers a range of features that enable printing companies to create a seamless online shopping experience for their customers while also managing orders efficiently.

### RxWeb



Fig 1.3 RxWeb Logo  
(Courtesy of <https://rxweb.io/>)

RxWeb is an open-source framework for developing TypeScript reactive web apps. By offering a set of tools and rules for developing scalable and maintainable systems, it is intended to make the development of sophisticated online apps simpler.

The framework is constructed on top of Angular and RxJS, two commonly used web development technologies. The reactive programming paradigm, which RxWeb makes use of, enables programmers to design code that reacts to changes in data over time. This improves user experience and makes it simpler to manage complex data flows in web applications.

The capabilities and conventions offered by RxWeb make it simple to create reactive web apps. These consist of:

1. **Reactive forms:** To make it easier to create forms for online applications, RxWeb offers a reactive form module. This module offers a set of validators for form validation and makes use of RxJS's power to manage form data changes.
2. **Reactive HTTP:** To make communication with web servers simpler, RxWeb offers a reactive HTTP module. This module handles HTTP requests and responses using observables, which makes handling complex data flows and handling failures simpler.
3. **Reactive storage:** RxWeb offers a reactive storage module that makes it easier for web applications to manage client-side storage. This module offers a simple-to-use API for saving and retrieving data while utilizing local storage and session storage.
4. **Code generation:** RxWeb offers a collection of tools for code generation that make it easier to create intricate web apps. The time and effort needed to create web applications is decreased by these tools, which produce boilerplate code from straightforward configuration files.

RxWeb is an effective framework that makes it easier to create reactive web apps. It is the best option for creating scalable and maintainable web apps due to its concentration on reactive programming and code generation.

## **Fabrika16**



Fig 1.4 Fabrika16 Logo  
(Courtesy of <https://fabrika16.com/>)

Fabrika16 is a software product developed by RadixWeb that is designed to automate the operations of textile and garment manufacturing companies. The product is a complete

solution that enables organizations to optimize their operations, lower errors, and boost productivity.

Fabrika16 includes a range of modules that cover various aspects of textile and garment manufacturing, including production planning, inventory management, quality control, and sales management. The system can be fully customized to meet the unique needs of each client.

Some of the key features of Fabrika16 include:

1. **Production planning and scheduling:** The solution enables businesses to create production schedules based on customer orders, production capacity, and material availability. The scheduling module helps businesses optimize their production processes and reduce lead times.
2. **Inventory management:** Fabrika16 includes a comprehensive inventory management module that enables businesses to track raw materials, finished products, and work-in-progress. The solution includes features such as barcode scanning, stock alerts, and real-time inventory updates.
3. **Quality control:** The solution includes a quality control module that enables businesses to monitor and control the quality of their products throughout the production process. The module includes features such as quality inspections, defect tracking, and root cause analysis.
4. **Sales management:** Fabrika16 includes a sales management module that enables businesses to manage their customer orders, quotations, and invoices. The module includes features such as order tracking, order status updates, and automated invoicing.

Overall, Fabrika16 is a powerful software solution that can help textile and garment manufacturing companies optimize their operations and improve their bottom line.

## Picsy



Fig 1.5 Picsy Logo  
(Courtesy of <https://www.picsy.in/>)

Picsy is a product developed by RadixWeb, a software development company based in India. Picsy is a mobile application that allows users to create personalized photo books, collages, and other photo products using their own photos. The app is available for both iOS and Android platforms.

With Picsy, users can choose from a variety of pre-designed templates for their photo products or create their own designs. The app offers a user-friendly interface that allows users to easily select and arrange their photos, add text and stickers, and customize the layout and design of their photo products.

One of the unique features of Picsy is its AI-powered photo sorting and selection algorithm, which helps users quickly sort through their photo collections and select the best photos for their photo products. The app also offers a variety of editing tools, including filters and photo enhancement options, to help users enhance their photos before adding them to their photo products.

Once a user has created their photo product, they can order it directly through the app and have it delivered to their doorstep. Picsy offers a variety of printing and shipping options, including standard and express shipping, and accepts a variety of payment methods.

Picsy has received positive reviews from users, who praise its ease of use, customizable design options, and high-quality photo printing. The app is a great tool for anyone looking to create personalized photo products, whether as a gift or for their own personal use.

### 1.3 ORGANIZATION CHART



Fig 1.6 Organization Chart  
(Courtesy of <https://theorg.com/org/radixweb>)

## **1.4 CAPACITY OF PLANT**

With rich and varied experience of 20+ years in software development and stringent quality standards, RadixWeb offer utmost qualitative, on-time and cost-effective software solutions. RadixWeb serve clientele across the industries and globe with offices in US, Canada, UK, Australia, and Development center in India with a workforce of 700+ IT professionals.

RadixWeb have successfully completed 1800+ projects with 700+ SMEs and Fortune 500 companies.

## **1.5 MISSION AND VISION OF THE COMPANY**

### **Mission**

RadixWeb's mission is to provide innovative and customized software solutions to clients across various industries. The company aims to leverage its expertise in technology to help clients achieve their business objectives and enhance their competitive edge. RadixWeb strives to maintain the highest standards of quality, integrity, and professionalism in all its operations.

### **Vision**

RadixWeb's vision is to be a globally recognized software development company that delivers innovative and cutting-edge solutions to clients across various industries. The company aims to achieve this vision by continuously investing in the latest technology, attracting and retaining top talent, and providing exceptional customer service to clients. RadixWeb also aims to be a socially responsible company that contributes to the betterment of society and the environment.

## CHAPTER 2: - DIFFERENT UNIT OF THE ORGAINAZATION

### 2.1 WORK BEING CARRIED OUT BY EACH DEPARTMENT

RadixWeb has various departments, each playing a crucial role in delivering high-quality software solutions to its clients. Here's a brief overview of the work carried out by each department:

1. **Business Development:** The Business Development department is responsible for identifying potential clients and establishing partnerships with them. They are responsible for understanding the clients' requirements, developing proposals, and negotiating contracts. They work closely with the other departments to ensure that the proposed solutions meet the clients' needs.
2. **Project Management:** The Project Management department is responsible for managing the software development projects from start to finish. They work closely with the clients, the development team, and other stakeholders to ensure that the project is completed within the specified timeline, budget, and scope. They also ensure that the project meets the quality standards set by the company.
3. **Software Development:** The Software Development department is responsible for designing, developing, testing, and maintaining software applications. They work with various programming languages, frameworks, and tools to develop custom software solutions that meet the clients' requirements. They follow agile methodologies and best practices to ensure that the software is delivered on time, within budget, and with the desired quality.
4. **Quality Assurance:** The Quality Assurance department is responsible for testing the software applications developed by the software development team. They ensure that the software meets the functional and non-functional requirements specified by the clients. They perform various types of testing, such as unit testing, integration testing, system testing, and acceptance testing, to ensure that the software is bug-free and meets the quality standards set by the company.
5. **UX/UI Design:** The UX/UI Design department is responsible for designing user interfaces and user experiences for software applications. They work closely with the software development team to ensure that the software is user-friendly, intuitive, and visually appealing. They use various tools and techniques to create wireframes, mockups, and prototypes that showcase the software's design and functionality.
6. **Human Resources:** The Human Resources department is responsible for recruiting, training, and managing the company's workforce. They ensure that the company has the right talent and resources to deliver high-quality software solutions to its clients. They also ensure that the company's policies and procedures are compliant with the relevant laws and regulations.
7. **Marketing:** The Marketing department is responsible for promoting the company's services and brand. They develop marketing strategies, create content, and use



various channels to reach out to potential clients. They also organize events, webinars, and conferences to showcase the company's expertise and capabilities.

Overall, each department plays a critical role in delivering high-quality software solutions to RadixWeb's clients. They work collaboratively to ensure that the projects are completed on time, within budget, and with the desired quality.

## **2.2 LIST TECHNICAL SPECIFICATIONS OF MAJOR EQUIPMENT USED IN EACH DEPARTMENT**

1. **Business Development:** Laptops, desktop computers, projectors, conference call systems, CRM software, project management software.
2. **Project Management:** Laptops, desktop computers, project management software, collaboration tools, communication software, time tracking software.
3. **Software Development:** Laptops, desktop computers, servers, integrated development environments (IDEs), code editors, version control software, testing frameworks, programming languages, software development kits (SDKs).
4. **Quality Assurance:** Laptops, desktop computers, software testing tools, test automation tools, defect tracking software, virtualization software.
5. **UX/UI Design:** Laptops, desktop computers, design software, wireframing tools, prototyping tools, graphic design software, user testing software.
6. **Human Resources:** Laptops, desktop computers, HR software, payroll software, time tracking software, benefits management software.
7. **Marketing:** Laptops, desktop computers, marketing automation software, email marketing software, social media management tools, analytics software, content creation tools.

It's worth noting that the specific technical specifications of the equipment used in each department can vary depending on the specific needs of the department and the projects being worked on.

## 2.3 SCHEMATIC LAYOUT WHICH SHOWS THE SEQUENCE OF OPERATION FOR MANUFACTURING OF END PRODUCT



Fig 2.1 Software Development Life Cycle Stages  
(Courtesy of <https://radixweb.com/>)

SDLC (Software Development Life Cycle) has different process stages in which software passes through during its lifetime. The software development life cycle consists of a defined step-by-step process for developing quality software. And if any of the steps are missed, then all the software development efforts will go in vain.

The software development life cycle stages consist of requirement gathering, design, development, testing, deployment, and maintenance. However, when you hire a dedicated team of experts, they are responsible for each software product development phase.

Moreover, the software design process steps remain constant, irrespective of implementing the software development methodology.

## 2.3 DIFFERENT STAGES OF THE PRODUCTION

### Stage-1: Requirements Analysis and Planning

In the software development process, requirements analysis and planning are considered the first step. For many projects, this step requires a great amount of attention. Project managers and prospects exchange words to understand each other's persona and requirements.

There are several questions to be asked at this stage, which are:

- Who is going to use the product?
- How will the software be used upon completion?
- What types of functionalities and features will the software have?
- What should be the final outcome of this product or software? After getting answers

to the above questions, a general outline is created for the software development team to focus on. Then data is monitored to ensure the validity and any possibility for incorporation of the same. Finally, a requirement specification document is created as a roadmap for the next stage of the software development process.

Before proceeding with the software product development strategic move, technical feasibility needs to be checked at this stage.

### **Stage-2: Design and Prototyping**

In this phase of SDLC, you need to create simple wireframes to show how interactions will function in the software or create full-featured prototypes using various tools like InVision or Adobe to test with users, depending on the software development approach you are using.

In this stage, you can identify whether there are any errors or bottlenecks or not. You can easily get prompt feedback from the users and improve the products based on their feedback or issues. This will help you with the finalized product for development.

### **Stage-3: Software Development**

Development phase only comes into the software process once you are ready with your final requirements, wireframe, prototype, and sure about UX design. The software engineers start working on the development by choosing their given programming language for enterprise software development.

Apart from writing codes, software developers perform unit and module testing to detect potential errors in the early stage of development. However, some organizations prefer to outsource their software development requirements for better product development. In fact, the actual reason for outsourcing development varies from simply not having capable in-house resources or skills.

Tasks are divided based on the development approach, and the product can be developed by the specified timeline. Many important documents are created, including the design document, the functional requirement specification document, and the coding guidelines used for the final delivery.

### **Stage-4: QA and Testing**

Quality is the key to the success of any software product. Hence, the testing and quality assurance stage involves various types of testing, such as system testing, bug fixing, user acceptance testing (UAT), and test report generation.

Once the product is ready with all the features and functionalities, it's deemed ready for quality assurance. It's performed iteratively as issues are found, corrected, and verified.

### **Stage-5: Deployment**

Deployment is one of the important stages in the software development life cycle. Once the developers are done with coding and testing, the next development phase is to deploy or publish your software on the given servers.

As the product is now available on the market to potential customers, it's named an Alpha release. This is because a limited set of users use the product and give their feedback. Once all the feedback is gathered, the required changes are updated to the software for seamless performance and then released as a Beta version. Now, more user base will have access to the software product.

### **Stage-6: Maintenance and Updates**

The SDLC is not completed once your software is deployed or available on the market. You know, it's a 'lifecycle' and "iterative process", right?

The ending of one phase is just the beginning of another. And this is applicable after the deployment stage as well.

As we know, in this competitive market, project requirements and customer need always keep changing. While using the software product, some users may also find bugs or errors. Moreover, they will also request new features and different functionalities for a seamless experience. And the software requires platform upgrades and software maintenance.

## **CHAPTER 3:- INTRODUCTION TO INTERNSHIP**

### **3.1 INTERNSHIP SUMMARY**

It was an amazing experience to learn about a technology which is quite trending in today's era. Learning about website development in React.js was a new experience for me and I am glad that I got to learn this technology.

Currently, React.js is one of the most popular JavaScript front-end libraries which has a strong foundation and a large community. I have worked on making static home pages as a part of my internship task. I got experience of learning new tools and technology. I learned a systematic approach of completing work on time and cooperating with my colleagues.

### **3.2 PURPOSE**

Industry experience is often an important part of applying for full time positions. Gaining experience through internship can be helpful for our future scope. Similarly, my purpose was to gain experience and decide my career path so that I can have a clear path towards my goals. Also, I wanted to develop new skills and build a network with professionals.

### **3.3 OBJECTIVE**

A motivated individual with in-depth knowledge of languages and development tools, seeking a position in a growth-oriented company where I can use my skills to the advantage of the company while having the scope to develop my own skills.

To work as a Software Developer applying my knowledge in the field of testing, designing, and maintenance to cater to the specific needs of the people. I wish to work in a team of motivated individuals who wish to work towards the advancement of the company.

### **3.4 SCOPE**

The scope for the internship role at my company was to perform the tasks that had been allotted to me before the deadline.

The things that I was allowed to do:

- Be punctual and attend all the scheduled meetings, including orientations, training sessions, and team meetings.
- Dress appropriately as per the company culture and guidelines.
- Be respectful and courteous to everyone, including supervisors, colleagues, and clients.
- Ask questions and seek feedback to improve your skills and understanding of the tasks assigned to you.
- Follow the company policies and guidelines related to confidentiality, security, and professional conduct.
- Take initiative and show a willingness to learn and contribute to the team's goals.

- Communicate effectively with your supervisor and colleagues, including sharing progress reports and seeking guidance as needed.

The things that I was not allowed to do:

- Don't engage in any behavior that violates the company's policies or the law, including harassment, discrimination, or unethical conduct.
- Don't use company resources or information for personal gain or share confidential information with unauthorized individuals.
- Don't miss any deadlines or fail to complete assigned tasks without prior communication and approval from your supervisor.
- Don't be late or absent from work without valid reasons or prior approval from your supervisor.
- Don't engage in any unprofessional behavior, including gossiping, being rude, or disruptive in the workplace.
- Don't assume anything, ask questions if you are unsure about anything, and seek feedback to improve your work.

### 3.5 TECHNOLOGY

- Git
- HTML
- CSS
- Bootstrap
- Tailwind CSS
- Docker
- Javascript
- JQuery
- Typescript
- SQL
- PHP

### 3.6 INTERNSHIP PLANNING

The Internship was mainly divided into two parts:

1. **Common Training:** This training was carried out from 01/02/2023 to 11/04/2023. In this training all the new interns got the common training which included the training about the Git, HTML, CSS, Bootstrap, Tailwind CSS, Docker, Javascript, JQuery, Typescript and Mysql. This part of the training was intended to learn the concepts that would be required to be used in the live projects in the future and make familiar with all the common languages.
2. **Technology-specific Training:** This training was carried out from 12/04/2023 to 01/05/2023. In this training I learned about the Basic PHP. This training involve Assignments or tasks that allow me to apply their newly acquired knowledge in practical scenarios. It helps me become more proficient in my chosen field of study or career path. This training was designed to

equip me with the necessary skills and knowledge to perform tasks related to the project effectively in the future.

### 3.7 INTERNSHIP SCHEDULING



Fig 3.1 Gantt Chart Of Internship

## CHAPTER 4:- IMPLEMENTATION

### 4.1 IMPLEMENTATION PLATFORM

#### Visual Studio Code

Visual Studio Code is a free and open-source code editor developed by Microsoft that runs on Windows, Linux, and macOS. It offers support for a wide range of programming languages, including Python, Java, C++, and JavaScript, and comes with features such as syntax highlighting, code completion, debugging tools, and Git integration. Visual Studio Code also supports extensions, which allows users to customize the editor to their specific needs, making it a popular choice among developers.

#### MySQL Workbench

MySQL Workbench is a unified visual tool for database architects, developers, and DBAs. MySQL Workbench provides data modeling, SQL development, and comprehensive administration tools for server configuration, user administration, backup, and much more. MySQL Workbench is available on Windows, Linux and Mac OS X.

MySQL Workbench enables a DBA, developer, or data architect to visually design, model, generate, and manage databases. It includes everything a data modeler needs for creating complex ER models, forward and reverse engineering, and also delivers key features for performing difficult change management and documentation tasks that normally require much time and effort.

### 4.2 TECHNOLOGY

#### Git

Git is a popular version control system designed to help developers manage and track changes to their codebase over time. It was created by Linus Torvalds in 2005 and has since become one of the most widely used tools for software development.

At its core, Git is a distributed system, meaning that every developer working on a project has a complete copy of the codebase on their local machine. This allows developers to work on their own code without disrupting others, and makes it easy to merge changes from multiple contributors into a single codebase.

Git also offers a range of features that make it easy to track changes to a codebase over time. For example, developers can create "commits" to record changes to their code, add comments to explain their reasoning behind those changes, and roll back to previous versions of the codebase if necessary.

One of the key benefits of Git is its ability to handle conflicts that arise when multiple developers make changes to the same codebase at the same time. Git provides tools for merging conflicting changes, allowing developers to collaborate effectively without losing any code.



Finally, Git also provides a range of tools for managing and sharing code with other developers. For example, developers can use Git to create "branches" that allow them to work on new features or bug fixes without disrupting the main codebase. They can also use Git to share their code with others, either by pushing changes to a central repository or by forking the codebase and creating their own version.

Overall, Git is a powerful and flexible tool that has become an essential part of modern software development. Its ability to handle complex codebases and support collaboration makes it a must-have tool for any development team.

The topics which I learned in Git during the internship are as follows:

- Learned how to create the Repository, clone the Repository, Making Changes in the Repository.
- Learned how to commit, push and Resolve Conflict while taking pull.
- Learned how to create branch, checkout the branch, merging the branch, cherry pick, merge and rebase, stage the changes and stash the changes.

## **HTML**

HTML (HyperText Markup Language) is a standard markup language used to create web pages and other information that can be displayed in a web browser. It consists of a set of tags and attributes that define the structure, content, and formatting of web documents.

HTML documents are made up of a series of elements, which are enclosed in tags. Tags are composed of angle brackets (<>) and are usually paired, with a start tag and an end tag. The content of an element is placed between the start and end tags, and can include text, images, links, and other types of media.

HTML also allows for the use of attributes, which provide additional information about an element. Attributes are placed within the opening tag and can specify things like the color of text, the location of an image, or the target of a link.

HTML is essential for creating websites and is often used in conjunction with other technologies such as CSS (Cascading Style Sheets) and JavaScript to create interactive, dynamic web pages. With HTML, web developers can create well-structured and accessible web pages that can be accessed from a variety of devices and platforms.

The topics which I learned in HTML during the internship are as follows:

- Learned HTML5, Empty tags, common HTML tags, Attribute, tables, Ordered List and Unordered List.
- Learned HTML Layout, Semantic Markup, Header and Footer, section, nav, forms, Validation and HTML5 media Tags (Audio and Video).

## **CSS**

CSS (Cascading Style Sheets) is a stylesheet language used for describing the presentation of a document written in HTML or XML. CSS is used to control the visual style and layout of web pages, including fonts, colors, spacing, and more. It allows web developers to separate

the design and layout of a web page from its content, making it easier to maintain and update.

CSS works by selecting HTML elements and applying styles to them. This can be done using various selectors, such as element selectors, class selectors, and ID selectors. Styles can be applied to specific elements, groups of elements, or to the entire document.

CSS provides a wide range of properties that can be used to define styles, such as font-size, color, background-color, margin, padding, border, and many others. These properties can be combined to create complex visual effects and layout designs.

CSS also supports the concept of cascading, where multiple styles can be applied to an element, with the most specific style taking precedence. This allows for a high level of control over the appearance of web pages, and makes it possible to create consistent and professional-looking designs across an entire website.

Overall, CSS is an essential tool for web developers, allowing them to create visually appealing and responsive web pages that are easy to maintain and update.

The topics which I learned in CSS during the internship are as follows:

- Learned CSS Selectors (id selectors, class selectors, element selectors), background properties, border properties.
- Learned Text properties, Display properties (inline, block, inline-block)
- Learned CSS Float properties, CSS Position properties and CSS Overflow properties.
- Learned CSS Box Model.
- Learned Flex Model.
- Learned CSS Media Queries.
- Learned Grid Layout.

## **Bootstrap**

Bootstrap is a popular open-source front-end framework that provides a collection of tools, CSS styles, and JavaScript components to help developers quickly build responsive and mobile-first websites and web applications. It was created by Twitter and is now maintained by a large community of developers.

Bootstrap uses a grid system to define the layout of a webpage, which allows developers to create responsive designs that adapt to different screen sizes and devices. It also provides a set of pre-designed components such as buttons, forms, navigation menus, and typography, that can be easily customized and extended.

One of the main benefits of Bootstrap is that it enables developers to save time by providing a standardized set of components that can be easily integrated into their projects. It also ensures a consistent look and feel across different websites and applications, making it a great choice for web developers who want to focus on functionality rather than design.

Bootstrap is compatible with all modern web browsers and supports the latest HTML, CSS, and JavaScript standards. It also has a large community of developers and contributors who provide support, resources, and plugins to enhance its functionality and ease of use.

In summary, Bootstrap is a popular front-end framework that provides a comprehensive set of tools and components to help developers build responsive and mobile-first websites and web applications quickly and efficiently.

The topics which I learned in Bootstrap during the internship are as follows:

- Learned Text Alignment & Display, Float & Fixed positions, Colors & background, margin & spacing, sizing & borders, buttons & buttons groups.
- Learned navbar & nav, Listgroups & Badges, Forms & Input, Input Groups, Alert & Progress Bars, Tables & Pagination, Cards, Breadcrumbs, Carousel, Badge.
- Learned Grid System & Flex box, Carousel Slider, Collapse & Accordion, popovers, Modals.

### **Tailwind CSS**

Tailwind CSS is a popular utility-first CSS framework that provides developers with a set of pre-defined CSS classes to quickly and easily style HTML content. Unlike traditional CSS frameworks, which often have pre-built components and require extensive customization, Tailwind CSS focuses on providing low-level utility classes that can be combined to create custom designs without writing any CSS code.

The framework is highly customizable and includes a comprehensive set of pre-built classes for layout, typography, color, and spacing, among other things. This allows developers to quickly prototype and iterate on designs, as well as create responsive layouts that adapt to different screen sizes.

One of the key benefits of Tailwind CSS is its flexibility. Because it provides low-level utility classes, developers can create highly customized designs without having to override default styles or deal with complex CSS specificity issues. Additionally, the framework is highly modular, making it easy to selectively include only the classes needed for a particular project.

Tailwind CSS also includes a variety of tools and plugins to further enhance its capabilities, such as a responsive design engine, a JIT (Just-In-Time) compiler that optimizes CSS output, and a growing collection of community-created plugins for additional functionality.

Overall, Tailwind CSS is a powerful and flexible CSS framework that provides developers with a modern and efficient way to style their web projects.

### **Docker**

Docker is a platform that enables developers to create, deploy, and run applications in a consistent, reliable, and scalable way. It uses containerization technology to package an application and all its dependencies into a single container that can be easily moved from one environment to another.

Docker containers are lightweight and efficient, allowing developers to easily spin up and tear down environments for testing, development, and production. Each container is isolated from the host operating system and other containers, providing a secure and reliable way to run applications.

Docker provides a wide range of tools and services to manage containers, including Docker Engine, Docker Compose, and Docker Swarm. Docker Engine is the core of the Docker platform, providing a runtime environment for containers. Docker Compose enables developers to define multi-container applications, while Docker Swarm provides a way to manage a cluster of Docker nodes.

Overall, Docker has become a popular choice for developers and organizations looking to streamline the development and deployment of their applications, and is used by many companies across a variety of industries.

The topics which I learned in Docker during the internship are as follows:

- Learned docker container, images, building images, using images, dockerfile, docker CLI.
- Learned Docker Compose, Multistages in dockerfile, Docker Volumes, Docker hub, push and pull the images.

## **Javascript**

JavaScript is a programming language that is commonly used to create dynamic and interactive web pages. It is a high-level language that is interpreted by browsers, which means that it is executed on the client-side, or on the user's computer, rather than on the server.

JavaScript allows web developers to add a variety of interactive features to web pages, such as drop-down menus, pop-up windows, and animations. It can also be used for more complex tasks, such as creating web-based games, building web applications, and even controlling robots and drones.

One of the key features of JavaScript is its ability to manipulate the Document Object Model (DOM), which is the programming interface for HTML and XML documents. This allows developers to dynamically change the content and appearance of web pages in response to user actions, without the need for a full page refresh.

JavaScript is a versatile and flexible language, and it can be used in a variety of environments, including web browsers, servers, and even mobile devices. It is also constantly evolving, with new features and updates being added regularly, which makes it an exciting language for developers to work with.

The topics which I learned in Javascript during the internship are as follows:

- Learned Javascript Variables, Data types, Functions, for, while, foreach loop, Array, methods, events.
- Learned Array methods, String methods, Number methods, Date methods, Regular Expression.
- Learned DOM, callback, promises, async and await.
- Learned Function Expression, function constructor, self-invoking constructor, function call, function apply, function hoisting, global variable and local variable and function closure.

← Learned Web storage API, web fetch API.

## jQuery

jQuery is a fast, lightweight, and powerful JavaScript library that simplifies HTML document traversing, event handling, animating, and AJAX interactions for rapid web development. It is cross-platform compatible and can be used with any web browser that supports JavaScript.

One of the most significant advantages of jQuery is its ability to help developers create complex web applications with minimal code. jQuery provides an extensive range of functionalities for creating dynamic and interactive web pages, including DOM manipulation, event handling, and animation effects.

The library offers a wide range of features, including a CSS selector engine, which allows developers to easily select and manipulate elements within an HTML document. It also provides numerous pre-built plugins that can be used to enhance web pages with features like sliders, carousels, and tooltips.

Another key advantage of jQuery is its support for AJAX, which enables developers to create dynamic web applications that can communicate with servers asynchronously, without requiring the entire page to reload.

Overall, jQuery is an excellent tool for web developers who want to create robust, feature-rich web applications with minimal effort.

The topics which I learned in jQuery during the internship are as follows:

- Learned jQuery id and class selectors, events, hide, show, toggle, fadeIn, fadeOut, jQuery DOM manipulation (text(), html(), val(), attr()).
- Learned jQuery Add elements (append(), prepend(), after(), before(), remove(), empty()), css() and iterate(\$.each()).
- Learned jQuery Traversing, Ancestors (parent(), parents(), parentUntil()), Descendants (children(), find()), filtering (first(), last(), eq(), filter(), not()).

## Typescript

TypeScript is an open-source programming language that is a superset of JavaScript. It was developed and maintained by Microsoft, and it aims to provide developers with a more robust, scalable and reliable way to write code in JavaScript.

TypeScript adds static type checking to JavaScript, allowing developers to catch errors at compile time rather than at runtime. It also includes additional features like interfaces, classes, modules, and namespaces that make it easier to organize and maintain large-scale codebases.

One of the main benefits of using TypeScript is that it helps developers catch errors early in the development process. This can save a significant amount of time and effort that would

otherwise be spent debugging code. Additionally, TypeScript can help improve the overall quality of code by making it easier to read, maintain, and understand.

TypeScript can be used in a variety of contexts, including web development, server-side applications, and mobile development. It is compatible with popular frameworks like React, Angular, and Node.js, making it a popular choice for many developers.

Overall, TypeScript is a powerful and flexible programming language that can help developers build high-quality, scalable applications with ease.

The topics which I learned in Typescript during the internship are as follows:

- Learned Typescript data types, type Annotation, Number, Number methods, String, string methods, Array, Array methods, Class, function, enum, interface, tuples, union, set, map, date.
- Learned Generic, Modules, Namespace.

## SQL

SQL stands for Structured Query Language and is a standard language used for managing and manipulating data in relational database management systems (RDBMS). It is a powerful tool for querying, updating, and retrieving data from databases.

SQL uses a set of commands to interact with the database. These commands include SELECT, INSERT, UPDATE, DELETE, CREATE, and DROP, among others. Each command is used for specific purposes, such as selecting data from a database, inserting data into a database, updating existing data, and deleting data from a database.

SQL also allows for complex queries using joins and subqueries. Joins are used to combine data from two or more tables based on a common field, while subqueries are used to retrieve data from one table that meets certain conditions specified in another table.

One of the strengths of SQL is its ability to handle large amounts of data efficiently. It also provides strong data integrity and security features to protect sensitive information.

Overall, SQL is a versatile language used by developers, data analysts, and data scientists to manage and analyze large amounts of data in a relational database environment.

The topics which I learned in SQL during the internship are as follows:

- Learned Create, alter, drop, normalization, DML (update, insert and delete).
- Learned DQL (where, comparison & logical operator, range operator, in/not operator, like, orderby, top, distinct), union, except, intersect, derived tables and Common Table Expression.
- Learned String functions, Date functions, Rankings functions, system functions.
- Learned Aggregate functions(sum, count, avg, max, min), groupby, having, rollup, select into, joins, subqueries.
- Learned Views, Indexes, Stored Procedures, Exception Handling.

## **PHP**

PHP started out as a small open source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994.

- PHP is a recursive acronym for "PHP: Hypertext Preprocessor".
- PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.
- It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.
- PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the Unix side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time.
- PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 added support for Java and distributed object architectures (COM and CORBA), making n-tier development a possibility for the first time.
- PHP is forgiving; PHP language tries to be as forgiving as possible.
- PHP Syntax is C-Like.

## **Characteristics of PHP**

- Simplicity
- Efficiency
- Security
- Flexibility
- Familiarity

## 4.3 OUTCOMES:

### 4.3.1 DAILY TASKS:

Some of the Tasks of HTML are as follows:-

Task-1: Created a Personalized Resume

Output:



**Dhruvi Patel**  
Web Developer

**Summary**  
I'm a qualified engineer. I'm looking for a role that uses my skills and develops them further.

**Contact**  
**Email:** dhruvi22may2000@gmail.com  
**Mobile No:** 8200303935

**Skills**

- Programming Language: Python, Java, C
- Frontend: HTML5, CSS, JavaScript
- Backend: PHP, MySQL

**Hobbies**

- Listening songs
- Cooking
- Watching k-drama

**Education**

2014-06 to 2015-04	<b>SSC</b> Bhavna Vidhyalaya Percentage : 75%
2015-08 to 2020-01	<b>Diploma in CE</b> Government polytechnic CGPA: 7
2020-06 to Current	<b>BE(CE)</b> Saffrony Institute CGPA: 8.74

**Project**  
**Title:** Evaluation of academic performance of students using fuzzy logic  
**Software & language:** php, html, css, matlab, phpmyadmin

**Curricular Activity**

1. Attend 5 day machine learning workshop.
2. Volunteering in marketing team.

Fig 4.1 Personalized Resume



Task-2: Created a Employee Form

Output:

## Employee Details

Name:	<input type="text" value="Enter Your Name"/>
Age:	<input type="text" value="Enter Age"/>
Gender:	<input type="radio"/> Male <input type="radio"/> Female
Designation:	<input type="text" value="Enter Designation"/>
Salary:	<input type="text" value="Enter Salary"/>
Location:	<input type="text" value="Ahmedabad"/>
Emailid:	<input type="text" value="Enter Email"/>
Date Of Joining:	<input type="text" value="dd/mm/yyyy"/>
Contact Number:	<input type="text" value="Enter Number"/>
<input type="button" value="Submit"/>	

Fig 4.2 Employee Form

**Some of the Tasks of CSS are as follows:-**

**Task-1:** Created a Responsive Photo Gallery both desktop and Mobile screen.

**Output:**



**Fig 4.3 Photo Gallery**

Task-2: Created a Responsive card Layout both desktop and Mobile screen.

Output:



Fig 4.4 Card Layout

Task-3: Created a Responsive Website Layout for desktop and mobile

Output:



Fig 4.5 CSS website Layout



Task-2: Created a LoopLAB Website Layout for both desktop and Mobile screen.

Output:



Fig 4.7 LoopLAB Website Layout

Task-3: Created a Rembrandt Website Layout for both desktop and Mobile screen.

Output:

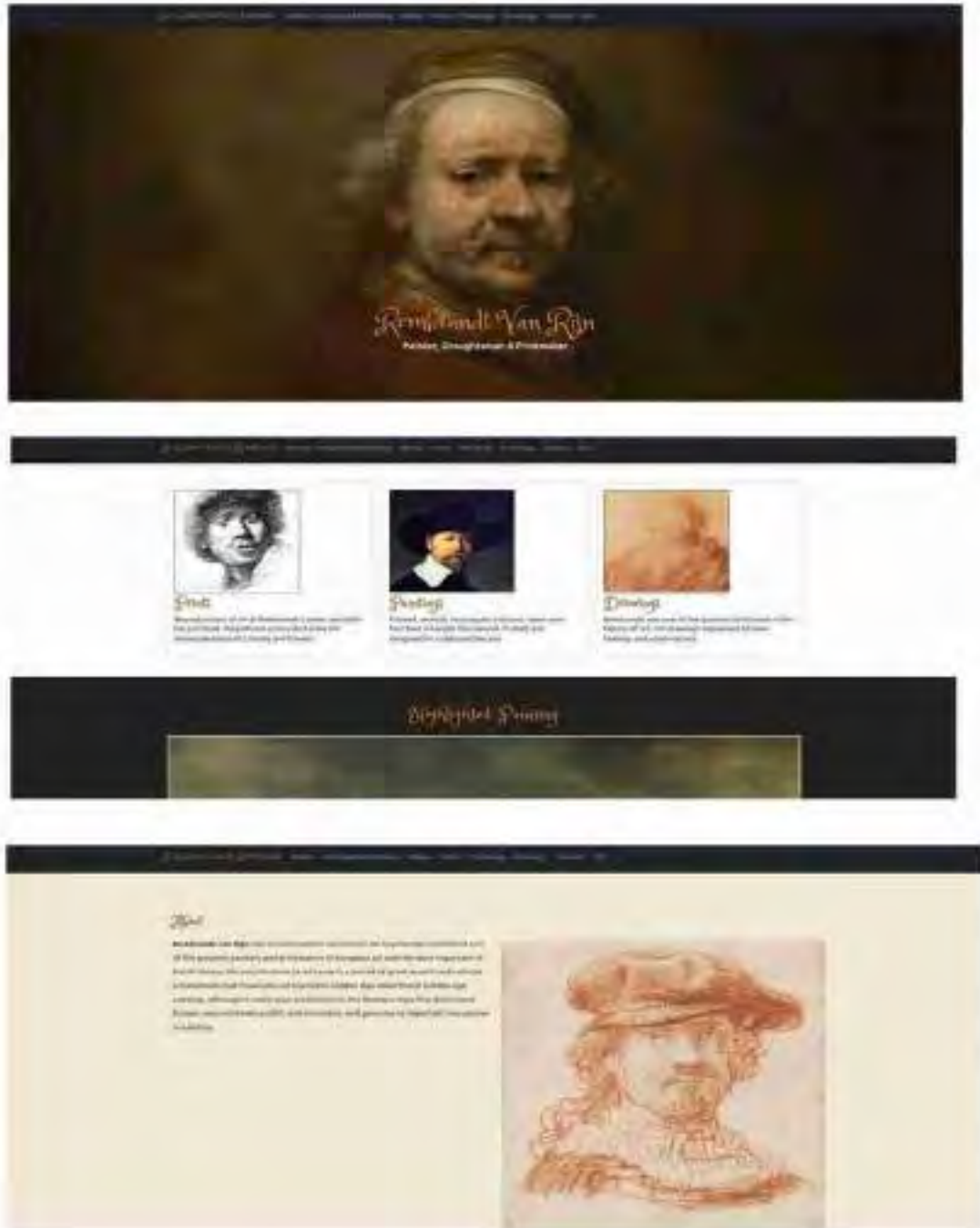


Fig 4.8 Rembrandt Website Layout

Some of the Tasks of Tailwind CSS are as follows:-

Task-1: Created Food Ninja Website Layout.

Output:



Fig 4.9 Food Ninja Website Layout

Task-2: Created Portfolio

Output:

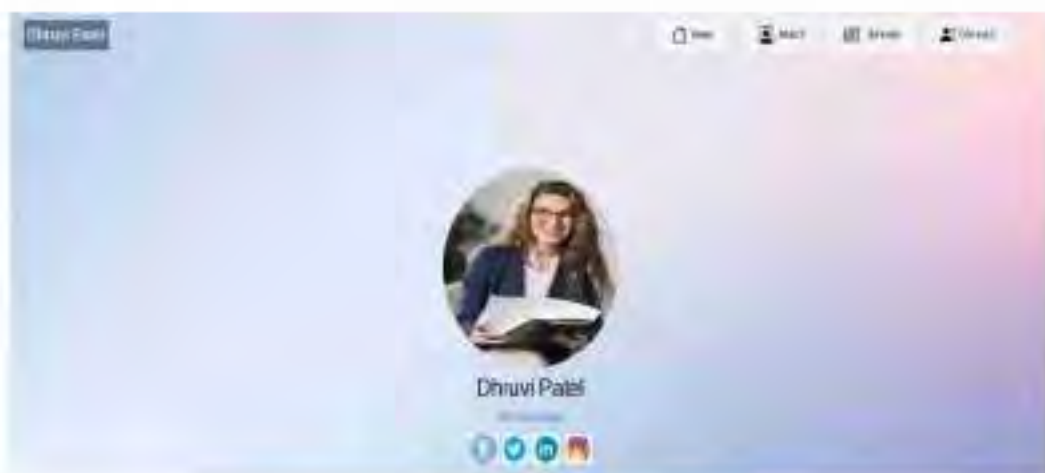






Fig 4.10 Tailwind Port Folio

Task-3: Created the Haus Gitschberg website layout for desktop, Tablet and Mobile screens.

Output:



Fig 4.11 Haus Gitschberg Website Layout

Some of the Tasks of JavaScript are as follows:-

Task-1: Created a Product Listing Page with Add to Cart functionality and remove the item from the cart.

Output:



Fig 6.13 Product Listing Page With JSON Data

Task-2: Created an Exam timer

Output:



Fig 4.12 Timer

**Some of the Tasks of jQuery are as follows:-**

Task-1: Created a Website that fetches data from the API and displayed it in the table and performed the CRUD operations.

Output:

Name:

Email:

Gender:  Male  Female

Status:  Active  Inactive

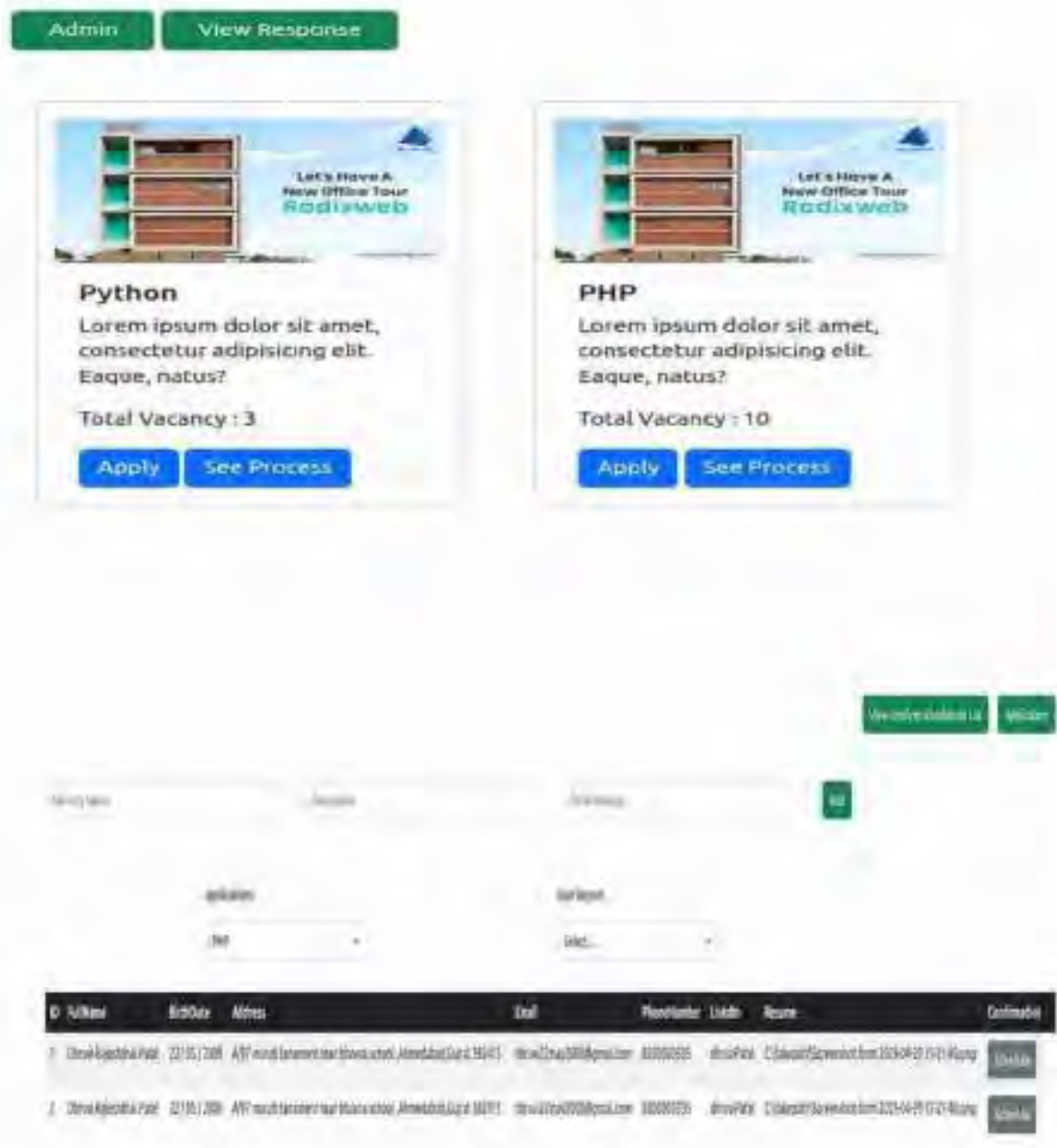
Id	Name	Email	Gender	Status		
1268668	Upendra Reddy	reddy_upendra@rathe.test	male	inactive	<input type="button" value="Update"/>	<input type="button" value="Delete"/>
1268667	Meena Sinha	sinha_meena@bartell-mccullough.test	female	inactive	<input type="button" value="Update"/>	<input type="button" value="Delete"/>
1268665	Miss. Bhuvanesh Devar	bhuvanesh_miss_devar@cornier.example	female	active	<input type="button" value="Update"/>	<input type="button" value="Delete"/>
1268664	Devdan Chaturvedi	chaturvedi_devdan@schroeder-olson.test	female	active	<input type="button" value="Update"/>	<input type="button" value="Delete"/>
1268663	The Hon. Bhushit Baherjee	the_bhushit_hon_baherjee@hickle.example	female	inactive	<input type="button" value="Update"/>	<input type="button" value="Delete"/>

Fig 4.13 CRUD Operation With APT



Task-2: Create an Central Recruitment Process System for the HR group of the company. Some of the features of this system will be creating vacancies, storing Applicants data, Interview process initiation, Scheduling Interviews, Storing Interview results for the applicant and finally Hiring of the applicant.

Output:



## Job Application

Please complete the form below to apply for a position with us.

---

**Full Name**

**Birth Date**

**Current Address**

**Home Address**

**Work Address** **Phone Number**

**Current Position**

**Previous Position** **Available Start Date**

**Upload Your Resume**

Fig 4.15 Central Recruitment Process System

Some of the Tasks of PHP are as follows:-

Task-1: Created one portal which display all the PHP assignments.

Output:

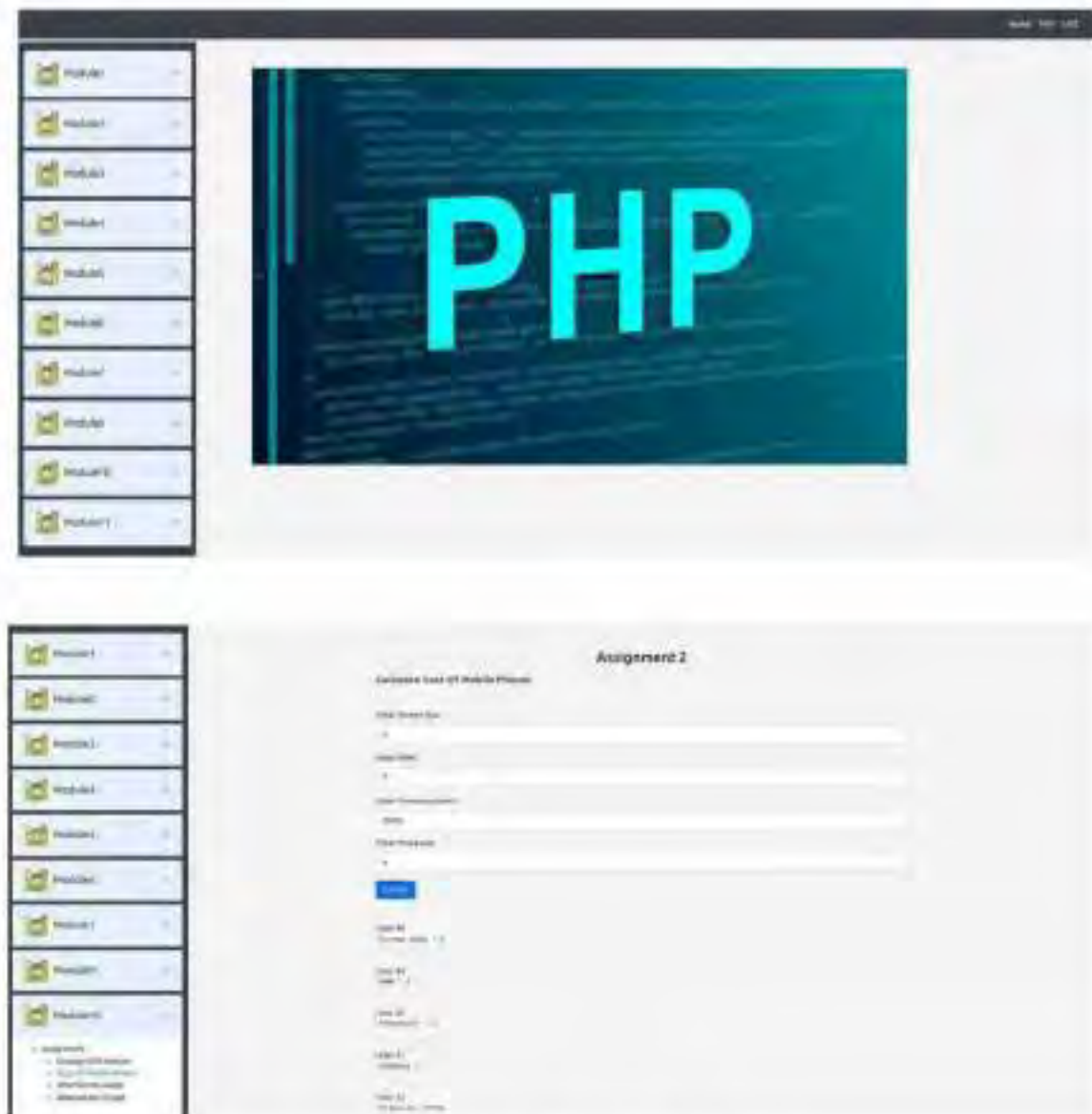


Fig 4.16 PHP Assignment Portal



## CHAPTER 5:- TESTING

### 5.1 TESTING STRATEGY:

Once source code has been generated, software must be tested to uncover as many errors as possible before delivery to customers. Your goal is to design a series of test cases that have a high likelihood of finding errors. Software testing techniques provide systematic guidance for designing tests that

- Exercise the internal logic of software components
- Exercise the inputs and outputs domains of the program to uncover errors in program function, behavior, and performance.

During early stages of testing, a software engineer performs all tests. However, as the testing process progresses, testing specialists may become involved. Reviews and other activities can and do uncover errors, but they are not sufficient. Every time the program is executed, the customer tests it! Therefore, you must execute the program before it gets to the customer with the specific intent of finding and removing all errors. To find the highest possible number of errors, tests must be conducted systematically, and test cases must be designed using disciplined techniques.

#### Testing Objectives

- Testing is a process of executing a program with the intention of finding an error.
- A good test case is one that has a high probability of finding an as-yet undiscovered error.
- A successful test is one that uncovers an as-yet undiscovered error.

#### Unit Testing

Unit testing is a software development process in which the smallest testable part of an application, called units, is individually scrutinized for proper operation. Unit testing is often automated, but it can also be done manually. This testing mode is a component of Extreme Programming (XP), a pragmatic method of software development that takes a meticulous approach to building a product by means of continual testing and revision.

Unit testing involves only those characteristics that are vital to the performance of the unit under test. This encourages developers to modify the source code without immediate concerns about how such changes might affect the functioning of the units or the program. Once all the units in a program have been found to be working in the most efficient and error free manner possible, larger components of the program can be evaluated by means of integration testing.

#### Sub System Testing

After testing each unit, we move on to larger units called sub systems. In subsystem testing we tested the whole Add-on as one system and App as another system. We tested each subsystem and got successful results. We found no error or bug after the final test.

#### System Testing

Now, it's time for whole System testing. We have found many cosmetic bugs and minor bugs. We have fixed it and again tested it. We worked on each error and exception that

We got while testing and most of them are removed or made such corrections that it will not happen again.

#### **Recovery Testing**

It is a system test that forces the software to fail in a variety of ways and verifies that recovery is properly performed.

#### **Security Testing**

It attempts to verify that protection mechanisms built into a system will, in fact, protect it from improper penetration.

#### **Performance Testing**

It is designed to test the run-time performance of software within the context of an integrated system performance testing occurs throughout all steps in the testing process.

## **5.2 TESTING RESULTS AND ANALYSIS:**

During internship testing of our work is done by sonar application.

### **What is Sonar**

Sonar is a software quality management platform primarily for Java programming language, enabling developers to access and track code analysis data ranging from styling errors, potential bugs, and code defects to design inefficiencies, code duplication, lack of test coverage, and excess complexity. Everything that affects our code base, from minor styling details to critical design errors, is inspected and evaluated by Sonar.

Consider Sonar as your team's quality and improvement agent. While the primary supported language is Java, more languages are supported with extensions or commercial plugins, for example C, PHP, and JavaScript. At the time of writing, more than 10 languages were supported with plans to add more in the future. The additional languages are supported in the form of plugins, taking advantage of the platform's extensible and flexible architecture.

### **How it Works**

Sonar collects and analyzes source code, measuring quality and providing reports for our projects. It combines static and dynamic analysis tools and enables quality to be measured continuously over time. More than 600 code rules are incorporated into the platform, checking the code from different perspectives.

The Sonar platform analyzes source code from different aspects. To achieve this, Sonar drills down to your code layer by layer, moving from module level down to class level. Picture this as a vertical movement through your source code from top to bottom components. At each level, Sonar performs both static and dynamic analysis producing metric values and statistics, revealing problematic areas in the source that require inspection or improvement. The analysis is not a monolithic procedure but examines code from different perspectives, introducing the concept of axes of quality. The results are then interpreted and consolidated in a very informative and visually appealing

dashboard, enabling you to form an opinion about defective code and quality testing over projects. You can now take educated decisions as to where to start fixing things in a cost-effective manner, reducing the technical debt.



Fig 5.1 Sonar Process

## **CHAPTER 6:- DISCUSSION**

### **6.1 OVERALL ANALYSIS OF INTERNSHIP:**

This internship will be a very important part of my professional journey as it will be a transitioning step for me from student life to professional life. It has given me insight into how to behave in the professional world and how to make sure that you are running behind in any scenarios like learning new skills or taking the lead.

### **6.2 SUMMARY OF INTERNSHIP WORK:**

In this internship, I learned a lot of new technical skills such as Git, HTML, CSS, Bootstrap, Tailwind CSS, Docker, JavaScript, jQuery, TypeScript, SQL, and React Js framework along with many non-technical skills such as Teamwork, Communication skills and soft skills such as behaviour and etiquette. This internship has been very helpful for the transition of me from engineering student to Trainee Software Engineer. Also learned how to complete the work on time and what can be done to improve the existing code and many more.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

200390707504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhai Patel

DIARY OF THE WEEK: Di: 3/2/2023 TO 4/2/2023

DEPARTMENT: Computers SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Radix Web - Radix s/w service PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: \_\_\_\_\_

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vijesh Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Complete documentation work & attend one introduction session.
- attend network introduction session for the regular system and the introduction of git.
- Perform practice hands on practical to understand the github operation & how to clone repository
- Perform practice on conflict & how to solve the conflict in merge editor.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: - 36 hours -

D. B. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Date: 18-3-2023

Signature of officer-in-charge  
of Dept. / Section / Plant

  
27/2/23

Date:

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

200390107504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhai Patel

DIARY OF THE WEEK: DI: 6/2/2023 TO 13/2/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Rudixweb - Rudix S/W service PVT L.T.D

NAME OF THE PLANT/SECTION/DEPARTMENT: \_\_\_\_\_

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vijashu abhani

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Start learning on the HTML tags and understand the different tags.
- HTML :- created department hierarchy using ul-li
  - Student Report card using table
  - Form for storing employee details.
- MCQ exam for git & HTML (internal & external)
- practical exam for git & HTML (internal & external)
- CSS : Personalized resume
  - one website using HTML & CSS (Header, leftbar, sidebar, footer).

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TOTAL HOURS: - 54 hours - - -

D. R. Patel

SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor



Date: 18-3-2023

Signature of officer-in-charge  
of Dept. / Section / Plant



Date: 27/2/23

Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure I

Enrollment no:

200390103504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Dhruvi Rajeshbhai.

DIARY OF THE WEEK: Dt: 23/12/2022 TO 28/12/2022

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: RudixWeb - Rudix Software Services

NAME OF THE PLANT/SECTION/DEPARTMENT: \_\_\_\_\_

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Varsha Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Flexbox with three Flex-item using CSS Flex
- Flexbox image gallery using CSS Flex
- Card layout using CSS grid
- Shopping-cart website using CSS grid
- Rudixweb learning website
- Bootstrap:
  - Typography
  - Utilities
  - CSS Components
- Udemy website using Bootstrap



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TOTAL HOURS: 54 hours

D. B. Patel  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Date: 18-3-2023

Signature of officer-in-charge  
of Dept. / Section / Plant

  
27/2/23

Date:

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Annexure I

Enrollment no:

200390107504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rujeshbhui Patel

DIARY OF THE WEEK: Di: 20/2/2023 TO 25/2/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Rudixweb - Rudix s/w service Pvt. Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vaishu Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Deploy the website (udemy) clone on the netlify
- Design a Project name 100club using Bootstrap.
- Attempt the internal & external practical exam of bootstrap.
- Make one Food template type webpage with the help of tailwind.
- Design one project using tailwind.

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TOTAL HOURS: 45 hours

D. R. Patel  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

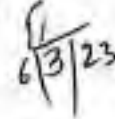
Signature of Faculty Mentor



Date: 18-3-2023

Signature of officer-in-charge  
of Dept. / Section / Plant

Date:



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Annexure 1

Enrollment no:

200390107504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhui Patel

DIARY OF THE WEEK: Dt: 27/2/2023 TO 4/3/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Rudixweb - Rudix S/W Service PVT. LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vidisha Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Give exam of Tailwind.
- Learned about docker: in this what is docker, container, image, docker file, docker-compose file.
- Done practice & Assignment of Dockerfile & docker compose file
- Give exam of docker.
- Learned about JavaScript
  - What is JavaScript
  - Array & String Function.



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TOTAL HOURS: 54 hours

D.R. Patel  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor

Date: 18-3-2023

Signature of officer-in-charge  
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Date: 16/3/23

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Annexure I

Enrollment no:

200390103504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhai Patel.

DIARY OF THE WEEK: Dt: 6/3/2023 TO 12/3/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: RudixWeb - Rudix S/W Service Pvt. Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vanshu Oberoi.

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Create one application for performing basic math op<sup>n</sup> using JavaScript.
- Also Done Date-validation task.
- Learned about Dom, Document, callback, Promise and Async & Await in JavaScript.
- Done practice from W3School.
- Done validation of employee form.
- Create one timer using JavaScript.
- Done practice on callback & Promise.

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TOTAL HOURS: - 54 hours - - -

- D. R. Patel - - -  
SIGNATURE OF STUDENT

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Date: 18-8-2023

Date: 16/8/23

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Annexure I

Enrollment no:

200390103504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhui Patel

DIARY OF THE WEEK: Dt: 13/3/2023 to 18/3/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Rudixweb - Rudix s/w Service Pvt Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vijashu Oberoi.

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Jquery script:-

- Function Call
- Function Apply
- Function Hoisting
- Function Closure
- Web Storage API

- Give exam for Jquery script.

- Jquery:- selector, events, Dom manipulation, Jquery Traversing, Ancestors, Filtering etc.

- Complete task for Jquery.

- College MSR

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TOTAL HOURS 45 - hours

D. R. Patel  
SIGNATURE OF STUDENT

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[Signature]  
Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
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Date:

Date:

4/4/23

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Annexure 1

Enrollment no:

200390707504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhai Patel

DIARY OF THE WEEK: Dt: 20/3/2023 TO 25/3/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Redixweb - Redix SW Service PVT. LTD.

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vaishu Chetri

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Give exam for Javens
- TypeScript Basics.
  - Type Annotation, class, function, generics, Models.
- Create one Shop Inventory Management System.
- Create one project: In this create one array of employee & Push, Pop date & Searching the date.
- Design interface & class for employee.
- Practice on map & Date function for employee data.
- Create one web-based and central Recruitment process system for the HR group.



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TOTAL HOURS: 54 hours

D. R. Patel  
SIGNATURE OF STUDENT

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[Signature]  
Signature of officer-in-charge  
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Date:

Date: 8/11/23

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Annexure I

Enrollment no:

200390107504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhui Patel

DIARY OF THE WEEK: Dt: 27/3/2023 TO 07/04/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Rudix Web - Rudix S/W Service PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vrushali Oberoi.

DESCRIPTION OF THE WORK DONE IN BRIEF

- Create report for the HR system.
- Give exam of type script.
- SQL basics
  - Database files, Database types, implicit and explicit conversation
- Create Entity-Relationship diagram for education system.
- Practice on create/update/drop queries.
- Learn about Normalization, Data integrity, Referential integrity.



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TOTAL HOURS: - 54 - hours - - -

D. R. Patel  
SIGNATURE OF STUDENT

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Date:

Date:

17/3/23

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Annexure I

Enrollment no:

202390107504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhai Patel

DIARY OF THE WEEK: Dt: 03/04/2023 TO 08/04/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Radix web - Radix SW service PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Varshel Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Create Primary key, foreign key reference, Alter Table & modify column
- Where clause, union clause, logical operators, Row\_number(), rank(), dense-rank().
- Format, length, replace, view, Store procedure.
- Joins, Aggregate function, sum, Avg, max etc..
- If-else, loop, while loop.
- Upload work in github.



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TOTAL HOURS: 54 hours

D. R. Patel  
SIGNATURE OF STUDENT

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100

Signature of Faculty Mentor

Signature of officer-in-charge  
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Date:

Date:

17/3/23

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Annexure I

Enrollment no:

200390707504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhui Patel

DIARY OF THE WEEK: Dt: 10/4/2023 TO 15/4/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Radix web - Radix s/w Service Pvt. Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: varshil oheria

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Convert a table from json format & format json to table format using - json-ArrayTools, json-pretty etc.
- Practical exam of mysql
- MCA Exam of mysql
- Start Basic PHP Learning
- Create one Portal using PHP, HTML, Bootstrap to display our javascript, JQuery & PHP Assignment
- Also create Dynamic Accordion & curas using PHP.
- Include common header file in PHP's file
- Learn some basic command of linux.

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TOTAL HOURS: 54-hours

D. R. Patel  
SIGNATURE OF STUDENT

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Date:

Date:

0  
17/3/23

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Annexure 1

Enrollment no:

200390207504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhai Patel  
DIARY OF THE WEEK: Dt: 17/04/2023 TO 22/04/2023  
DEPARTMENT: Computer SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Rudixweb - Rudix SLW Service PVT LTD  
NAME OF THE PLANT/SECTION/DEPARTMENT: PHP  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vinod Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Learn about what is PHP, How It works etc.
- Create one calculator using switch-case
- Implement simple currency calculator
- Implement BMI calculator
- Basic form validation
- PHP script to get the server IP address, browser detection script, current file name etc.
- Date validation using PHP
- Array functions, Regular expression function.

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TOTAL HOURS: 54 hours ---

D.R. Patel  
---  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor

Signature of officer-in-charge  
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Date:

Date: 21/5/23

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ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

200390107504

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Dhruvi Rajeshbhai Patel

DIARY OF THE WEEK: Dt: 24/04/2023 TO 29/04/2023

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Radixweb - Radix SLW Service Pvt Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: PHP

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vijesh Oberoi

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- String and String Function
- OOPS in PHP
- create one Area calculator using oops
- create one Inheritance usage project
- create one Abstraction usage project
- Remove last word using string function
- get file name using string function
- Functions in PHP.
- static method & static Property in oops.



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TOTAL HOURS: 54: hours -----

D. R. Patel  
-----  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

[Signature]  
Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date:

15/12/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## BIBLIOGRAPHY

1. <https://www.w3schools.com/>
2. <https://tailwindcss.com/>
3. <https://jquery.com/>
4. <https://getbootstrap.com/>
5. <https://www.php.net/>
6. <https://git-scm.com/>
7. <https://www.typescriptlang.org/>
8. <https://www.docker.com/>
9. <https://radixweb.com/>

# **INTERNSHIP AT HATKESH INFOTECH PVT. LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Sujan Imransha Diwan**

**200390107508**

*In partial fulfilment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Hatkesh Infotech Pvt. Ltd.** has been carried out by **Sujan Imransha Diwan** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Prof. Akshay Kansara

Internal Guide

Sign

Prof. Akshay Kansara

Head Of Department

## Company Certificate

### **HATKESH INFOTECH PVT. LTD.**

The Power Of Imagination

Email: [info@hatechinfotech.com](mailto:info@hatechinfotech.com)

Contact No: 9725113007, 6732997861

Date: 06/05/2023

#### **TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **SUJAN IMRANSHA DIWAN (200390107508)** student of **S.P.B. PATEL ENGINEERING COLLEGE** has worked on project title **"FITNESS HUB"** 06<sup>th</sup> February 2023 to 06<sup>th</sup> May 2023, under our guidance and supervision.

It gives us indeed pleasure to highlight that candidate has worked hard and with sincerity through project work. We assure that the experience given during the project training period will enable candidate to take more challenging project and build up a successful career in near future.

Best Regards,

For HATKESH INFOTECH PVT.LTD.



**Mr.Rinkal Jani**

Director

BRANCH: C-8 AADITYA COURT YARD, NEAR BAKROL GATE, BAKROL, 385 120  
HQ: NEAR SWAMINARAYAN STREET, PANDOLI, 388160 [www.hatechinfotech.com](http://www.hatechinfotech.com)

# PMMS Certificate



## GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL  
B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 15 May 2023 (14:48:33)

This is to certify that, *Diwan Sujanbani Imransha* ( Enrolment Number - 200390107508 ) working on project entitled with ***FITNESS HUB*** from ***Computer Engineering*** department of ***S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA*** had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : *Diwan Sujanbani Imransha*

Name of Guide : *Mr. Akshay Rameshchandra Kansari*

Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

### Disclaimer :

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate. Only if all above activities has been Completed.



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Hatkesh Infotech Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Rinkal Jani (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Sujan Diwan**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

Internship is an integral part of engineering course. In connection to the Project/Internship subject, I personally feel that it was a great experience and challenge for me. I feel heartening as a matter of respect and satisfaction to express my deep sense of gratitude to my highly esteemed guide **Rinkal jani** for their inspiring guidance, encouragement and constructive suggestions throughout the period of study and preparation of this work.

I would like to express my sincere gratitude to my advisor and Head of the department Prof. Akshay sir, for the continuous support of our project study and related research, and for her patience, motivation, and immense knowledge.

I also place on record, our sense of gratitude to one and all, who directly or indirectly, have lent their hand in this venture.

## **Abstract**

*This report is detailed overview of my internship journey at Hatkesh Infotech Pvt. Ltd. During my internship I built GYM SYSTEM, this project “FITNESS HUB” is solution fitness centres to manage the customers in an easier and more convenient way. The administrator, is able to view all the members of fitness centre as well as their details. The basic structure of the system as follows. This project is a computer-based program and it manages the gym members, the personnel and the inventory. This system also maintains the client details, to provide the valuable reports regarding the progress of the gym member.*

*This internship I had work on .NET language at Hatkesh Infotech PVT LTD, for this internship I learnt so many points or features of .NET language. I learnt about how SQL Server Databases and Visual Studio2012 are used to develop website. First, I learnt about SQL Server Database. In it we learnt about how to make new Database and after making New Database how to add necessary tables we are related to our project. Learnt about how to give primary key and foreign key to necessary table.*

*After that I learnt about how to crate Database Diagram. Now, finally I learnt about how to crate view of our crated project related Database. Second, I learnt about Visual Studio 2012. In it I learnt about how make various types of webpages related to our project. After making various webpages I learnt about how to make changes in the downloaded Free CSS Templates and prepared new website. After that I learnt about how to add master page in project. After that I learnt about how to link Visual Studio Webpages with SQL Server Database which are related to our project. After that we run all the pages for testing. After that I learnt about how to run Admin Panel in Visual Studio to run our project properly and make some changes. Here, we add Master Entry & Account Entry modules.*

*After all the necessary changes and proper designing, testing, analysis we are work on finding domain name of our website, and after taking domain name we are able to live our website project*

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## Abbreviations

HTML	Hypertext Markup Language
ASP	Active Server Pages
CSS	Cascading style sheet
SQL	Structured Query Language
VS	Visual Studio
ADM	Admin
VB	Visual Basic
DBMS	Database Management System
JS	JavaScript

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## Chapter 1. INTRODUCTION OF COMPANY

### 1.1 COMPANY PROFILE:



Fig 1.1 Hatkesh infotech

**HATKESH INFOTECH PRIVATE LIMITED** is a privately held company began its successful foray into the IT world in 2012 and has run parallel with the rapidly accelerating stream of technology ensuring that it stays at par with the global changes that affect the business world.

Our experience that has not just satisfied its esteemed clients, but also met prevalent IT standards. HATKESH INFOTECH PRIVATE LIMITED (H/O) is situated in Bakrol , ANAND (Gujarat, India). We are focused on coming up with solutions that serve the customer requirements of the day and anticipate the future.

Company Overview version, innovation, Quality, steady growth, continuous improvement these words describe the company that being just in its infancy has already been able to spread its fragrance both in the Domestic as well as in the National market. The origin of HATKESH INFOTECH PRIVATE LIMITED is deeply rooted in the software development technology. The strategy built into the corporate structure of HATKESH INFOTECH PRIVATE LIMITED indicates a new way of thinking about applications and system software.

HATKESH INFOTECH PRIVATE LIMITED firmly believes in directing our clients to increase their productive output through the application of advanced technology solutions, ultimately converting our client's challenges into opportunities. We provide business solutions that serve as a distinct advantage for our clients to conduct business more effectively.

In HATKESH INFOTECH PRIVATE LIMITED we honor the collective strengths of all our employees and believe that diversity is the key to our competitive advantage. We thrive in an atmosphere that collegial, open, and flexible – one that helps our people produce the best work, encourages them to exceed their own expectations, and supports them with continues training and Education.

### **1.1.1 VISION**

Get Digital Office's vision is to envision significant contribution to the economy. We strongly believe that our commitment of fulfilment of your requirements would undoubtedly lea to mutual prosperity. We believe that by maintaining mutual trust and transparency in our dealings and by respecting the dignity of individuals involved in all business and process transactions, we can fulfil our vision to continuously improve upon our own benchmarks in order to provide a dedicated and committed service to our customer along with constant innovation in process and services as per the market trends.

### **1.1.2 MISSION**

Get Digital Office's mission are:

- To provide quality and reliable services to the customers.
- To remain forever committed to excellence.
- To explore and discover new ideas.
- To provide adequate planning process
- To execute work
- To deliver to customer

## **1.2 DIFFERENT PRODUCT / SCOPE OF WORK**

Hatkesh Infotech Pvt. Ltd. can work on several domains Front-End Development, UI & UX Design, Back-end Development and Mobile App Development.



➤ Easy development Process:

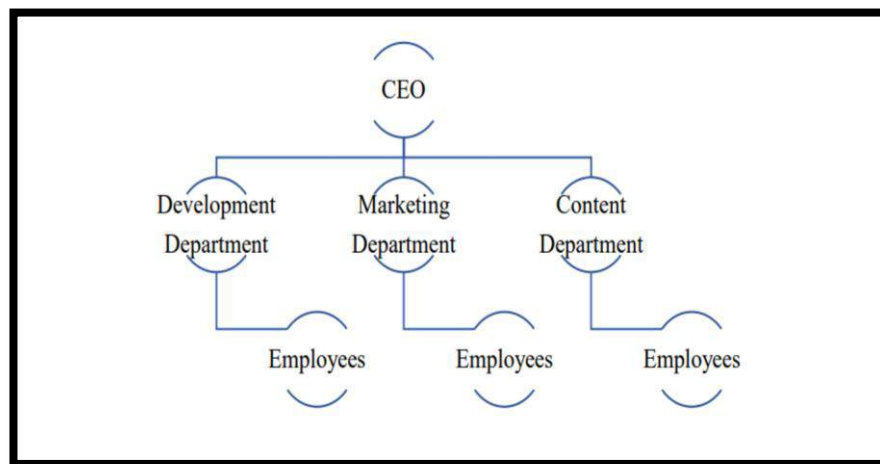
We follow complete Software / Project Development Life Cycle for the development and that makes our process easy and efficient Great Product Support:

We don't leave you after your website or application is done. We provide end-to-end support for your product until it becomes BRAND.

➤ Solution - which you need:

We provide solutions as per your requirements. We will understand your product and business and only then we will move ahead together.

### 1.3 ORGANIZATION CHART



1.1 Organization chart

### 1.4 CAPACITY OF PLANT

As this is a startup, so the capacity depends according to product, as the products increases the capacity of company also increases. Currently the employee number is between 51-200

## **Chapter 2. INTRODUCTION TO INTERNSHIP**

### **2.1 INTERNSHIP SUMMARY**

This is detailed overview of my internship journey at Hatkesh Infotech Pvt. Ltd. During my internship I built GYM SYSTEM, This project “FITNESS HUB” is solution fitness centres to manage the customers in an easier and more convenient way. The administrator, is able to view all the members of fitness centre as well as their details. The basic structure of the system as follows. This project is a computer-based program and it manages the gym members, the personel and the inventory. This system also maintains the client details, to provide the valuable reports regarding the progress of the gym member.

Throughout my internship, I gained valuable experience in web development and learned how to effectively collaborate with other members of a development team. I also honed my technical skills in HTML, CSS, JavaScript and gained a deeper understanding of web development principles and practices. Overall, my internship was a valuable learning experience and has prepared me for a successful career in front-end development.

### **2.2 PURPOSE**

The purpose of my internship in web development is to gain practical experience and develop my skills in creating visually engaging and user-friendly websites and web applications using HTML, CSS, and JavaScript. Through your internship, i will have the opportunity to work alongside experienced developers and designers, learn about the latest web development technologies and trends, and apply your knowledge to real-world projects.

By the end of my internship, I should have a strong understanding of web development principles and practices, including how to develop responsive and accessible web pages, create interactive web experiences using JavaScript

libraries and frameworks, and conduct testing and debugging to ensure optimal performance. I should also be able to work effectively as part of a development team, collaborating with designers, back-end developers, and project managers to deliver high-quality web applications that meet the client's requirements and specifications.

Overall, the purpose of my internship in web development is to prepare you for a successful career as a Web developer. Web development internships provide you with the opportunity to get hands-on exposure using web development tools on real-life projects.

The main purpose of web development is to create websites. While their primary role is to ensure the website is visually appealing and easy to navigate, also responsible for the website's performance and capacity.

The role of a Web Developer is to design, create and maintain websites, providing in the process a cohesive and user-friendly online portal for the use of clients, customers, wossssrk colleagues and other interested parties. They incorporate content, images, graphics, videos, and other utilities to make eye-catching sites that users will want to interact with.

### **2.3 OBJECTIVE**

The objective of my internship in ASP .NET may vary depending on My personal goals and the goals of the organization. My internship should provide you with hands-on experience in web development and give you the opportunity to apply your knowledge to real-world projects.

ASP .NET Framework provide extensive tools and class libraries that make it one of the most productive platforms for programmers. It offers multi-language support, common APIs and other services that allow developers to build high-quality applications in less time.

My internship should give you the opportunity to developing code, writing unit tests, fixing bugs, and participating in code reviews. You'll also have the opportunity to learn about web development best practice and gain expousure to the industry.. My internship should provide you with the opportunity to develop and refine these skills.

My internship should provide with the opportunity to work on projects that I can add to My portfolio and showcase to future employers.

Overall, the objective of My internship in web development is to gain practical experience and develop My skills in a real-world setting. By the end of My internship, I should have a better understanding of the field of web development and be better prepared for a career in this field.

As we discussed above the overview of company now, this chapter contains in-depth knowledge about working structure and department of the company.

## **2.4 WORK IN EACH DEPARTMENT**

There are mainly three department, as we have seen in the organization chart.

1. Development Department
2. Marketing Department
3. Content Department

### **2.4.1 DEVELOPMENT DEPARTMENT**

This Department have the employees the does the development related work, which is coding the software.

### **2.4.2 MARKETING DEPARTMENT**

This Department have the employees the does marketing of the product, and this includes SEO ranking and getting the product as much as reach possible.

### **2.4.3 CONTENT DEPARTMENT**

This Department have the employees the does the content writing and creating for the product, whatever the content you see in a software that part is taken care by content department.

## 2.5 STAGES OF PRODUCTION

There are mainly four stages of production, which also resemble to the hierarchy of the organization, the list is given below:

1. Idea
  - The first that comes up is the birth of the idea, any problem we faced and we took that problem and considered it as an idea now, the solution for that problem is made and the following stages are taken into consideration.
2. Content Writing
  - In this stage whatever the content will be needed in order to make the product stand out, whether it's the text's, images, everything that includes content for the product is done over here.
3. Development of the Product
  - Now simultaneously with the content writing this part is done, it includes development of the product, means whatever the problem solution is found, is being implemented now in this stage.
4. Marketing of the Product
  - Now after successfully developing the product when the product is live, the marketing team comes into picture. This team ensures that the product reaches to right people and make sure they have this product a proper engagement.

## **Chapter 3. INTRODUCTION OF PROJECT**

### **3.1 ABOUT PROJECT**

This project is used to help admin to manage and store required data for gym. Through this project user can easily maintain records of members and payments to insure availability. It also helps to generate various receipts of choice at flexible length.

#### **3.1.1 Purpose**

- The main purpose of this system is to computerize the work of gym business.
- It also helps to find information about particular component like employees, membership plans, etc.
- It also keeps track of their everything including maintaining safety.
- To remove the manual or paperwork in the Fitness club.
- Provide a platform with interactive user interface for both customer and admin.
- Save the time of both admin and customer.
- Get online Plans in an efficient manner.
- To save fee for each user.
- User friendly

#### **3.1.2 Objectives of the proposed system**

- Reduce the manual work.
- Carry information storage & retrieval.
- To generate various types of performance.
- report by providing required information.

#### **3.1.3 Main features of the proposed system**

- Menu Driven Interface.
- User friendly.
- Dynamic Report Generation.
- Taking care of computational time.

### **3.2 Scope of work**

This system also helps to store information about their previous transaction as secure form and create new sales information. This is the powerful automated system, which will help the management to get various kinds of reports. The system is very fast and user friendly. The scope of the proposed system is bright. This system will prove the best solution for the problems of current system. We have used SQL server as our back-end tool and visual studio as front-end tool. VS is very powerful for programming purpose and it is easy to use.

### **3.3 An Existing System**

- The existing system is manual.
- All the final reports are given manually.
- The manual system is very slow and time consuming. The existing system contains large number of errors due to manual system. So, we decided to make a computerized system, which is less time consuming and error prone.

### **3.4 Need of purpose system**

Main reasons for the computerization of gym management system:

- Provide services in a better, understandable and cost-effective manner to the user.
- To enhance user satisfaction.
- Records were stored inefficiently

### **3.5 HARDWARE AND SOFTWARE REQUIREMENT**

#### **Hardware and software (For Development)**

- A. Processor: Intel Core i5
- B. Hard Disk: 1TB
- C. Network Configuration: Internet
- D. RAM: 8GB

### **3.6 FUNCTIONAL REQUIREMENT**

#### **SEARCH AND FILTER**

Also, data will be stored in an SQL server database.

From the database, the data will pass to the web application and show a Pie chart of Member Expiry plan, total Trainer And Member which refreshes every five seconds.

### **3.7 NON-FUNCTIONAL REQUIREMENT**

#### **EXTERNAL INTERFACE**

System: Server System  
Tools: Web Application  
Database: SQL Server Management Studio.

#### **USER INTERFACE**

Here Admin will have admin Dashboard.

Trainer will have trainer Dashboard

Member will have member Dashboard

If Admin Wants to check Trainer and Member

Same as he can see other functionalities details.

#### **SOFTWARE INTERFACE**

WEB API Services pass to the server.



## Chapter 4. SYSTEM DESIGN

### 4.1 Introduction

Design is the first step into the development phase for any engineered product or system. Design is a creative process. A good design is the key to effective system. The term "design" is defined as "the process of applying various techniques and principles for the purpose of defining a process or a system in sufficient detail to permit its physical realization". It may be defined as a process of applying various techniques and principles for the purpose of defining a device, a process or a system in sufficient detail to permit its physical realization. Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm that is used. The system design develops the architectural detail required to build a system or product. As in the case of any systematic approach, this software too has undergone the best possible design phase fine tuning all efficiency, performance and accuracy levels. The design phase is a transition from a user-oriented document to a document to the programmers or database personnel. System design goes through two phases of development: Logical and Physical Design.

### 4.2 Logical Design:

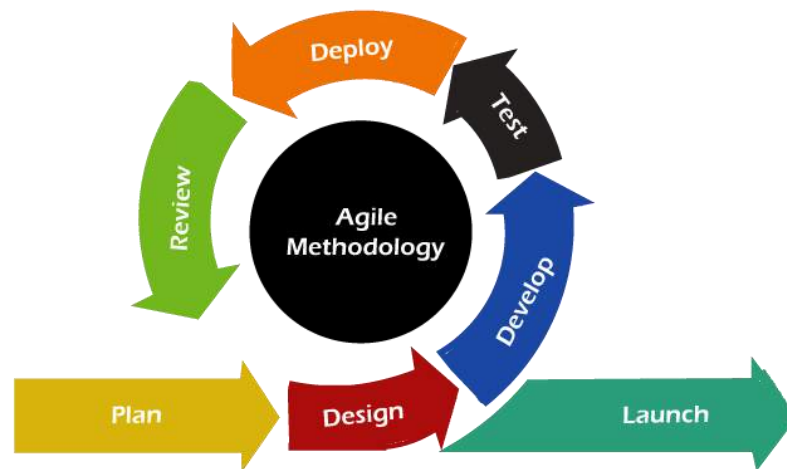
The logical flow of a system and define the boundaries of a system. It includes the following steps:

- Reviews the current physical system — its data flows, file content, volumes, frequencies etc,
- Prepares output specifications — that is, determines the format, content and frequency of reports.
- Prepares input specifications — format, content and most of the input functions.
- Prepares edit, security and control specifications.
- Specifies the implementation plan.
- Prepares a logical design walk through of the information flow, output, input, controls and implementation plan.
- Reviews benefits, costs, target dates and system constraints.

### 4.3 Design/Specification activities:

- Concept formulation.
- Problem understanding.
- High level requirements proposals.
- Feasibility study.
- Requirements engineering.
- Architectural design.

#### 4.4 SYSTEM MODULE USED



**(Figure-2: - Iteration cycle of an Agile project)**

Agile modeling (AM) is a methodology for modeling and documenting software systems based on best practices. It is a collection of values and principles, that can be applied on an (agile) software development project. This methodology is more flexible than traditional modeling methods, making it a better fit in a fast-changing environment.[1] It is part of the agile software development tool kit.

Agile modeling is a supplement to other agile development methodologies such as Scrum, extreme programming (XP), and Rational Unified Process (RUP). It is explicitly included as part of the disciplined agile delivery (DAD) framework. As per 2011 stats, agile modeling accounted for 1% of all agile software development.

#### Documentation

Document continuously. Documentation is made throughout the life-cycle, in parallel to the creation of the rest of the solution.

Document late. Documentation is made as late as possible, avoiding speculative ideas that are likely to change in favor of stable information.

Executable specifications. Requirements are specified in the form of executable "customer tests", instead of non-executable "static" documentation.

Single-source information. Information (models, documentation, software) is stored in one place and one place only, to prevent questions about what the "correct" version / information is.

### ➤ **Modeling**

1.Active stakeholder participation. Stakeholders of the solution/software being modeled should be actively involved with doing so. This is an extension of the on-site customer practice from Extreme Programming.

2.Architecture envisioning. The team performs lightweight, high-level modeling that is just barely good enough (JBGE) at the beginning of a software project so as to explore the architecture strategy that the team believes will work.

3.Inclusive tools. Prefer modelling tools, such as whiteboards and paper, that are easy to work with (they're inclusive).

4.Iteration modeling. When a requirement/work item has not been sufficiently explored in detail via look-ahead modeling the team may choose to do that exploration during their iteration/sprint planning session. The need to do this is generally seen as a symptom that the team is not doing sufficient look-ahead modeling.

5. Just barely good enough (JBGE). All artifact, including models and documents, should be just sufficient for the task at hand. JBGE is contextual in nature, in the case of the model it is determined by a combination of the complexity of whatever the model describes and the skills of the audience for that model.

6. Look-ahead modeling. An agile team will look down their backlog one or more iterations/sprints ahead to ensure that a requirement/work item is ready to be worked on. Also called "backlog grooming" or "backlog refinement" in Scrum.

7. Model storming. A short, often impromptu, agile modeling session. Model storming sessions are held to explore the details of a requirement or aspect of your design.

8. Multiple models: Agile modelers should know how to create a range of model types (such as user stories, story maps, data models, Unified Modeling Language (UML) diagrams, and more) so as to apply the best model for the situation at hand.

9. Prioritized requirements: Requirements should be worked on in priority order.

Requirements envisioning. The team performs lightweight, high-level modeling that is JBGE at the beginning of a software project to explore the stakeholder requirements.

- **Limitations**

There is significant dependence on personal communication and customer collaboration. Agile modeling disciplines can be difficult to apply [citation needed]:  
On large teams (say 30 or more) without adequate tooling support

Where team members are unable to share and collaborate on models (which would make agile software development in general difficult)

When modeling skills are weak or lacking

#### **4.4 Module Design**

- Employee Management Module
- Membership report
- Payment report
- Member's report

## **Chapter 5. TECHNOLOGY USED IN FITNESS HUB**

### **Frontend Technologies**

- HTML
- CSS
- JavaScript

### **Backend Technologies**

- MS SQL

## **5.1 FRONTEND TECHNOLOGIES USED IN FITNESS HUB**

HTML and CSS can be used to create custom virtual audit questionnaires that auditors can use to gather information from clients. JavaScript can be used to add interactivity to the questionnaires, such as validation checks and conditional logic.

HTML and CSS can be used to create visually appealing audit reports that summarize audit findings and recommendations. JavaScript can be used to add interactive features to the reports, such as charts and graphs.

JavaScript can be used to write custom scripts that analyse audit data, such as financial statements or internal control data. This can help auditors identify potential risks or anomalies, and facilitate the audit process.

HTML, CSS, and JavaScript can be used to integrate virtual audit tools with audit management software, such as GRC (governance, risk, and compliance) platforms. This can help auditors manage and track audits more efficiently.

Overall, HTML, CSS, and JavaScript can be used in virtual audit to enhance the audit process and improve efficiency. By leveraging these technologies, auditors can create customized audit tools, develop visually appealing reports, analyse data more effectively, and integrate with other audit management software.

## **5.2 BACKEND TECHNOLOGY USED IN FITNESS HUB**

Microsoft SQL Server or MS SQL Server for short is the query language provided for data definition and manipulation.

SQL Server is a Relational Database Management Systems which was developed and marketed by the Microsoft company.

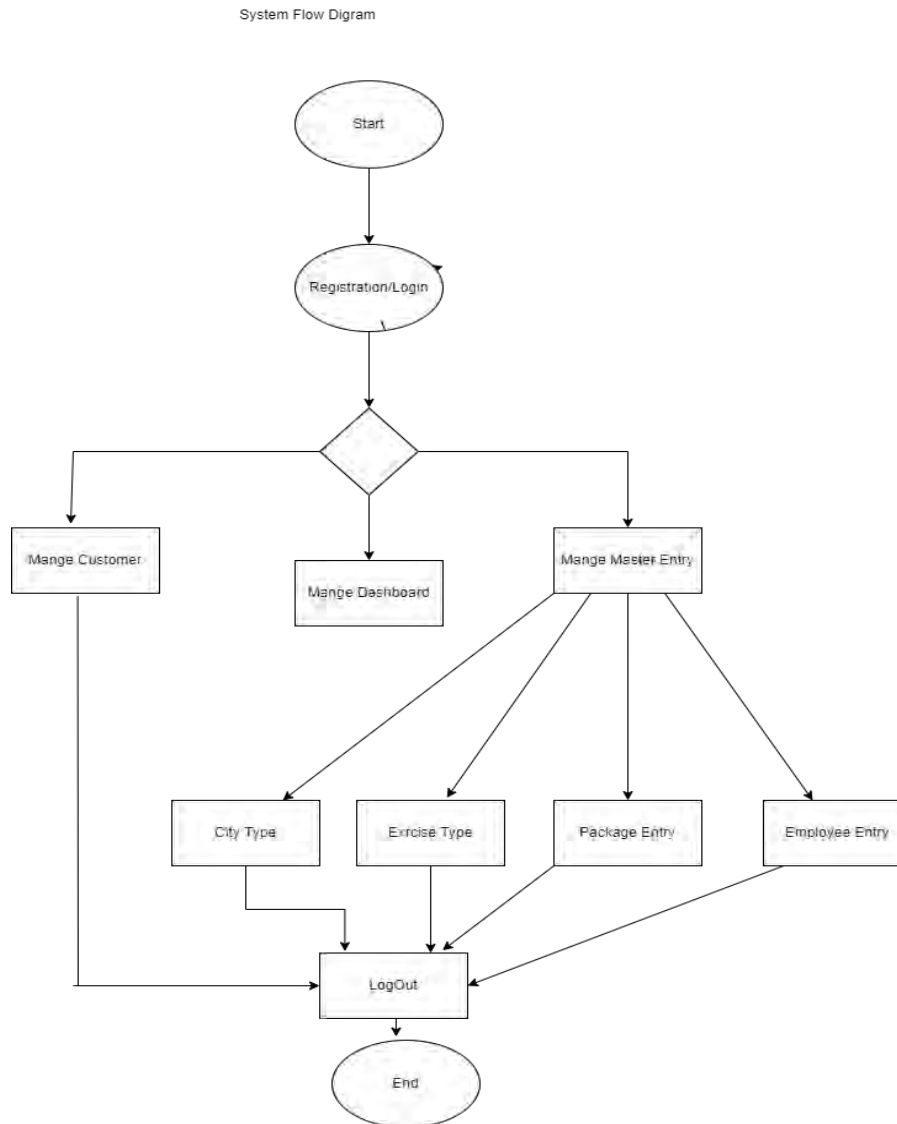
SQL and SQL servers are built as two layers where the SQL server is on the top for interacting with the relational databases.

MS SQL Server also has T-SQL or Transact-SQL and the main focus of T-SQL is to handle the transactions.

As it is a Microsoft's developed system, it worked only on Microsoft's environment until it was made available on Linux platforms in the year 2016.

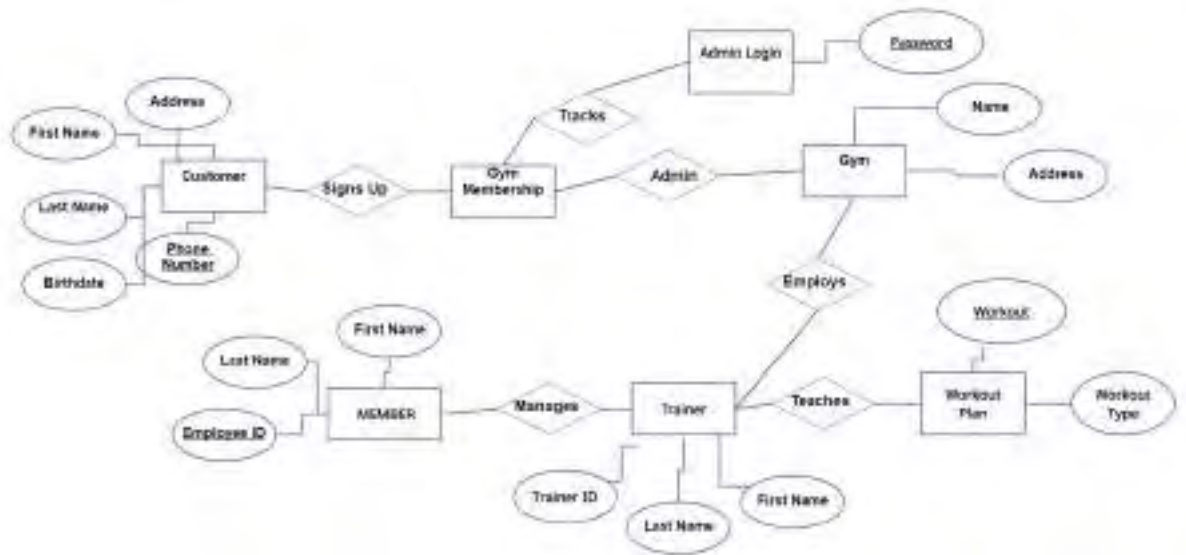
## CHAPTER 6. SYSTEM FLOW DIAGRAM

### 6.1 SYSTEM FLOW DIAGRAM

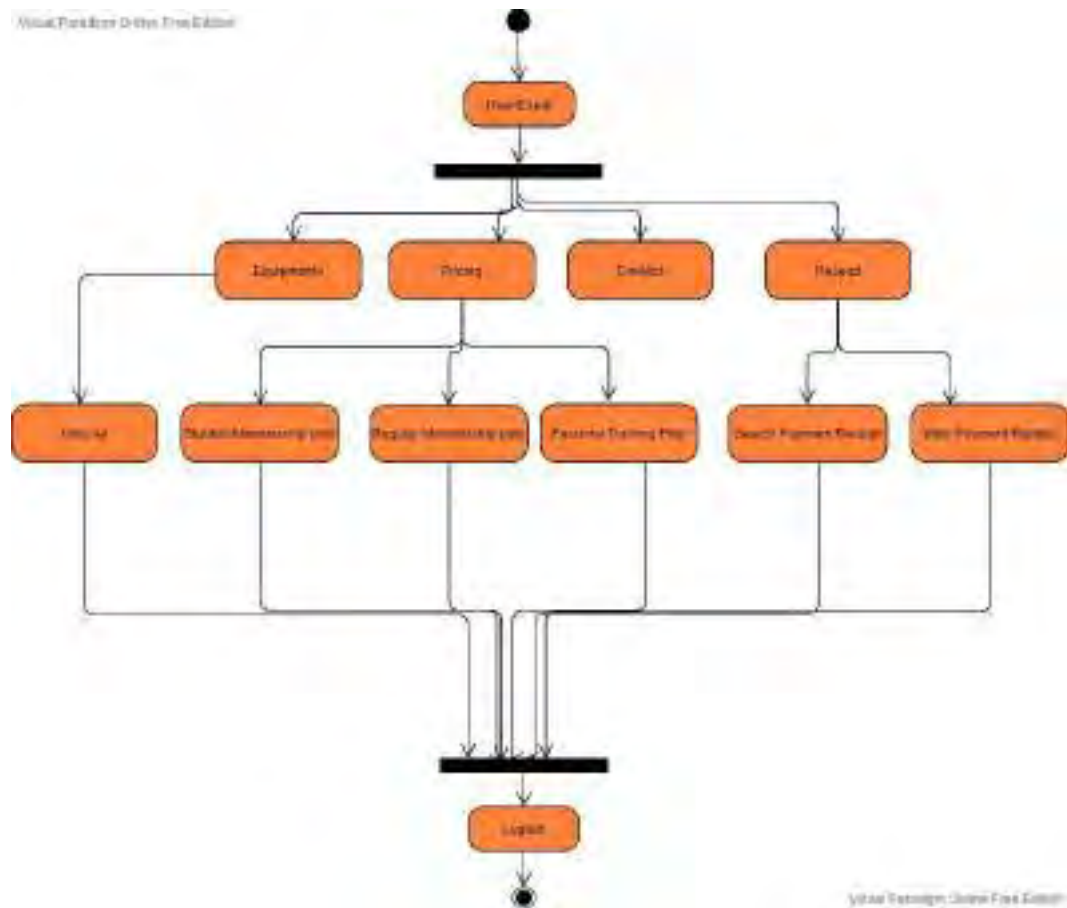




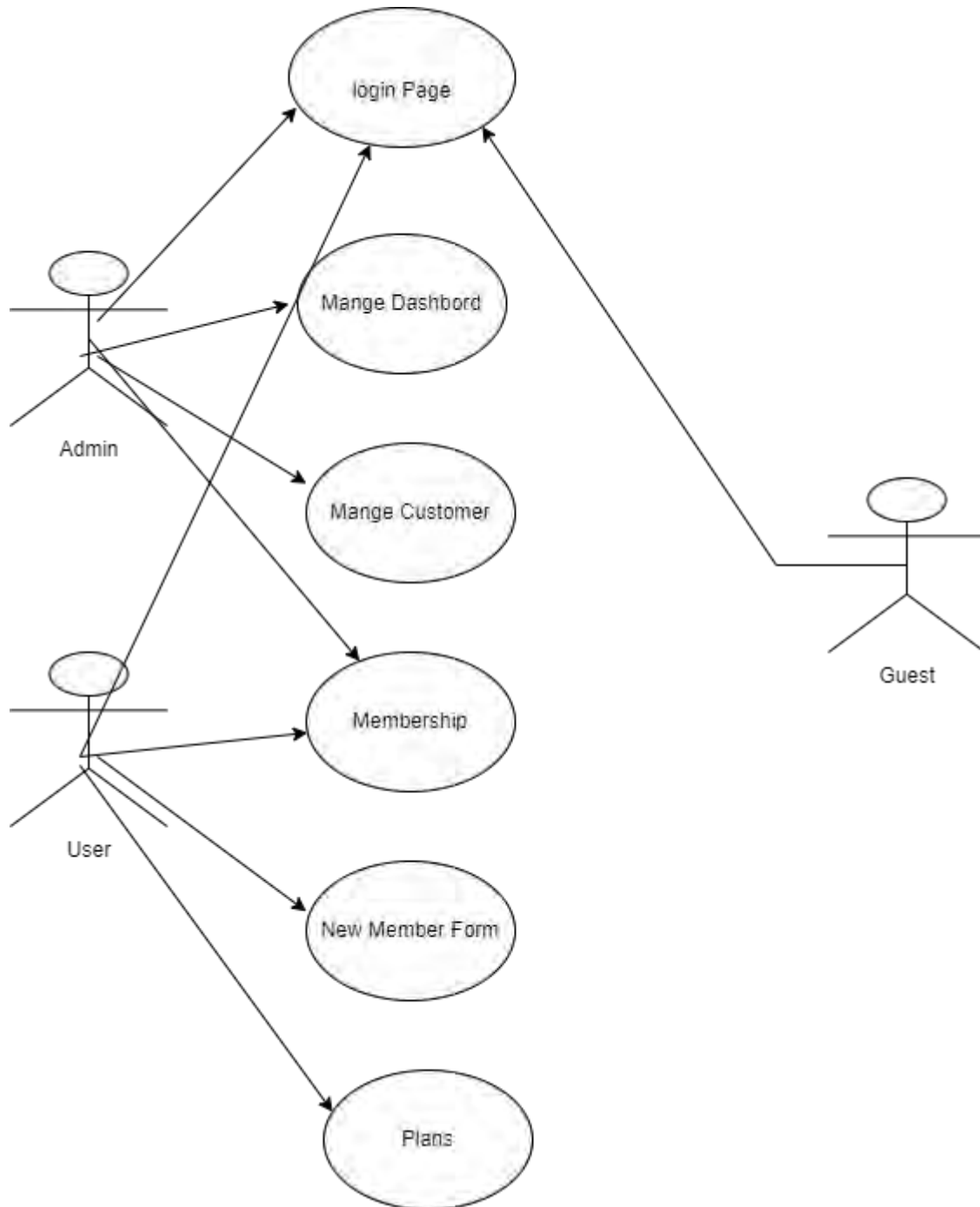
## 6.2 E-R DIAGRAM



### 6.3 USER ACTIVITY DIAGRAM



## 6.4 USE CASE DIAGRAM :



## CHAPTER 7 DATA DICTIONARY

**Table:7.1 Adm Area**

Sr no	Column name	Data type	Constraints
1	Area_id	Int	Primary key
2	Area_Name	varchar (50)	Not Null
3	Area_Pincode	varchar (50)	Not Null

**Table7.2 Customer**

Sr no	Column name	Data type	Constraints
1	Customer_id	int	Primary key
2	Customer_Name	varchar (50)	Not Null
3	Moblie_No	varchar (50)	Not Null
4	Email_Id	varchar (50)	Not Null
5	Gender	varchar (50)	Not Null
6	Date_Of_Birth	varchar (50)	Not Null
7	Height	varchar (50)	Not Null
8	Weight	varchar (50)	Not Null
9	Address	varchar (50)	Not Null
10	Remarks	varchar (50)	Not Null

**Table:7.3 Adm Employee Master**

Sr no	Column name	Data type	Constraints
1	Employee_Master_id	Int	Primary key
2	Full_Name	varchar (50)	Not Null
3	Mobile_no	varchar (50)	Not Null
4	Email_id	varchar (50)	Not Null
5	Password	varchar (50)	Not Null
6	Experience	varchar (50)	Not Null
7	Qualification	varchar (50)	Not Null

**Table:7.4 Adm BMI Entry**

Sr no	Column name	Data type	Constraints
1	BMI_Entry_Id	Int	Primary key
2	Full_Name	varchar (50)	Not Null
3	Gender	varchar (50)	Not Null
4	Height	varchar (50)	Not Null
5	Normal_weight	varchar (50)	Not Null
6	Over_weight	varchar (50)	Not Null
7	Under_weight	varchar (50)	Not Null
8	Age	Varchar (50)	Not Null

**Table:7.5 Adm Contact us**

Sr no	Column name	Data type	Constraints
1	Contact_Id	Int	Primary key
2	Full_Name	varchar (50)	Not Null
3	Subject	varchar (50)	Not Null
4	Mobile_no	varchar (50)	Not Null
5	City_Name	varchar (50)	Not Null

**Table:7.6 Adm Employee Type**

Sr no	Column name	Data type	Constraints
1	Employee_Type_Id	Int	Primary key
2	Employee_Type	varchar (50)	Not Null
3	Remarks	varchar (50)	Not Null

**Table:7.7 Adm Feedback**

Sr no	Column name	Data type	Constraints
1	Feedback_Id	Int	Primary key
2	Full_Name	varchar (50)	Not Null
3	Email_Address	varchar (50)	Not Null
4	Comment	varchar (50)	Not Null

**Table:7.8 Adm Inquiry**

Sr no	Column name	Data type	Constraints
1	Inquiry_id	Int	Primary key
2	Full_Name	varchar (50)	Not Null
3	Mobile_no	varchar (50)	Not Null
4	Email_id	varchar (50)	Not Null
5	Address	varchar (50)	Not Null
6	City_Name	varchar (50)	Not Null
7	Subject	varchar (50)	Not Null
8	Reference	varchar (50)	Not Null
9	Remarks	varchar (50)	Not Null

## CHAPTER 8 Outcomes

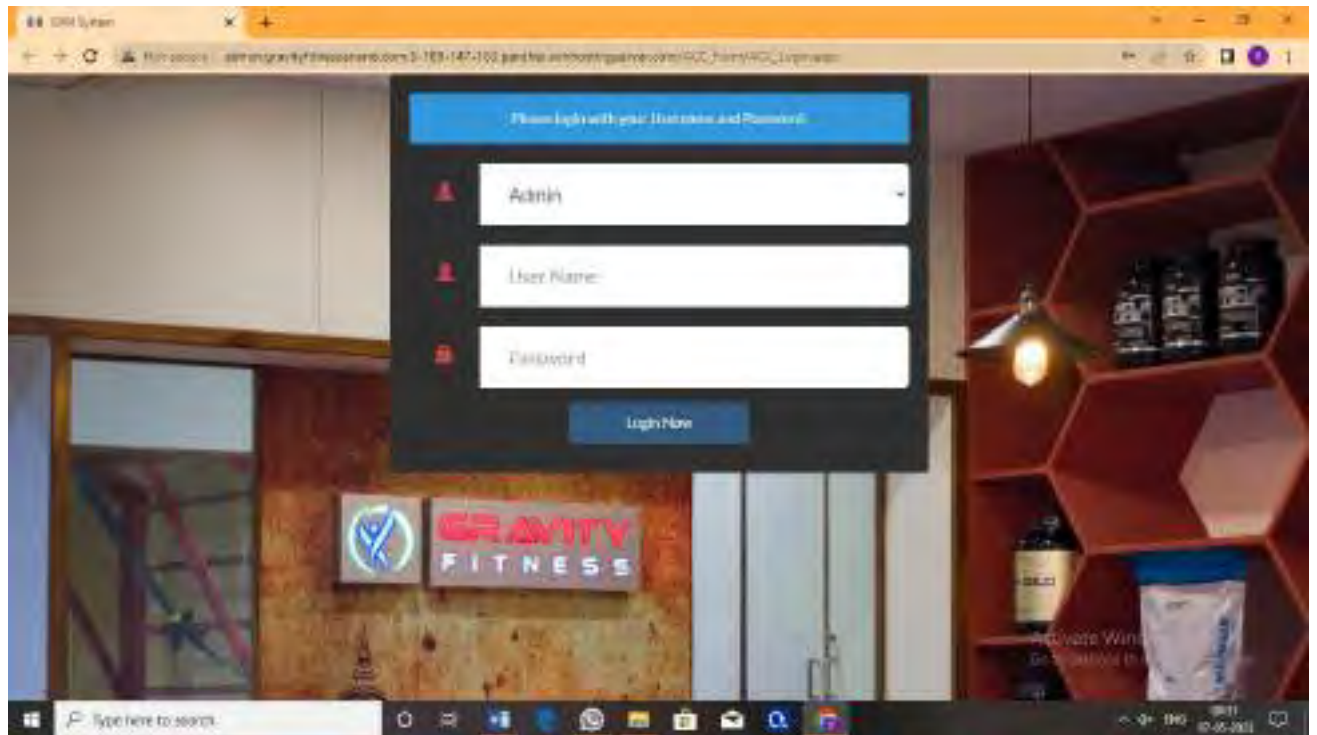
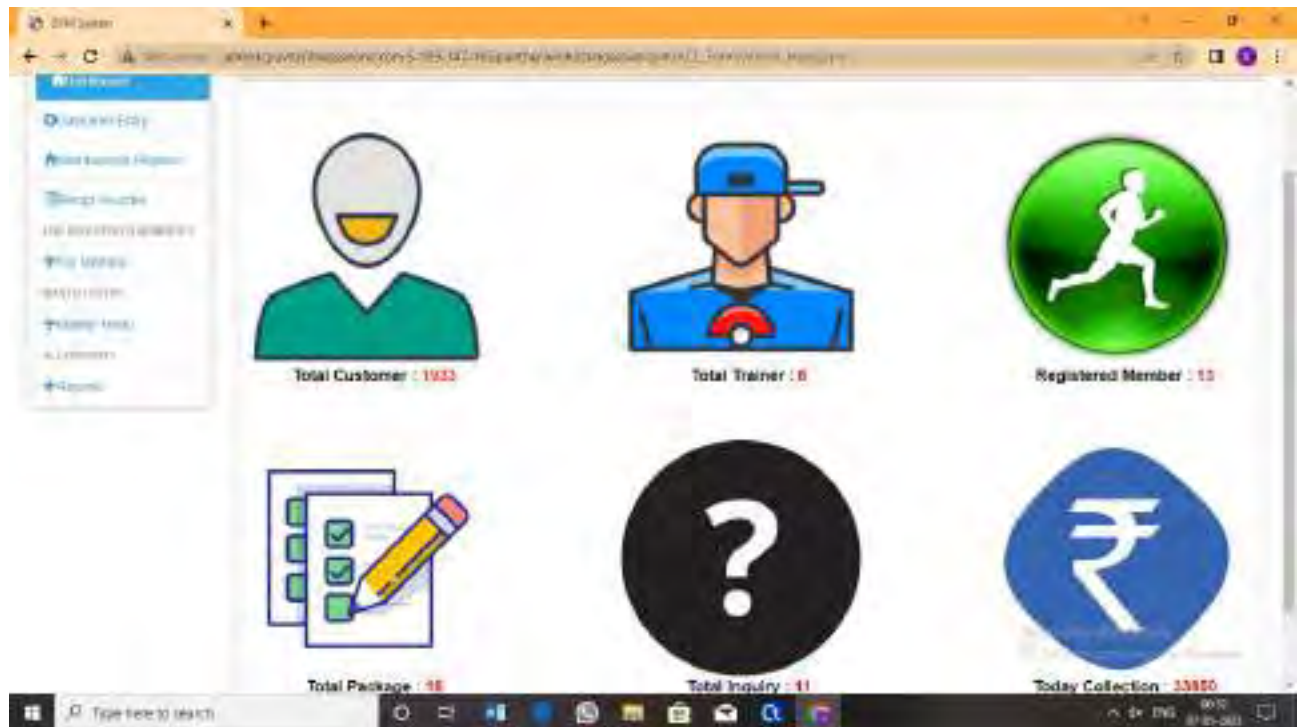


Fig 8.1 Login Page



**Fig 8.2 Admin Page**



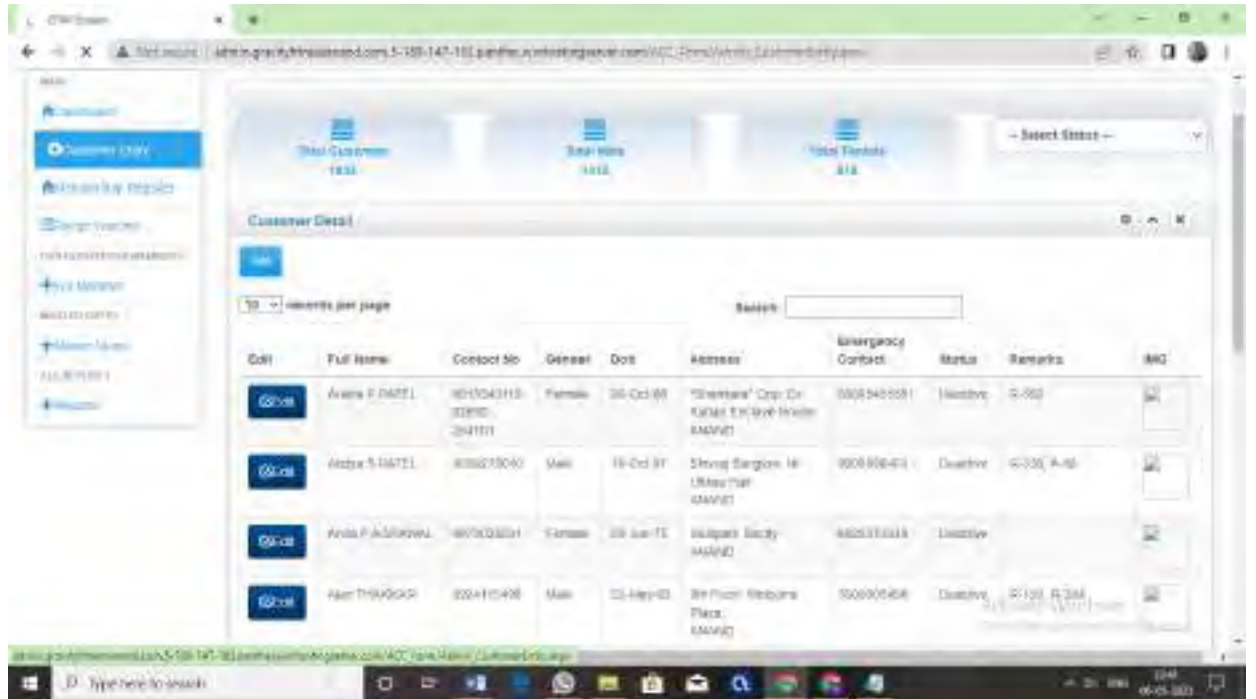


Fig: 8.3 Customer Page



Fig: 8.4 Customer Entry Edit Page

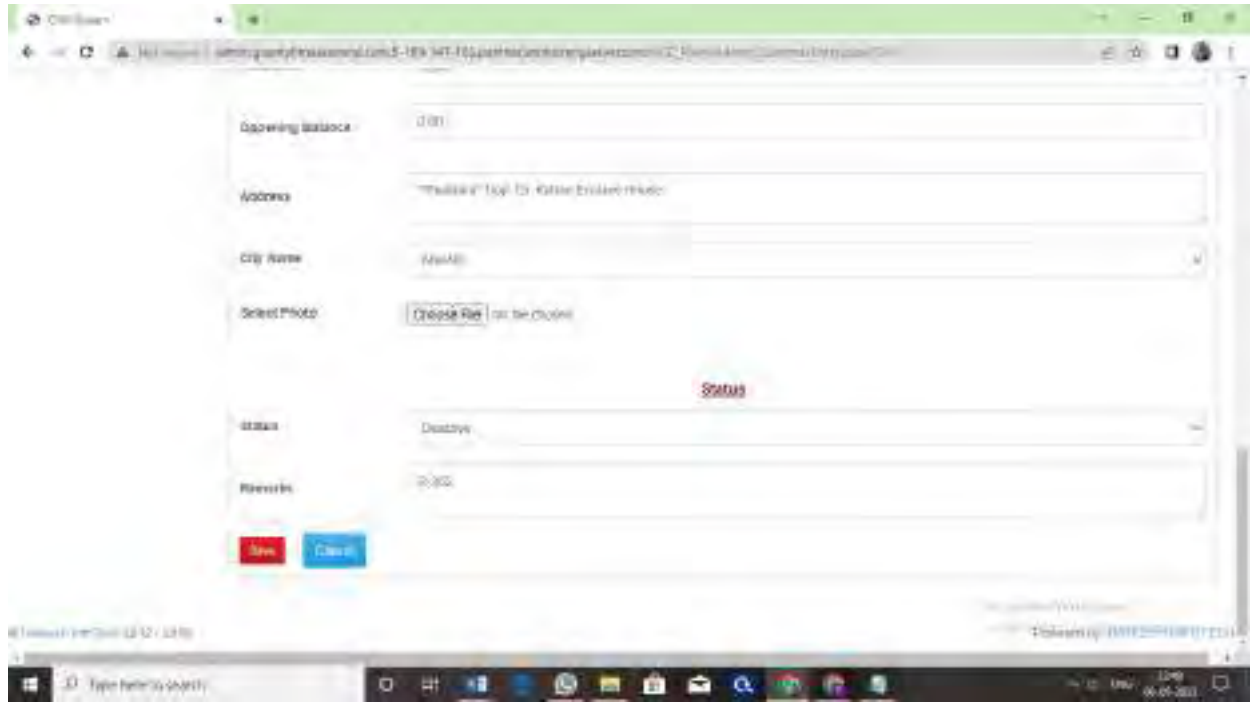


Fig: 8.5 Customer Entry Edit Page

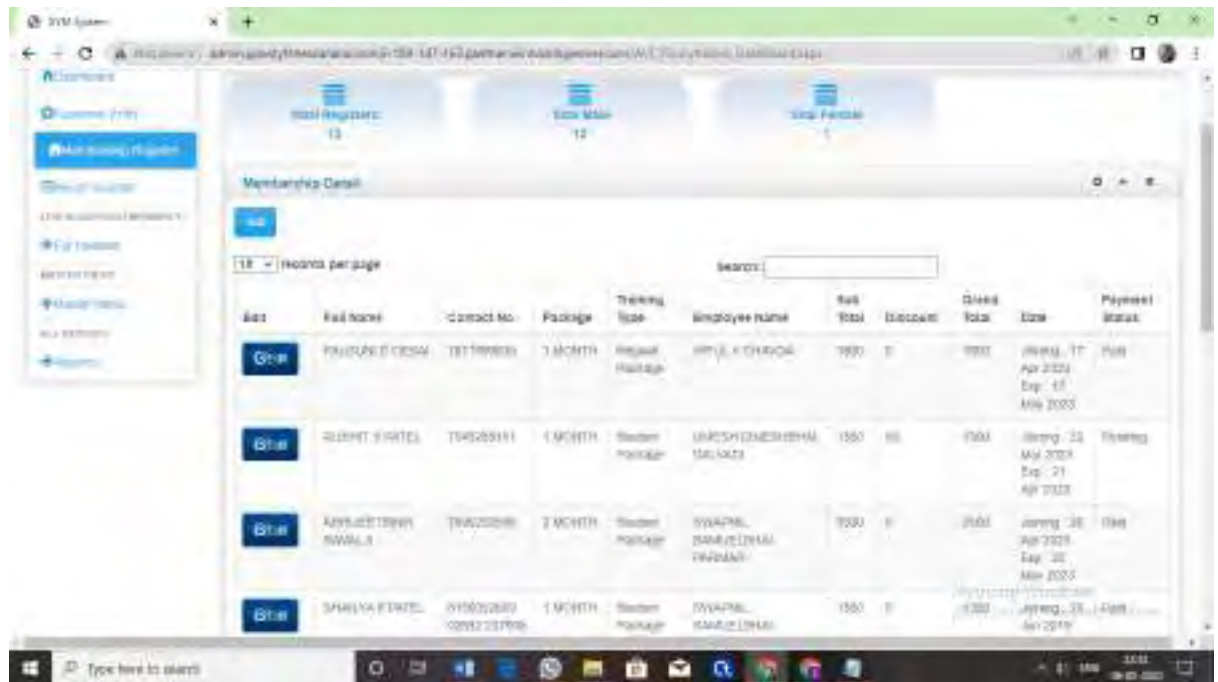


Fig 8.6 Membership Register

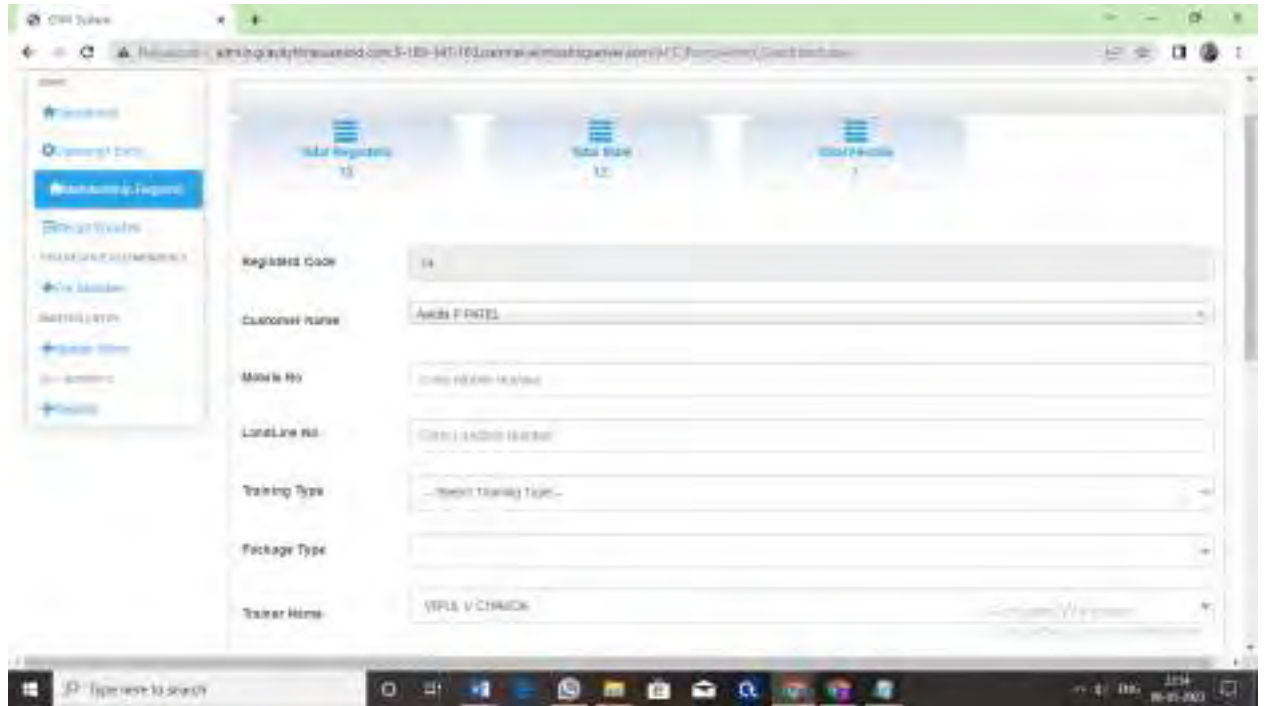


Fig: 8.7 Membership Entry Edit Page

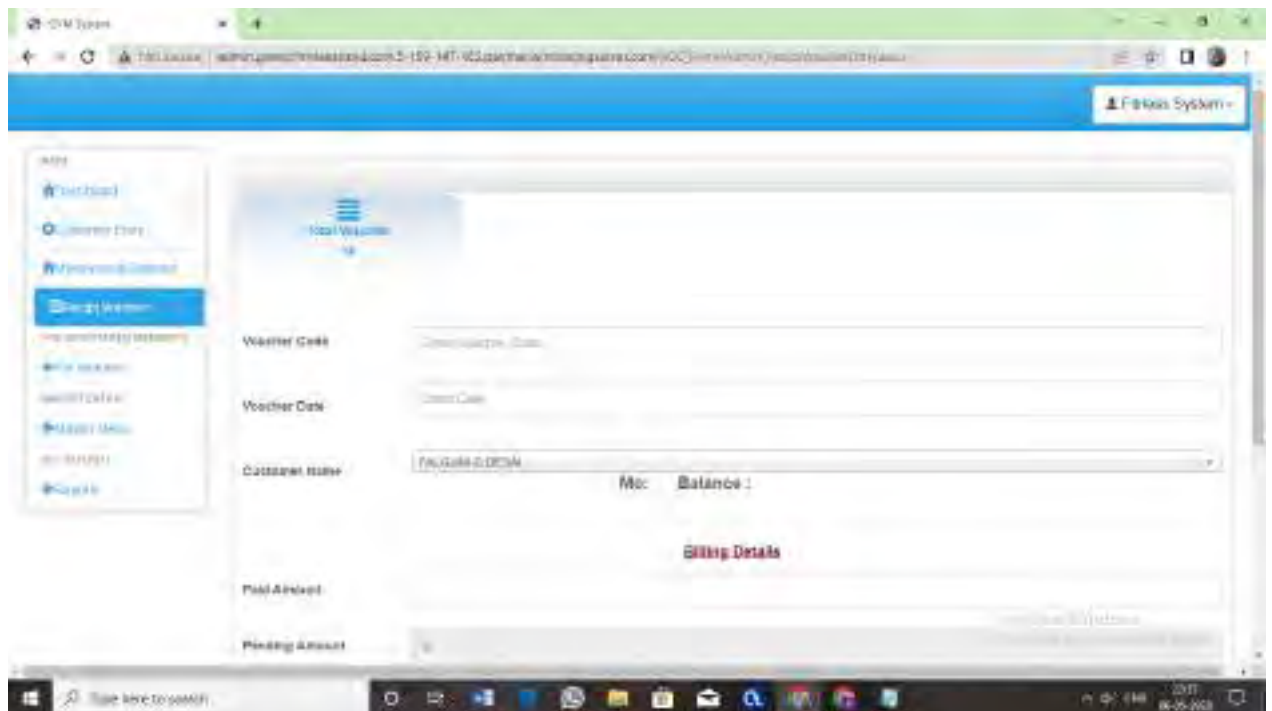


Fig: 8.8 Receipt Voucher Page

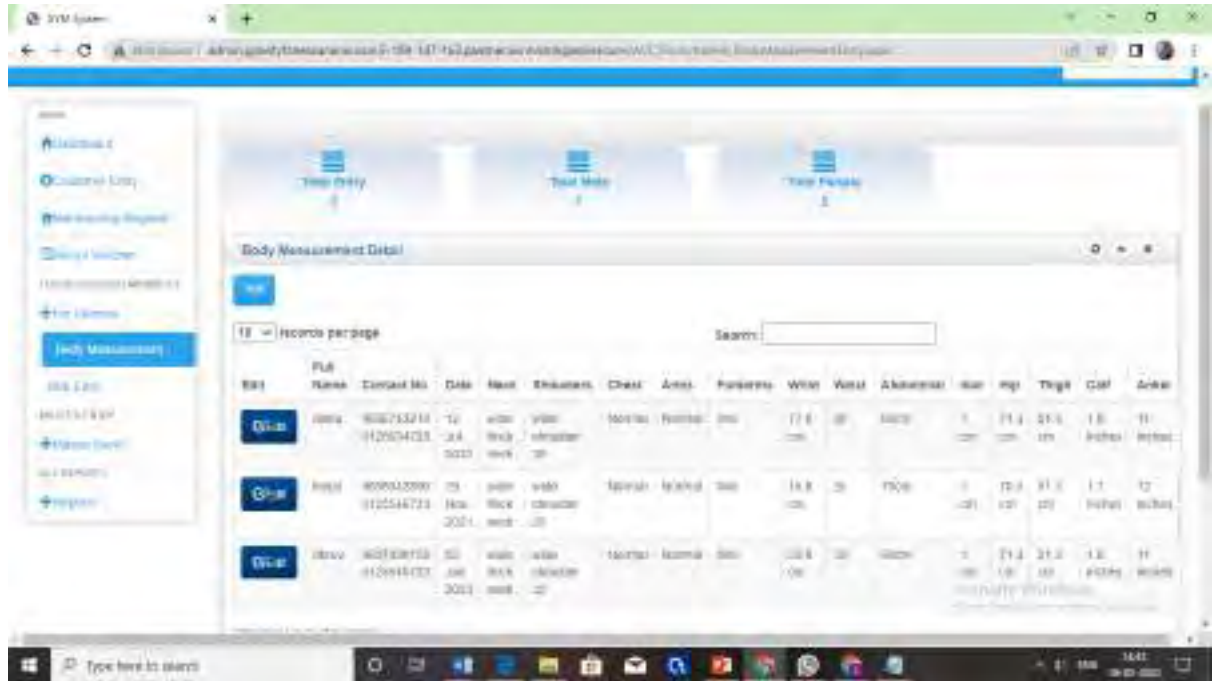


Fig: 8.9 Body Measurement Page

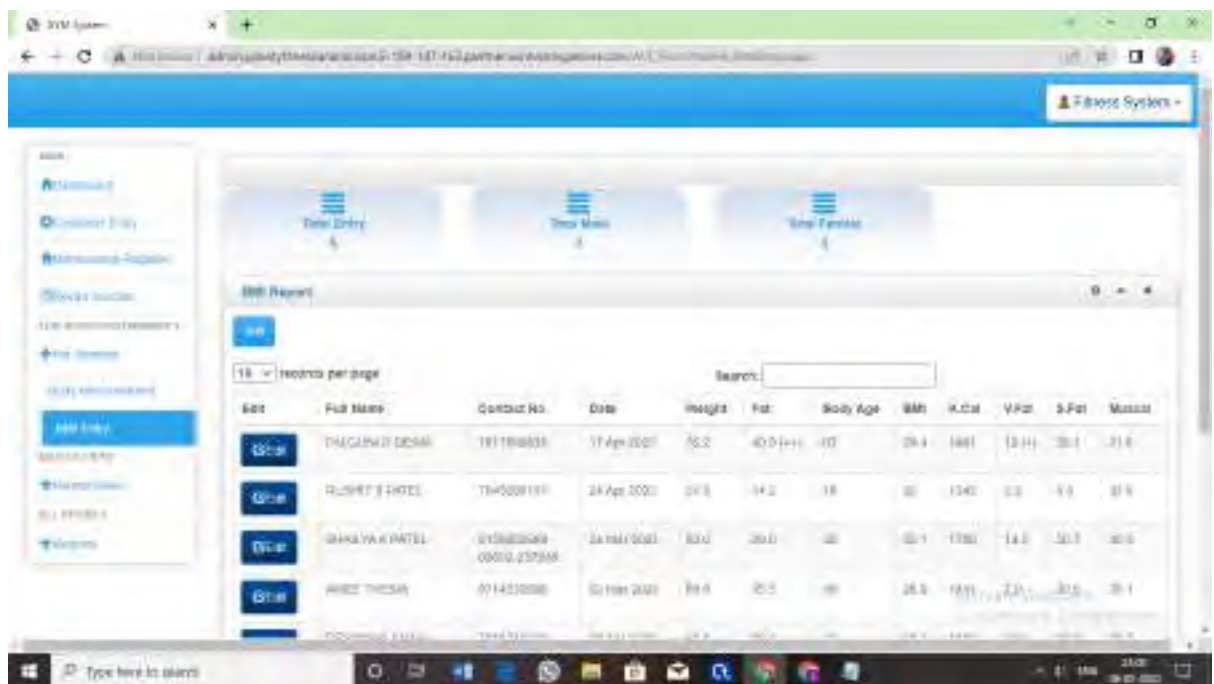


Fig: 8.10 BMI Entry Page

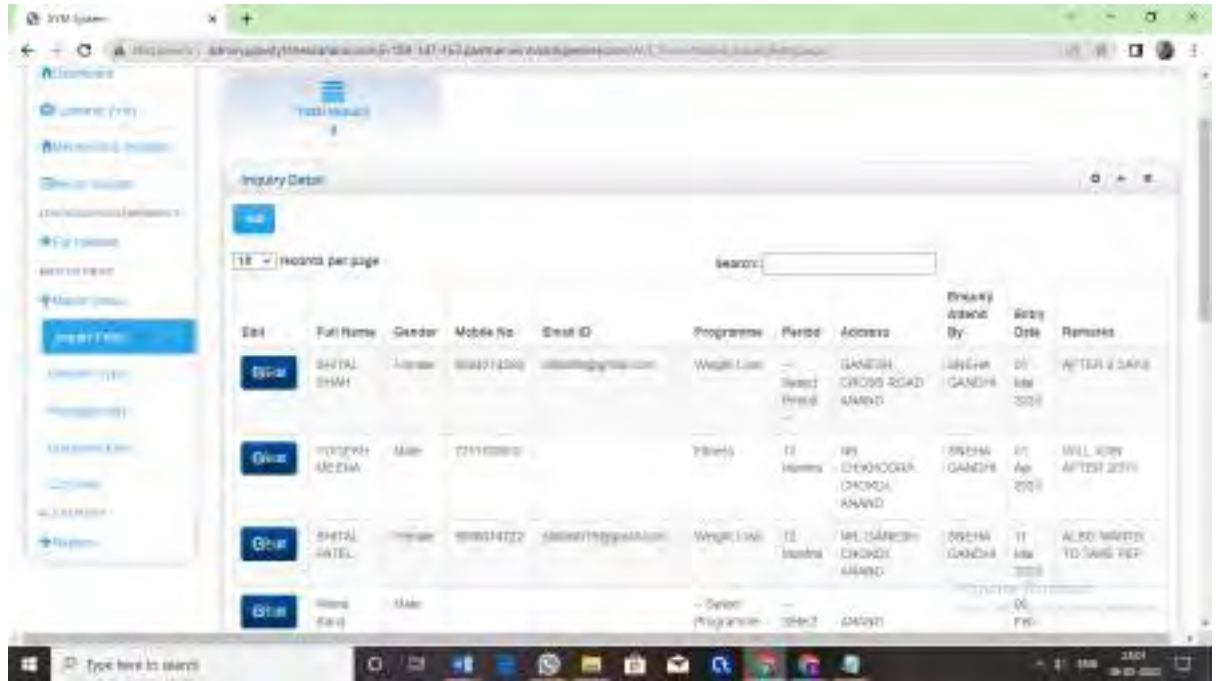


Fig: 8.11 Inquiry Entry Page Of Master Menu

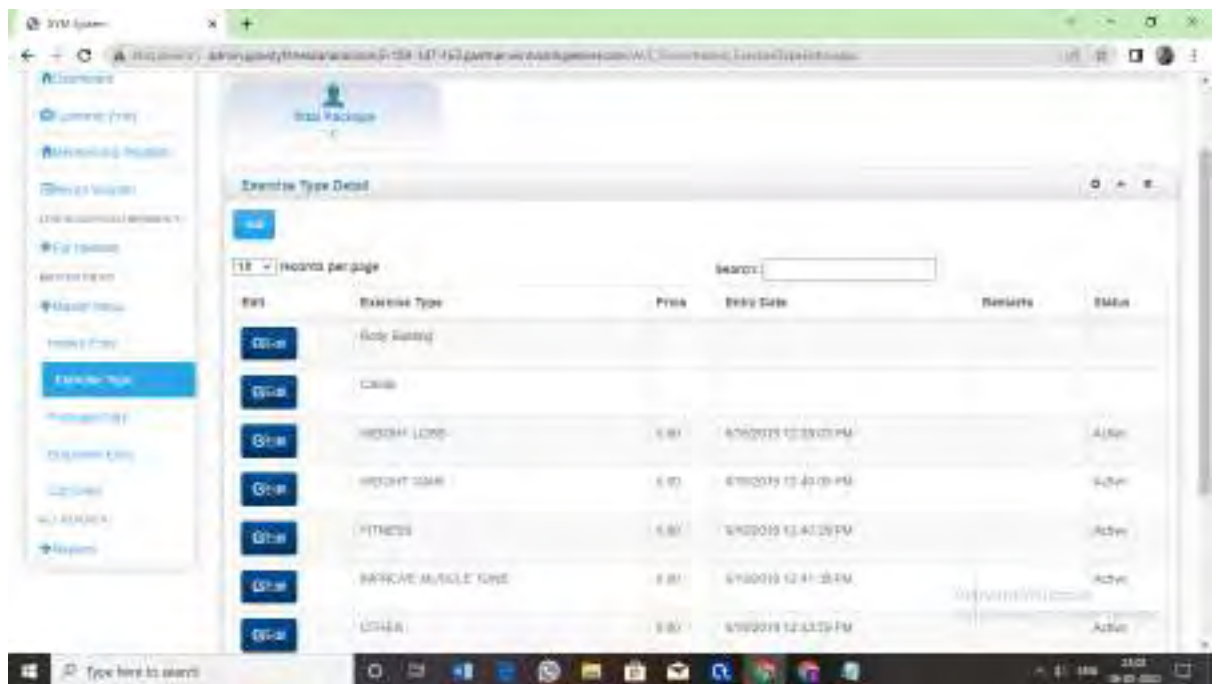


Fig: 8.12 Exercise Type Page



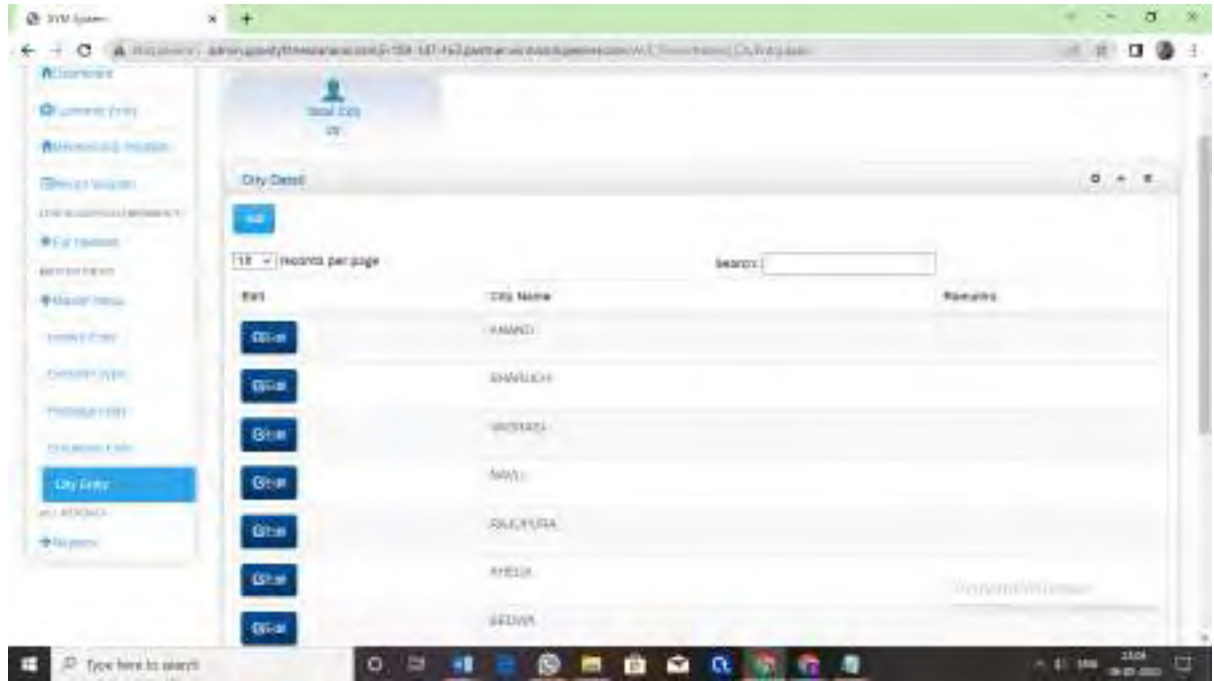


Fig: 8.15 City Entry Page

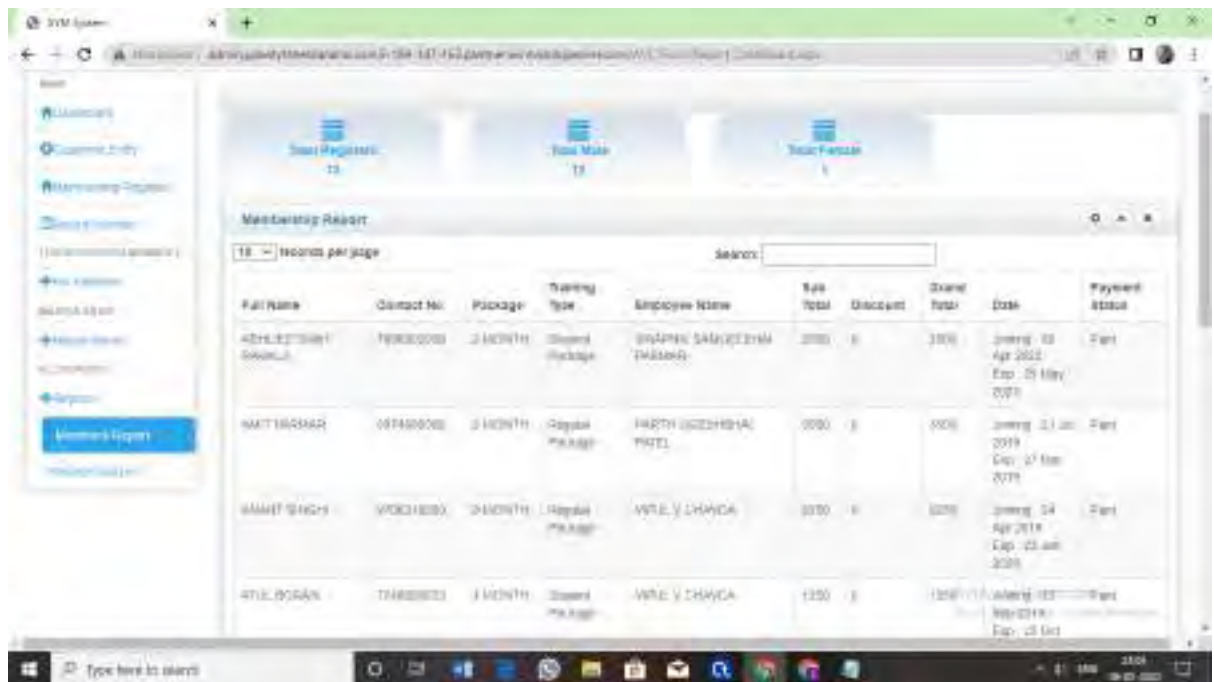


Fig: 8.16 Members Report Page

Customer Name  
Ajitha S. NITEL

Receipt Report

15 records per page

Voucher Code	Voucher Date	Customer Name	Mobile No	Current Balance	Paid Amount	Pending Amount	Document No	Document Date	Remarks
1	09 MAY 2018	RIYASHI S NITEL	752000000	35.00	8.00	0.00		23/MAY/2018	
2-001 (S-215)	26 Jun 2018	ANANT S NITEL	910410000	800.00	800.00	0.00	CASH	16/JUN/2018	
2-002	24 Jun 2018	SHWETA NITEL	820000000	100.00	100.00	100.00	CASH	13/JUN/2018	
2-003	26 Jun 2018	RIYASHI S NITEL	752000000	100.00	100.00	0.00	CASH	26/JUN/2018	
2-004	24 Jun 2018	SHWETA NITEL	820000000	100.00	100.00	0.00	CASH	14/JUN/2018	
2-214	20 Jun 2018	ADHAR S NITEL	750000000	100.00	100.00	0.00	CASH	20/JUN/2018	
2-215	20 Jun 2018	SHWETA NITEL	820000000	100.00	100.00	0.00	CASH	20/JUN/2018	

Fig: 8.16 Receipt Voucher Page



## CHAPTER 9 TESTING PROCEDURES AND IMPLEMENTATION PHASES

Application testing is a critical element of quality assurance and represents the ultimate review of specification design and coding. The testing phase involves the testing of the application using various test data; preparation of test data plays a vital role in the application testing. After preparing the test data, the application under study is tested using those test data, and errors found are corrected and correction are recorded for future references. Thus, a series of testing is performed before the application is ready for implementation.

### Various types of testing carried out on the application are:

- Validation testing
- Output testing
- User acceptance testing

### Validation testing:

- Validation and verification are major part of testing.

### Validation:

- The process of evaluating this software at the end of its development process to ensure that it is free from failure and complies with its requirements.

### Verification:

- Verification approaches attempts to identify product faults or errors which give rise to failures.

## 9.1 LIMITATIONS

- User must have computer knowledge.
- It is a dotnet application hence it requires a windows server.
- User has to deal with large amount of data.
- User has to manually enter data.

## **9.2 PROPOSED ENHANCEMENT**

The developed application is web application. It can be ported to a web server in later stages of development for multiple locations.

The Gym System is currently supported in website. In future enhancements the different framework can be added to make it usable on mobile and portable devices.

## **9.3 Conclusion**

The Project developed is The Management System for the Gym Business. The data of the organisation are kept in a structure manner. The retrieval, addition and the deletion of the data is much easier.

Retrieval of the old information for the membership sold is much quicker. The documentation of the procedures is well-designed and well-formatted. The reports generated by the computerized application are presentable and also understandable.

The security of the important data is provided in an efficient manner. The change in one particular document is also reflected to other related documents. User will understand the application. He won't have double about working of the application.


**BIBLIOGRAPHY**

- System analysis and design By Elias Award.
- System analysis and design by James A. Senn by TataMacGrow Hill.
- .NET 3.5 BLACK BOOK by Dreamtech Press.

## REFERENCES

1. YouTube: [https://www.youtube.com/watch?v=3AYoipyqOkQ&list=PL6n9fhu94yhXQS\\_p1i\\_HLIftB9Y7Vnxlo&ab\\_channel=kudvenkat](https://www.youtube.com/watch?v=3AYoipyqOkQ&list=PL6n9fhu94yhXQS_p1i_HLIftB9Y7Vnxlo&ab_channel=kudvenkat)
2. Visual Studio: <https://visualstudio.microsoft.com/>
3. Tutorialspoint: [https://www.tutorialspoint.com/ms\\_sql\\_server/index.htm#:~:text=MS%20SQL%20Server%20is%20a,on%20another%20across%20a%20network](https://www.tutorialspoint.com/ms_sql_server/index.htm#:~:text=MS%20SQL%20Server%20is%20a,on%20another%20across%20a%20network)
4. Microsoft documentation: <https://docs.microsoft.com/en-us/aspnet/>
5. ASP.NET forums: <https://forums.asp.net/>
6. ASP.NET CodePlex: <https://archive.codeplex.com/site/search?query=asp.net>
7. Stack Overflow: <https://stackoverflow.com/questions/tagged/asp.net>
8. Code Project: <https://www.codeproject.com/search.aspx?q=asp.net>
9. Telerik: <https://www.telerik.com/support/code-library/asp-net>
10. MSDN Magazine: <https://msdn.microsoft.com/en-us/magazine/dn781358.aspx>
11. Plural sight: <https://www.pluralsight.com/search?q=asp.net>
12. GitHub: <https://github.com/search?q=asp.net&type=Repositories>
13. Udemy: <https://www.udemy.com/topic/asp-net/>
14. Overstack: [www.overstack.com](http://www.overstack.com) & [www.dotnet.microsoft.com](http://www.dotnet.microsoft.com)

# WEEKLY REPORT



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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 (ગુજરાત સર્વિસીકમ હેઠળ સ્થાપિત કરાયેલ અક્ટ નં. ૨૬)

Roll No. /  
 Roll No. /  
200000000000

**STUDENT'S WEEKLY RECORD OF ATTENDANCE**

NAME OF STUDENT: Pratik Suresh Trivedi  
 DIARY OF THE WEEK: 11/10/23 to 17/10/23  
 DEPARTMENT: Computer Engineering SEM: 3  
 NAME OF THE ORGANIZATION: HATKESH INFOTECH PVT. LTD.  
 NAME OF THE PLACEMENT DEPARTMENT: HAT Tech Department  
 NAME OF OFFICE IN CHARGE IN THE PLACEMENT DEPARTMENT: Pratik Trivedi


	DESCRIPTION OF THE WORK DONE IN BRIEF
6-2-23	-> Introduction of the unit on Inductive loads and regulation with derivation -> Derive the regulation about unit -> Derive Derivation, derivation, finding regulation -> Total Derivation and unit derivation
7-2-23	-> Finding unit and unit derivation -> Finding unit and unit derivation of unit & derivation -> Derivation, derivation, unit & derivation -> Derivation
8-2-23	-> Derivation, derivation -> Derivation and applying the derivation unit & derivation -> Derivation, derivation, unit & derivation
9-2-23	-> Derivation, derivation, unit & derivation -> Derivation, derivation, unit & derivation -> Derivation, derivation, unit & derivation
10-2-23	-> Derivation, derivation, unit & derivation -> Derivation, derivation, unit & derivation



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(ગુજરાત અધિનિયમ નંબર ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS ----- 40

  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member



Date: 18/1/2023

Signature of Head of Institute  
or Dept. Head



Date

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અસિનિયમ ક્રમાંક- ૨૦૧૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I  
Enrollment No. 20200256

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Divyansu Sujani Benu Inamchari  
DIARY OF THE WEEK: DL 13-2-23 TO 17-2-23  
DEPARTMENT: Computer Engineering SEAL 5th  
NAME OF THE ORGANISATION: HATKESH INFOTECH PVT LTD  
NAME OF THE PLANT/SECTION/DEPARTMENT: NET/Link development  
NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Dinkal Jami Sir

**DESCRIPTION OF THE WORK DONE IN BRIEF**

13-2-23 → Foreign key Introduction and Practicing on it  
→ Learning steps and rules with database  
→ Applying foreign key in all tables of the different systems like school mg system, hotel management system etc.  
→ Learning view  
→ Detail Introduction and prior knowledge about view  
→ then applying views and implementing tables using views  
→ Applying primary key, foreign key and view in different database tables & in system.

14/2/23 → Visual studio Installation  
→ Installation & setup of visual studio & also getting better understanding how visual studio work



SUPPLEMENTARY NOTES  
(Add additional sheets if required)

With last discussion together a various implementation of it quite helps in web development projects with project in your hands and you  
→ Learning and getting better knowledge of HTML  
→ Examples of HTML & Exercise

15/1/23 → create forms in visual studio  
→ creating & connecting different projects in form like linked database system

16/2/23 creating and implementing forms using Hotel management system.  
→ Project - Staff System, Gate management system  
→ Using other different projects and database on it  
→ Exercise

17/3/23 → Discuss on different problems  
→ demonstrate ideas for specific project  
→ Structure definition of project





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(ગુજરાત સરકારના અધીન ૨૦૦૭ના અક્ટ નંબર ૨૦)

TOTAL MARKS: 40

*[Signature]*  
SIGNATURE OF STUDENT

The above marks are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member:

*[Signature]*

Date: 16/2/2025

Signature of Officer-in-charge  
of Dept. / Section / Year

*[Signature]*  
Date: 16/2/25

Grading of Work for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc



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Address:

Card No.:

202294-222

STUDENT'S WEEKLY RECORD OF INTERSHIP

NAME OF STUDENT: Sujana Inamshila Dhanu  
DIARY OF THE WEEK: 20/2/23 to 26/2/23  
DEPARTMENT: COMPUTER SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: HARISH INFOTECH PVT LTD  
NAME OF THE PLANT/SECTION/DEPARTMENT: NET (web development)  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Rinval Jhal sir

DESCRIPTION OF THE WORK DONE IN BRIEF

20/2/23:- Discuss and complete necessary paperwork using my domain name  
- cover numerous points which are significance of gym management system.  
- Gym owners obstacles  
- Compiling information of trainer and clients  
- creates preliminary workflow of domain

21/2/23:- collecting database details  
- create database tables in notebook  
- After that create main details and sub details of domain tables  
- create and implements tables using form & mail.  
- creating multiple tables of system  
Exercise



SUPPLEMENTARY NOTES  
સહ પાઠ્યક્રમ નોંધણી પાસ્પોર્ટ

- 22/11/23- Create Simple Tables using domain - Dr.  
- Apply & use RDM in Tables  
- Give Primary, Foreign and view in Tables.  
- connecting related tables with foreign key
- 24/11/23- Remove error in SQL query management table  
- Saving database errors  
[removed error in foreign key]  
- saving errors of column attributes  
- comparing use of database table creation
- 24/11/23- Create view based on database  
- Saving column names from invalid creation  
- Show ERSS diagram on table based on domain requirement  
- TRICK:- Database table creation



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ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી

Total Marks: 50

*[Signature]*  
Date: / /

The above entries are correct and the grading of work done by trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member

*[Signature]*

Date: 18/11/2023

Signature of Head-in-Charge  
of Dept. / Institute / Firm

*[Signature]*  
*[Stamp]*

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિવાર અન્વયે ૨૦૦૭ના અક્ટ નંબર ૨૦)

Semester:

Enrollment No.:

20231810304

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: Sujani Trivedi

DATE OF THE WEEK: 24/1/23 TO 31/1/23

DEPARTMENT: COMPUTER SEM-8<sup>TH</sup>

NAME OF THE ORGANISATION: HONGKONG TELECOM LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: NET-CENTRE DEVELOPMENT

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Sudesh Jindal Sir

**DESCRIPTION OF THE WORK DONE IN BRIEF**

27/1/23 - creating forms according to my domain, like  
:- registration form  
:- customer  
:- membership

28/1/23 - solve errors of registration form  
- detection and solving error of database table  
of membership  
- Learning different types of errors  
:- Re-Applying primary key and Foreign key  
in membership database table because of error  
:- understands system error and  
custom error



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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

SUPPLEMENTARY NOTES  
(add additional sheets if required)

- 1/3/23 - creating and Designing multiple pages based on requirements.
- Learn and create page with insert code
  - Learning Libraries
  - Exercise.
- 2/3/23 - creating multiple pages with insert code
- Learning and understanding steps of connection with database
  - solving errors during execution of page with INSERT code
  - Exercise (task)
- 3/3/23 - TEST  
[Mock Test & also Practical Test]



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Address: /

Enrollment no:

200300107500

**STUDENT'S WEEKLY RECORD OF INTERNSHIP.**

NAME OF STUDENT: Divyanshu Rajendra Shah

DIARY OF THE WEEK: From 6/3/23 to 10/3/23

DEPARTMENT: CE SEM: 8

NAME OF THE ORGANISATION: HATKESH INFOTECH PVT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: web development (NET)

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Rakesh kumar sir

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- 6/3/23 - Today's task is master page.  
:- I learned how to create master page.  
:- Learning Header and Footer concepts with basic.  
:- Perform and complete task of Header and Footer.
- 7/3/23 Holiday in company.
- 8/3/23 Holiday in company.
- 9/3/23 Recalling master pages.  
:- Learning template editing.  
:- Create master page of previously made system or projects.  
:- Task [make master page of any 3 system]



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SUPPLEMENTARY NOTES  
(with additional sheets if required)

10/3/23 :- Today's task is web form, masterpage, designing and database creation by my guide.

:- Understanding flow of work

:- Solving error of master page

:- more practice on different task and practice to learn features of visual studio and database.

:- Brief Demo of Toll tax system by guide.

:- Task [create and design forms, database and master page on Toll tax system].





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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ અંતર અધિકાર)

TOTAL HOURS: 40

*Ruhra*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member

*[Signature]*

Date: 18/12/22

Signature of officer-in-charge  
of Dept / Section / Plant

*[Signature]*  
Date:

10/3/23



Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

**SUPPLEMENTARY NOTES**

(add additional sheets if required)

3- write insert code connect web forms and database of different system.

15/3/23 :- creating database according my domain name  
-> creates multiple tables and add gathered data into table

:- Apply keys, identity specification.

16/3/23 Saving error of database with guide helps.

:- Designing and creating different pages as per requirement as web forms.

:- Learning and executing sequence of steps and patterns of it.

17/3/23 Create master page.

:- Then write insert code into particular system

:- connection [connect insert code with DB]

:- filling & executing code.

:- TASK E design & connect pages or forms with DB  
Also include master page.



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TOTAL HOURS: 40

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date: 18/3/2023

Signature of officer-in-charge  
of Dept. / Section / Unit

[Signature]

Date: 17/3/23



Grading of Work, for trainee may be given depending upon your judgement about  
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(ગુજરાત અધિનિયમ ક્રમ ૨૦, ૨૦૦૭ ના અંતર્ગત સ્થાપિત)

સપ્તાહ 1

કાર્યકાળના

શરૂઆત તારીખ

STUDENT'S WEEKLY RECORD OF INTERSHIP

NAME OF STUDENT: Mr. Ad. Sujhigand Jambhani

DIARY OF THE WEEK: fr. 20/08/23 to 26/08/23

DEPARTMENT: AE SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: INTER-VA INFOTECH Pvt. Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: Web Development (Front)

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Rishad Jambhani

DESCRIPTION OF THE WORK DONE IN BRIEF

- 20/8/23 :- Working on learning master page
  - > Learning all the steps and overall procedure of master page.
  - > Design multiple master page.
- 21/8/23 :- Learning UPDATE CODE
  - > Creating different web forms in single pattern.
  - > Learning UPDATE CODE & apply it in different forms.
- 22/8/23 :- Starting work on introduction website for Front-end side.
- 23/8/23 :- Working on master page for designing requirement of website.
- 24/8/23 :- Working on Home Page
  - > Design different home page for learning and practice purpose.
  - > Completing Task.



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TOTAL HOURS: 40

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date: 18/3/2023

Signature of officer-in-charge  
of Dept. / Section / Head

[Signature]

Date:

17/3/23



Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Semester I  
Enrollment no.  
XXXXXXXXXXXX

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: PravAn SuthiDANU JIMPACHA

DIARY OF THE WEEK: fr. 20/01/23 to 26/01/23

DEPARTMENT: IT SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: INTERTECH SOLUTIONS PVT. LTD.

NAME OF THE PLANT/SECTION/DEPARTMENT: Web Development (W.D.T)

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: PravAn JIMPACHA

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- 20/01/23 :- working on learning master page.  
:- learning all the steps and overall procedure of master page.  
:- design multiple master page.
- 21/01/23 :- learning UPDATE CODE  
:- creating different web forms in similar pattern.  
:- learning UPDATE CODE & apply it in different forms.
- 22/01/23 :- starting work on introduction website for Front-end dev.
- 23/01/23 :- working on master page for designing requirement of website.
- 24/01/23 :- working on Home Page  
:- design different home page for learning and practice purpose.  
:- completing task.

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ગણતંત્ર ચોક નિહામ કાંઠો-૩૯૦૦૧૫ અમી અમી-૧

TITHI HOURS: 4/2

SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member



Date:



Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Atiush Sureshbhai Jambhale  
DAILY OF THE WEEK: ON 30/12 TO 7/1/23  
DEPARTMENT: COMPUTER YEAR: 2  
NAME OF THE ORGANISATION: HANUMAN INFOTECH PVT. LTD.  
NAME OF THE PLANT/SECTION/DEPARTMENT: APP. DEV. / WEB DEVELOPMENT  
NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Pravall Jambhale

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- 30/12 - Working on Admin panel
  - creating master page for their header part, footer and navigation
  - create design of admin panel in master page
- 31/12 - Learning designing concept of different types of website with my guide
  - task - creating profile setting page
  - design profile setting page
- 1/1/23 - create a dashboard in visual studio
  - learn data shaping
  - create dashboard items
  - learning item resizing
- 6/1/23 - working on customer Entry page
- 7/1/23 - learn to do
  - studying & determine how fluid
  - Editing an overview entry page
  - learning about



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સંસ્થાના અધિકાર અન્વેષિત છે. સંસ્થાના નિયમો અનુસાર.

સંસ્થા નામ: \_\_\_\_\_

સંસ્થાના અધિકાર અન્વેષિત છે.  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

*[Handwritten Signature]*

Signature of officer-in-charge  
of Dept./Section/Plant



Date

Date

20/07/23

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his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1

Enrollment no:

70090107-02

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Pratiksha Sujata Tamrakhar

DIARY OF THE WEEK: Dt. 10/4/23 TO 14/4/23

DEPARTMENT: Computer SEM: 8

NAME OF THE ORGANISATION: WATIRESH INFOTECH OUT LTD

NAME OF THE PLANT/SECTION/DEPARTMENT: ASP-NFT (web development)

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ravindra Jambhvir

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- |         |   |
|---------|---|
| 10/4/23 | TASK OF Today is:- create two pages of social media location & finish work.<br>- starts the work and coding for those pages.          |
| 11/4/23 | - code for fetching into DATABASE.  |
| 12/4/23 | - coding for insertion of data.<br>- Import file in starting of top of page.  |
| 13/4/23 | - write code & editing of customer detail page.<br>- Edit Button and write code for different purpose.<br>- write code for fetching.  |
| 14/4/23 | - completed code of customer Entry page.<br>- update icons & buttons as per change requirement.<br>- create membership register page. |

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TOTAL HOURS: 120

[Signature]  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date:

Signature of officer-in-charge  
of Dept. / Section / Plant



Date: 21/4/23

Grading of Work, for trainee may be given depending upon your judgement about  
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(જનરલ અધિકારિતમ કચેરી, ગાંધીધામ ગણ સભાગૃહ)

Semester I

Enrollment no.

2014123

STUDENT'S WEEKLY RECORD OF INTERSHIP

NAME OF STUDENT: Divya Suresh, Internship

DIARY OF THE WEEK: 16/11/23 to 21/11/23

DEPARTMENT: Computer

SEM: I

NAME OF THE ORGANISATION: WATSON INTERIUM INT. LTD.

NAME OF THE PLANT/SECTION/DEPARTMENT: PROJECT WEB DEVELOPMENT

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Global Tech

DESCRIPTION OF THE WORK DONE IN BRIEF

- | DATE     | TASK OF THE DAY  |
|----------|--|
| 17/11/23 | TASK OF THE DAY:<br>- creates three dashboard which are similar to each other<br>- start coding for dashboard                      |
| 18/11/23 | Saving part of my first dashboard<br>- saved error of syntaxes.<br>- completed dashboard creation                                  |
| 19/11/23 | coding for receipt voucher.<br>- fetching data for total voucher<br>coding for items.<br>- connecting all small pages and merge it |
| 20/11/23 | Developing navigation menu or tool   |
| 21/11/23 | Developing page for registered members<br>(Creating that type of page which is for registered members)                             |

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TOTAL HOURS: 15

SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

*[Handwritten Signature]*

Date:

Signature of Government  
of Dept. / Employer/Parent



Date: 11/01/21

☐ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Mehnoor Subhanbano Jeyarajam  
 WEEK OF THE WEEK: Dt. 20/09/20 TO 26/09/20  
 DEPARTMENT: COMPUTER SEM: 2  
 NAME OF THE ORGANIZATION: INDIANS IDENTICAL PAT. LTD.  
 NAME OF THE PLANT/SECTION/DEPARTMENT: ANALYST CHECK APPOINTMENT  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chaitanya K.

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- 20/09/20 create two pages with attr. Body measurements  
 - coding for body measurements page for the system.
- 21/09/20 create sms entry page in visual basic  
 - preparing code for total entry box with two deduction.  
 - testing of backfield.
- 22/09/20 Developing master menu  
 - create master menu and its sub forms.  
 - create graphics type page.
- 23/09/20 Today I will create three page of master menu.
- 24/09/20 coding for reports pages  
 - also page for members report page  
 - preparing code for total deduction. Amount.

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TOTAL HOURS: 40

[Signature]  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date:

Signature of [Signature] in-charge  
of Dept. / Section / Lab



Date: 25/11/23

Grading of Work, for trainee may be given depending upon your judgement about  
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ગણપતિ મહાસ્થાન સમક્ષ ૨૦૨૦૦૧ બરોડા, ગુજરાત

Answer 1

Enrollment no.

2020010101010101

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Disham Sivan Jainani

DATE OF THE WEEK: Dt. 1-5-23 TO 5-5-23

DEPARTMENT: Computer SEM: 5

NAME OF THE ORGANISATION: Mathscom Informatics Pvt. Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: DSE, G-17 (Camp. Adv. Program)

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Shubham Jaiswal Sir

DESCRIPTION OF THE WORK DONE IN BRIEF

- |        |  |
|--------|--|
| 1-5-23 | Write code for receipt voucher, page<br>- connect with database  |
| 2-5-23 | Solving issues of designing phase,<br>- Have to change in coding for design issue,<br>- completing and giving designing issue and<br>done the connectivity.  |
| 3-5-23 | Testing Day<br>- today we I have testing day with my team<br>(team members),<br>- Test out of the coding of pages & design<br>of all domains.<br>- Solving design's confusion and resolved with<br>my guide. |
| 4-5-23 |  |
| 5-5-23 | INT-5-1-101  |





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GUJARATI VIKALPAKARMA VIKALPAKARMA VIKALPAKARMA

STUDENT NAME: \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

In presence of Faculty Member

\_\_\_\_\_  
Signature

Signature of officer-in-charge  
of Dept. / Section / Plant

\_\_\_\_\_  
Date: \_\_\_\_\_  
5/11/20



Date: \_\_\_\_\_

☉ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

# **Internship at Space Applications Centre, ISRO**

## **AN INTERNSHIP REPORT**

*Submitted*

*by*

**Fiza Pathan**

**[190390107046]**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*in*

**[Computer Engineering]**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway,  
Linch, Gujarat**

## **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled “**Skin - Bulk Data Analysis using Satellite Data**” at **SPACE APPLICATIONS CENTRE (ISRO)** has been carried out by **Fiza Pathan** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8<sup>th</sup> Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Prof. Shubhangi Chaturvedi

Internal Guide

Sign

Prof. Akshay Kansara

Head of Department



# GUJARAT TECHNOLOGICAL UNIVERSITY

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46-CE-Fiza Pathan <190390107046@saffrony.ac.in>

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6 messages

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To: 190390107046@saffrony.ac.in  
Cc: NeeraJ Agarwal <neeraj@sac.isro.gov.in>

Wed, Jan 11, 2023 at 1:08 PM

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Referring to your application dated **09 Jan 2023**, Joining date **23 Jan 2023**, you are selected to do Internship-project through **SRTD**. Your guide will be **DR. NEERAJ AGARWAL(079-2691-6056)**

Pls contact him before your joining for further procedure, topic etc...Provide monthly report to your **Guide** and **SRTD**

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**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship report submitted along with the Internship entitled “**Skin - Bulk Data Analysis using Satellite Data**” submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me at **Space Applications Centre (ISRO)** under the supervision of External guide **Dr. Neeraj Agarwal** & Internal guide **Prof. Shubhangi Chaturvedi** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

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**Fiza Pathan.**

## ABSTRACT

*This report contains the work done by the author during her internship at **Space Applications Centre, ISRO, Ahmedabad**. It shows the analysis of the Skin Temperature and Bulk Temperature data in the ocean with the various oceanic parameters, also the validation of the relationships between SkT vs SST in different atmospheres. In the report, the author discusses the processes and the results from different sources such as Numerical models, buoy sensors, and Satellite data. The author also discusses the structure of the company, all the departments, and their work. The author added the technologies and fundamentals she has learned during her internship period like Python, Data Analysis & Visualization, CDO commands, NetCDF library (.nc file), Remote Sensing, Machine Learning Regression Algorithms, Mathematical Statistical Analysis, Jupyter Notebook, MobaXterm, LINUX, etc. At the end of the internship, the author is able to make great learning and able to perform Research work in the Satellite Oceanography department at the well-known organization, ISRO. The author also discusses the real-time nature of the project.*



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## Abbreviations

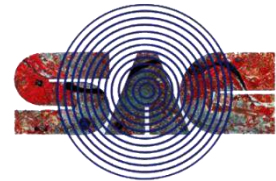
SkT	Sea Surface Skin Temperature
SST	Sea Surface Temperature
GIS	Geographic Information System
EOS	Earth Observation System
INSAT	Indian National Satellite System
ECMWF	European Centre for Model-Range Weather Forecasts
ERA5	ECMWF Reanalysis version 5
AVHRR	Advance Very High-Resolution Radiometers
CDS	Combined Research Services
SSS	Sea Surface Salinity
MOSDAC	Meteorological and Oceanographic Satellite Data Archival Center

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## CHAPTER 1.0: BACKGROUND OF COMPANY



### 1.1 HISTORY

**ISRO** is the **space agency** of India. The organization is involved in science, engineering, and technology to harvest the benefits of outer space for India and mankind. It is a major constituent of the **Department of Space (DOS), Government of India** which is directly overseen by the Prime Minister of India, while the Chairman of ISRO acts as the executive of DOS as well. ISRO is the primary agency in India to perform tasks related to space-based applications, space exploration, and the development of related technologies. The department executes the Indian Space Programme primarily through various Centres or units within ISRO.

Space Applications Centre (SAC) at Ahmedabad is spread across two campuses having multi-disciplinary activities. The core competence of the Centre lies in the development of space-borne and air-borne instruments/payloads and their applications for national development and societal benefits. These applications are in diverse areas and primarily meet the communication, navigation, and remote sensing needs of the country. Besides these, the Centre also contributed significantly to scientific and planetary missions of ISRO like Chandrayaan-1, Mars Orbiter Mission, etc. The communication transponders developed at this Centre for Indian National Satellite (INSAT) and Geo Synchronous Satellite (GSAT) series of satellites are used by the government and private sector for VSAT, DTH, Internet, broadcasting, telephones, etc.

Main Engine and Stage Test Facility at SAC, this center also designs and develops the optical and microwave sensors for the satellites, signal and image processing software, GIS software, and many applications for the Earth Observation (EO) program of ISRO.

These applications are in diverse areas of Geosciences, Agriculture, Environment and Climate Change, Physical Oceanography, Biological Oceanography, Atmosphere, Cryosphere, Hydrosphere, etc. The facilities at SAC include highly sophisticated payload integration laboratories, electronic and mechanical fabrication facilities, environmental test facilities, a systems reliability/assurance group, image processing and analysis facilities, a project management support group, and a well-stocked library. SAC has active collaborations with industry, academia, and national and international institutes for research and development. The Centre also conducts nine-month postgraduate diploma courses for students from the Asia Pacific region under the aegis of the Centre for Space Science and Technology Education (CSSTE-AP) in satellite meteorology and communication.

The applications cover communication, broadcasting, navigation, disaster monitoring, meteorology, oceanography, environment monitoring, and natural resources survey.

ISRO was formed on August 15, 1969, and superseded INCOSPAR with an expanded role to harness space technology.

## **1.2 MISSION AND VISION OF THE COMPANY:**

### **1.2.1 VISION:**

Harness, sustain, and augment space technology for national development while pursuing space science research and planetary exploration.

### **1.2.2 MISSION:**

- Design and development of launch vehicles and related technologies for providing access to space.
- Design and development of satellites and related technologies for earth observation, communication, navigation, meteorology, and space science.
- Communication program for meeting telecommunication, television broadcasting, and developmental applications.
- Satellite-based Remote Sensing program for management of natural resources and monitoring of the environment using space-based imagery.
- Space-based navigation system.
- Space-based Applications for Societal Development.
- Research and Development in space science and planetary exploration.
- Promote and authorize private firms to play key roles in the global Space market.

## **1.3 DIFFERENT PRODUCTS INFORMATION:**

The INSAT is one of the largest domestic communication satellite systems in the Asia-Pacific region with nine operational communication satellites placed in Geo-stationary orbit. Established in 1983 with the commissioning of INSAT-1B, it initiated a major revolution in India's communications sector and sustained the same later.

The INSAT system with more than 200 transponders in the C, Extended C, and Ku-bands provides services to telecommunications, television broadcasting, satellite newsgathering, societal applications, weather forecasting, disaster warning, and Search and Rescue operations.



### List of Communication Satellites:

<https://www.isro.gov.in/CommunicatioSatellitenNew.html#>



Fig. 1.1 List of Indian Communications Satellites in Space

### 1.4 ORGANIZATION CHART:



Fig. 1.2 ISRO Centers across India

1. Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram
2. Satish Dhawan Space Centre (SDSC) SHAR
3. U R Rao Satellite Centre (URSC), Bangalore
4. ISRO Propulsion Complex (IPRC), Mahendragiri
5. Liquid Propulsion Systems Centre (LPSC), Thiruvananthapuram, Bangalore
6. Space Applications Centre (SAC), Ahmedabad
7. National Remote Sensing Centre (NRSC), Hyderabad
8. ISRO Telemetry Tracking and Command Network (ISTRAC), Bangalore
9. Master Control Facility (MCF), Hassan & Bhopal
10. ISRO Inertial Systems Unit (IISU), Thiruvananthapuram
11. Laboratory for Electro-Optics Systems (LEOS), Bangalore
12. Development and Educational Communication Unit (DECU), Ahmedabad
13. Regional Remote Sensing Centres (RRSCs)
14. Indian Institute of Space Science & Technology (IIST), Thiruvananthapuram.
15. Indian Institute of Remote Sensing (IIRS), Dehradun
16. Physical Research Laboratory (PRL), Ahmedabad
17. National Atmospheric Research Laboratory (NARL), Gadanki
18. North Eastern-Space Applications Centre (NE-SAC), Shillong
19. Semi-Conductor Laboratory (SCL), Chandigarh

## **CHAPTER 2.0: INTRODUCTION OF PROJECT**

### **2.1 RESEARCH TITLE:**

Skin - Bulk Temperature Data Analysis

### **2.2 RESEARCH DOMAIN AND DEPARTMENT:**

Satellite Oceanography

### **2.3 RESEARCH SUMMARY:**

To analyze the SST and SkT of the Indian Ocean using the Sensors such as buoy or ship and the Satellite data with respect to different ocean parameters, establish the relationship, and derive an equation to validate the derived data with the actual one. The ability to measure it allows us to observe the global system and quantify ongoing weather and climate change.

### **2.4 PURPOSE:**

The purpose of the research is to be able to predict the Bulk Temperature at a lower level in the ocean from the upper-level Skin Temperature captured at a global level using Satellite from the space to reduce or avoid the use of oceanic sensors such as buoy and ships globally.

### **2.5 OBJECTIVES:**

To achieve this purpose, we have the following objectives to fulfill:

1. **Data gathering** of the  $T_{skin}$  and  $T_{sst}$  from the available numerical models on ECMWF (ERA5), CDS, and Copernicus website, from Ocean Sensors and Satellite.
2. To analyze the  $T_{skin}$  and  $T_{sst}$  data using Numerical models, Buoy sensors, and Satellite datasets.
3. **Data handling** and **Data Preparing** from the .nc file (NetCDF).
4. **Visualize** the different data values with the various ocean parameters such as Wind Speed, Air Temperature, Sea Surface Salinity, and Total Precipitation (rain) in different atmospheres to find the relationships.

5. To **derive an equation or relationship** between  $T_{\text{skin}}$  and  $T_{\text{sst}}$  to validate with the Satellite data.

## **2.6INTRODUCTION:**

The Earth's oceans play a crucial role in regulating our planet's climate system, making the accurate measurement of sea surface temperature (SST) an essential task for understanding and monitoring climate change. Understanding how heat energy flows between the Earth's landmasses, oceans, and atmosphere depends on the mass flows of water. Since the oceans retain 97 percent of the planet's water and cover 71 percent of its surface, they play a significant role in the storage and global transfer of heat. The skin bulk temperature of the ocean is a vital parameter that plays a significant role in understanding the Earth's climate system and the interactions between the atmosphere and the ocean. Accurately measuring and analysing skin bulk temperature data is crucial for studying heat exchange processes, assessing climate variability, and monitoring the health of marine ecosystems. If this stability is altered, the whole dynamic of the ocean will trigger. Since such triggers are happening and they are mainly due to the changes in sea surface temperature (SST), skin temperature (SKT), and sea surface salinity (SSS). The surface of the ocean is always under hydrological and atmospheric forcing. This forcing has a great role in determining how an oceanic environment should behave because this changes the distribution of salinity, temperature, and density of ocean surface water. This is the reason why these parameters should be observed. One of the most important variables in seawater is temperature. With the advent of satellite technology, scientists have gained a powerful tool for collecting extensive and consistent data on SST from a global perspective. It is a critical parameter in understanding the Earth's climate system and can be accurately measured and analysed through space-based remote sensing. By utilizing advanced satellite technology, scientists are able to collect comprehensive and high-resolution data on skin bulk temperature over large oceanic areas.

### **Significance of Skin Bulk Temperature and Traditional Approaches to Ocean Temperature Measurement:**

The skin bulk temperature refers to the thin layer of water at the ocean's surface, which interacts directly with the atmosphere. It serves as a key indicator of the ocean's response to solar radiation, influencing the transfer of heat, for studying and forecasting weather patterns, oceanic currents, climate variations, moisture, and energy between the ocean and the atmosphere. Accurate measurements of SST are crucial for assessing long-term climate trends, analysing heat exchange processes between the ocean and atmosphere, and understanding the overall health and dynamics of our oceans. Traditionally, SST data was collected through in-situ methods, employing buoy networks, ships, and oceanographic instruments. [4] While these methods provided valuable localized information, they often lacked global coverage and temporal resolution. To overcome these limitations, remote sensing techniques utilizing satellite-based observations have significantly advanced the field of ocean temperature analysis.

### **Advancements in Space-Based Remote Sensing:**

Satellites equipped with specialized sensors offer a vantage point from which they can observe large areas of the Earth's surface, including the oceans. Advanced sensors, such as the Advanced Very High-Resolution Radiometer (AVHRR). [7]

**a) Enhanced Spatial and Temporal Coverage:** Satellites enable the collection of SST data over vast oceanic regions, providing global coverage. They allow for the collection of data over remote and inaccessible regions, enabling a comprehensive understanding of the spatial distribution and variability of skin bulk temperature on a global scale. With frequent revisits to the same area, satellites can capture temporal changes and seasonal variations in SST with improved accuracy.

**b) High Spatial Resolution:** Modern satellites can achieve fine spatial resolutions, enabling the detection of small-scale oceanic features and localized phenomena. This capability allows for the analysis of short-term variations, and seasonal changes, the detection of rapid oceanic processes that contribute to climate dynamics, and is useful for studying phenomena like upwelling, eddies, and coastal ocean dynamics.

**c) Integration with Other Data Sources:** Skin bulk temperature data obtained from space can be integrated with other oceanographic and climatic datasets, including sea surface temperature, ocean currents, and atmospheric variables. This integration enhances the understanding of complex interactions within the Earth's climate system and facilitates comprehensive analyses of climate phenomena.

**d) Multispectral Imaging:** Satellite sensors now utilize multiple spectral bands, allowing for more accurate SST retrievals. These bands can account for atmospheric effects, such as cloud cover and aerosols, which previously hindered accurate measurements.

**e) Data Fusion and Integration:** Scientists combine SST data from multiple satellite sensors and merge it with other oceanographic and climatic datasets, providing a comprehensive understanding of the complex interactions between the ocean and the atmosphere.

There are a few specific ocean parameters that directly affect the sea surface temperature and skin temperature in different weather conditions such as weak wind speed, rainfall (Precipitation), solar radiation, etc. If the wind speed is high then the difference between SST and skin temperature will be less or negligible and vice versa. Where the rainfall or the precipitation will be having an advent effect which will make a huge difference in temperature while having the high rainfall because the rain contains freshwater which has a low density at the surface and will not get fixed in the ocean and the below the surface seawater will have the more density because of the amount of salt present in it.

#### **Key Factors in Skin Bulk Temperature Analysis:**

**a) Surface Heat Flux Estimation:** Skin bulk temperature measurements enable the estimation of surface heat fluxes, which represent the exchange of heat between the ocean and the atmosphere. [2] By analysing these fluxes, researchers can gain insights into the energy budget of the Earth's climate system and understand the mechanisms driving climate variability.

**b) Ocean-Atmosphere Interaction:** Skin bulk temperature data analysis facilitates the examination of ocean-atmosphere interaction processes, such as air-sea heat exchange, evaporation, and condensation. These interactions have a profound impact on weather patterns, the formation of cloud systems, and the distribution of heat energy across the globe.

**c) Climate Modelling:** Skin bulk temperature measurements from space contribute to the development and validation of climate models. By assimilating this data into models, scientists can improve predictions of future climate scenarios, understand the impacts of climate change on the ocean, and assess the effectiveness of mitigation strategies.

Sea Surface Temperature (SST) is a measure of the temperature of the top layer of the ocean, typically the top few meters. It represents the temperature of the water at the ocean surface. The unit used to express SST is typically degrees Celsius (°C) or Kelvin (K). Both units are commonly used in scientific research and operational applications.

In degrees Celsius, the temperature scale is based on the freezing and boiling points of water. 0°C represents the freezing point of water, while 100°C represents the boiling point of water at sea level. Positive values indicate temperatures above freezing, while negative values indicate temperatures below freezing. In Kelvin, the temperature scale starts from absolute zero, the theoretical point where molecular motion ceases. To convert from degrees Celsius to Kelvin, simply add 273.15. For example, 0°C is equivalent to 273.15 K. When reporting and analysing SST data, it is important to ensure consistency in the unit used throughout the study or application.

Seawater density gradually increases with decreasing temperature until it reaches its freezing point (-1.9°C). So, during high precipitation, the bottom water is formed either because the currents that carry high saline water are cooled or high saline water freezes.

Several approaches had been used to estimate SST, but are all based on either model data, or the combination of both in-situ and satellite measurements. The technique used in the former work is modified to a reprocessed global dataset of 0.25°×0.25° resolution for in-situ temperature measurements for the time per period 2022. In the era of climate change, a gap-free data set is an aim that gives accurate measurements. Measurements from satellite data are enormous and are improving over the years. SSD is related to the changes in SST and each parameter has a great relationship with global warming. [3]

In a warming climate, the atmosphere warms which in turn warms the ocean surface. Hot temperatures increase the temperature of surface water and hence the SSD also increases. Pieces of evidence are suggesting that global circulation patterns are slowing down. The system that transports warm waters from the tropic into the North Atlantic by a large "conveyor belt" in the Atlantic Ocean, where they cool, sink, and eventually return southward into the deep ocean is weakening (Muschitiello, 2019). These changes in patterns can be explained through the variations in the SSD patterns, for which the availability of data is important.

Infrared radiometers are widely used to measure the skin temperature of the ocean surface. These instruments detect the thermal radiation emitted by the water surface and convert it into temperature values. The Stefan-Boltzmann law is often applied to relate the detected radiation to the skin temperature. The equation is as follows:

$$T_{\text{skin}} = (\text{Radiance} / \epsilon)^{1/4}$$

where  $T_{\text{skin}}$  is the skin temperature, Radiance is the measured radiance, and  $\epsilon$  is the emissivity of the water surface.

Radiative transfer models simulate the propagation of electromagnetic radiation through the atmosphere and the water surface. These models consider factors such as solar radiation, atmospheric effects, and water properties to estimate skin and bulk temperatures. Radiative transfer equations, such as the radiative transfer equation and the two-stream approximation, are solved iteratively to retrieve temperature profiles.

### **Empirical Algorithms:**

Empirical algorithms utilize statistical relationships between skin temperature and other measurable variables to estimate skin temperature.[1] For example, satellite-derived sea surface temperature (SST) algorithms often use infrared and microwave measurements along with ancillary data like sea surface wind speed, cloud cover, and solar radiation to estimate skin temperature.

Validation and calibration against in-situ measurements are typically conducted to improve the accuracy of the results.

In practice, a combination of these mathematical methods and observational data from satellites, buoys, and ships are often employed to derive skin and bulk temperature data. The specific approach chosen depends on the available data, the research objectives, and the desired level of accuracy.

## **2.7 SCOPE AND EXPECTED OUTCOME:**

This research serves as an opportunity for the government to reduce the cost of used sensors in the ocean at a particular location by replacing mediums such as Satellites, which can have the ability to take universal coverage to give spatial resolution.

## **2.8 TECHNOLOGY AND LITERATURE REVIEW:**

### **2.8.1 Remote Sensing:**

Remote sensing is the means by which information about an object is obtained without any physical contact between the observer and the object. The interaction between electromagnetic radiation and any object or medium is dependent on the physical and chemical structure of the object or medium.

Each object, therefore, produces a different spectral response. The basic aim of remote sensing is to detect these responses and identify certain characteristics of the object based on the differences in the spectral response. [2]

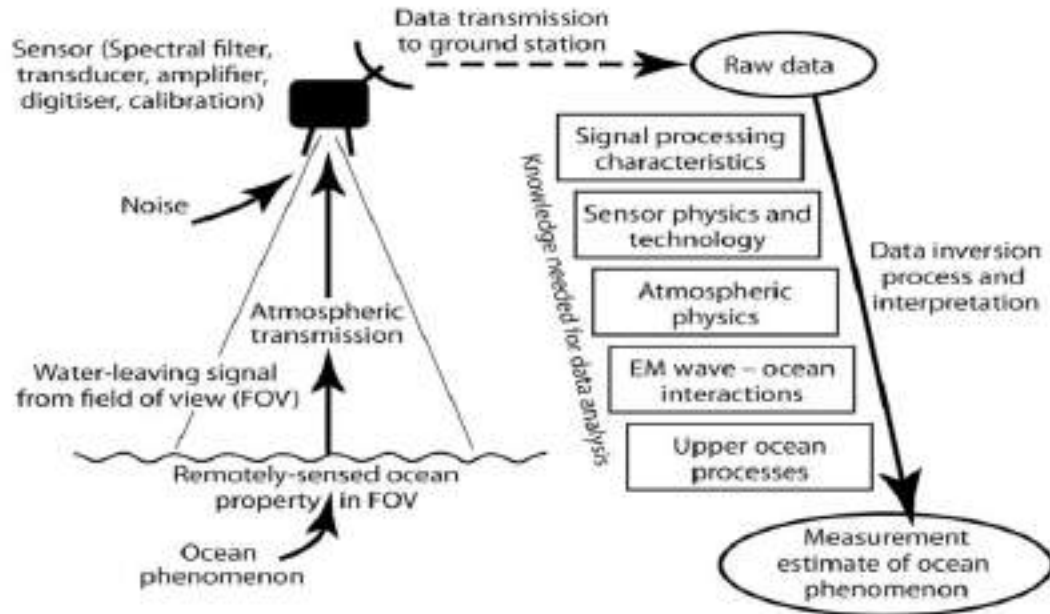


Fig. 2.1 Schematic information flow in Ocean Remote Sensing

The techniques involved in remote sensing may be regarded as either passive or active: passive sensors detect energy emitted, scattered, or reflected from an object or medium (e.g. thermal or photographic sensing) while active sensors have, in addition, their own illuminating source of electromagnetic radiation (e.g. radar). All matter radiates energy in the electromagnetic spectrum with the peak intensity shifting progressively towards shorter wavelengths with increasing temperature (Wein's displacement law).

### 2.8.2 IR Radiometer:

An IR radiometer is a device to measure radiant temperature quantitatively. To measure the temperature of a target the sensor views the earth and then space. The technique was first proposed by Stommel et al (1953). Basically, an IR radiometer consists of three main units: a thermistor bolometer detector, an inline reference cavity, and signal-processing electronics.



A very high-resolution radiometer (VHRR) was flown aboard the series of operational satellites. Indian Satellite INSAT-IB too carries a VHRR with one channel in the visible and one in the infrared. Recent satellites (TIROS-N launched in October 1979 and NOAA-6 launched in June 1979 and further follow-on satellites) carry improved versions of VHRR, namely, advanced very high-resolution radiometer (AVHRR).

Both VHRR and AVHRR are cross-track scanning systems, which measure upwelling radiation at IR wavelengths (NOAA 1981). VHRR had only two channels (one in the 11-13 p,m wavelength range) compared to 4 channels (one each in the 3.5-3.9 p,m and 10.5-11.5 p,m wavelength ranges) of AVHRR. NOAA-7 launched in June 1981 carries a further improved version, AVHRR/2 (5 channels). The channels are chosen in such a way that the atmospheric effects are different for each channel.

The advantage is that a given pixel is viewed twice along different atmospheric columns, and this helps improve atmospheric corrections.

### **2.8.3 Design considerations for shipboard IR radiometric measurement systems:**

The radiometric determination of  $T_{skin}$  is based on the inversion of the equation for the sea surface radiance  $L(T)$  measured with an IR radiometer. If the distance to the surface is small enough to neglect atmospheric effects, the radiance measured by a radiometer operating in the wavelength range 1-2 and viewing the sea surface at an incidence angle is the sum of the emitted and reflected radiation, given by

$$L(T) = \int_{\lambda_1}^{\lambda_2} \varepsilon(\lambda, \theta) R(\lambda) L_{\lambda, b}(\lambda, T_{skin}) d\lambda + \int_{\lambda_1}^{\lambda_2} \rho(\lambda, \theta) R(\lambda) L_{\lambda, b}(\lambda, T_{sky}) d\lambda, \quad - \text{ eq.(1)}$$

where  $L(T)$ ,  $b(T)$  is the spectral radiance at temperature  $T$  given by Planck's function;  $R(\lambda)$  is the instrument responsivity; and  $\varepsilon(\lambda, \theta)$ ,  $\rho(\lambda, \theta)$  are the spectral emissivity and reflectivity respectively.

reflectivity, respectively. The sky temperature  $T_{sky}$  is an equivalent temperature for the integrated down welling radiance from the atmosphere at the zenith angle. Under clear-sky conditions, the sky reflection effect routinely can be as much as  $0.5^{\circ}\text{C}$  and possibly larger in Polar Regions. Here, eq.(1) can be inverted to solve for  $T_{skin}$  using measurements of both the sea and sky radiance and requires knowledge of the emissivity and reflectivity. The sky temperature  $T_{sky}$  is an equivalent temperature for the integrated down welling radiance from the atmosphere at the zenith angle. Under clear-sky conditions, the sky reflection effect routinely can be as much as  $0.5^{\circ}\text{C}$  and possibly larger in Polar Regions. The eq.(1) can be inverted to solve for  $T_{skin}$  using measurements of both the sea and sky radiance and requires knowledge of the emissivity. Once an effective emissivity is calculated and  $L(T)$  and  $L(T_{sky})$  are measured, then  $L(T_{skin})$  is given by where sea 1 sea;  $T_{skin}$  is then calculated by calibrating  $L(T_{skin})$  using a precision blackbody. During the calibration, a similar reflection correction is applied for the nonunity emissivity of the blackbody. [5]

Important factors to be considered in the design of an autonomous shipboard IR radiometer system and common approaches to addressing them are listed in Table

$$L(T_{skin}) = \frac{1}{\epsilon_{sea}} [L(T) - \rho_{sea}L(T_{sky})],$$

The desire for affordability and reliability has led to combining commercially available radiometers with supplemental calibration techniques in a protective housing. Since the accuracy of affordable radiometers is typically  $0.5^{\circ}\text{C}$ , reliable, long-term accuracy requires in situ calibration.

#### **2.8.4 GENERIC DATA PROCESSING TASKS:**

It is important that those who make use of satellite-derived data products should be aware of the calibrations, corrections, analyses, and resampling that may have been applied to the products before they received them, since these processes have impacts that are relevant for their oceanographic interpretation and application. This section therefore provides a short overview of these tasks, which correspond to the information “unpacking” that is necessary if the raw data acquired from a satellite are to be turned into useful quantitative information about an ocean variable, property, or

parameter. Fig. 2.2 summarizes the sequence of tasks and indicates the different “levels” of data products that correspond to each stage of data processing. [6]

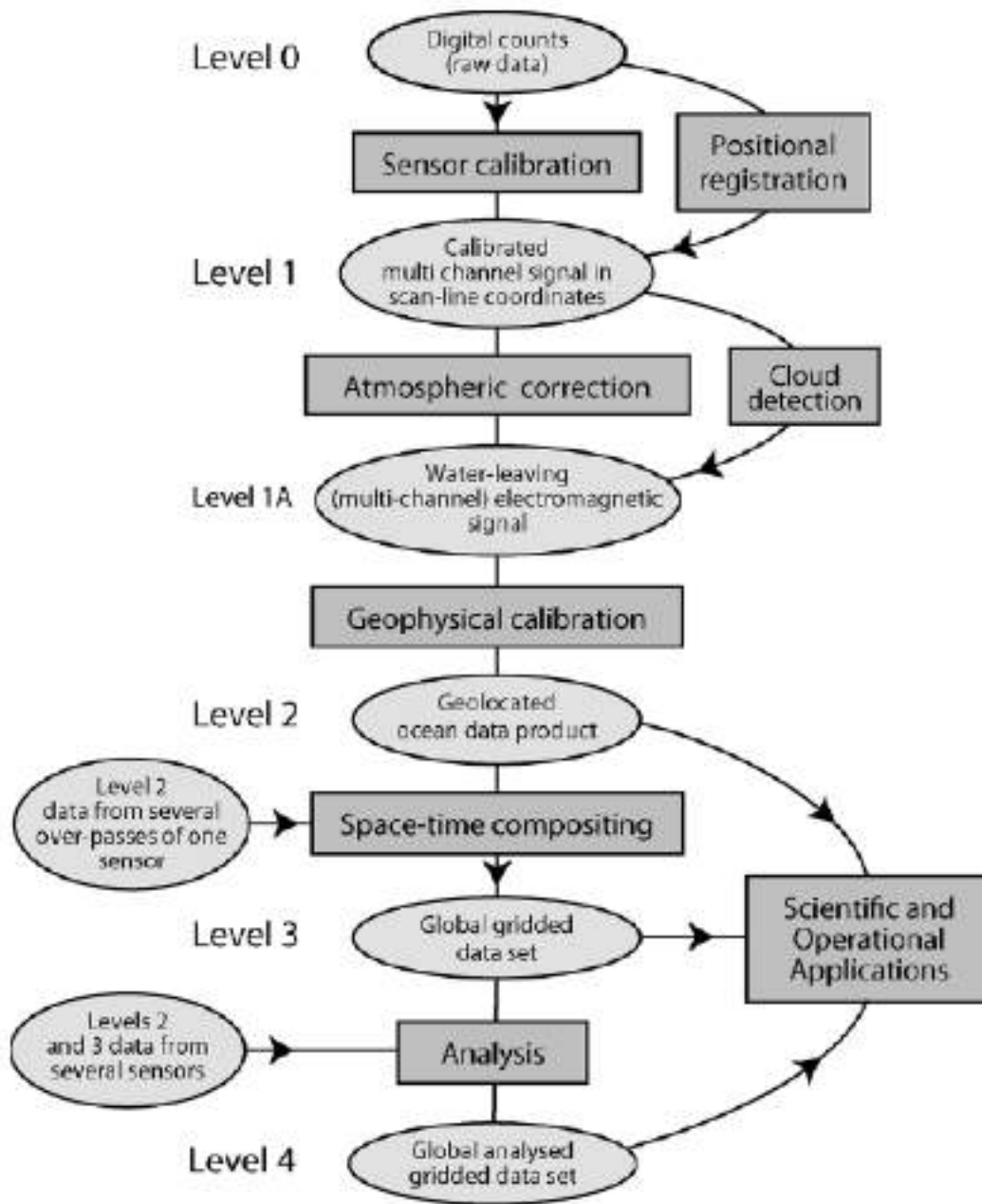


Fig. 2.2 Outline of data-processing tasks to convert raw satellite data into ocean products.

### **2.8.5 SEA SURFACE TEMPERATURE (SST):**

Sea surface temperature (SST) is the water temperature close to the ocean's surface. It varies mainly with latitude, with the warmest waters generally near the equator and the coldest waters in the Arctic and Antarctic regions.

As the oceans absorb more heat, sea surface temperature increases and the ocean circulation patterns that transport warm and cold water around the globe change.

At the surface, there is a cool skin, a layer a few millimeters thick that is due to the exchange of heat and moisture to the atmosphere as well as the emission of infrared radiation, the radiation just beyond red on the electromagnetic spectrum. Below that in the daytime is a warm layer a few centimeters thick that is caused by the absorption of sunlight. Observations of SST made by ships and buoys are generally made a few centimeters to a few meters below the surface and below both the cool skin and warm layer. These SSTs are called bulk SSTs. The SST directly at the surface is called skin SST and can be significantly different from the bulk SST especially under weak winds and high amounts of incoming sunlight. Several groups have developed methods to adjust bulk SSTs to skin SSTs. [8]

SST is an important measurement for ocean, weather, and climate and can be applied in the numerical ocean and atmospheric models, fishery science, and for tactical support of commercial fishing activities, physical oceanographic research, and climate monitoring. It can be obtained by space-borne microwave radiometers, infrared (IR) radiometers, buoys, and ships. Buoys and ships measure the water “bulk” temperature at particular points, whereas satellite radiometers continuously measure SST over global water surfaces with a spatial scale of one kilometer to tens of kilometers. Satellite measurements of SST began in the 1970s using IR radiometers onboard the geostationary and polar-orbiting Manuscript received June 30, 2020; revised September 17, 2020; accepted October 13, 2020. Date of publication October 23, 2020; date of current version January 6, 2021. IR radiometers, such as the advanced very high-resolution radiometer (AVHRR), moderate-resolution imaging spectro radiometer (MODIS), sea and land surface temperature radiometer (SLSTR), and visible infrared imaging radiometer (VIIRS),

have been providing global SSTs for more than 40 years. Although the microwave radiometer can measure the sea surface through clouds under all weather conditions except rain, the IR SSTs have a higher resolution (~1 km) than microwave SSTs (~25 km).[9] For the IR radiometers, the SSTs are retrieved from brightness temperatures (BTs) of thermal infrared (TIR) bands at 11 and 12  $\mu\text{m}$  or the TIR bands combined with the mid-IR band (e.g., at 3.7 $\mu\text{m}$  for VIIRS). The retrieval algorithms can be split-window algorithms nonlinear SST algorithm (NLSST), physical retrievals based on radiative transfer model simulations and neural network models. The SST retrieval algorithm can be developed for the global ocean or for regional marine waters.

Sea surface temperature (SST) is a strong indicator of productivity, pollution, and global climate change, and this can be measured using thermal infrared (IR) bands from optical satellites.

### **How is SST measured?**

SST was one of the first oceanographic variables measured, yet it is still a fairly new phenomenon. The first recording was in the late eighteenth century by Benjamin Franklin, who suspended a mercury thermometer from a ship while traveling between the US and Europe. It was later measured by dipping a thermometer into a bucket of water that was manually drawn from the sea surface.

The first automated technique was accomplished by measuring the temperature of water in the intake port of large ships in 1963.

Today, SST measurement is obtained by satellite microwave radiometers, infrared (IR) radiometers, in situ moored and drifting buoys, and ships of opportunity. Different instruments measure the temperature at different depths. For instance, most buoys have sensors located at about 1-meter depth or placed at regular intervals along a tether line.[2] When measured from space, sea surface temperatures represent a depth that is related to the frequency of the satellite instrument. For example, IR instruments measure a depth of about 20 micrometers, while microwave radiometers only measure a few millimeters.

Satellite infrared data is merged with the temperature data drawn from ships and buoys to create a holistic understanding of sea surface temperature at a larger scale. We've come a long way from the bucket method.

### **Why does SST data matter?**

While heat energy is stored and mixed throughout the depth of the ocean, the temperature of the water right at the sea's surface—where the ocean is in direct contact with the atmosphere—plays a significant role in weather and short-term climate. The ability to measure it allows us to observe the global system and quantify ongoing weather and climate change. [7]

Due to global warming, the average global SST is on a steady incline. From 1901 through 2015, the temperature rose at an average rate of 0.13°F per decade. It doesn't sound like a lot, but it's severely impacting the ocean; sea levels are rising, and ocean circulation patterns are changing disrupting marine ecosystems and even human livelihood.

### **2.8.6 SEA SURFACE SKIN TEMPERATURE (S<sub>skT</sub>):**

The sea surface skin temperature ( $T_{skin}$ ), or ocean skin temperature, is the temperature of the sea surface as determined through its infrared spectrum (3.7–12  $\mu\text{m}$ ) and represents the temperature of the sublayer of water at a depth of 10–20  $\mu\text{m}$ . High-resolution data of skin temperature gained by satellites in passive infrared measurements is a crucial constituent in determining the sea surface temperature (SST).

Since the skin layer is in radiative equilibrium with the atmosphere and the sun, its temperature underlies a daily cycle. Even small changes in the skin temperature can lead to large changes in atmospheric circulation.[10] This makes skin temperature a widely used quantity in weather forecasting and climate science.

### **2.8.7 VARIATION OF SKIN TEMPERATURE:**

#### **Daily cycle:**

The ocean skin temperature is defined as the temperature of the water at 20  $\mu\text{m}$  depth.

This means that the  $T_{\text{skin}}$  is very dependent on the heat flux from the ocean to the atmosphere. This results in diurnal warming of the sea surface high temperatures occur during the day and low temperatures during the night (especially with clear skies and low wind speed conditions).

Because the  $T_{\text{skin}}$  can be measured by satellites and is the temperature almost at the interface of the ocean and the atmosphere, it is a very useful measure to find the heat flux from the ocean. The increased heat flux due to diurnal warming can reach as high as 50-60  $\text{W}/\text{m}^2$  and has a temporal mean of 10  $\text{W}/\text{m}^2$ . These amounts of heat flux cannot be neglected in atmospheric processes.[10]

#### **Wind and interaction with the atmosphere:**

The sea surface temperature is also highly dependent on wind and waves. Both processes cause mixing and therefore cooling/heating of the  $T_{\text{skin}}$ . For example, when rough seas occur during the day, colder water from lower layers are mixed with the ocean skin. When gravity waves are present at the sea surface, there is a modulation of ocean skin temperature. In this modulation, the wind plays an important role. The magnitude of this modulation depends on wind speed, the phase is determined by the direction of the wind relative to the waves. When the wind and wave direction are similar, maximum temperatures occur on the forward side of the wave and when the wind blows from the opposite side compared to the waves, maximum temperatures are found at the rear face of the wave.

**Remote Sensing in Sea Surface Skin Temperature:**

Large-scale sea surface skin temperature measurements started with the use of satellites in remote sensing. The underlying principle of such measurement is to determine the surface temperature via its black body spectrum. [9] Different measurement devices are installed where each device measures a different wavelength. Every wavelength corresponds to different sublayers in the upper 500  $\mu\text{m}$  of the ocean water column. Since this layer shows a strong temperature gradient, the observed temperature depends on the wavelength used. Therefore, the measurements are often indicated with their wavelength band instead of their depths.

**2.8.8 NUMERICAL MODEL DATA:****ECMWF (European Centre for Medium - Range Weather Forecasting):**

The ECMWF is one of two major global weather forecast models in the world, on a par with the GFS, which originates from the US, yet the first one is considered the most reliable among all models. In other words, if right now you're looking at the weather forecast for the world or your city or region, it's probably from one of these two models.

**What is the ECMWF weather forecast model?**

The ECMWF (European Centre for Medium-Range Weather Forecasts) is a European global forecast seamless model. It is widely regarded as the best and most reliable model currently in existence.

It uses a concept called 4D, which is assimilation that allows the model to be constantly updated as new satellite or other input data becomes available. It is a well-known fact that the ECMWF was the only model that accurately predicted where hurricane Sandy 2012 was moving.

The official website of the model is [Ecmwf.int](http://Ecmwf.int).



**What are the main features of the ECMWF weather model and how does it work?**

The ECMWF model has various resolutions up to tens of km. The forecast depth of the ECMWF weather model is 10 days. The ECMWF forecast step is 3 hours.

The ECMWF updates frequency is 2 times a day.

**ERA5 hourly data on single levels from 1940 to present:**

ERA5 is the fifth generation ECMWF reanalysis for the global climate and weather for the past 8 decades. Data is available from 1940 onwards. ERA5 replaces the ERA-Interim reanalysis. Reanalysis combines model data with observations from across the world into a globally complete and consistent dataset using the laws of physics. This principle, called data assimilation, is based on the method used by numerical weather prediction centres, where every so many hours (12 hours at ECMWF) a previous forecast is combined with newly available observations in an optimal way to produce a new best estimate of the state of the atmosphere, called analysis, from which an updated, improved forecast is issued. Reanalysis works in the same way, but at reduced resolution to allow for the provision of a dataset spanning back several decades. Reanalysis does not have the constraint of issuing timely forecasts, so there is more time to collect observations, and when going further back in time, to allow for the ingestion of improved versions of the original observations, which all benefit the quality of the reanalysis product.

ERA5 provides hourly estimates for a large number of atmospheric, ocean-wave and land-surface quantities. An uncertainty estimate is sampled by an underlying 10-member ensemble at three-hourly intervals. Ensemble mean and spread have been pre-computed for convenience. Such uncertainty estimates are closely related to the information content of the available observing system which has evolved considerably over time. They also indicate flow-dependent sensitive areas. To facilitate many climate applications, monthly-mean averages have been pre-calculated too, though monthly means are not available for the ensemble mean and spread.

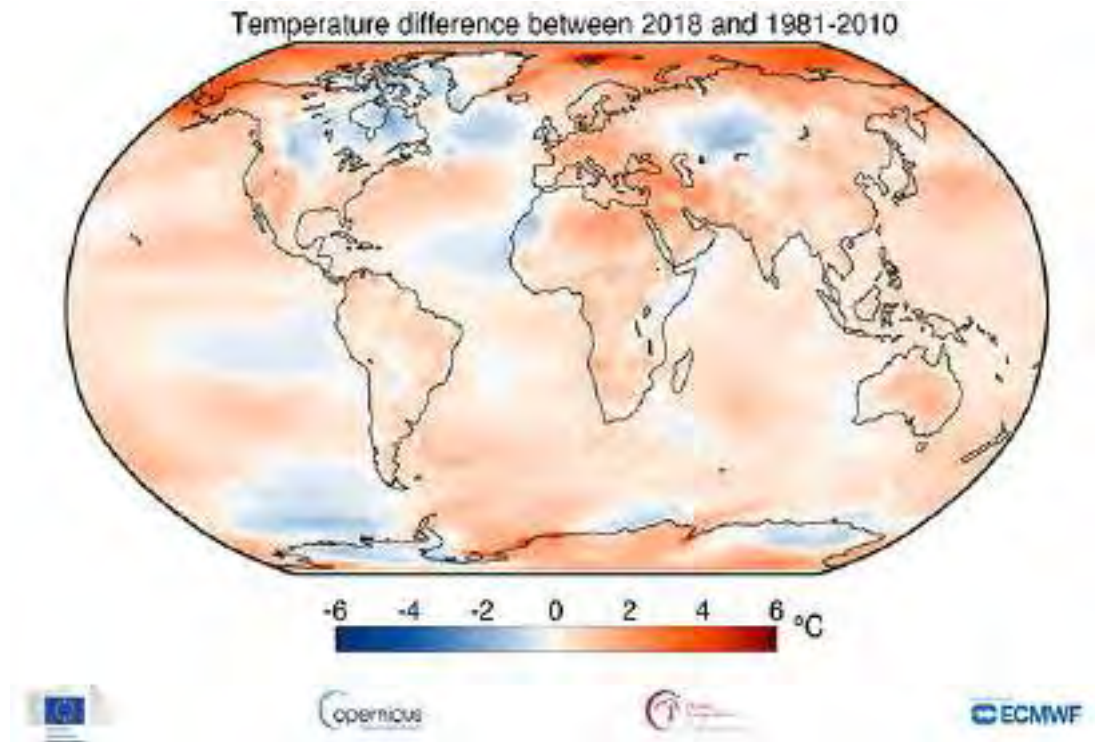


Fig. 2.3 ECMWF data Example

ERA5 is updated daily with a latency of about 5 days. In case that serious flaws are detected in this early release (called ERA5T), this data could be different from the final release 2 to 3 months later. In case that this occurs, users are notified.

The data set presented here is a regridded subset of the full ERA5 data set on native resolution. It is online on spinning disk, which should ensure fast and easy access. It should satisfy the requirements for most common applications.

Data has been regridded to a regular lat-lon grid of 0.25 degrees for the reanalysis and 0.5 degrees for the uncertainty estimate (0.5 and 1 degree respectively for ocean waves). There are four main sub sets: hourly and monthly products, both on pressure levels (upper air fields) and single levels (atmospheric, ocean-wave and land surface quantities).

The present entry is "ERA5 hourly data on single levels from 1940 to present".

### 2.8.9 OCEAN SENSORS:

The ocean covers 71 percent of Earth's surface, scientists record SST to understand how the ocean communicates with Earth's atmosphere. SST provides fundamental information on the global climate system.

Ocean sensors help measure ocean pollution effectively measuring ocean pollution allows coastal communities to reduce their negative climate impact, clean up their shores, and protect local economies, tourism, fishing, and overall human health.

### BUOY SENSOR:

A data buoy contains sensors used to monitor and collect atmospheric and oceanographic conditions. The sensors and the solar panels (used as a power source) distinguish data one buoy from other buoys. They also allow collected data to be converted into an electronic signal and transmitted to shore or logged in the onboard data unit.



Fig. 2.4 Buoy Sensor

Despite its simplistic design, data buoys are used in a variety of applications. Real time sensors provide the capability for early detection, monitoring, and forecasting of weather occurrences and human activity. These sensors are extremely capable of measuring sea level changes less than a millimeter in the ocean. The enclosure of a data buoy is designed to support, protect and power a number of sensors of different modalities. The amount and type of sensors placed on the buoy vary based on application.

#### **2.8.10 SATELLITE:**

Satellite remote sensing is currently the most common approach for measuring long-term and large-area sea surface temperatures. The SST data measured by the satellite radiometer include the sea surface skin temperature ( $T_{skin}$ ) at a depth of approximately 10  $\mu m$ .

The most commonly used instrument to collect sea surface temperatures is the Visible Infrared Imaging Radiometer Suite (VIIRS) instrument aboard the NOAA/NASA Suomi NPP satellite.

#### **INDIAN SATELLITE:**

The PSLV initially headed southeast from the Indian spaceport over the Bay of Bengal, then vectored its thrust to turn south over the Indian Ocean, a so-called “dogleg” maneuver to avoid flying over Sri Lanka. The rocket targeted a polar sun-synchronous orbit at an altitude of 458 miles (738 kilometers).

The EOS-06 satellite deployed from the PSLV’s fourth stage about 17 minutes into the mission. A live camera view from the rocket showed the 2,462-pound (1,117-kilogram) spacecraft cast free of the upper stage. Moments later, the satellite extended its solar panels to begin recharging batteries. EOS-06, formerly known as Oceansat 3, was developed by the Indian Space Research Organization as a follow-up to India’s Oceansat 2 mission, which launched in 2009. EOS 6 will take measurements of ocean color, ocean winds, and sea surface temperatures with three on-board instruments.

Satellites measure sea surface temperature by using the infrared part of the electromagnetic spectrum and capturing the thermal emission. All surfaces emit radiation, whose strength depends on the surface temperature. The higher the temperature, the greater the radiant energy. Skin temperature ( $T_{\text{skin}}$ ) is defined as the temperature measured by an infrared radiometer typically operating at wavelengths of 3.7-12  $\mu\text{m}$  that represent the temperature of a surface layer of ~10-20  $\mu\text{m}$ .

The infrared radiance the sensor captures also depends on other variables, such as the surface emissivity (0.98-0.99 over the sea) and the geometry of the viewing. The atmospheric contribution to the signal is small, but since the atmosphere is far cooler than the sea surface, it cannot be ignored.

Accurate SST retrieval requires careful consideration of all variables that affect atmospheric absorption and emission. [7]

Satellites measure the brightness temperature of the surface. An equation can be used to derive a set of SST algorithm coefficients that can be applied to the brightness temperature data in order to clean it from the noise caused by the atmosphere. Some multispectral SST retrieval algorithms use the channels that measure radiation in the 11 and 12  $\mu\text{m}$  spectral range during the day. This is called a split-window algorithm, as the atmospheric transmission window where the radiation leaves the surface to space (between 9.8 and 13.5  $\mu\text{m}$ ) is split into two channels (11 and 12  $\mu\text{m}$ ). At night, an additional 3.7  $\mu\text{m}$  channel can be used, which provides more information on the atmospheric attenuation of the sea surface radiance. This is called a triple-window algorithm. The general formulation of the split-window can be written in this way:

$$\text{SST} = aT_{11} + b(T_{11} - T_{12}) + c(T_{11} - T_{12})^2 + d$$

## **INSAT (INDIAN NATIONAL SATELLITE SYSTEM) SATELLITE:**

### **2.8.11 REMOTE SENSING RESOLUTION:**

The **resolution** of an image refers to the potential detail provided by the imagery. In remote sensing, we refer to three types of resolution: spatial, spectral, and temporal.

**SPATIAL RESOLUTION:**

It refers to the size of the smallest feature that can be detected by a satellite sensor or displayed in a satellite image. It is usually presented as a single value representing the length of one side of a square. For example, a spatial resolution of 250m means that one pixel represents an area of 250 by 250 meters on the ground.

**SPECTRAL RESOLUTION:**

It refers to the ability of a satellite sensor to measure specific wavelengths of the electromagnetic spectrum. The finer the spectral resolution, the narrower the wavelength range for a particular channel or band.

**TEMPORAL RESOLUTION:**

It refers to the time between images. The capability for satellites to provide images of the same geographical area more frequently has increased dramatically since the dawn of the space age.

**EARTH OBSERVATION SATELLITES (EOS):**

Earth Observation System (EOS) refers to a collection of tools, techniques, and technologies used to monitor and study the Earth's natural systems from space. EOS encompasses a wide range of scientific disciplines, including remote sensing, atmospheric science, oceanography, land-use and land-cover change, and global climate change.

EOS uses a combination of satellites, ground-based sensors, and other data-gathering techniques to capture and analyze data about the Earth's physical, chemical, and biological systems. This data is used to better understand the planet's natural systems, monitor changes over time, and inform decision-making related to environmental management, resource conservation, disaster response, and other important issues.

The information collected through EOS is used by a wide range of stakeholders, including scientists, policymakers, and the general public, to better understand the Earth and its natural systems and to make informed decisions that impact the planet and its inhabitants.

India has several Earth Observation System (EOS) satellites in orbit. Here are some of the major EOS satellites launched by the Indian Space Research Organisation (ISRO):

1. Cartosat-3
2. Oceansat-2
3. Resourcesat-2A
4. RISAT-1
5. RISAT-2B
6. INSAT-3D
7. INSAT-3DR
8. Megha-Tropiques
9. SARAL
10. ScatSat-1

These satellites provide a range of data and imagery about India and its neighboring regions, including land use, natural resources, weather patterns, and ocean conditions. They are used by various Indian government agencies, research organizations, and private companies for applications such as disaster management, agriculture, urban planning, and national security.

#### **INSAT (INDIAN NATIONAL SATELLITE SYSTEM):**

INSAT (Indian National Satellite System) is a series of geostationary communication and meteorological satellites launched by the Indian Space Research Organisation (ISRO) to provide a variety of services to India and neighboring countries. The INSAT system is one of the largest domestic communication satellite systems in the Asia-Pacific region.

INSAT was first conceived in the early 1970s as a way to provide telecommunications and meteorological services to India. The first satellite in the series, INSAT-1B, was launched in 1983. Since then, the INSAT series has grown to include a range of satellites with different capabilities and functions.

The INSAT satellites provide services such as direct-to-home (DTH) television broadcasting, satellite-based telecommunication, meteorology, and disaster management. They are also used for various other applications, including navigation, remote sensing, and scientific research.

INSAT satellites operate in geostationary orbits, meaning that they remain stationary relative to the Earth's surface, which enables them to provide continuous coverage of India and neighboring regions. The INSAT system has played a significant role in the development of India's communication and meteorological infrastructure and continues to be an important component of the country's space program.

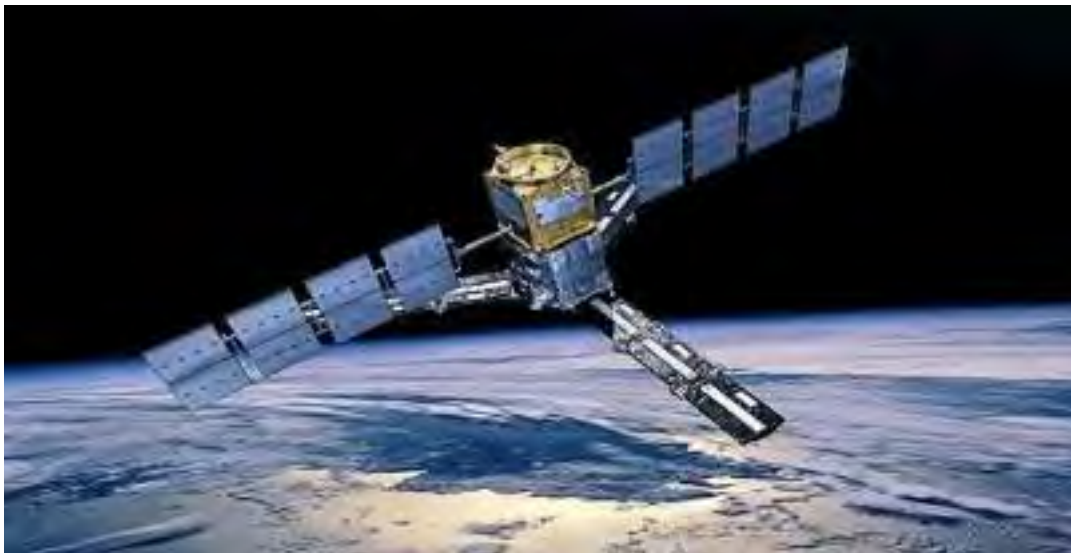
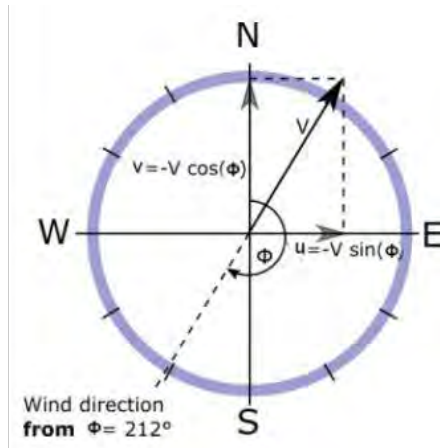


Fig. 2.5 INSAT Satellite in the Space



**Ocean Parameters that affect the SST-SkT relationship:**

**WIND SPEED (m/s):** Using **u10 (Initial Speed) & v10 components (Final Speed)**



$$u = -|\vec{V}| \sin \phi$$

$$v = -|\vec{V}| \cos \phi$$

$$|\vec{V}| = \sqrt{u^2 + v^2}$$

**AIR TEMPERATURE (K):**

Thermometers on ships and floating buoys show that air near the ocean's surface is getting warmer, increasing its ability to evaporate water. In turn, we see an increase in heavy precipitation events and flooding on land.

**TOTAL PRECIPITATION (mm):**

Higher rainfall during the EASR is associated with warm sea-surface temperatures (SST) in the western Indian Ocean and low-level westerlies across the equatorial region of the ocean which brings moisture over the East Africa region.

**SEA SURFACE SALINITY(SSS):**

We find that saltier oceans yield warmer climates in large part due to changes in ocean dynamics. Increasing ocean salinity from 20 to 50 g/kg results in a 71% reduction in sea ice cover in our present-day Earth scenario.

## 2.9 RESEARCH WORK:

### 2.9.1 DEVELOPMENT APPROACH AND JUSTIFICATION:

To analyze the SST (Sea Surface Temperature, Bulk Temperature) and SkT (Skin Temperature) data of the Indian Ocean from the Satellite, establish the relationship, and derive an equation to find the actual SkT value and validate the data. The ability to measure it allows us to observe the global system and quantify ongoing weather and climate change.

### Internship Effort and Time:

**Working time:** 9:30 a.m. to 6:00 p.m.

### Daily Routine at the workplace:

- Read the Research Papers and get the analysis done
- Meeting with a guide to discuss the achieved outputs and improvements also the further remaining work
- Test the Data results
- Analysis and Validation

### 2.9.2 ROLES AND RESPONSIBILITIES:

Name	Role and Tasks				
Fiza	Data Gathering	Data Preparation	Coding	Data Analysis & Visualization	Documentation
	✓	✓	✓	✓	✓

Table 2.1 Roles and Responsibilities

**Phase - 1:**

Analysis and Visualization in the form of graphs and charts of Skin Temperature and Bulk Temperature(SST) with respect to different oceanic parameters like Wind Speed, Total Precipitation(Rain), Sea Surface Salinity(SSS) - Salt amount, and Air Temperature data in the series of multiple years starting from 1989 to present using the multitudinous libraries in python and Machine Learning through the sensors such as infrared (IR) radiometers, in situ moored and drifting buoys as well as through the satellite data from INSAT-3D/3DR.

**Phase - 2:**

Establish the association between SST and SkT using the same findings from the study using the incredibly complex algorithms through the Machine Learning Regressive properties when the A and V (Analysis and Visualization) are complete.

## CHAPTER 3.0: RESEARCH WORK

### 3.1 DATASET

ECMWF ERA5 (Version 5), Copernicus (Europe’s eyes on Earth)



Fig. 3.1 Copernicus Numerical Model ECMWF Dataset

**Dataset File Format:** .nc file (netCDF)

- There are different types of data file formats available to read the ocean data such as **.grib**, **.nc**, **.hdf5**, etc.
- **.nc** is popularly used file format in the oceanography to store the climate data.

**LOAD THE .nc FILE DATASET:**

```
In [1]: #import libraries
        from netCDF4 import Dataset
        import numpy as np
        import pandas as pd

In [3]: #load dataset from nc file
        file = Dataset('/home/fizapathan/FIZA_PATHAN/Dataset/15-02-23.nc')
```

Fig. 3.2 Load Copernicus Numerical Model ECMWF Dataset

**Used Libraries:**

```
In [1]: from netCDF4 import Dataset
import xarray as xr
import pandas as pd
import numpy as np
import glob
import math
import matplotlib as plt
import netCDF4 as nc
import matplotlib.pyplot as plt
from mpl_toolkits.basemap import Basemap
import pandas as pd
import numpy as np
```

Fig. 3.3 Required Libraries

We can get the information of different keys or the variables available in the dataset to work further.

```
▶ print(file.data_vars)
```

```
Data variables:
  u10      (time, latitude, longitude) float32 ...
  v10      (time, latitude, longitude) float32 ...
  t2m      (time, latitude, longitude) float32 ...
  sst      (time, latitude, longitude) float32 ...
  skt      (time, latitude, longitude) float32 ...
  tp       (time, latitude, longitude) float32 ...
```

Fig. 3.4 Data View of various Ocean Parameters

**3.1.1 MOTIVATION OF RESEARCH:**

Indian Satellites, EOS-06 (Earth Observation Science) and Oceansat-3 are available for oceanographical data gathering and analysis.

We can analyze the data for the whole globe through satellite rather than just a particular location or region according to the latitude-longitude values.

Like the same, the buoy and ships are the sensors inbuilt at some particular locations and the accuracy can be improved through the satellite data which is capable to capture the data globally at the same time.

3.1.2 DATA VIEW:

The screenshot shows a data table with the following columns: longitude, latitude, etc., time, bnds, time\_bnds, u10, v10, t2m, aq1, skt, and ts. The data rows represent daily observations for the year 2022, starting from 2022-01-01 00:00:00 and continuing through 2022-01-31 00:00:00. Each row contains numerical values for the various parameters listed in the columns.

Fig. 3.5 Data View of year 2022 Dataset

<b>Data Background</b>	<b>Final Observations</b>
<b>Type:</b> Daily Merged Product	<b>Type:</b> Daily Satellite
<b>Resolution:</b> 27.75 km (0.25° X 0.25°)	<b>Highly Secured</b> (It will be provided while validation and testing work)

Table 3.1 Data Background

### 3.1.3 ANALYSIS & VISUALIZATION:

As a part of SST-SkT data analysis, the scatter plots were generated. Scatter plots are a useful tool in data analysis and can provide insights into the relationship between two variables.

Scatter plots are a powerful tool in data analysis and are used to visualize the relationship between two variables. Here are some of the key uses of scatter plots:

Identifying patterns and trends Outlier detection Comparison of groups Model validation.

#### Sea Surface Temperature (SST) vs Sea Surface Skin Temperature (SkT):

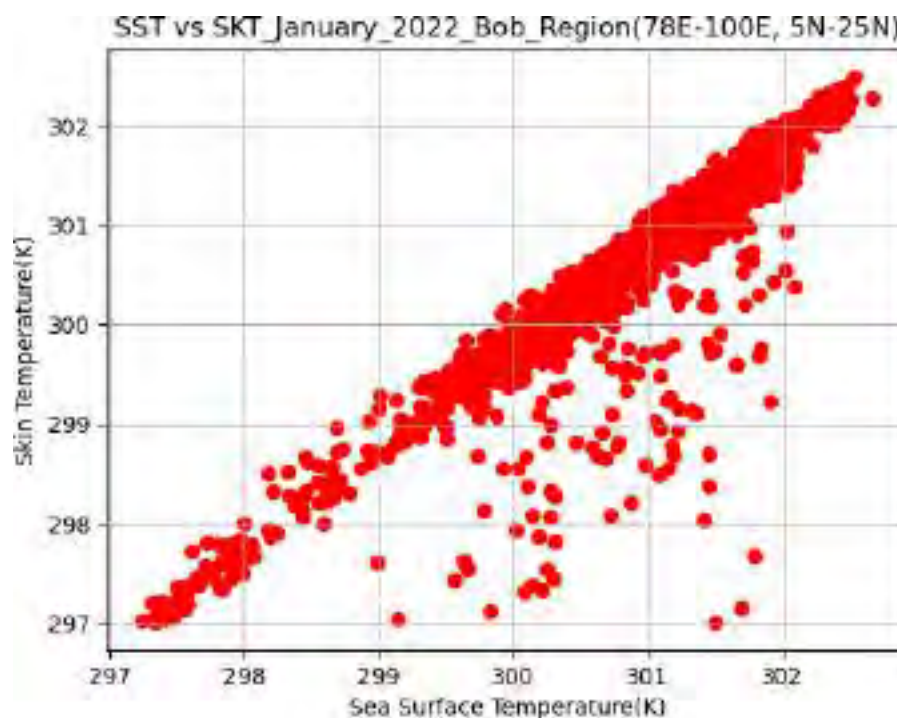


Fig. 3.6 SST vs SkT Data Analysis using Scatter Plots

Here, this shows a linear relationship between both the parameters but we may find some outliers from in between 300 to 302 K temperature region.

**Difference (SkT - SST) vs Total Precipitation and Difference (SkT - SST) vs Air Temperature:**

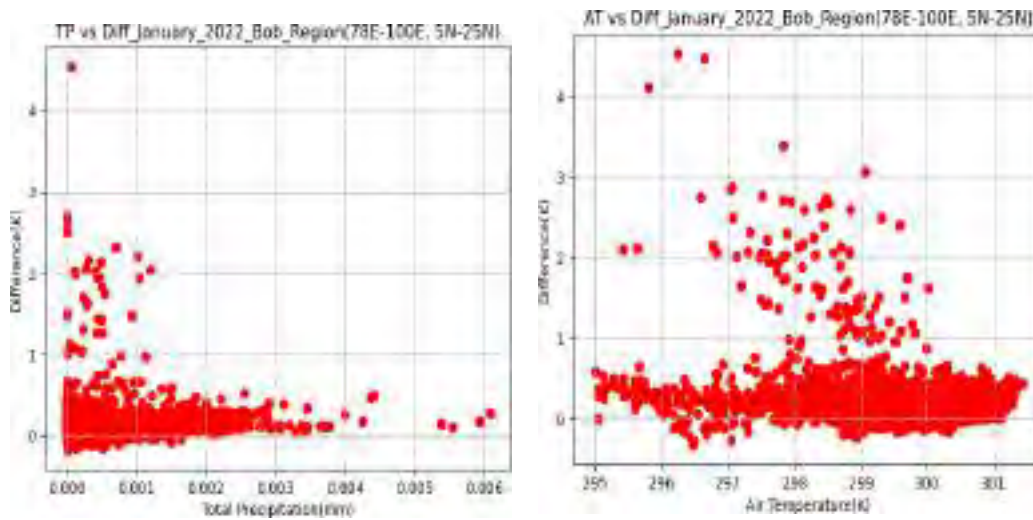


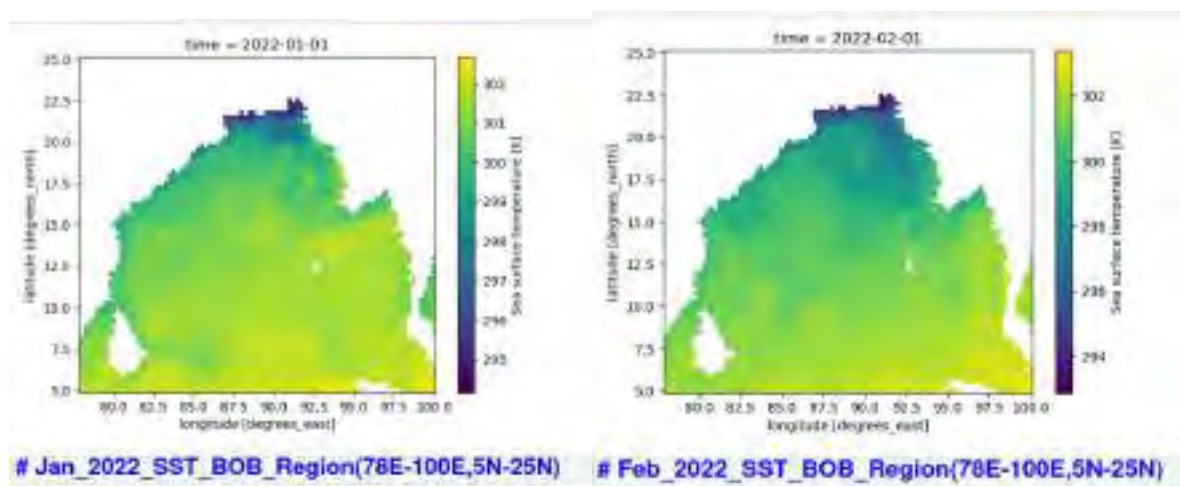
Fig. 3.7 Diff. vs TP and AT Data Analysis using Scatter Plots

Total Precipitation must be > 0 achieve the accurate difference.

**MONTHLY DATA VISUALIZATION OF THE BAY OF BENGAL REGION:**

(78°E-100°E,5°N-25°N)

**Average SST of Monthly Data in Bob region:**





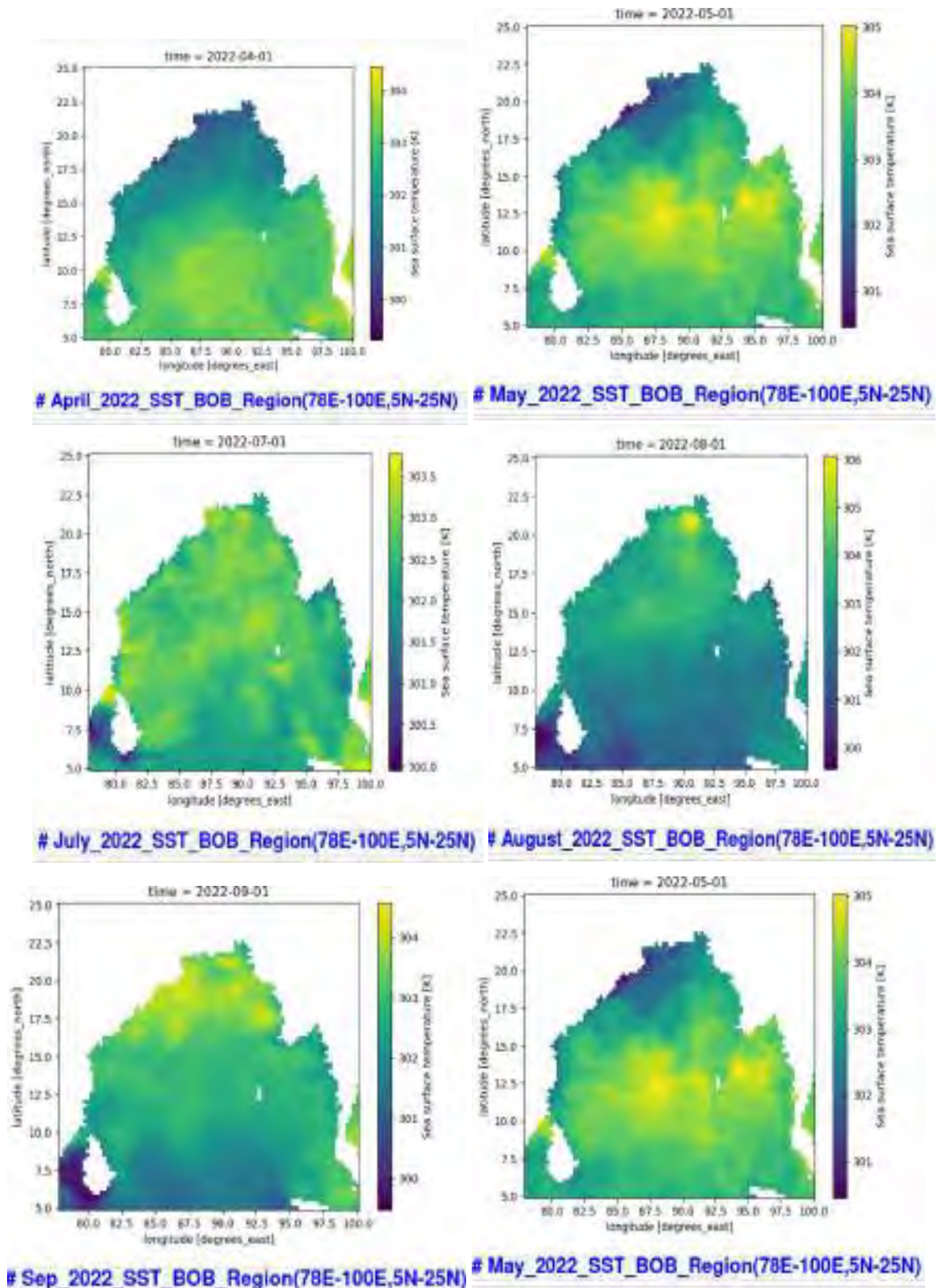
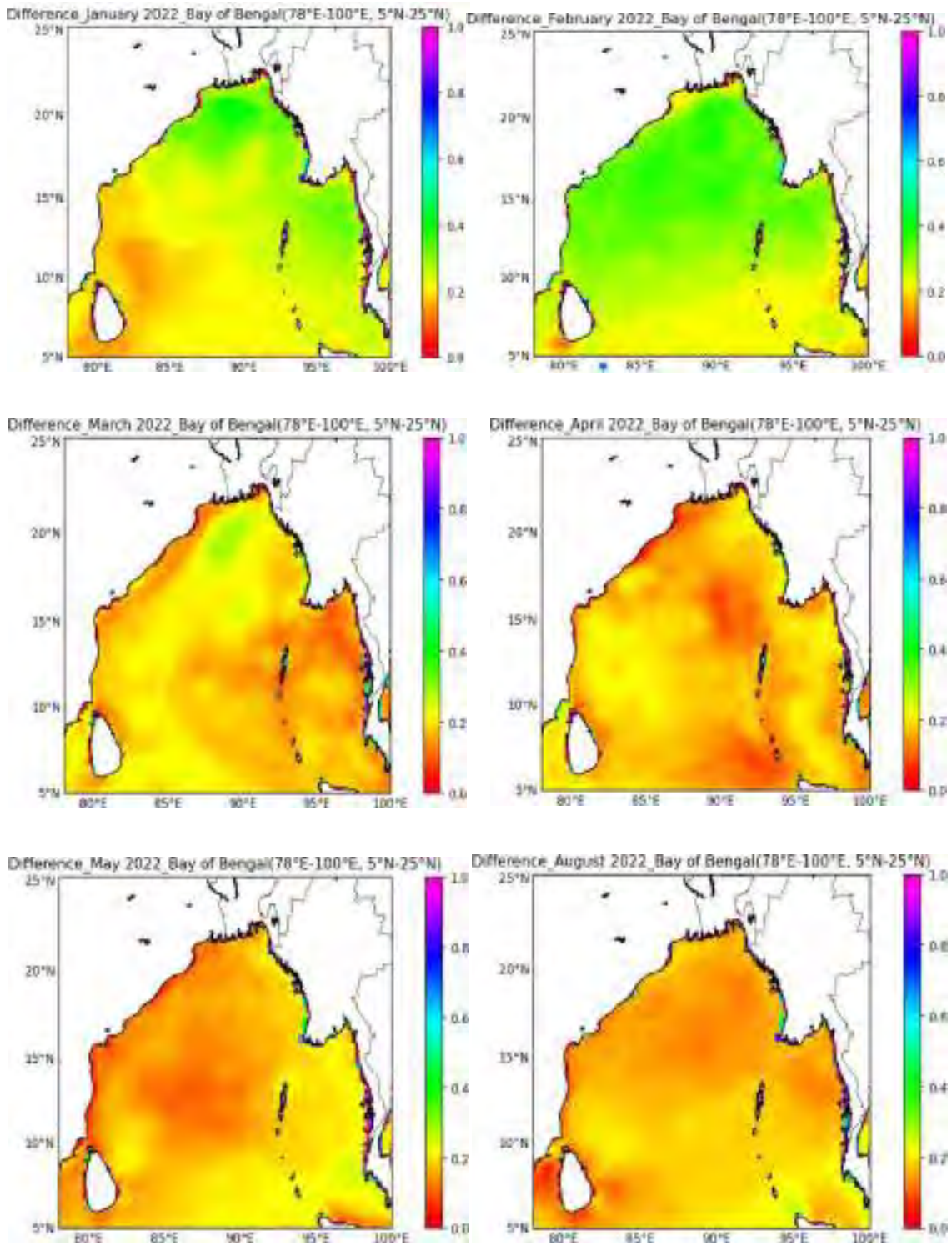


Fig. 3.8 Visualization of Monthly Average Data in Bob Region

**Average of Difference (SkT - SST) of Monthly Data in Bob region:**



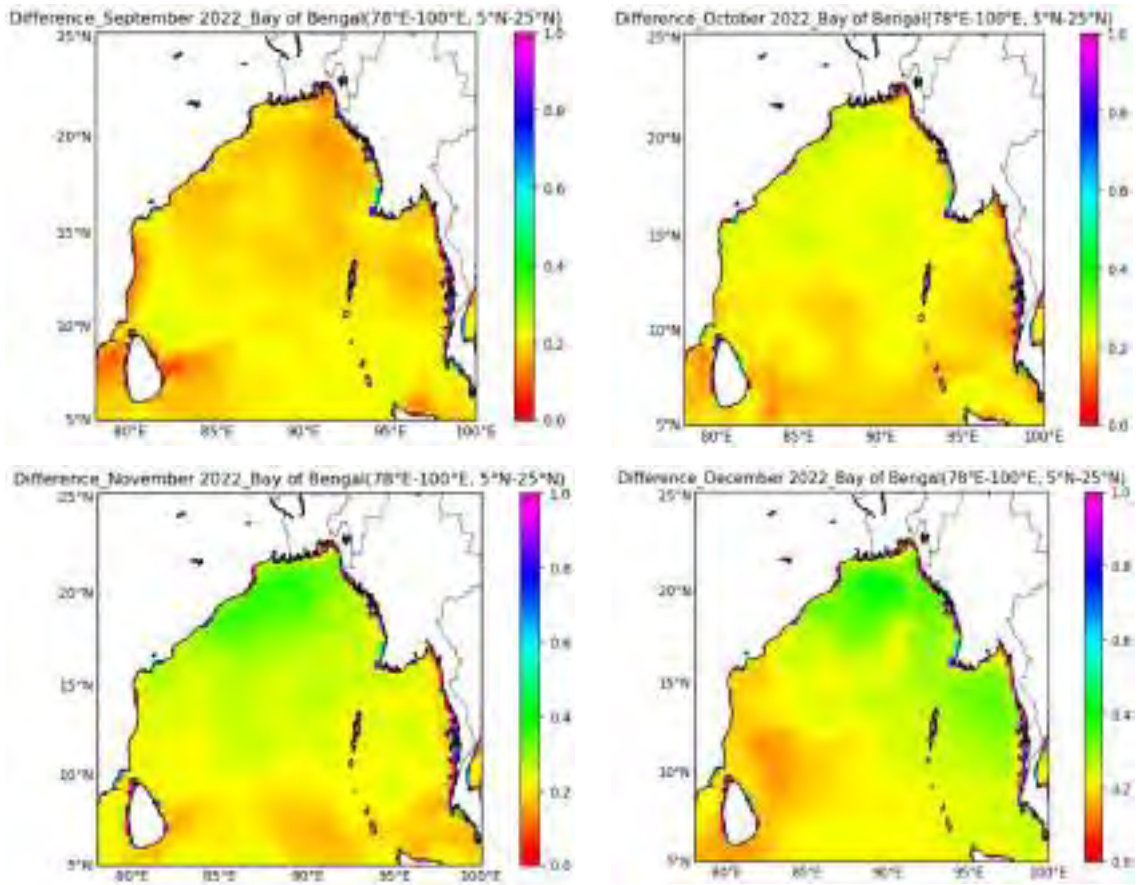


Fig. 3.9 Visualization of Monthly Difference Data in Bob Region

**Analysis of Difference (SkT - SST) with respect to time series of Yearly Data in Bob region:**

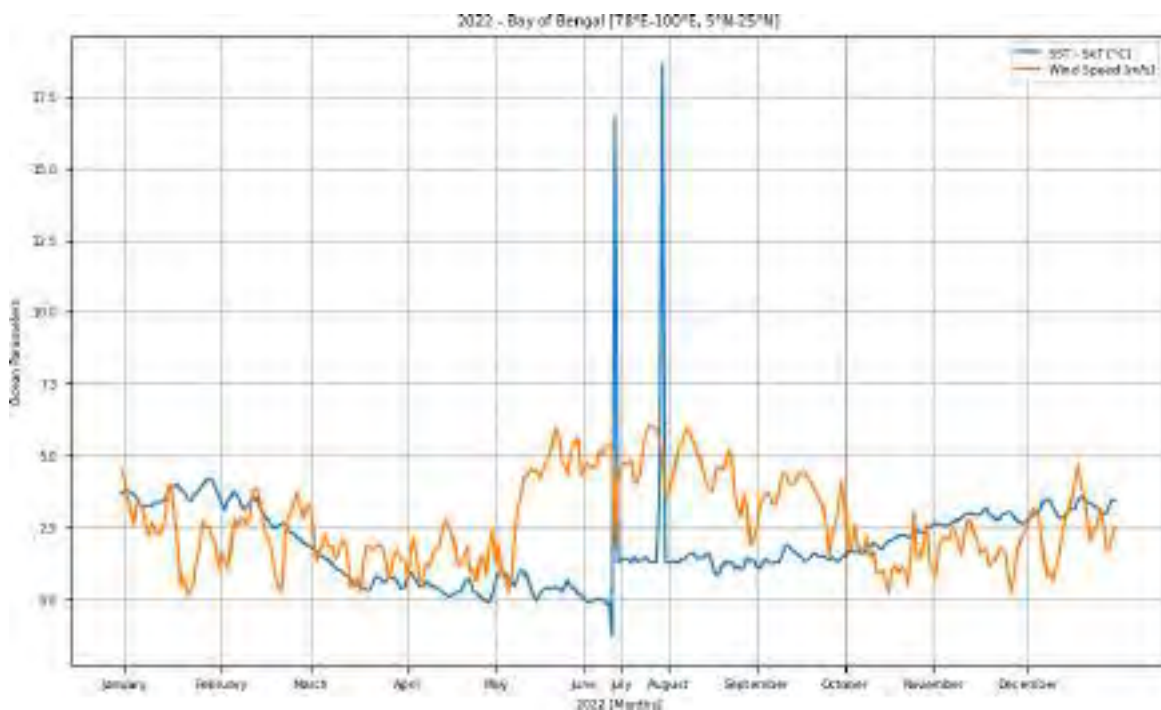


Fig. 3.10 Monthly Average SST vs SkT Data Analysis using Linear Plots

**Average of continuous 5 days of Monthly Data in Bob region:**

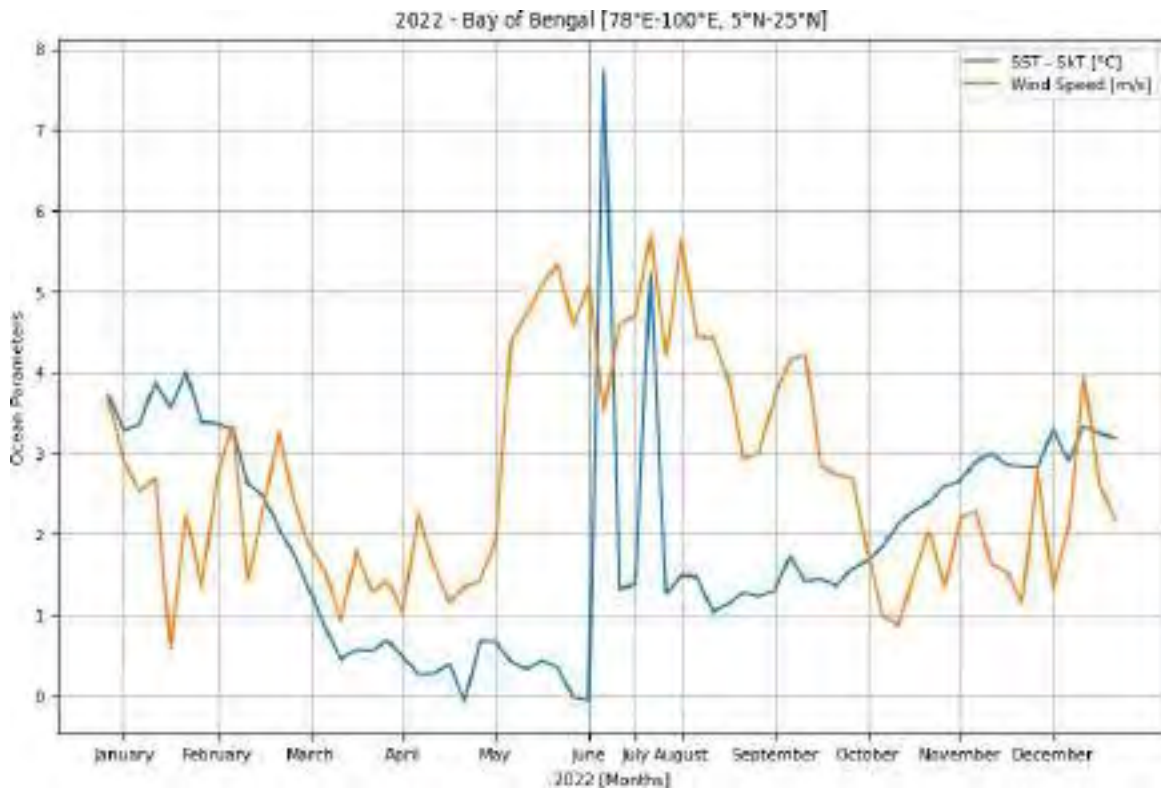


Fig. 3.11 Five Days Average SST vs SkT Data Analysis using Linear Plots

**Analysis of Difference (SkT - SST) with Ocean Parameters of Yearly Data in Bob region: Difference vs Wind Speed:**

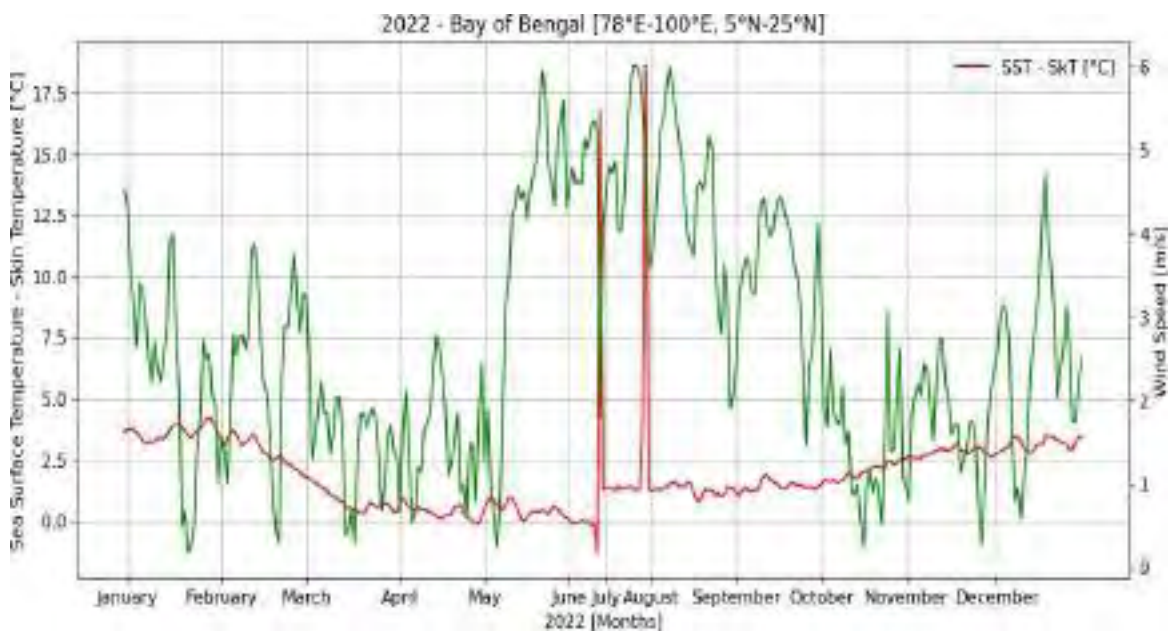


Fig. 3.12 Difference vs WS Data Analysis using Linear Plots

**Average of continuous 5 days of Monthly Data in Bob region:**

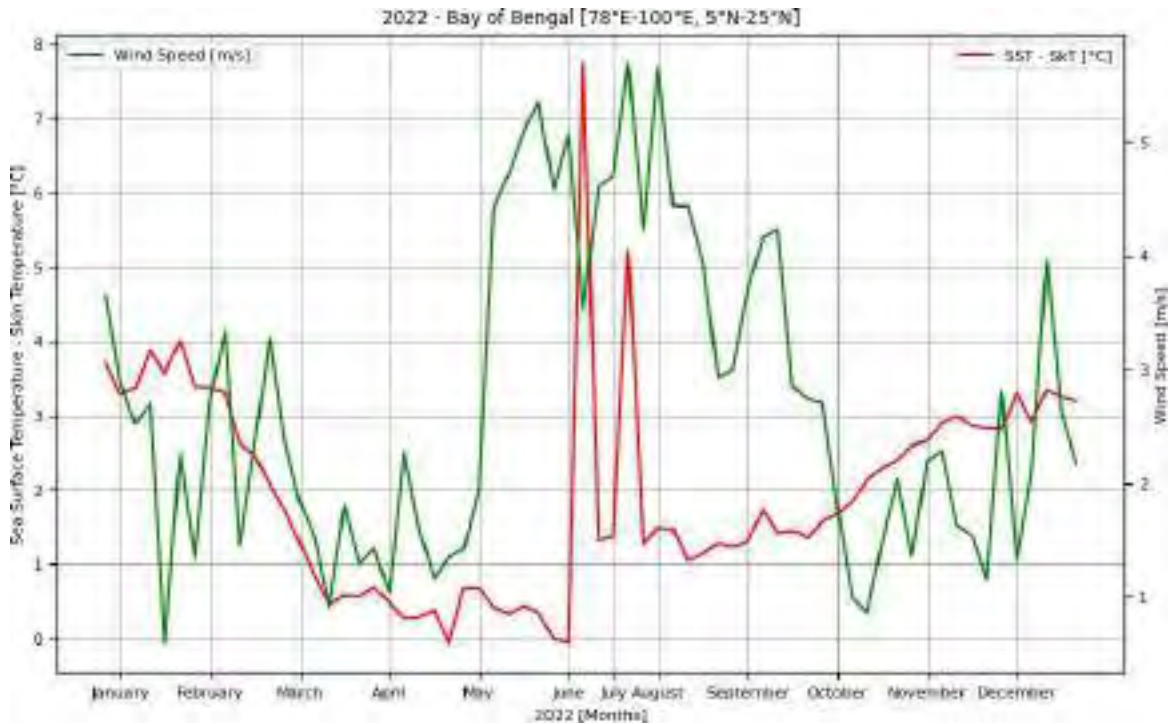


Fig. 3.13 Five Days Average Difference vs WS Data Analysis using Linear Plots

By this analysis, we can derive a conclusion where if the “Wind Speed” is increasing then the “Difference” is decreasing and, likewise. The changes with respect to the nature of the ocean can be seen through the yearly analysis mentioned in Fig. 3.13.

**Standard Deviation of SkT & SST of Monthly Data in Bob region:**

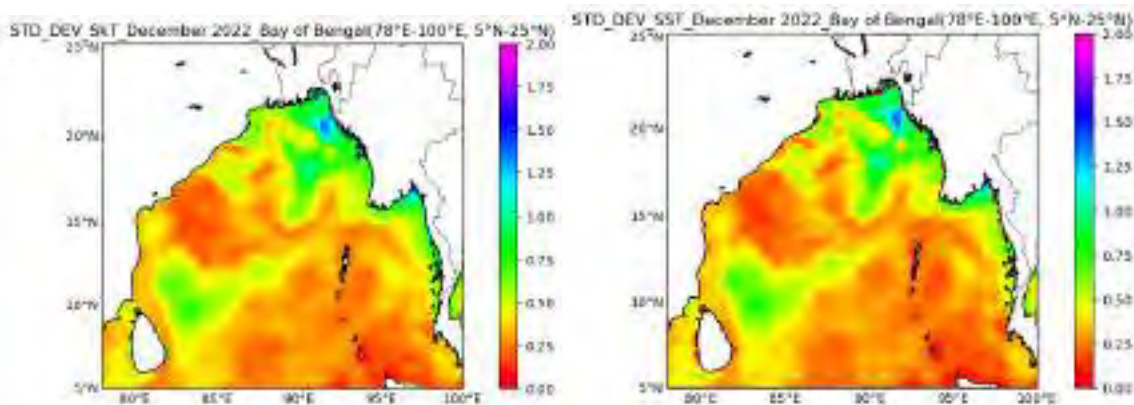


Fig. 3.14 Visualization of Monthly Standard Deviation Data in Bob Region

## **CHAPTER 4.0 SYSTEM ANALYSIS**

### **4.1 STUDY OF CURRENT SYSTEM (MOSDAC):**

MOSDAC (the Meteorological and Oceanographic Satellite Data Archival Centre) is a data repository for the missions of the Indian Space Research Organisation (ISRO) and Government of India, dealing with meteorology, oceanography, and tropical water cycles. Data acquired from missions is disseminated in near real-time from Space Applications Centre (SAC), Ahmedabad through the MOSDAC website.

The website also hosts weather services including cloud burst and heavy rain alerts, genesis of tropical cyclones in the Indian Ocean, track and intensity prediction, and a three-hourly weather forecast for the next seventy-two hours. The weather alerts are supported with a decision support system, where collateral information regarding land use, land cover, DEM, population, administrative boundaries, roads, rivers, etc. can be interactively overlaid. The forecast and weather alerts are also accessible over Android devices through a free downloadable Weather App.

Satellite data-based Meteorology and Oceanography Research and Training (SMART) is an ISRO initiative to support students, academics, and researchers across the country to pursue research in the field of Meteorology and Oceanography using satellite data archived at MOSDAC and other related datasets. SMART is managed by MOSDAC Research and Training Division (MRTD), MOSDAC Research Group, SAC. The support includes state-of-the-art computer facilities, research guidance, and familiarization with MOSDAC data.

ISRO is an official data partner of the Committee on Earth Observation Satellites. MOSDAC ensures near real-time availability of the SAPHIR data of Meghatropique's mission for the Global Precipitation Measurement (GPM).

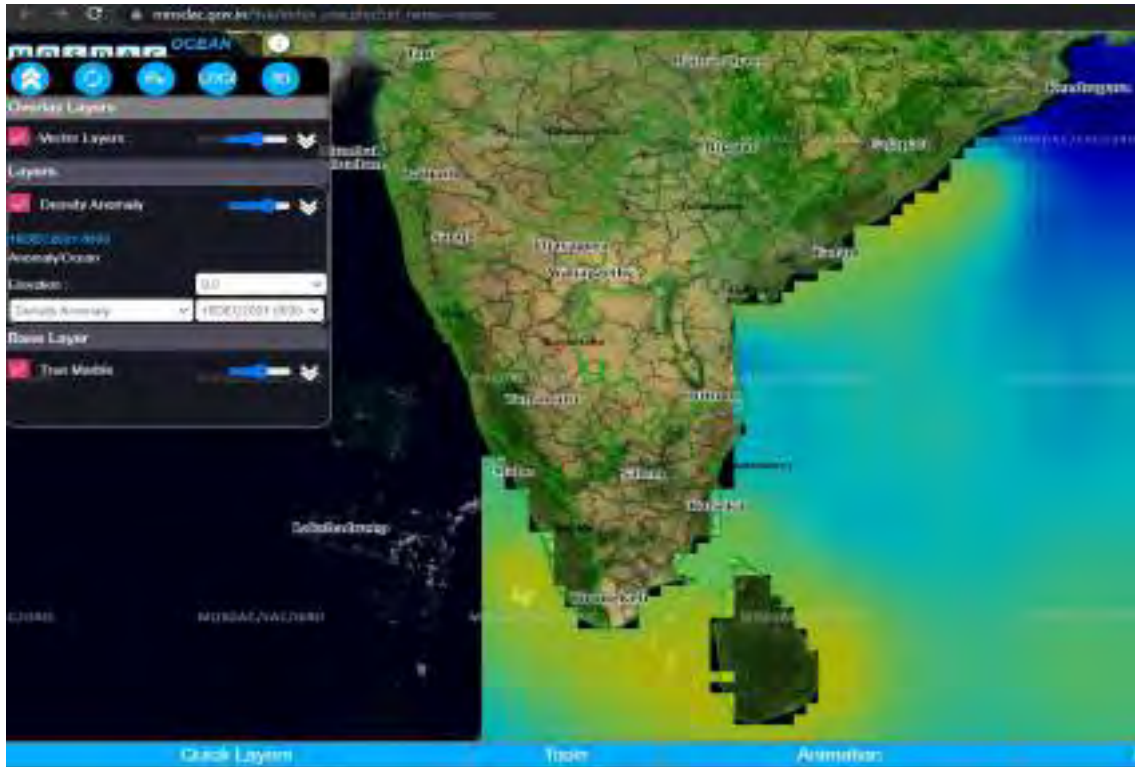


Fig. 4.1 Meteorological and Oceanographic Satellite Data Archival Center

The analysis of SST-SkT with respect to wind speed is not available in the measurement system currently.

## 4.2 SELECTION OF HARDWARE / SOFTWARE:

### 4.2.1 PROGRAMMING LANGUAGES:

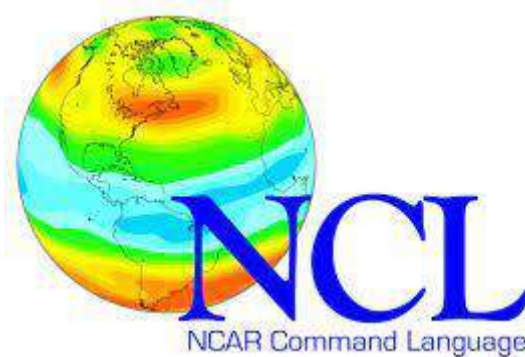
#### PYTHON:



This We have chosen python for implementation because Python is the internationally acclaimed programming language to help in handling data in a better manner for a variety of causes. Python is open-source, which means it's free and uses a community-based model for development. Python is a programming language that lets you work more quickly and integrate your systems more effectively.

**CDO (Climate Data Operator):**

CDO is a collection of command line Operators to manipulate and analyse Climate and NWP model Data. Supported data formats are GRIB 1/2, netCDF 3/4, SERVICE, EXTRA and IEG. There are more than 600 operators available for data information, manipulation, formatting, and analysis.

**NCL:**

The NCAR Command Language (NCL) is a programming language designed specifically for the analysis and visualization of data. NCL can be run in interactive mode, where each line is interpreted as it is entered at your workstation, or it can be run in batch mode as an interpreter of complete scripts.

**4.2.2 SOFTWARES:****JUPYTER NOTEBOOK:**

The Jupyter Notebook is the original web application for creating and sharing computational documents. It offers a simple, streamlined, document-centric experience.



Moreover, Jupyter Notebook allows machine learning developers to narrate visualizations along with sharing the code and data sets.

### **MobaXterm:**



MobaXterm is a toolbox for remote computing. In a single Windows application, it provides loads of functions that are tailored for programmers, webmasters, IT administrators and pretty much all users who need to handle their remote jobs in a simpler fashion.

### **4.2.3 OPERATING SYSTEMS:**

#### **LINUX:**



Linux is a Unix-like, open source and community-developed operating system (OS) for computers, servers, mainframes, mobile devices and embedded devices.

It is supported on almost every major computer platform, including x86, ARM and SPARC, making it one of the most widely supported operating systems.

**WINDOWS 8:**

One great thing about Windows 8 is that you can literally pin all your most used programs on the Start Menu. Unlike the previous versions of Windows, your programs are conveniently laid down from the screen. Microsoft also developed a way in which your icons can be live and active.

**4.2.4 PYTHON LIBRARIES:****NetCDF4:**

- NetCDF (Network Common Data Form) is a set of software libraries and self-describing, machine-independent data formats that support the creation, access, and sharing of array-oriented scientific data.
- It is commonly used in climatology, meteorology and oceanography applications (e.g., weather forecasting, climate change) and GIS applications.
- It is an input/output format for many GIS applications, and for general scientific data exchange.

**Basemap:**

- Basemaps serve as a reference map on which you overlay data from layers and visualize geographic information.
- An individual basemap can be made of multiple feature, raster, or web layers.
- Basemaps are the foundation for the maps and provide context for the work.

**Pandas:**

- Pandas is a Python library for data analysis.
- Pandas is a Python library used for working with data sets. It has functions for analyzing, cleaning, exploring, and manipulating data.

- The name "Pandas" has a reference to both "Panel Data", and "Python Data Analysis" and was created by Wes McKinney in 2008.

**NumPy:**

- NumPy is a Python library used for working with arrays.
- It also has functions for working in domain of linear algebra, fourier transform, and matrices. NumPy was created in 2005 by Travis Oliphant.
- It is an open-source project and you can use it freely.
- NumPy stands for Numerical Python.

**Matplotlib and Seaborn:**

- Matplotlib is a python library used to create 2D graphs and plots by using python scripts. It has a module named pyplot which makes things easy for plotting by providing feature to control line styles, font properties, formatting axes etc.
- Seaborn is a library for making statistical graphics in Python.
- It builds on top of matplotlib and integrates closely with pandas data structures.
- Seaborn helps you explore and understand your data.

**Xarray:**

- Xarray provides data models for working with labeled arrays and datasets.
- Its toolkit includes a broad set of domain-agnostic functions for advanced analytics and visualization with these data structures.
- Interoperable with the scientific Python ecosystem including NumPy, Dask, Pandas, and Matplotlib.

**glob:**

- The glob module is a useful part of the Python standard library. glob (short for global) is used to return all file paths that match a specific pattern.
- In Python, the glob module is used similarly to find, locate, and search for all of the files that are present in a system.

## **CHAPTER 5.0 COCLUSION AND DISCUSSION**

### **5.1 OVERALL ANALYSIS:**

The advancements in measuring sea surface temperature from space have revolutionized our understanding of the world's oceans and their impact on climate dynamics. Satellite remote sensing technology provides a comprehensive and global perspective, enabling scientists to monitor changes in SST with unprecedented accuracy and resolution. This wealth of data is invaluable for climate studies, weather predictions, and environmental management, ultimately helping us address the challenges posed by climate change and safeguard our marine ecosystems. The utilization of space-based remote sensing technology for skin bulk temperature analysis has greatly advanced our understanding of the Earth's climate system and its intricate relationship with the ocean. Through accurate measurements and comprehensive data analysis, scientists can unravel the complex dynamics of skin bulk temperature, contributing to climate research, weather forecasting, and sustainable management of marine environments. Space-based observations offer unprecedented global coverage, high temporal resolution, and fine spatial resolution, providing valuable insights into the impacts of climate change and supporting informed decision-making for a resilient future.

This report talks about whole process of analysis, visualization and validation of SST and SkT data. This report puts forth a detailed explanation about building an application which encompasses everything right from the beginning.

This Analysis and Visualization involves some expertise with NetCDF4, CDO, Basemap, Pygrib, Numpy, Pandas, NCL and Matplotlib. The coding of features in Jupyter Notebook are easily interpretable even by a beginner due to the proper commenting and the indentation at all the required places. Long-term satellite observations help assess changes in oceanic parameters over time, providing insights into the impacts of climate change on the oceans. Monitoring trends in SST, ocean color, and other variables aids in understanding the consequences of global warming, such as coral bleaching, shifts in species distribution, and changes in ocean productivity.

## **5.2 PROBLEMS ENCOUNTERED AND FUTURE ENHANCEMENT:**

Skin Temperature Data is so sensitive and different weather conditions in a same day make the analysis even more complex to bifurcate and further outcomes.

Cloudy weather doesn't support the IR radiometers to detect the Sea Surface Skin Temperature.

## REFERENCES:

- [1] Nicholas R. Nalli, James A. Jung, Robert O. Knuteson, Jonathan Gero, Cheng Dang, Benjamin T. Johnson, Lihang Zhou, Reducing Biases in Thermal Infrared Surface Radiance Calculations Over Global Oceans, *IEEE Transactions on Geoscience and Remote Sensing*, 10.1109/TGRS.2023.3248490, **61**, (1-18), (2023). <https://doi.org/10.1029/2005JD006385>
- [2] Viswambharan, N.K., Sathyendranath, S. & Gangadhara Rao, L.V. Remote sensing of sea surface temperature through infrared radiometry — a review. *Sadhana* **9**, 281–297 (1986). <https://doi.org/10.1007/BF02811970>
- [3] Barton, I. J., Minnett P. J. , Maillet K. A. , Donlon C. J. , Hook S. J. , Jessup A. T. , and Nightingale T. J. , 2004: The Miami2001 infrared calibration and intercomparison. Part II: Shipboard results. *J. Atmos. Oceanic Technol.*, **21** , 268–283.
- [4] Donlon, C., I. S. Robinson, W. Wimmer, G. Fisher, M. Reynolds, R. Edwards, and T. J. Nightingale, 2008: An Infrared Sea Surface Temperature Autonomous Radiometer (ISAR) for Deployment aboard Volunteer Observing Ships (VOS). *J. Atmos. Oceanic Technol.*, **25**, 93–113, <https://doi.org/10.1175/2007JTECHO505.1>.
- [5] Jessup, A. T., and R. Branch, 2008: Integrated Ocean Skin and Bulk Temperature Measurements Using the Calibrated Infrared In Situ Measurement System (CIRIMS) and Through-Hull Ports. *J. Atmos. Oceanic Technol.*, **25**, 579–597, <https://doi.org/10.1175/2007JTECHO479.1>.
- [6] Xiaomin Ye, Jianqiang Liu, Mingsen Lin, Jing Ding, Bin Zou, Qingjun Song, Yue Teng, "Evaluation of Sea Surface Temperatures Derived From the HY-1D Satellite", *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol.15, pp.654-665, 2022.
- [7] X. Ye, J. Liu, M. Lin, J. Ding, B. Zou and Q. Song, "Sea Surface Temperatures Derived From COCTS Onboard the HY-1C Satellite," in *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 14, pp. 1038-1047, 2021, doi: 10.1109/JSTARS.2020.3033317.
- [8] Ninghui Li, Lei Guan, Hong Gao, "Sun Glint Correction Based on BRDF Model for Improving the HY-1C/COCTS Clear-Sky Coverage", *IEEE Geoscience and Remote Sensing Letters*, vol.20, pp.1-5, 2023.
- [9] Jia, Chong, Minnett, Peter J., Szczodrak, Malgorzata, and Izaguirre, Miguel, 2023, "High Latitude Sea Surface Skin Temperatures Derived From Saildrone Infrared Measurements" *IEEE Transactions on Geoscience and Remote Sensing* Vol. 61, pp 1, 1558-0644
- [10] Wilson, R. Chris, Hook, Simon J., Schneider, Philipp, and Schladow, S. Geoffrey, 2013, "Skin and bulk temperature difference at Lake Tahoe: A case study on lake skin effect" *Journal of Geophysical Research: Atmospheres* Vol. 118, No. 18, pp 10,332, 2169897X

# **INTERNSHIP AT ARISHTI INFOLABS**

**AN INTERNSHIP REPORT**

*Submitted by*

**Shruti Rajesh Gajjar**

**200390107502**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



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## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at ARISHTI INFOLABS** has been carried out by **SHRUTI RAJESH GAJJAR** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department



# Company Certificate



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Arishti Info Labs Private Limited

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Date: May 10, 2023

Ms. Shruti Gajjar

To Whomever It May Concern

This is to certify that Ms. Shruti Gajjar, student of S.P.B Patel Engineering College is working as a Frontend Developer Intern with Arishti Info Labs Pvt. Ltd. She is working under the guidance of Senior Developer Mr. Divyang Mistry on project virtual audit which is a small module of 'Dorje', which is our core product. She completed her 3 months on 10<sup>th</sup> of May 2023, out of 6 months of internship.

Divyang Mistry  
Guide Signature  
Arishti Info Labs



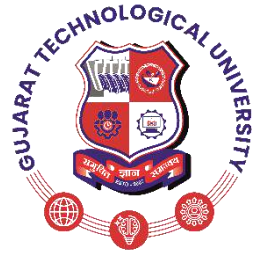
CIN: U72900GJ2023PTC113655

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SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Company/Industry Name** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Divyang Mistry (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Shruti Rajesh Gajjar**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would like to thank Mr.Hardik Tarpara and Mr. Ronak Sutariya of Arishti Info Labs for providing me with the opportunity to undertake my internship within the Organization. I express my sincere gratitude to my external guide Mr. Divyang Mistry and Mr. Milan Vadhwa for their constant encouragement and mentorship, which helped me to enhance my skills and knowledge. I would also like to thank my internal Guide, Mr. Akshay Kansara, who provide continuous guidance during the internship. I also extend my appreciation to my colleagues and teammates for their friendly work environment and helping me with my project work. Their suggestions and ideas have been of great value to me. I would like to thank the entire Arishti family for making my internship an enriching experience. The organization has provided me with a valuable learning experience, which will undoubtedly benefit me in my future endeavors. I am extremely grateful to the department staff members and friends that helped me in completing this internship successfully. Thank you all once again for your support and guidance.

## Abstract

This report contains the work done by the author during his internship at *Arishti Info lab*. It shows the work I did in the company during my internship period. In the report, the author discusses the process of creating and steps of assembly of the web application. The author also discusses the structure of the company, all the departments and their work. It also explains what the author learned during this internship period.

Security experts at Arishti have years of experience in conducting security assessments on various industrial components. By providing customised services to analyse and understand your industrial processes and operational technologies. We seek security flaws on all levels starting from physical and network security to vendor-specific vulnerabilities in ICS components such as supervisory control and data acquisition (SCADA) systems, programmable logic controllers (PLCs) and other industrial systems. Providing you with information on the consequences of vulnerability exploitation and evaluating the effectiveness of implemented security measures enables you to plan further actions needed to fix flaws and improve security.

Our experts conduct internal penetration testing on agreed sets of systems and components to identify all potential vulnerabilities in an ICS environment. This testing includes:

1. Analyse your network architecture to check specifically for proper network segmentation.
2. Evaluate how resilient your network security is against attacks that might give attackers access to networks.
3. Passively monitoring and analysing network traffic to determine if attackers can access sensitive information.
4. Detection of vulnerable network services.
5. Identifying access control weaknesses, such as identifying inadequate or missing firewall protection.
6. Analyse the procedures for applying updates.
7. Analyse your usage of counterfeit or third-party software.
8. Reviewing passwords used to determine the use of commonly used or guessable passwords.

Arishti can deliver in-depth vulnerability assessment and penetration testing services for industrial control systems, including testing live production environments cautiously if required. Capable of handling complex, large-scale OT networks in any ICS environment. We follow the 3-step process to assess the ICS security posture. First, we test the ICS environment Network, then IT systems are tested, and finally, we test selected ICS systems offline for vulnerabilities. Further, during the penetration testing phase, we simulate tactics attackers use to compromise ICS systems to find further vulnerabilities.

Our approach will help you and your organisation investigate and identify security weaknesses. Assuring your board of directors, customers, industry, or regulators that your systems have been tested for cybersecurity weaknesses.

Regular security audits of your ICS, SCADA and OT networks are essential for defending your system against cyberattacks. Our security audit service is conducted based on accepted global industry standards such as IEC 62443 or NIST 800-82 & others specific to the country or industry's legal requirements. In addition, we will adequately analyse the procedure for applying updates, the effectiveness of anti-virus protection, usage of any counterfeit or 3rd-party software, firewall rules, and many other areas of your OT networks.

Arishti performs SCADA/ICS Risk and Vulnerability Assessments to provide a complete evaluation and holistic view of your organization's security posture to identify any possible flaw in large-scale OT networks. Our skilled security assessor team conducts multi-disciplinary, multifaceted reviews of your company's current OT ICS network and SCADA systems, delving deep into any industrial control system to identify vulnerabilities and control gaps that an attacker could exploit. Our team will identify threats that could adversely affect critical operations and harm your OT networks. We document the risk assessment results and develop an action plan based on that. The action plan includes cost-effective solutions to mitigate cyber threats and risks. Also, it may consist of implementing new operation procedures & policies and physical or technical control. As cyberattacks continue to rise every day, it is essential to perform security assessments regularly.

It is becoming increasingly difficult to prevent security incidents. For example, cyberattacks targeting industrial organizations, including a recent spike in ransomware, can potentially disrupt operations and pose real safety risks if not swiftly mitigated. While it may not always be possible to stop an attack before it infects your environment, it is possible to limit the resultant damage and prevent the attack from spreading. Our Incident Response (IR) Service helps organizations prepare for, respond to, and recover from cyber incidents in industrial environments. Our experienced incident responders offer rapid response availability to help resolve the ongoing crisis as quickly as possible.

With the growing threat of cyberattacks, a SOC is vital to an organization's ability to sustain operations, remain profitable, and comply with applicable regulations. The efficacies cybersecurity professional at Arishti can help design and deploy an effective SOC (Security Operation Center). We intensely focus on implementing the necessary & standard operating procedures to ensure that the SOC is deployed with experts that can effectively deal with future threats and risks. Our SOC deployment is intended to comply with all regulations and deliver value to your business. We help choose the technologically advanced platforms for the design and deployment of SOC with operational processes like incident management, case management, escalations, roles, shift, etc.

## List Of Abbreviations

HTML	HyperText Transfer Protocol
CSS	Cascading Style Sheets
JS	JavaScript
QA	Quality Assurance

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## Chapter 1. INTRODUCTION TO COMPANY

### 1.1 About:

Arishti adopts the Sanskrit word meaning security or safety. We are a team of certified experts in the field of ICS (Industrial Control System), SCADA (Supervisory Control and Data Acquisition), OT (Operational Technology) and cybersecurity working towards safeguarding industrial civilizations from cyber-attacks. At Arishti, we work to instil trust in industrial society by solving mission-critical and cybersecurity issues. To ensure operational data integrity, we are the most trusted ICS and SCADA security partners to numerous industries.

Arishti Info Labs work under the aegis of National Forensic Sciences University – the world's first and only National Level institute dedicated to forensic, digital forensics, behavioural, cybersecurity, and allied sciences. With all contributions from the University and the commitment from Arishti, we want to revolutionise the cybersecurity landscape of Industries.



### 1.1 Mission :

While working through various jobs, the founders Ronak Sutariya and Hardik Tarpara found that industrial operational technology networks are not geared toward defending against cyber threats due to the shortcomings in system design. Thus, Arishti Info Labs was founded with the mission to eliminate cyber threats for IIoT/ICS/SCADA in the industrial OT environment and safeguard the industrial civilization.

Due to the lack of resources and proper security control measures, industrial control systems and information have become easy targets for hackers. Arishti Info Labs works effectively and efficiently to protect large-scale OT networks from cyberattacks as the steps taken by OT devices vendors to secure their systems and information are not enough.

## **Vision:**

Arishti Info Labs was laid with the vision of becoming the leaders in defending OT networks in ICS and SCADA setup. For that vision to become true, Arishti employs expert ICS, SCADA, and OT practitioners who have ironclad proficiency at finding the system's vulnerability through extensive audits, defend systems before cyberincidence. Our work reflects the dedication and core values we espouse as a team and as individuals. And our values help us in our journey to become a leader by addressing the cybersecurity threat landscape.

## **1.3 Services:**

- 1) Security Assessment
- 2) Vulnerability Assessment
- 3) Audit Services
- 4) Security Advisory
- 5) Security Incidence
- 6) SOC Deployment

## Chapter 2 INTRODUCTION TO INTERNSHIP

### 2.1 Internship Summery

During my internship at Arishti, I worked as a Frontend Developer, as a front-end developer intern, I worked on a variety of projects utilizing HTML, CSS, and JavaScript in the Angular CLI. I was responsible for creating and modifying web pages, designing user interfaces, and implementing front-end features.

Developing responsive and accessible user interfaces using HTML and CSS. Creating dynamic web pages and interactions using JavaScript and Angular CLI, collaborating with back-end developers to integrate front-end functionality with server-side logic.

Troubleshooting and debugging code to ensure smooth performance across different browsers and devices. Conducting testing and quality assurance to ensure the functionality and usability of the web applications,

Staying up-to-date with the latest trends and best practices in front-end development to improve the efficiency and effectiveness of my work.

Throughout my internship, I gained valuable experience in front-end development and learned how to effectively collaborate with other members of a development team. I also honed my technical skills in HTML, CSS, JavaScript, and Angular CLI, and gained a deeper understanding of web development principles and practices. Overall, my internship was a valuable learning experience and has prepared me for a successful career in front-end development.

As an intern, I used Angular CLI (Command Line Interface) to develop web applications using the Angular framework. Angular CLI is a command-line tool that helps streamline the process of creating and managing Angular projects.

Angular CLI to generate new projects, create new components, and run development and production builds. You may have also used Angular CLI to run tests and troubleshoot issues with your application. By using Angular CLI, you can streamline your development process and focus on building high-quality, scalable web applications.

## 2.2 Purpose

The purpose of my internship in front-end development is to gain practical experience and develop my skills in creating visually engaging and user-friendly websites and web applications using HTML, CSS, and JavaScript. Through your internship, I will have the opportunity to work alongside experienced developers and designers, learn about the latest web development technologies and trends, and apply your knowledge to real-world projects.

By the end of my internship, I should have a strong understanding of front-end development principles and practices, including how to develop responsive and accessible web pages, create interactive web experiences using JavaScript libraries and frameworks, and conduct testing and debugging to ensure optimal performance. I should also be able to work effectively as part of a development team, collaborating with designers, back-end developers, and project managers to deliver high-quality web applications that meet the client's requirements and specifications.

Overall, the purpose of my internship in front-end development is to prepare you for a successful career as a front-end developer by providing you with hands-on experience and practical skills that I can apply in the workplace.

The main purpose of front-end development is to provide users with a positive and seamless experience while using a web application or website. This involves creating a visually appealing and intuitive user interface that is optimized for different devices and screen sizes. Front-end developers are responsible for designing and implementing layouts, navigation, and interactive features to make the user experience smooth and enjoyable.

The purpose of my internship in front-end development is to gain practical experience and develop my skills in creating visually engaging and user-friendly websites and web applications using HTML, CSS, and JavaScript. Through your internship, I will have the opportunity to work alongside experienced developers and designers, learn about the latest web development technologies and trends, and apply your knowledge to real-world projects.

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## 2.3 Objectives

The objective of my internship in front-end development may vary depending on My personal goals and the goals of the organization. My internship should provide you with hands-on experience in front-end development and give you the opportunity to apply your knowledge to real-world projects.

I should aim to develop your skills in HTML, CSS, JavaScript, and other relevant technologies used in front-end development. Front-end development is a rapidly evolving field, and you should aim to learn about new tools and technologies used in the industry, such as Angular CLI.

My internship should give you the opportunity to work with other developers, designers, and project managers to deliver high-quality web applications. As a front-end developer, you will face many technical challenges that require creative problem-solving skills. My internship should provide you with the opportunity to develop and refine these skills.

My internship should provide with the opportunity to work on projects that I can add to My portfolio and showcase to future employers.

Overall, the objective of My internship in front-end development is to gain practical experience and develop My skills in a real-world setting. By the end of My internship, I should have a better understanding of the field of front-end development and be better prepared for a career in this field.

## 2.4 Scope

The scope of My internship in front-end development will depend on the goals and expectations of My organization and My personal objectives. However, some common areas that may be included in the scope of your internship are:

1. Development of web applications: My internship may involve the development of web applications or websites using HTML, CSS, and JavaScript. I work on both new projects and existing projects, implementing new features or making updates and improvements.
2. User experience design: My internship may involve designing user interfaces and user experiences for web applications. I work with other designers and developers to create wireframes and mock-ups, and then implement those designs using front-end development technologies.
3. Testing and debugging: My internship may involve testing and debugging web applications to ensure that they function correctly and meet user needs. I work with other developers to identify and resolve technical issues.
4. Collaboration with a team: My internship may involve working with other developers, designers, and project managers to deliver high-quality web applications. I collaborate on code reviews, project planning, and problem-solving.
5. Learning new technologies: My internship may provide opportunities to learn new front-end development technologies such as Angular CLI. I also learn about back-end development technologies and how they interact with front-end development.
6. Building a portfolio: My internship may provide opportunities to work on projects that I can add to your portfolio and showcase to future employers.

## 2.5 Technologys

Angular CLI is a command-line tool that is used for front-end development of web applications using the Angular framework. Angular CLI can be used on a variety of platforms, including:

2.5.1 Windows: Angular CLI can be installed on Windows and used with popular code editors such as VisualStudio Code, Atom, and Sublime Text.

2.5.2 macos: Angular CLI can be installed on macos and used with code editors such as Visual Studio Code,Atom, and Sublime Text.

2.5.3 Linux: Angular CLI can be installed on Linux distributions such as Ubuntu, Fedora, and CentOS, and used with code editors such as Visual Studio Code, Atom, and Sublime Text.

2.5.4 Cloud-based development environments: Angular CLI can also be used in cloud-based development environments such as AWS Cloud9 or Google Cloud Shell, which provide a virtualized development environment accessible from anywhere with an internet connection.

Overall, Angular CLI can be used on a variety of platforms and integrated with popular code editors and development environments, providing a powerful and flexible toolset for front-end development using the Angular framework.



# Chapter 3. IMPLEMENTATION

## 3.1 Implementation Platform

### Angular

Angular is a development platform, built on TypeScript. As a platform, Angular includes:

- A component-based framework for building scalable web applications
- A collection of well-integrated libraries that cover a wide variety of features, including routing, forms management, client-server communication, and more
- A suite of developer tools to help you develop, build, test, and update your code
- With Angular, you're taking advantage of a platform that can scale from single-developer projects to enterprise-level applications. Angular is designed to make updating as straightforward as possible, so take advantage of the latest developments with minimal effort. Best of all, the Angular ecosystem consists of a diverse group of over 1.7 million developers, library authors, and content creators.
- Angular is an open-source, JavaScript framework written in TypeScript. Google maintains it, and its primary purpose is to develop single-page applications. As a framework, Angular has clear advantages while also providing a standard structure for developers to work with. It enables users to create large applications in a maintainable manner.
- TypeScript defines a set of types to JavaScript, which helps users write JavaScript code that is easier to understand. All of the TypeScript code compiles with JavaScript and can run smoothly on any platform. TypeScript is not compulsory for developing an Angular application. However, it is highly recommended as it offers better syntactic structure—while making the codebase easier to understand and maintain.
- Angular uses the two-way binding. The model state reflects any changes made in the corresponding UI elements. Conversely, the UI state reflects any changes in the model state. This feature enables the framework to connect the DOM to the model data through the controller.
- AngularJS directives extend the HTML by providing it with new syntax. You can easily spot directives because they have the prefix “ng-.” Consider them markers on the DOM element, instructing AngularJS to attach a certain behavior to the element, or even change it outright.

## 3.2 TECHNOLOGY

### Git

By far, the most widely used modern version control system in the world today is Git. Git is a mature, actively maintained open source project originally developed in 2005 by Linus Torvalds, the famous creator of the Linux operating system kernel. A staggering number of software projects rely on Git for version control, including commercial projects as well as open source. Developers who have worked with Git are well represented in the pool of available software development talent and it works well on a wide range of operating systems and IDEs (Integrated Development Environments).

Having a distributed architecture, Git is an example of a DVCS (hence Distributed Version Control System). Rather than have only one single place for the full version history of the software as is common in once-popular version control systems like CVS or Subversion (also known as SVN), in Git, every developer's working copy of the code is also a repository that can contain the full history of all changes

- Git is a popular version control system designed to help developers manage and track changes to their codebase over time. It was created by Linus Torvalds in 2005 and has since become one of the most widely used tools for software development.
- At its core, Git is a distributed system, meaning that every developer working on a project has a complete copy of the codebase on their local machine. This allows developers to work on their own code without disrupting others, and makes it easy to merge changes from multiple contributors into a single codebase.
- Git also offers a range of features that make it easy to track changes to a codebase over time. For example, developers can create "commits" to record changes to their code, add comments to explain their reasoning behind those changes, and roll back to previous versions of the codebase if necessary.
- One of the key benefits of Git is its ability to handle conflicts that arise when multiple developers make changes to the same codebase at the same time. Git provides tools for merging conflicting changes, allowing developers to collaborate effectively without losing any code.

- Finally, Git also provides a range of tools for managing and sharing code with other developers. For example, developers can use Git to create "branches" that allow them to work on new features or bug fixes without disrupting the main codebase. They can also use Git to share their code with others, either by pushing changes to a central repository or by forking the codebase and creating their own version.
- Overall, Git is a powerful and flexible tool that has become an essential part of modern software development. Its ability to handle complex codebases and support collaboration makes it a must-have tool for any development team.
- The topics which I learned in Git during the internship are as follows:
  - Learned how to create the Repository, clone the Repository, Making Changes in the Repository.
  - Learned how to commit, push and Resolve Conflict while taking pull.
  - Learned how to create branch, checkout the branch, merging the branch, cherry pick, merge and rebase, stage the changes and stash the changes.

## HTML

HTML (HyperText Markup Language) is a standard markup language used to create web pages and other information that can be displayed in a web browser. It consists of a set of tags and attributes that define the structure, content, and formatting of web documents.

HTML documents are made up of a series of elements, which are enclosed in tags. Tags are composed of angle brackets (<>) and are usually paired, with a start tag and an end tag. The content of an element is placed between the start and end tags, and can include text, images, links, and other types of media.

HTML also allows for the use of attributes, which provide additional information about an element. Attributes are placed within the opening tag and can specify things like the color of text, the location of an image, or the target of a link.

HTML is essential for creating websites and is often used in conjunction with other technologies such as CSS (Cascading Style Sheets) and JavaScript to create interactive, dynamic web pages. With HTML, web developers can create well-structured and accessible web pages that can be accessed from a variety of devices and platforms.

An Angular HTML template renders a view, or user interface, in the browser, just like regular HTML, but with a lot more functionality. When you generate an Angular application with the Angular CLI, the `app.component.html` file is the default template containing placeholder HTML.

An Angular HTML template renders a view, or user interface, in the browser, just like regular HTML, but with a lot more functionality. When you generate an Angular application with the Angular CLI, the `app.component.html` file is the default template containing placeholder HTML.

## CSS

CSS (Cascading Style Sheets) is a stylesheet language used for describing the presentation of a document written in HTML or XML. CSS is used to control the visual style and layout of web pages, including fonts, colors, spacing, and more. It allows web developers to separate

CSS works by selecting HTML elements and applying styles to them. This can be done using various selectors, such as element selectors, class selectors, and ID selectors. Styles can be applied to specific elements, groups of elements, or to the entire document.

CSS provides a wide range of properties that can be used to define styles, such as font-size, color, background-color, margin, padding, border, and many others. These properties can be combined to create complex visual effects and layout designs.

CSS also supports the concept of cascading, where multiple styles can be applied to an element, with the most specific style taking precedence. This allows for a high level of control over the appearance of web pages, and makes it possible to create consistent and professional-looking designs across an entire website.

Overall, CSS is an essential tool for web developers, allowing them to create visually appealing and responsive web pages that are easy to maintain and update.

## **Bootstrap**

Bootstrap is a popular open-source front-end framework that provides a collection of tools, CSS styles, and JavaScript components to help developers quickly build responsive and mobile-first websites and web applications. It was created by Twitter and is now maintained by a large community of developers.

Bootstrap uses a grid system to define the layout of a webpage, which allows developers to create responsive designs that adapt to different screen sizes and devices. It also provides a set of pre-designed components such as buttons, forms, navigation menus, and typography, that can be easily customized and extended.

One of the main benefits of Bootstrap is that it enables developers to save time by providing a standardized set of components that can be easily integrated into their projects. It also ensures a consistent look and feel across different websites and applications, making it a great choice for web developers who want to focus on functionality rather than design.

Bootstrap is compatible with all modern web browsers and supports the latest HTML, CSS, and JavaScript standards. It also has a large community of developers and contributors who provide support, resources, and plugins to enhance its functionality and ease of use.

## Tailwind CSS

Tailwind CSS can be used to style websites in the fastest and easiest way.

Tailwind CSS is basically a utility-first CSS framework for rapidly building custom user interfaces. It is a highly customizable, low-level CSS framework that gives you all of the building blocks you need to build bespoke designs without any annoying opinionated styles you have to fight to override.

The beauty of this thing called tailwind is it doesn't impose design specifications or how your site should look, you simply bring tiny components together to construct a user interface that is unique. What Tailwind simply does is take a 'raw' CSS file, process this CSS file over a configuration file, and produces an output.

- 1) Tailwind CSS is a popular utility-first CSS framework that provides developers with a set of pre-defined CSS classes to quickly and easily style HTML content. Unlike traditional CSS frameworks, which often have pre-built components and require extensive customization, Tailwind CSS focuses on providing low-level utility classes that can be combined to create custom designs without writing any CSS code.
- 2) The framework is highly customizable and includes a comprehensive set of pre-built classes for layout, typography, color, and spacing, among other things. This allows developers to quickly prototype and iterate on designs, as well as create responsive layouts that adapt to different screen sizes.
- 3) One of the key benefits of Tailwind CSS is its flexibility. Because it provides low-level utility classes, developers can create highly customized designs without having to override default styles or deal with complex CSS specificity issues. Additionally, the framework is highly modular, making it easy to selectively include only the classes needed for a particular project.
- 4) Tailwind CSS also includes a variety of tools and plugins to further enhance its capabilities, such as a responsive design engine, a JIT (Just-In-Time) compiler that optimizes CSS output, and a growing collection of community-created plugins for additional functionality.

Overall, Tailwind CSS is a powerful and flexible CSS framework that provides developers with a modern and efficient way to style their web projects

## Javascript

JavaScript is a programming language that is commonly used to create dynamic and interactive web pages. It is a high-level language that is interpreted by browsers, which means that it is executed on the client-side, or on the user's computer, rather than on the server.

JavaScript allows web developers to add a variety of interactive features to web pages, such as drop-down menus, pop-up windows, and animations. It can also be used for more complex tasks, such as creating web-based games, building web applications, and even controlling robots and drones.

One of the key features of JavaScript is its ability to manipulate the Document Object Model (DOM), which is the programming interface for HTML and XML documents. This allows developers to dynamically change the content and appearance of web pages in response to user actions, without the need for a full page refresh.

JavaScript is a versatile and flexible language, and it can be used in a variety of environments, including web browsers, servers, and even mobile devices. It is also constantly evolving, with new features and updates being added regularly, which makes it an exciting language for developers to work with.

The topics which I learned in Javascript during the internship are as follows:

- Learned Javascript Variables, Data types, Functions, for, while, foreach loop, Array, methods, events.
- Learned Array methods, String methods, Number methods, Date methods, Regular Expression.
- Learned DOM, callback, promises, async and await.
- Learned Function Expression, function constructor, self-invoking constructor, function call, function apply, function hoisting, global variable and local variable and function closure.

## jQuery

jQuery is a fast, lightweight, and powerful JavaScript library that simplifies HTML document traversing, event handling, animating, and AJAX interactions for rapid web development. It is cross-platform compatible and can be used with any web browser that supports JavaScript.

One of the most significant advantages of jQuery is its ability to help developers create complex web applications with minimal code. jQuery provides an extensive range of functionalities for creating dynamic and interactive web pages, including DOM manipulation, event handling, and animation effects.

The library offers a wide range of features, including a CSS selector engine, which allows developers to easily select and manipulate elements within an HTML document. It also provides numerous pre-built plugins that can be used to enhance web pages with features like sliders, carousels, and tooltips.

Another key advantage of jQuery is its support for AJAX, which enables developers to create dynamic web applications that can communicate with servers asynchronously, without requiring the entire page to reload.

Overall, jQuery is an excellent tool for web developers who want to create robust, feature-rich web applications with minimal effort.

The topics which I learned in jQuery during the internship are as follows:

- Learned jQuery id and class selectors, events, hide, show, toggle, fadeIn, fadeout, jQuery DOM manipulation (text(), html(), val(), attr()).
- Learned jQuery Add elements (append(), prepend(), after(), before(), remove(), empty(), css() and iterate(\$.each())).
- Learned jQuery Traversing, Ancestors (parent(), parents(), parentUntil()), Descendants (children(), find()), filtering (first(), last(), eq(), filter(), not()).



## Typescript

TypeScript is an open-source programming language that is a superset of JavaScript. It was developed and maintained by Microsoft, and it aims to provide developers with a more robust, scalable and reliable way to write code in JavaScript.

TypeScript adds static type checking to JavaScript, allowing developers to catch errors at compile time rather than at runtime. It also includes additional features like interfaces, classes, modules, and namespaces that make it easier to organize and maintain large-scale codebases.

One of the main benefits of using TypeScript is that it helps developers catch errors early in the development process. This can save a significant amount of time and effort that would

otherwise be spent debugging code. Additionally, TypeScript can help improve the overall quality of code by making it easier to read, maintain, and understand.

TypeScript can be used in a variety of contexts, including web development, server-side applications, and mobile development. It is compatible with popular frameworks like React, Angular, and Node.js, making it a popular choice for many developers.

Overall, TypeScript is a powerful and flexible programming language that can help developers build high-quality, scalable applications with ease.

The topics which I learned in Typescript during the internship are as follows:

- Learned Typescript data types, type Annotation, Number, Number methods, String, string methods, Array, Array methods, Class, function, enum, interface, tuples, union, set, map, date.
- Learned Generic, Modules, Namespace.

## SQL

SQL stands for Structured Query Language and is a standard language used for managing and manipulating data in relational database management systems (RDBMS). It is a powerful tool for querying, updating, and retrieving data from databases.

SQL uses a set of commands to interact with the database. These commands include SELECT, INSERT, UPDATE, DELETE, CREATE, and DROP, among others. Each command is used for specific purposes, such as selecting data from a database, inserting data into a database, updating existing data, and deleting data from a database.

SQL also allows for complex queries using joins and subqueries. Joins are used to combine data from two or more tables based on a common field, while subqueries are used to retrieve data from one table that meets certain conditions specified in another table.

One of the strengths of SQL is its ability to handle large amounts of data efficiently. It also provides strong data integrity and security features to protect sensitive information.

Overall, SQL is a versatile language used by developers, data analysts, and data scientists to manage and analyze large amounts of data in a relational database environment.

The topics which I learned in SQL during the internship are as follows:

- Learned Create, alter, drop, normalization, DML (update, insert and delete).
- Learned DQL (where, comparison & logical operator, range operator, in/not operator, like, orderby, top, distinct), union, except, intersect, derived tables and Common Table Expression.
- Learned String functions, Date functions, Rankings functions, system functions.
- Learned Aggregate functions(sum, count, avg, max, min), groupby, having, rollup, select into, joins, subqueries.

Learned Views, Indexes, Stored Procedures, Exception Handling

### 3.3 Daily Task

Some of my task related to angular I create a dynamic table with the help of angular



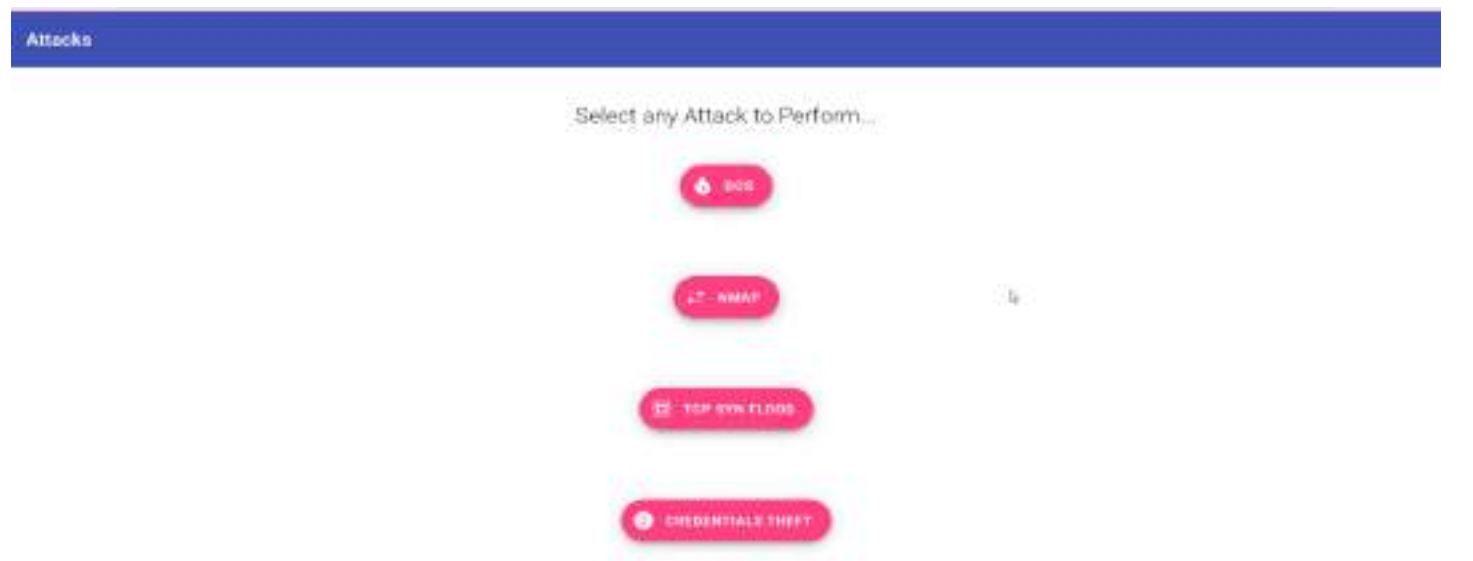
The screenshot shows a web browser window with the address bar displaying "File | C:/Users/Asus/Desktop/angular/user%20table.html/table.html". Below the browser window, there are two buttons: "Add User" and "Delete user". Below the buttons is a table with the following data:

SELECT	NAME	COUNTRY	EMAIL	DEPARTMENT	STATUS
<input type="checkbox"/>	Shivani	Germany	abc@gmail.com	web development	<div style="width: 80%;"></div>
<input type="checkbox"/>	Falguni	Mexico	xyz@gmail.com	Quality	<div style="width: 20%;"></div>
<input type="checkbox"/>	Shruti	Austria	qwe@gmail.com	web development	<div style="width: 90%;"></div>
<input type="checkbox"/>	Dhruvi	UK	fgh@gmail.com	backend Developer	<div style="width: 40%;"></div>

Login page with the help of telwin css



Create button with the help of telwind ,html,javascript



## Chapter 4. ABOUT PROJECT

### Introduction

The virtual audit is becoming popular amongst organizations due to fast advances in technology. Businesses already include high-tech strategies that permit the audit teams to receive and share data, conduct interviews, and also make observations with entities all over the world. The latest version of ISO 19011:2018, regarding the guidelines for the auditing management system, consists of new specifications for the purpose of conducting virtual audits also known as remote audits to carry out this transition to e-auditing.

Virtual audits allow consulting companies to save time by preparing documentation in advance of the set audit. Some of these positives are down to the reduced need to travel, as meetings for virtual audits can happen with participants located anytime and anywhere in the world

Virtual audits are electronic audits, done paperless without any face to face interaction between the Government and Industry. All the data are exchanged in electronic formats such as MS Excel, MS Word, PDF Files, and EDI Files. A virtual audit, also known as a remote audit, is also referred to as e-audit.

A visual audit analyzes all of your organization's design elements with the goal of ensuring your branding is consistent across all channels and outlets. This not only means taking stock of your visual design elements, but also the verbal and written components, too.

Steps often include conducting interviews, reviewing laws, policies and best practice, verifying sample transactions, analyzing data sets, and conducting surveys. Auditors meet regularly with management throughout fieldwork and discuss the status of the audit, preliminary observations, and potential recommendations.

#### **general steps of the project audit process.**

- Success Criteria Development. Run interviews with the project sponsor and project manager to determine and agree on the project's success criteria. ...
- Analysis. ...
- Reporting.

## **4.1 What Virtual-Audit Actual Do.**

Virtual audits can be conducted for a variety of purposes, including financial audits, operational audits, and compliance audits. While they may require some adjustments to traditional auditing procedures, such as ensuring the security of electronic documents and maintaining effective communication with auditees, virtual audits can be just as effective as in-person audits when conducted correctly.

Throughout the virtual audit process, the audit team must maintain clear communication with the client and ensure that all data and information is kept secure and confidential.

The virtual audit process may differ from traditional on-site audits in terms of the use of technology and remote communication, but it follows similar principles and objectives. The ultimate goal of the virtual audit is to provide assurance that the client's financial statements and internal controls are reliable and free from material misstatements.

## **4.2 Which type of Industry Used Virtual Audit**

1. Financial services: Virtual audit can be used to audit financial statements, internal controls, and regulatory compliance in banks, insurance companies, and other financial institutions.
2. Healthcare: Virtual audit can be used to audit healthcare organizations for compliance with regulations such as HIPAA, as well as to assess the effectiveness of internal controls and financial reporting.
3. Manufacturing: Virtual audit can be used to audit manufacturing companies for compliance with regulations such as SOX, as well as to assess the effectiveness of internal controls and financial reporting.
4. Technology: Virtual audit can be used to audit technology companies for compliance with regulations such as GDPR, as well as to assess the effectiveness of internal controls and financial reporting.
5. Energy and utilities: Virtual audit can be used to audit energy and utilities companies for compliance with regulations such as FERC, as well as to assess the effectiveness of internal controls and financial reporting.
6. Retail and consumer goods: Virtual audit can be used to audit retail and consumer goods companies for compliance with regulations such as FCPA, as well as to assess the effectiveness of internal controls and financial reporting.

### 4.3 Project Working

Firstly, the audit team plans the audit by defining the scope, objectives, and risks of the audit. They also determine the resources required for the audit, such as specialized software and communication tools.

Next, the audit team communicates with the client to gather information and documents necessary for the audit. This communication can take place through various means such as email, video conferencing, or online collaboration tools.

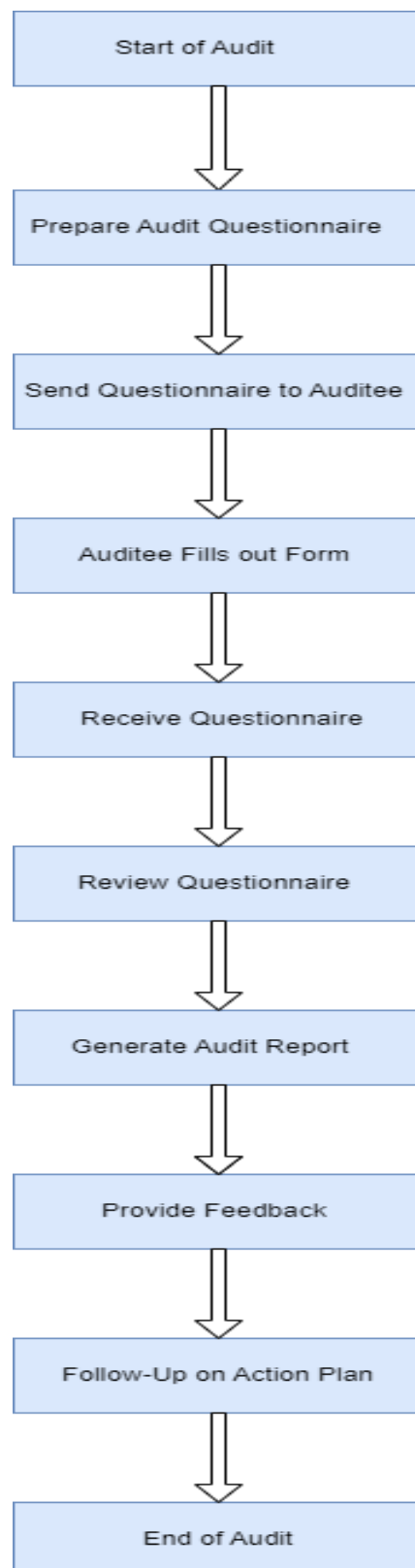
Once the audit team has gathered the necessary information, they review and analyse it to assess the effectiveness of the client's internal controls and financial reporting. This can involve analysing financial records, policies, and procedures, as well as conducting tests and data analysis.

Throughout the virtual audit process, the audit team must maintain clear communication with the client to ensure that all information is accurate and complete. They must also ensure that all data and information is kept secure and confidential.

After completing the analysis and assessment, the audit team prepares a report summarizing their findings and recommendations for improvement. The report is shared with the client and any other stakeholders, such as regulators or investors, as required.

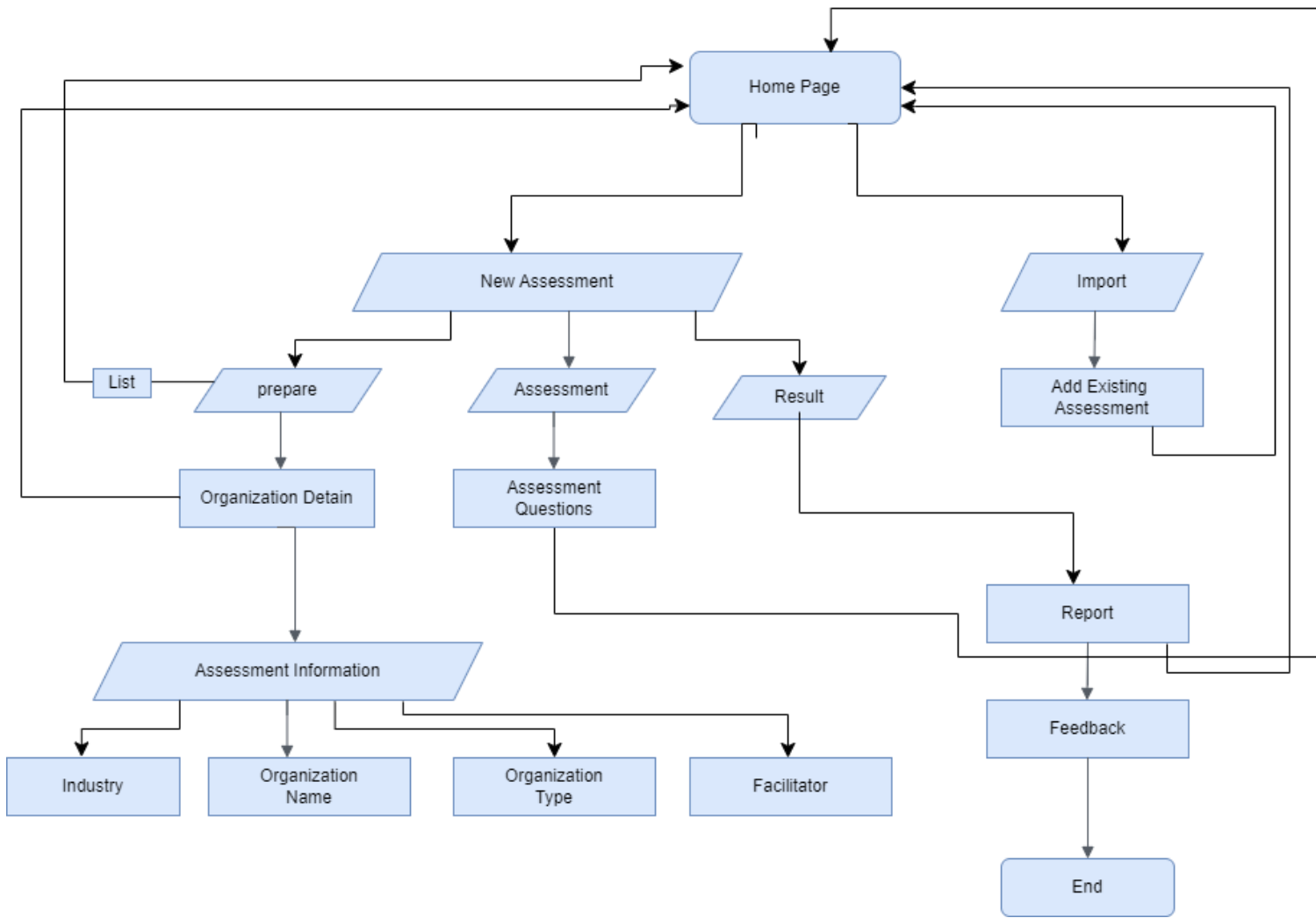
Overall, virtual audit allows for greater efficiency and flexibility in the audit process, while maintaining the same high standards of audit quality as traditional on-site audits. By utilizing technology to facilitate communication and data analysis, virtual audit can save time and resources, and provide valuable insights for clients.

## Activity Diagram





# UseCase Diagram



## 4.4 Importances of Virtual Audit

Virtual audits are becoming increasingly important in today's digital age as they offer many benefits to organizations. Here are some of the key reasons why virtual audits are important:

-Improved efficiency: Virtual audits can save time and reduce the costs associated with an on-site audit. This is because virtual audits can be conducted remotely, without the need for auditors to travel to the site.

-Increased accessibility: Virtual audits can provide auditors with access to remote or hard-to-reach locations that might otherwise be difficult to visit.

-Greater flexibility: Virtual audits can be conducted at any time, from anywhere, which can be especially beneficial for companies that operate globally or have multiple locations.

-Enhanced accuracy: Virtual audits allow auditors to examine records and data in real-time, which can improve the accuracy of the audit findings.

-Improved data security: Virtual audits can help improve data security by using secure digital tools and technologies to conduct the audit.

-Increased transparency: Virtual audits can be recorded and documented, providing a clear record of the audit process and findings.

-Reduced environmental impact: Virtual audits reduce the carbon footprint associated with travel and transportation, making them a more environmentally friendly option.

-Overall, virtual audits are an important tool for organizations to assess their operations, risks, and controls in an efficient, secure, and transparent manner. By leveraging digital tools and technologies, virtual audits can help organizations achieve their audit objectives while reducing costs, saving time, and improving accuracy.

## 4.5 Rules of virtual Audit

A virtual audit follows the same principles as an on-site audit, but it's conducted remotely. Here are some general rules to follow for a successful virtual audit:

1. **Communication:** Communication is crucial during a virtual audit. Ensure that you and the auditor have a clear understanding of the scope of the audit and the audit objectives.
2. **Technology:** Ensure that you have the right technology in place to support the virtual audit.
3. **Documentation:** Make sure that all relevant documents are accessible to the auditor. You may need to provide access to your document management system or create a secure folder for the auditor to access.
4. **Preparation:** Prepare thoroughly for the audit by conducting a self-assessment and identifying any potential gaps. Address any gaps before the audit to reduce the risk of findings.
5. **Cooperation:** Cooperate fully with the auditor throughout the audit process. Respond promptly to requests for information, be transparent about your processes, and provide access to relevant personnel.
6. **Follow-up:** Once the audit is complete, review the findings with the auditor and develop an action plan to address any issues identified. Follow up with the auditor to ensure that the corrective actions have been implemented.

## 4.6 Principles of Virtual Audit

Assuming you're referring to the principles of virtual learning or virtual education, here are some key principles that can be applied to virtual learning environments:

**Accessibility:** Ensure that all learners have equal access to learning materials, technology, and support services regardless of their physical location, abilities, or circumstances.

**Engagement:** Keep learners engaged and motivated by using a variety of interactive learning activities and methods that cater to different learning styles.

**Flexibility:** Allow learners to progress at their own pace and provide them with opportunities for self-directed learning. Accommodate different schedules and time zones.

**Collaboration:** Encourage collaboration among learners through discussion forums, group assignments, and peer-to-peer feedback. Foster a sense of community and belonging.

**Feedback:** Provide learners with timely and constructive feedback on their progress and performance. Use assessments

and evaluation tools to measure learning outcomes.

**Quality:** Maintain high-quality standards for course design, delivery, and assessment. Continuously evaluate and improve the virtual learning environment to ensure that it meets the needs of learners.

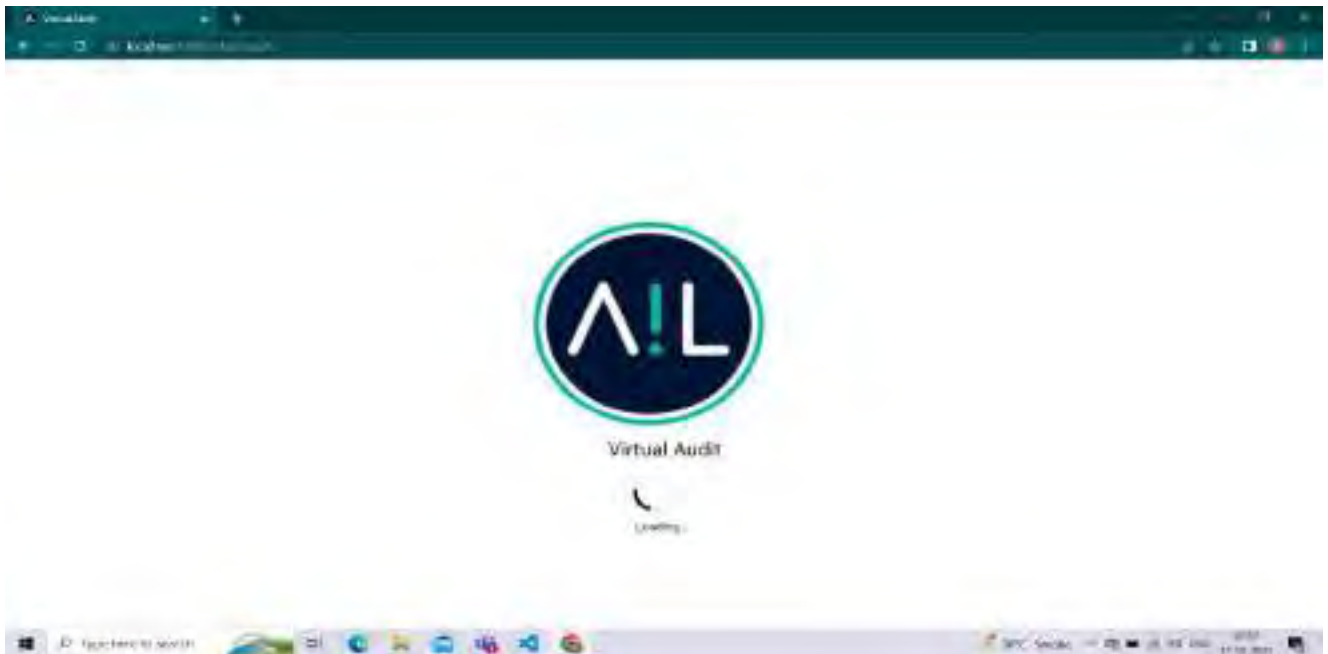
**Support:** Provide learners with access to technical support, academic support, and counselling services as needed. Ensure that learners have the resources they need to succeed in the virtual learning environment.

## Chapter 5. WORKING

### 5.1 Login page

A login screen is a web page or an entry page to a web/mobile application that requires user identification and authentication, regularly performed by entering a username and password combination.

This is the first page of the system from where user can login to the system



In this page user need to login by their ID and Password to enter in the System

## 5.2 My Assessment page:

In this page after the user login they have to fill details in the Assessment page

User need to fill whole details about their company in this assessment so that the company will register in the system



Virtual-audit Home Assessment Library Help Logout

### My Assessments

[New Assessment](#) [Export](#)

Assessment Name	Assessment Type	Last Available	Primary Assessment	Status
new Assessment		07-mar-2023		Block status
20220 Assessment	123	08-mar-2023		Block status
20200 Assessment		08-mar-2023	123	Block status
2021 Assessment	234	15-mar-2023	123	Block status
2022 Assessment	234		123	Block status
2023 Assessment	234	15-mar-2023	123	Block status

[Remove](#) [Export](#) [Analysis](#)

### 5.3 Assessment Information page :

Assessment Information page is used to write some basic information of the company like from which sector ,industry name ,organization name etc.

#### Assessment Information

**Demographics**

Sector  Industry

What is the gross value of the services you are trying to protect?

What is the revenue expected after this assessment?

Name of Organization

Company URL/Website

Organization Type

## 5.4 Assignment Configuration page

In this user need to fill about there organization detail from with the the system generate the questions related to the given detail by the user of there compony

**Assessment Configuration**

**Organization Details**

Assessment Name  Assessment Date

Facility Name

City Or Site Name  State/Country/Region

**Assessment Categories**

Select the category that will be used to perform this assessment. Each category can be expanded for additional information.

<input type="checkbox"/> Cybersecurity Assessment Module	View	...
<input type="checkbox"/> Standard Based Assessment	View	...
<input type="checkbox"/> Network Diagram	View	...

Add detail page from were question generate





## 5.5 result graph

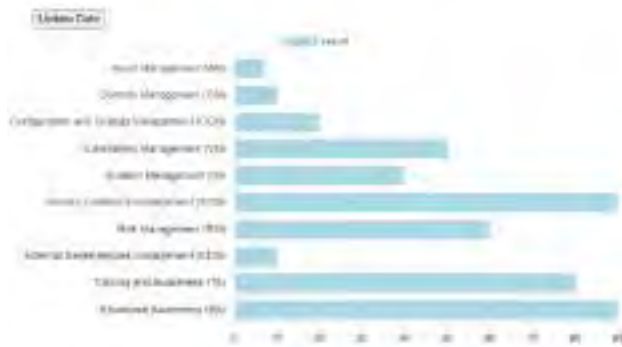
In this at the end of the audit the system generated report related to the questions attemped by the system and the system analys the question and generate the report for the same.

In the below there are two graph which gives the final result of the audit.

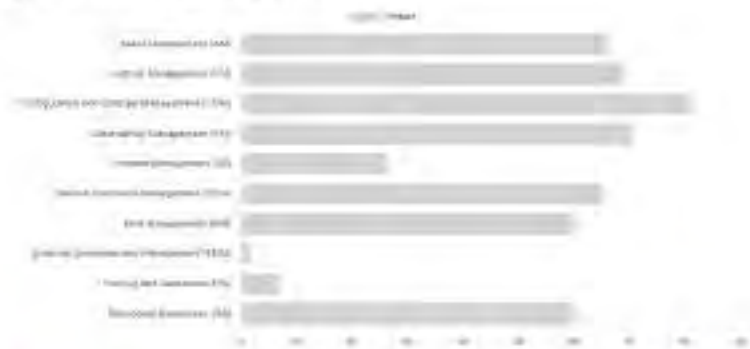
## Summary Results

### Summary of CSR Results

#### Maturity Indicator Level By Domain



#### Percentage of Practices Completed by Domain

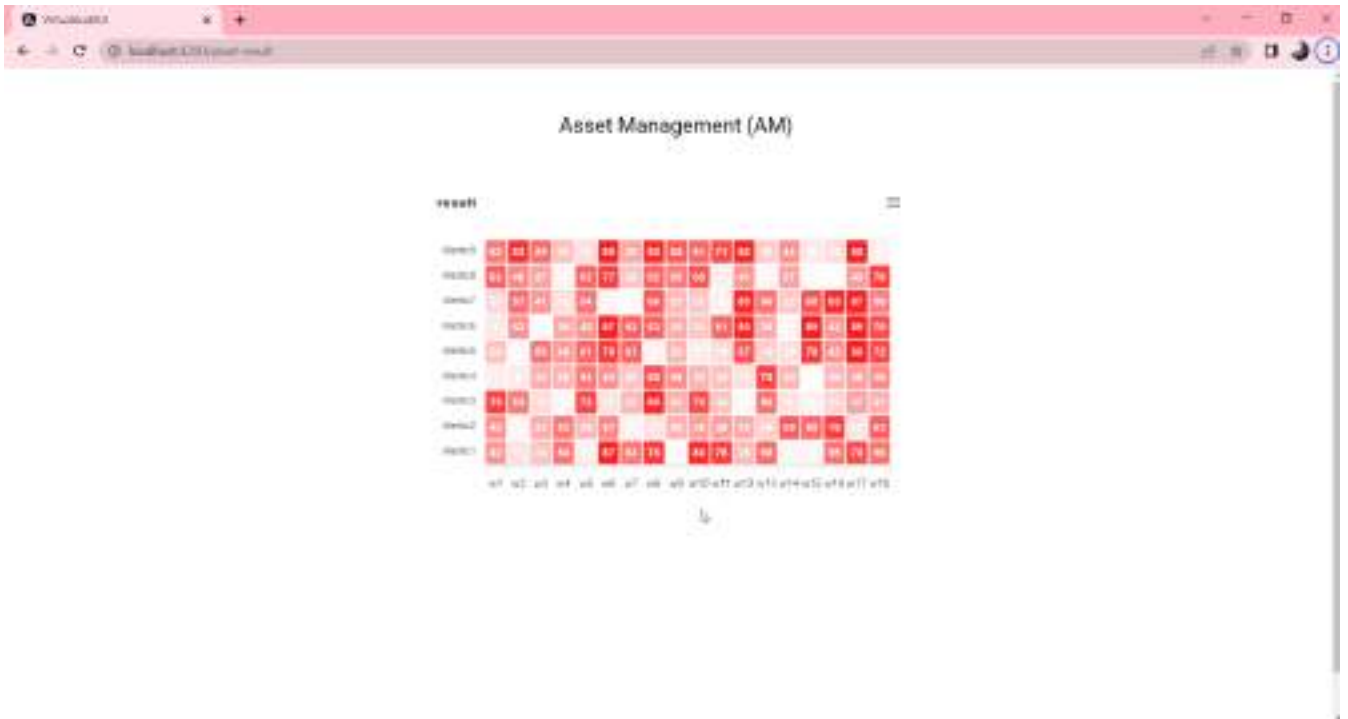


Back

Next

## 5.6 graph Report

In the graph report they show the remaining questions and the not attempted question and attempted question in the form of graph



# CHAPTER 6:- TESTING

## 6.1 TESTING STRATEGY:

Once source code has been generated, software must be tested to uncover as many errors as possible before delivery to customers. Your goal is to design a series of test cases that have a high likelihood of finding errors. Software testing techniques provide systematic guidance for designing tests that

- Exercise the internal logic of software components
- Exercise the inputs and outputs domains of the program to uncover errors in program function, behavior, and performance.

During early stages of testing, a software engineer performs all tests. However, as the testing process progresses, testing specialists may become involved. Reviews and other activities can and do uncover errors, but they are not sufficient. Every time the program is executed, the customer tests it! Therefore, you must execute the program before it gets to the customer with the specific intent of finding and removing all errors. To find the highest possible number of errors, tests must be conducted systematically, and test cases must be designed using disciplined techniques.

### Testing Objectives

- Testing is a process of executing a program with the intention of finding an error.
- A good test case is one that has a high probability of finding an as-yet undiscovered error.
- A successful test is one that uncovers an as-yet undiscovered error.

### Unit Testing

Unit testing is a software development process in which the smallest testable part of an application, called units, is individually scrutinized for proper operation. Unit testing is often automated, but it can also be done manually. This testing mode is a component of Extreme Programming (XP), a pragmatic method of software development that takes a meticulous

approach to building a product by means of continual testing and revision.

Unit testing involves only those characteristics that are vital to the performance of the unit under test. This encourages developers to modify the source code without immediate concerns about how such changes might affect the functioning of the units or the program. Once all the units in a program have been found to be working in the most efficient and error free manner possible, larger components of the program can be evaluated by means of integration testing.

### **Sub System Testing**

After testing each unit, we move on to larger units called sub systems. In subsystem testing we tested the whole Add-on as one system and App as another system. We tested each subsystem and got successful results. We found no error or bug after the final test.

### **System Testing**

Now, it's time for whole System testing. We have found many cosmetic bugs and minor bugs. We have fixed it and again tested it. We worked on each error and exception that

### **Recovery Testing**

It is a system test that forces the software to fail in a variety of ways and verifies that recovery is properly performed.

### **Security Testing**

It attempts to verify that protection mechanisms built into a system will, in fact, protect it from improper penetration.

### **Performance Testing**

It is designed to test the run-time performance of software within the context of an integrated system performance testing occurs throughout all steps in the testing process.

## **CHAPTER 7:- CONCLUSION AND DISCUSSION**

### **7.1 Overall Review of the Internship work:**

This internship will be a very important part of my professional journey as it will be a transitioning step for me from student life to professional life. It has given me insight into how to behave in the professional world and how to make sure that you are running behind in any scenarios like learning new skills or taking the lead.

The main purpose of front-end development is to provide users with a positive and seamless experience while using a web application or website. This involves creating a visually appealing and intuitive user interface that is optimized for different devices and screen sizes. Front-end developers are responsible for designing and implementing layouts, navigation, and interactive features to make the user experience smooth and enjoyable.

Another important purpose of front-end development is to ensure that the website or web application is accessible to all users, including those with disabilities. Front-end developers must adhere to accessibility guidelines and best practices to ensure that users can access and use the web application without any barriers.

### **7.2 Summary of the internship work:**

During my internship at Arishti, I worked as a Frontend Developer, as a front-end developer intern, I worked on a variety of projects utilizing HTML, CSS, and JavaScript in the Angular CLI. I was responsible for creating and modifying web pages, designing user interfaces, and implementing front-end features.

Developing responsive and accessible user interfaces using HTML and CSS. Creating dynamic web pages and interactions using JavaScript and Angular CLI, collaborating with back-end developers to integrate front-end functionality with server-side logic.

Troubleshooting and debugging code to ensure smooth performance across different browsers and devices. Conducting testing and quality assurance to ensure the functionality and usability of the web applications,

Staying up-to-date with the latest trends and best practices in front-end development to improve the efficiency and effectiveness of my work.

Throughout my internship, I gained valuable experience in front-end development and learned how to effectively collaborate with other members of a development team. I also honed my technical skills in HTML, CSS, JavaScript, and Angular CLI, and gained a deeper understanding of web development principles and practices. Overall, my internship was a valuable learning experience and has prepared me for a successful career in front-end development.

As an intern, I used Angular CLI (Command Line Interface) to develop web applications using the Angular framework. Angular CLI is a command-line tool that helps streamline the process of creating and managing Angular projects.

Angular CLI to generate new projects, create new components, and run development and production builds. You may have also used Angular CLI to run tests and troubleshoot issues with your application. By using Angular CLI, you can streamline your development process and focus on building high-quality, scalable web applications.

## ANNEXURE 2



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Annexure 2

Feedback Form by Industry expert

Student Name: Shrutī Gajjar

Date:

Work Supervisor: Mr. Divyang Mistry

Title: Senior Software Developer

Company/Organization: Amishi Infolabs

Enrollment No: 200390102502

Internship Address: MBP, Sec-2, Shivarni 407 Bldh Dada Bhagwan, with  
Mataji, Gandhinagar, Gujarat

Dates of Internship: From 1-Feb-2023 to 10-May-2023

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs Improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives		✓		
Produces high quality work and accepts responsibility	✓			
Uses technical knowledge and expertise		✓		
Analyzes problems effectively	✓			
Communicates well and writes effectively	✓			

Overall performance of student intern: (Needs Improvement/ Satisfactory/Good/Excellent)

Satisfactory

Additional comments, if any:

Signature of Industry person with name and Stamp:



Signature of the Faculty Mentor



# ANNEXURE 1



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Annexure 1

Enrollment no:

200340103602

## STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: GAJJAR SHRUTI RAJESH

DIARY OF THE WEEK: Dt: 1/2/23 TO 6/2/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Arishi Info Labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

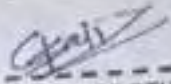
### DESCRIPTION OF THE WORK DONE IN BRIEF

- Explore languages in detail which is used for developing application like Python, Java, PHP, Angular.
- Angular installation and performing programs.
- Explore github CLI and learn to make repository.
- Try several commands in github.

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TOTAL HOURS: 43

  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor



Date: 18.5.2023

Signature of officer-in-charge  
of Dept. / Section / Plant



Date:

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:

200390103502

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: GAJJAR SHRUTI RAJESH

DIARY OF THE WEEK: DE: 8/2/23 TO 13/2/23

DEPARTMENT: Computer Engineering SEM: 8th

NAME OF THE ORGANISATION: ARISHTI INFO LAB

NAME OF THE PLANT/SECTION/DEPARTMENT: SOFTWARE DEVELOPER

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: DIWANG MISTRY

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Explore Javascript Language
- Learning Variables, Datatypes etc...
- Create ~~Table~~ User Table in Visual Studio with the help of CSS, HTML, JavaScript
- Setup Angular CLI
- Learn to create project in Angular



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TOTAL HOURS: -----

43

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SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Date: 18-3-2023

Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

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Annexure I

Enrollment no:

200390103502

## STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: GAJJAR SHRUTI RAJESH.

DIARY OF THE WEEK: Dt: 23/2/23 to 28/2/23

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Aishini Info Labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Dinang Mishra

### DESCRIPTION OF THE WORK DONE IN BRIEF

- In this week I learn to create Project in Angular "Tour of Heroes"
- In this Project I create different Components.
- Use CSS, HTML and Javascript to generate code
- Apply different APIs.



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TOTAL HOURS: -----

43

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Signature of Faculty Mentor

Date: 18-3-2023

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Annexure I

Enrollment no:

200390107502

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: GAJJAR SHRUTI RAJESH

DIARY OF THE WEEK: Dt: 1/3/23 to 6/3/23

DEPARTMENT: COMPUTER SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: Arishi Info Labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- In this week I create Live project with the help of Guide
- I create frontend in Live project with the help of Angular
- Using CSS, HTML and Javascript Code.





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TOTAL HOURS: -----

43

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SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD /  GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Date: 18-5-2023

Signature of officer-in-charge  
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Date:

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Annexure I

Enrollment no:

200390109502

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: GAJJAR SHRUTI RAJESH  
DIARY OF THE WEEK: Dt: 9/3/23 to 14/3/23  
DEPARTMENT: Computer SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Avishi Info Labs  
NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mistry

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- In this week I working from Home from 9/3/23 to 11/3/23
- on 13/3/23 I started Creating Live Project on 'virtual audit'
- In this Project I am creating a frontend in a team



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TOTAL HOURS: -----

43

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SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Date: 16-3-2023

Signature of officer-in-charge  
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Date:

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Annexure I

Enrollment no:

200390107502

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: GAJJAR SHRUTI RAJESH

DIARY OF THE WEEK: Dt: 15/3/23 to 2/3/23

DEPARTMENT: COMPUTER SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Aashli Info Labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- In this week I am working on the Live Project
- My Seniors guide me and explain me the whole Project
- I Created a Page which contain the whole Information of the Company or Company Detail.

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TOTAL HOURS: 43

[Signature]  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date: 8/5/23

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date: 5/5/23

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Annexure 1

Enrollment no:

200296107502

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: CHAGAR SURVI PATEL

DIARY OF THE WEEK: Dt: 23/3/23 TO 29/3/23

DEPARTMENT: Computer SEM: 8th

NAME OF THE ORGANISATION: Arishi Info Labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

DESCRIPTION OF THE WORK DONE IN BRIEF

→ In this week I completed that  
Detail: Information Pages of the  
Project

→ Learn Basic Javascript Datatypes  
and variables.

→ Create result Page for the virtual  
Audit System.

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TOTAL HOURS: 43

[Signature]  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date: 8/5/23

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date: 5/5/23

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Annexure I

Enrollment no:

200390107502

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: GAJJAR SHRUTI RAJESH

DIARY OF THE WEEK: DATE 4/23 TO 6/4/23

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Nishit Judo Labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyang Mistry

DESCRIPTION OF THE WORK DONE IN BRIEF

- In this week I worked on a Dynamic Pages
- The Page I created in a static form I converted it to Dynamic
- I create this Dynamic Page in Javascript with the help of Angular



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TOTAL HOURS: 43

[Signature]  
SIGNATURE OF STUDENT

⊙ The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date: 8/5/23

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date: 5/5/23

⊙ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no.

200390107502

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: GAJJAR SHRUTI RAJESH

DIARY OF THE WEEK: Dt: 6/4/23 TO 12/4/23

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Amish Inks Labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

DESCRIPTION OF THE WORK DONE IN BRIEF

→ In this Intern I Created the result Page in my Project which shows the whole result in Graph

→ In this I used Type Script and HTML to make the Page Dynamic

→ And we also Discuss So questions about our Project

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TOTAL HOURS: 43

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Date: 8/5/23

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Annexure I

Enrollment no:

200290107502

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: CHAZAR SHRUTI RAJESH

DIARY OF THE WEEK: Dt: 13/4/23 TO 19/4/23

DEPARTMENT: Computer SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Aashiti Info Labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

DESCRIPTION OF THE WORK DONE IN BRIEF

- In this Intern I work on the report page
- This page shows the report about the Question and Attempt on it
- In Previous Intern me and my seniors discuss about the Question for the same.

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TOTAL HOURS: 43

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Signature of Faculty Mentor

[Signature]

Date: 8/5/23

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Associate I

Enrollment no.

208200103502

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: GUPTA SHRUTI RAJESH

DIARY OF THE WEEK: D: 20/4/23 TO 26/4/23

DEPARTMENT: Computer SEM

NAME OF THE ORGANISATION: Asstnt Info labs

NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Nivang Mishra

DESCRIPTION OF THE WORK DONE IN BRIEF

- In this week I discuss the whole project with my Co-Partner in the project
- We Merge the Pages that we both created individually
- We merge the Pages with the help of Git.

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TOTAL HOURS: 43

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Date: 8/5/23

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Annexure 1

Enrollment no:

200390107502

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: GAJJAR SHRUTI RAJESH  
DIARY OF THE WEEK: Dt: 23/4/23 TO 3/5/23  
DEPARTMENT: Computer SEM: 5th  
NAME OF THE ORGANISATION: Azishi Info Labs  
NAME OF THE PLANT/SECTION/DEPARTMENT: Software Development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Divyanshu Mishra

DESCRIPTION OF THE WORK DONE IN BRIEF

- In this week I merge all the pages in the sequence
- I used Git the Git merge the following pages and arrange it



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TOTAL HOURS: -----

43

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SIGNATURE OF STUDENT

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Signature of Faculty Mentor



Date: 8/5/23

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Date: 5/5/23

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# BIBLIOGRAPHY

## Website References

1. <https://www.w3schools.com/>
2. <https://tailwindcss.com/>
3. <https://jquery.com/>
4. <https://getbootstrap.com/>
5. <https://angular/>
6. <https://git-scm.com/>
7. <https://www.typescriptlang.org/>





**INTERNSHIP AT INFOLABZ IT SERVICES PVT.  
LTD.**

**AN INTERNSHIP REPORT**

*Submitted by*

**Mahera Gaurav Ashokkumar**

**200390107030**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at InfoLabz IT Services Pvt. Ltd.** has been carried out by **Mahera Gaurav Ashokkumar** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | AI

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390107090  
Semester: 7<sup>th</sup>, Computer Engineering  
Saffron Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Mahesh Gourav Ashokkumar.

In this internship tenure, we have covered the fundamentals of JS And ESS. We have also worked on the React framework along with API integration and developed an API-based React application.

We wish Mahesh Gourav Ashokkumar all the best for future endeavors.



Ms. Twinkle Shah  
Internship Coordinator  
InfoLabz, Ahmedabad



+91 8888822662  
+91 8141226662



info@infolabz.in  
www.infolabz.in



405 1st Floor, Above SANSI Plaza  
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Ahmedabad, Gujarat 380016



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at InfoLabz IT Services Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. FirstName LastName & FirstName LastName (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Mahera Gaurav Ashokkumar**

\_\_\_\_\_



## **ACKNOWLEDGMENT**

I'd like to express my deep appreciation for everyone who played a pivotal role in the successful completion of my dynamic web development project during my internship.

I owe a special debt of gratitude to Mr. Chintan Nagrecha for his invaluable guidance and mentorship throughout the project. His insights and support were crucial in shaping the project's trajectory.

I also want to acknowledge the InfoLabz IT Services Pvt. Ltd. team for providing a welcoming environment and the chance to work alongside experienced professionals. Their collaborative spirit and insights significantly enriched my learning experience.

I'm thankful to my fellow interns and colleagues for their camaraderie and willingness to share knowledge, both of which were instrumental in the project's success.

Lastly, I extend my heartfelt gratitude to my family and friends for their unwavering support throughout this journey.

Thank you all for your indispensable contributions

Sincerely,

Gaurav Mahera

## **Abstract**

This Report provides a detailed overview of the tasks undertaken by the author during his internship at InfoLabz IT Services Pvt. Ltd. It outlines the work performed by the author within the company over the course of the internship. The report delves into the production process, covering the manufacturing phases and assembly procedures of the machines. Additionally, the report explores the organizational structure of the company, including a breakdown of each department and their respective functions. It also highlights the knowledge and skills the author acquired during the internship period.

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# **Chapter 1. INTRODUCTION**

## **1.1 COMPANY PROFILE:**

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make it's own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard working developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concept which could be used by millions of people.

## **1.2 MISSION AND VISION OF THE COMPANY:**

Mission:

Our mission is to deliver best-in-class services with top-notch quality.

Vision:

Our vision is to sustain the exponential growth of the IT industry.

# Chapter 2. INTERNSHIP NOTES AND TASKS

## 2.1 INTRODUCTION TO JS AND ES6 WEEK 1: 27 JULY 2023

JS:

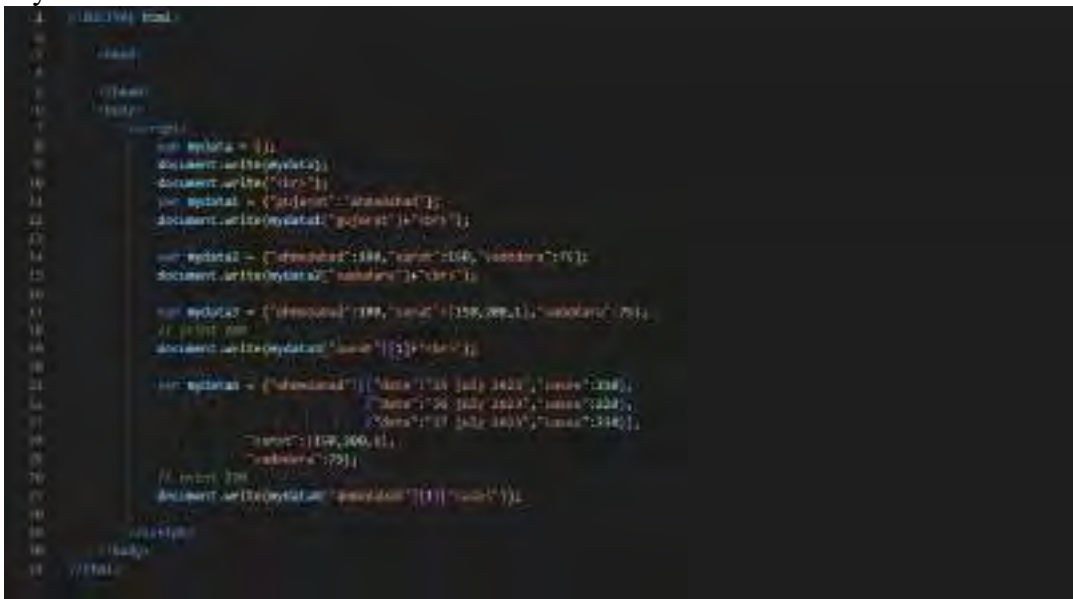
JavaScript is a dynamic programming language that is integral to modern web development. It functions within user browsers to enhance the development of interactive and responsive websites. JavaScript allows developers to manage user interactions, update information in real-time, and build fluid web applications by altering the DOM of web pages. Initially focused on client-side development, JavaScript has expanded its reach to include server-side settings and other domains, solidifying its role as a key driver of web innovation.

ES6:

ES6 can be thought of as an upgrade to JavaScript. It introduced new programming concepts, such as using "let" and "const" for more effective data storage. Additionally, it brought in classes for structured coding and arrow functions for concise function definition.

ES6 was designed to better handle asynchronous operations like loading images, making it easier to manage such tasks. It also made array manipulation simpler with the "..." spread/rest syntax and improved code readability through template literals.

In essence, ES6 acts as a booster for JavaScript, enhancing its capabilities, readability, and ability to execute more advanced tasks.



```
1 // Basic JS
2
3 // Global
4
5 // Local
6
7 // Example
8
9 var myData = {};
10 document.write(myData);
11 document.write("100");
12
13 var myData = {"name": "John", "age": 30};
14 document.write(myData["age"]); // 30
15
16 var myData = [{"name": "John", "age": 30}, {"name": "Jane", "age": 25}];
17 document.write(myData[0].name); // John
18
19 var myData = [{"name": "John", "age": 30}, {"name": "Jane", "age": 25}];
20 // console.log
21 document.write(myData[0].name); // John
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999 // Local
1000 // Example
```

Fig 2.1: Basic JS



Fig 2.2: Applying data into table

## 2.2 FUNCTIONS WEEK 1: 27 JULY 2023

JS Functions:

Functions are small programs that can be reused multiple times without needing to write fresh code. You can supply them with some input, let them perform their operations, and receive outcomes. Functions come in handy when working with numbers, analyzing data, or manipulating web pages.



Fig 2.3: Functions

### Arrow Functions:

Arrow functions provide a succinct and contemporary method for defining functions in JavaScript. They introduce a more compact syntax that leads to shorter and clearer code. By using arrow functions, you can create functions using fewer characters, minimizing the reliance on the conventional function syntax.

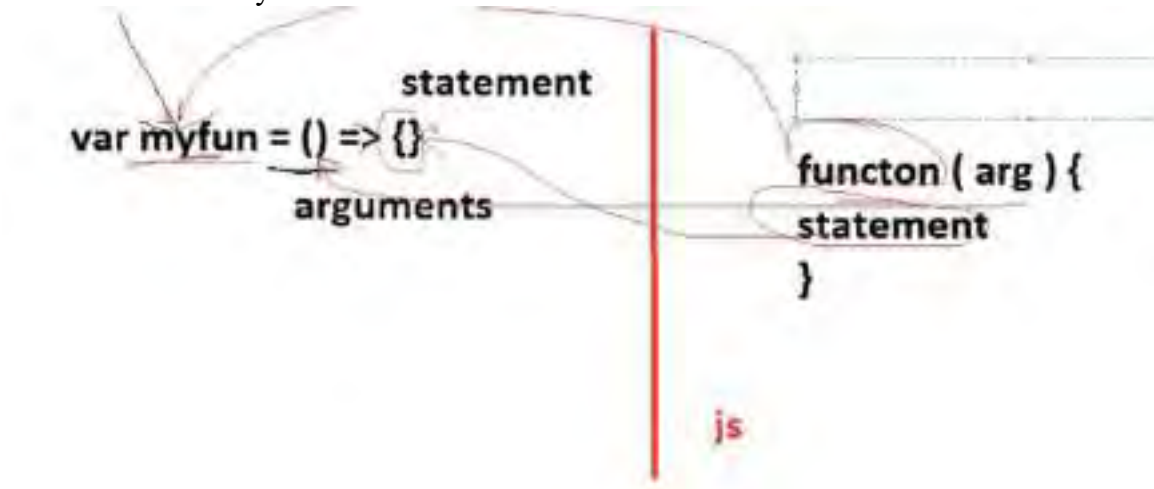


Fig 2.4: Function Argument Explanation

```
1 // ...
2 // ...
3 // ...
4 // ...
5 // ...
6 // ...
7 // ...
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9 // ...
10 // ...
11 // ...
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89 // ...
90 // ...
91 // ...
92 // ...
93 // ...
94 // ...
95 // ...
96 // ...
97 // ...
98 // ...
99 // ...
100 // ...
```

Fig 2.5: Function with argument

### Async Function:

Handling asynchronous tasks in the evolving landscape of JavaScript programming is crucial yet challenging. The introduction of async functions has transformed the way developers manage time-intensive operations such as fetching data from servers or handling user interactions.

Async functions allow asynchronous code to be written in a neater and more structured manner, resembling synchronous code. This breakthrough in avoiding callback hell and nested callbacks is made possible by the 'await' keyword, which pauses the function until a promise is resolved, and the 'async' keyword, which indicates that a function will run asynchronously.



```

1 <!DOCTYPE html>
2 <html>
3 <head>
4 </head>
5 <body>
6 </body>
7 <script>
8   async function loadBTC() {
9     let url = "https://api.coindesk.com/v1/bpi/historical/btc/";
10    let myObject = await (await fetch(url)).json();
11    document.write(myObject["time"]["rate"]);
12  }
13  load();
14 </script>
15 </html>

```

Fig 2.6: Async Function

```

{"time":{"updated":"Jul 28, 2023 08:19:00 UTC","updatedISO":"2023-07-28T08:19:00+00:00","updateduk":"Jul 28, 2023 at 09:19 BST"},"disclaimer":"This data was produced from the CoinDesk Bitcoin Price Index (USD). Non-USD currency data converted using hourly conversion rate from openexchangerates.org","chartName":"Bitcoin","bpi":{"USD":{"code":"USD","symbol":"$","rate":"29,156.7282","description":"United States Dollar","rate_float":29156.7282},"GBP":{"code":"GBP","symbol":"£","rate":"24,363.1289","description":"British Pound Sterling","rate_float":24363.1289},"EUR":{"code":"EUR","symbol":"€","rate":"28,402.9102","description":"Euro","rate_float":28402.9102}}}

```

Fig 2.7: API

## 2.3 COVID API WEEK 1: 31 JULY 2023

Data Fetching, Conditional data fetching and Mapping

```

1 <!DOCTYPE html>
2 <html>
3 <head>
4 </head>
5 <body>
6 </body>
7 <script>
8   async function load() {
9     let url = "https://data.covid19india.org/Data/State";
10    let myObject = await (await fetch(url)).json();
11    let obj = {};
12    document.write(myObject["total number of cases"]);
13    document.write(myObject["total number of deaths"]);
14    for (let i = 0; i < myObject["states"].length; i++) {
15      let state = myObject["states"][i];
16      let stateObj = {};
17      stateObj["state"] = state["state"];
18      stateObj["total number of cases"] = state["total number of cases"];
19      stateObj["total number of deaths"] = state["total number of deaths"];
20      stateObj["total number of recoveries"] = state["total number of recoveries"];
21      obj[state["state"]] = stateObj;
22    }
23    document.write(obj);
24    document.write("total number of cases with more than 1 lac cases:");
25  }
26  load();
27 </script>
28 </html>

```

Fig 2.8: Data Fetching and Mapping

## User Input 1: JS Pop Up Boxes Alert

```
1 <script src="js.html">
2   <body>
3     </body>
4   </body>
5   <script>
6     alert("Your message has been submitted successfully.");
7   </script>
8 </script>
9 </html>
```

Fig 2.9: Alert

## Confirm

```
1 <script src="js.html">
2   <body>
3     </body>
4   </body>
5   <script>
6     var x = confirm("Are you sure you want to book this ticket?");
7     if(x=true){
8       alert("Your ticket has been booked!");
9     }
10    else if(x=false){
11      alert("Ticket booking cancelled!");
12    }
13  </script>
14 </script>
15 </html>
```

Fig 2.10: Confirm

## Prompt

```
1 <script src="js.html">
2   <body>
3     </body>
4   </body>
5   <script>
6     var x = prompt("Enter number of tickets : ");
7     if(isNaN(x)){
8       alert("Booking cancelled!");
9     }
10    else if(x==""){
11      alert("You entered nothing!");
12    }
13    else {
14      alert(" booked for " + x + " tickets");
15    }
16  </script>
17 </script>
18 </html>
```

Fig 2.11: Prompt

## User Input 2: Form to Variable

```
1 <script src="js.html">
2   <body>
3     </body>
4   </body>
5   <script>
6     function checkForm()
7     {
8       var name = form.userName.value;
9       var surname = form.surName.value;
10      if (name && surname && !isNaN(parseInt(name)) && !isNaN(parseInt(surname)))
11      {
12        document.getElementById("msg").innerHTML = " surname is " + surname + " surname is " + surname;
13      }
14      else {
15        name = document.getElementById("name").value;
16        surname = document.getElementById("surname").value;
17        if (name && surname && !isNaN(parseInt(name)) && !isNaN(parseInt(surname)))
18        {
19          document.getElementById("msg").innerHTML = " surname is " + surname + " surname is " + surname;
20        }
21      }
22    }
23  </script>
24 </html>
```

Fig 2.12: Form to Variable



## 2.5 Assignment

### WEEK 1: 2 AUGUST 2023

#### COVID DATA CHECK

API: <https://data.covid19india.org/data.json>

- Allow user to input date in text box.
- On click of submit, It should display number of new cases and deaths occurred on that day.
- Check below reference output.
- If Field is blank print message : Please enter date instead of table.
- If Date not matched: print date not found instead of table.

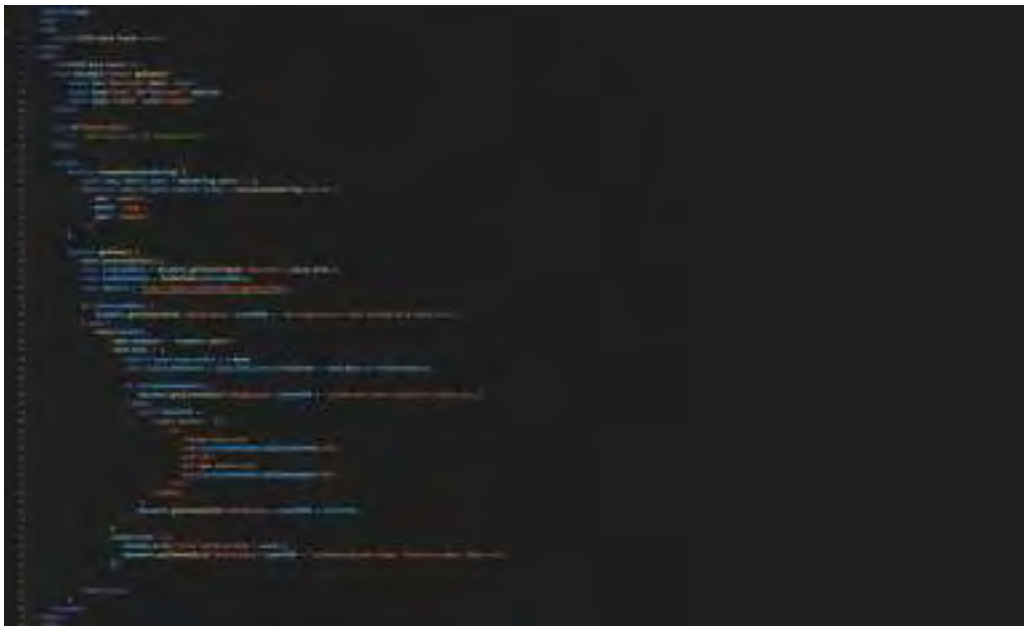


Fig 2.15: Data Fetching using Covid API

## COVID Data Check

Date:

New Cases	11527
New Deaths	116

Fig 2.16: Covid Output

## MUTUAL FUND

API: <https://api.mfapi.in/mf>

- Print total number of schemes available in this API.
- Allow user to input scheme code in text box.
- Search scheme code from this API and print scheme name.
- If blank print message: Please enter scheme code
- If not found print message : Scheme not found



Fig 2.17: Data Fetching using Mutual Fund API

## Mutual Fund Search

Total number of schemes available: 45505

Enter Scheme Code:

Scheme Name: HDFC Liquid Fund-PREMIUM PLUS- Growth

Fig 2.18: Mutual Fund Output

## 2.6 React Environment Setup

### WEEK 2: 3 AUGUST 2023

React JS:

React is a powerful JavaScript library that has transformed the process of building user interfaces. It breaks down complex user interfaces into smaller, reusable components using a component-centric approach, which makes both development and maintenance fast and efficient.

What sets React apart is its Virtual DOM, an optimization technique that ensures swift rendering by only updating the portions of the website that are relevant.

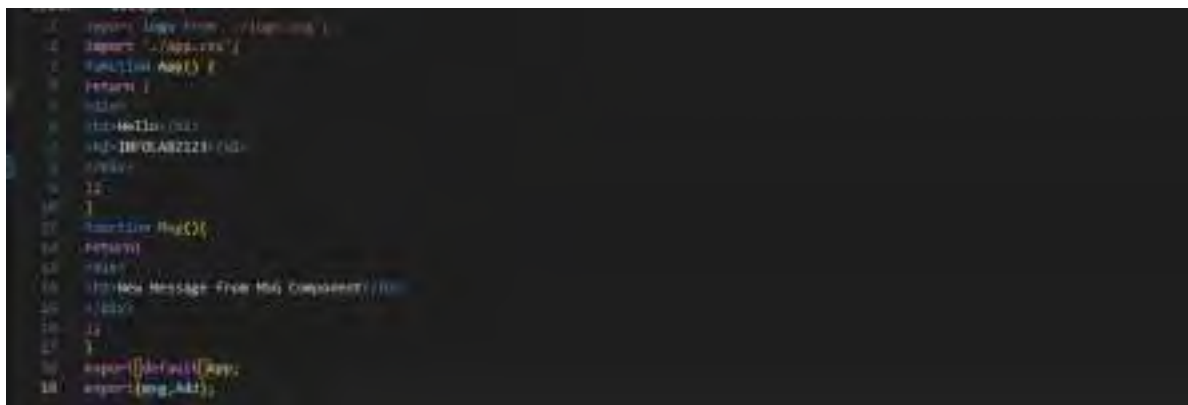
```
install vs code ( project import)
install node js

command prompt: npm ( list / suggestions )

Create first project :
npm init react-app firstapp

init ->
react-app ->
```

Fig 2.19: Installation Explanation



```
1 import logo from './logo.png';
2 import './App.css';
3 function App() {
4   return (
5     <div>
6       <h1>Hello, world!</h1>
7       <img alt="Logo" data-bbox="132 564 860 755" />
8     </div>
9   );
10 }
11 export default App;
```

Fig 2.20: Simple React App

## 2.7 Variable Data Map and Object Map WEEK 2: 4 AUGUST 2023

### Variable Data Map

```
1 function App() {
2   //App.jsx
3   //
4   //
5   function App() { const jsonData = "This are good";
6   return (
7     <div>
8       <div data-Variable={jsonData}>
9         <div data={jsonData}>File
10        <div data={jsonData}>File
11      </div>
12    </div>
13  );
14 }
15 const data = "50";
16 const jsonData = [5,10,15,20,10];
17 function jsonData() {}
18 return()
19 <div data={jsonData}>
20 <div data={jsonData}>File
21 <div data={jsonData}>File
22 <div data={jsonData}>File
23 </div>
24 }
25 }
```

Fig 2.21: Variable Data Mapping

### Object Map

```
1 function App() {
2   //App.jsx
3   //
4   //
5   function App() { const jsonData = "This are good";
6   return (
7     <div>
8       <div data-Variable={jsonData}>
9         <div data={jsonData}>File
10        <div data={jsonData}>File
11      </div>
12    </div>
13  );
14 }
15 const data = "50";
16 const jsonData = [5,10,15,20,10];
17 function jsonData() {}
18 return()
19 <div data={jsonData}>
20 <div data={jsonData}>File
21 <div data={jsonData}>File
22 <div data={jsonData}>File
23 </div>
24 }
25 }
```

Fig 2.22: Object Mapping

## 2.8 React Bootstrap

### WEEK 2: 7 AUGUST 2023



Fig 2.23: Bootstrap

## Reactprops



Fig 2.24: Reactprop



## 2.9 React Hooks

### WEEK 2: 8 AUGUST 2023

UseEffect and UseState:

The useEffect hook is utilized to perform side effects within functional components. Side effects include operations like fetching data, altering the DOM, and other tasks that occur outside the standard component render cycle. It takes two arguments: a function with the side effect code, and an optional array of dependencies to dictate when the effect should run.

UseState, on the other hand, is a hook that allows for the use of local state variables within components. It essentially removes the need for class-based component state. By calling useState with an initial value, you receive a state variable and a function to update that variable..

```
import React from 'react';
import 'bootstrap/dist/css/bootstrap.min.css';
import { Container, Row, Col, Card } from 'react-bootstrap';
import React, {useState, useEffect} from react;

function App() {
  return (
    <Container fluid>
      <Row xs={1} md={3} className="g-4">
        <Col className="container-fluid mt-4">
          <Card>
            <Card.Img variant="top" src="holder.js/100px160" />
            <Card.Body>
              <Card.Title>Card title</Card.Title>
              <Card.Text>
                This is a longer card with supporting text below as a
                natural lead-in to additional content. This content is
                a little bit longer.
              </Card.Text>
            </Card.Body>
          </Card>
        </Col>
      </Row>
    </Container>
  );
}

export default App;
```

Fig 2.25: UseEffect and UseState

# Chapter 3: FINAL PROJECT

```
1 import sys, time, random, os
2 import urllib2
3 import urllib
4 import urllib3
5 import urllib4
6 import urllib5
7 import urllib6
8 import urllib7
9 import urllib8
10 import urllib9
11 import urllib10
12 import urllib11
13 import urllib12
14 import urllib13
15 import urllib14
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95 import urllib94
96 import urllib95
97 import urllib96
98 import urllib97
99 import urllib98
100 import urllib99
101 import urllib100
```

Fig 3.1: News webapp project



Fig 3.2: Project Output

## References

<https://infolabz.in/about.php>

# **INTERNSHIP AT CREART SOLUTIONS PVT LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

*Denish Godhani*

**200390107051**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**August, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report **CreArt Solutions PVT LTD.** submitted along with the project entitled **Internship at CreArt Solutions PVT LTD.** has been carried out by **Denish Godhani** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

Sign

Sign

Prof.

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate

## INTERNSHIP COMPLETION LETTER



Date: 10<sup>th</sup> August 2023

*This is to certify that*

Mr/Ms, Denish ISGCHANI  
Enrollment No : 200350107051  
College : S.p.b. patel engineering college

has successfully completed the 15 days of summer internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at  
CreArt Solutions, Ahmedabad.

We wish him/her all the best for his future endeavours.



---

**Krishnamohan Gupta**  
Director

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**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CreArt Solutions PVT LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. FirstName LastName & FirstName LastName (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Denish Godhani**

---

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First and foremost, I am immensely grateful to Alkesh Kaba for their unwavering guidance and mentorship throughout this internship. Their expertise, constructive feedback, and willingness to share insights have been instrumental in shaping my understanding and skills.

I would also like to thank the entire CreArt Solutions PVT LTD. team for their warm welcome and constant support. The collaborative environment and open discussions allowed me to immerse myself in real-world projects and gain practical exposure.

My gratitude extends to my fellow interns who made this journey even more enjoyable. Our teamwork, brainstorming sessions, and shared learning significantly enhanced my internship experience.

Furthermore, I express my appreciation to Sublime Text for providing essential resources and tools that facilitated my tasks and learning during the internship.

Lastly, I am indebted to my family and friends for their encouragement and understanding throughout this remote internship period.

In conclusion, I am honored to have had the opportunity to be a part of this internship, and the collective efforts of everyone mentioned above have contributed immensely to my growth and learning.

Thank you all for your support.

Sincerely,  
[Your Name]

## **Abstract**

This report contains the work done by the author during his internship at *CreArt Solutions PVT LTD*. This internship report provides an overview of practical learning during a Python Django web development internship. Focused on hands-on experience, the report details the exploration of Django's components and their application in projects like Notice Hub Web App. The internship underscored the importance of translating theory into practical skills, showcasing the ability to create dynamic web applications.

# **Chapter 1: Introduction to the industry**

## **1.1 Company Profile**

CreArt is a privately owned venture of IT Solutions and IT Consultants formed in 2013. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

CreArt is dedicated towards perfection in every aspect. Professionalism is the main ingredient of CreArt. We strongly believe in delivering the best services to the clients till their satisfaction. Main objective of CreArt is to provide professional , qualitative , innovative and accessible services in every possible form.

## **Chapter 2: Introduction to the project**

### **2.1 Project summary**

The Django Notice Hub Web App is a dynamic platform designed to efficiently manage and disseminate notices within an organization or community. Built using the Django framework, the app offers user-friendly features for both administrators and users. Administrators can seamlessly create, edit, and categorize notices, while users can easily access and search for relevant information. The app employs Django's authentication system to ensure secure access and offers an intuitive user interface for a streamlined experience. With its emphasis on simplicity and effectiveness, the Django Notice Hub Web App serves as a valuable tool for optimizing internal communication and information sharing.

### **2.2 Project features**

It contains features such as notice creation ,modification and updation. It also shows the date and time when notice was published on the web-app and also shows the date and time of updated notice by the administration. Admin can edit the notice when requires and also it has a feature of deleting multiple notices from the interface. We can add user and generate password for them to acces admin portal. We can see recent actions taken into the site such as notice creation ,updation or deletion. There is a feature of a changing password as well for the admin.

### **2.3 Project technology**

The Notice Hub Web App is developed using the Django framework, which serves as the foundational technology for building the entire application. Django, a high-level Python web framework, provides a robust and efficient environment for creating dynamic web applications. Its core features, such as the Model-View-Controller (MVC) architecture, object-relational mapping (ORM), and built-in user authentication system, enable the seamless development of complex applications like the Notice Hub. Additionally, Django's support for templating, database management, security measures, and URL routing contributes to the app's user-friendly interface, scalability, and overall performance.

## Chapter 3: Notice hub web-app

### 3.1 Interface of the web-app

This is the landing page of the notice hub web-app which shows the latest notices uploaded by the administrator and also shows the date and time of creation and updation as well.



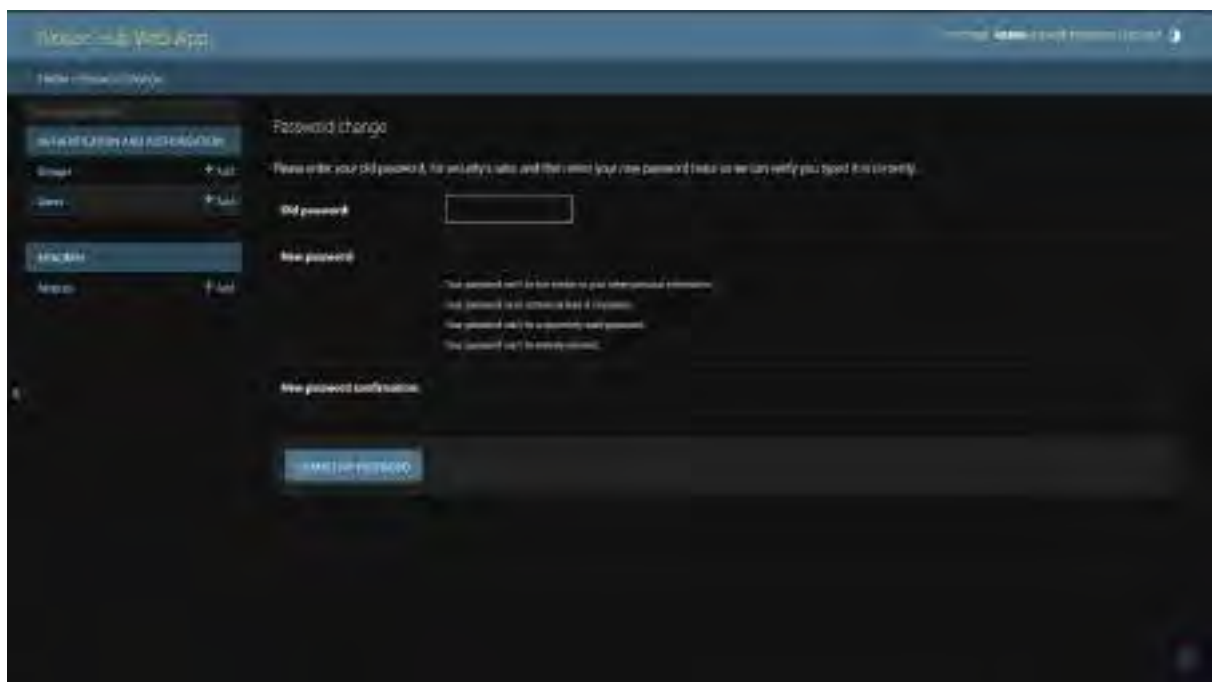
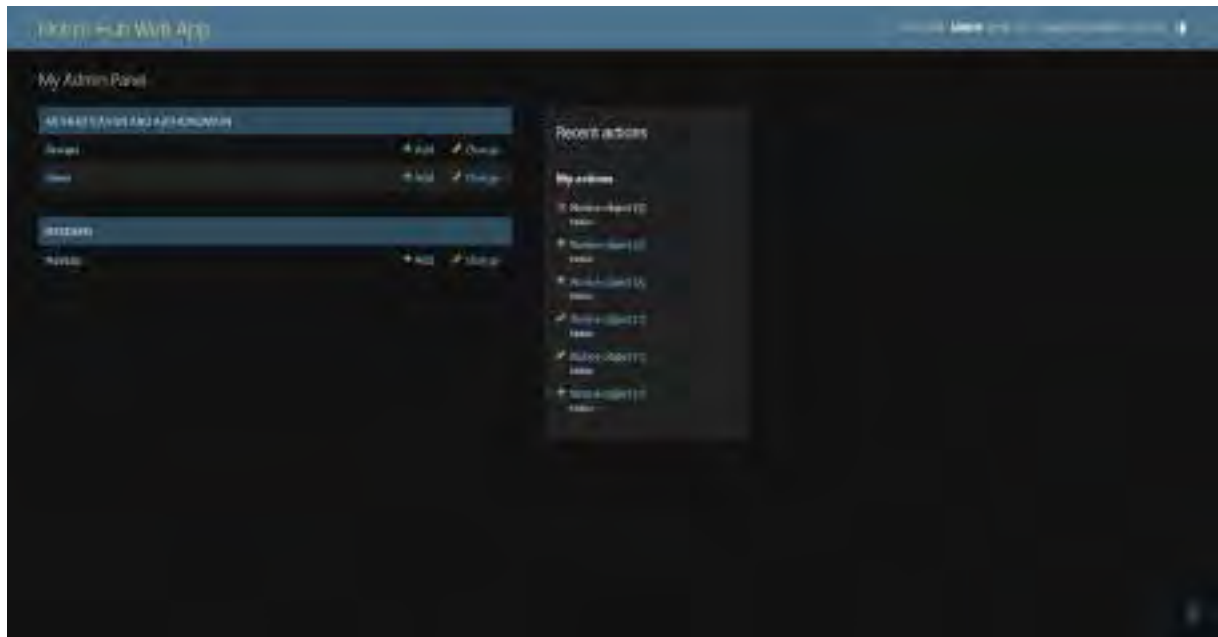
### 3.2 Admin panel of the notice hub

This is the login page for the admin to access the backend of the notice hub where user can login via his credentials such as username and password.



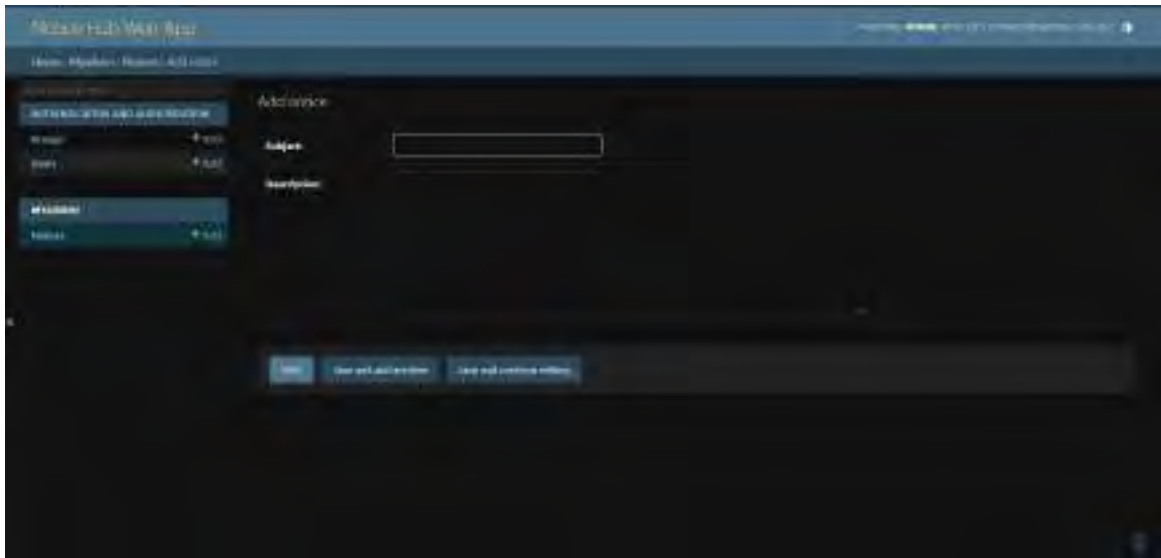
### 3.3 Admin panel of the notice hub

This is an admin panel of the notice hub web-app where admin can see recent action taken by the administrator and it can also add notices to the interface via here. Admin can also perform certain task such as authorization and authentication of the user and groups and admin can also change his password and also log out from here.



### 3.4 Notice management

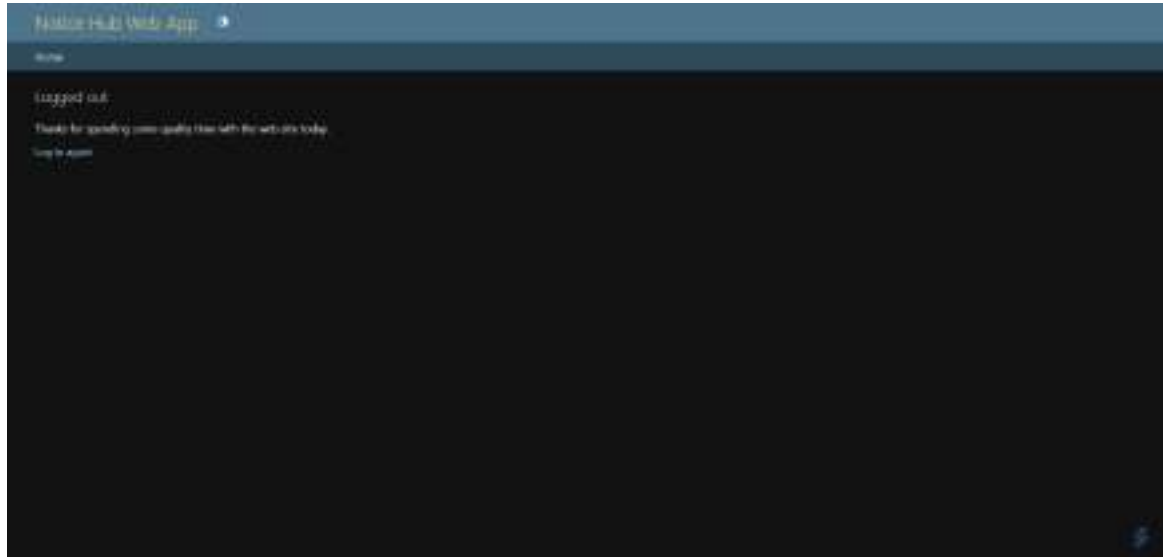
This is the page where admin can add notices with the respective subject and description of the notices , also admin has a option for the saving the notice and save and add another notice or save and continue editing the notice. And admin can also see all the created notice on the platform and see the changes or made the changes as well. If user want to delete multiple notices at a time that also can be done here on this page.





### 3.5 Logout page

After clicking onto logout user will redirected to this page and here there is a option of login again if admin want to.



## References

# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD.**

**AN INTERNSHIP REPORT**

*Submitted by*

*Gondaliya Anurag Vipulbhai*

**200390107002**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**July, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the internship report submitted along with the project entitled **Internship at INFOLABZ IT SERVICES PVT. LTD** has been carried out by **Gondaliya Anurag Vipulbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof.

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | API DEVELOPMENT | DATA SCIENCE | HR

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390107002  
Semester: 7<sup>th</sup>, Computer Engineering  
Saffrony Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Anurag Gondaliya .

In this internship tenure, we have covered the fundamentals of the Django framework along with an understanding of MVC architecture. We have also worked on JSON structures as well as different API(s) and API fetching in web pages using the Django framework.

We wish Anurag Gondaliya all the best for future endeavors.



Ms. Twinkle Shah  
Internship Coordinator  
InfoLabz, Ahmedabad



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+91 8141236662



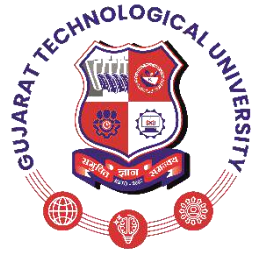
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**S.P.B. PATEL  
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**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship report submitted along with the Internship entitled **Internship at INFOLABZ IT SERVICES PVT. LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad is a bonafide record of original project work carried out by me under the supervision of **Mr. Chintan Nagrecha** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Gondaliya Anurag Vipulbhai**

## **ACKNOWLEDGMENT**

I am deeply grateful for the opportunity to acknowledge and express my heartfelt appreciation to everyone who contributed to my enriching internship experience at INFOLABZ IT Services Pvt Ltd in the field of

### **Chintan Nagrecha:**

I extend my sincere gratitude to Mr. Chintan Nagrecha, my mentor and guide, for his exceptional mentorship and continuous support throughout my internship. His insights, guidance, and expertise in the realm of Web development using Python ( Django framework ) have been instrumental in shaping my understanding of advanced techniques and real-world applications.

### **INFOLABZ IT Services Pvt Ltd:**

I want to convey my sincere appreciation to INFOLABZ IT Services Pvt Ltd for providing me with an opportunity to work on challenging projects and immerse myself in the practical aspects of Python ( Django framework ). The exposure to diverse projects and the dynamic work environment have contributed significantly to my growth as a professional.

### **Saffrony Institute of Technology:**

I would like to acknowledge Saffrony Institute of Technology for providing me with the academic foundation that has enabled me to translate classroom learning into practical skills during my internship. The internship journey with **INFOLABZ IT Services Pvt Ltd** under the guidance of **Chintan Nagrecha** has been an enlightening experience that has equipped me with valuable insights and skills in the field of Python ( Django framework ). I am sincerely grateful for the opportunities, knowledge, and support that I have received.

Anurag Gondaliya

Enrollment No: 200390107002

Date : 14<sup>th</sup> August,2023

## **Abstract**

This report contains the work done by the author during the internship at INFOLABZ IT SERVICES PVT. LTD. It shows the work I did in the company during my internship period. In this report, the author discusses the concepts of Web development using Python ( Django framework ). The report also includes the tools and libraries used for Python ( Django framework ). In the Django framework part, the Frontend as well as Backend(Database) part is mentioned by the author. Overall the report signifies the learning of the author during this internship period.



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## **Abbreviations**

OOP	Object Oriented programming
DRY	Don't Repeat Yourself
PIP	Package Installer For Python
ORM	Object Relational Mapping
MVT	Model-view-Template
URL	Uniform Resource Locator
HTML	Hypertext Markup Language

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# Chapter 1. INTRODUCTION

## 1.1 COMPANY PROFILE:

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make its own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard working developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concept which could be used by millions of people.

## 1.2 MISSION AND VISION OF THE COMPANY:



### Our Mission

Our mission is to deliver best-in-class services with top-notch quality.



### Our Vision

Our vision is to sustain the exponential growth of the IT industry.

## Chapter 2. INTRODUCTION TO DJANGO FRAMEWORK

### 2.1 BASIC PYTHON:

In starting of the internship our co-ordinator Mr. chirag sir gave us basic knowledge of python which we will going to use during the period of 15 days and this is the most basic knowledge we require to get the internship done. In basic python sir focused on the basic python like statements if – else and how to use function in python.

### 2.2 DJANGO FRAMEWORK:

Django is a high-level Python web framework that simplifies the process of building web applications by providing a clean and pragmatic way to handle various aspects of web development. It follows the "batteries-included" philosophy, offering a wide range of tools and features to help developers quickly create robust and maintainable web applications.

Here's some key information about the Django framework:

**MVT Architecture:** Django follows the Model-View-Template (MVT) architectural pattern, but with slightly different terminology:

**Model:** Represents the data structure and database schema.

**View:** Handles the presentation logic and rendering of data.

**Template:** Contains HTML files with embedded Python code to dynamically generate the HTML output.

**Controller:** Handled by Django itself, managing the request-response cycle.

#### Features:

URL routing: Mapping URLs to views and functions.

Object-Relational Mapping (ORM): Provides a high-level API for interacting with databases using Python classes.

Form handling: Simplifies form validation and handling user input.

Authentication and authorization: Built-in user authentication system and permission management.

Admin interface: A powerful, auto-generated admin panel for managing application data.

Template engine: Django's template language allows dynamic content rendering.

Security features: Includes protection against common web vulnerabilities.

## **Chapter 3. PROJECT CREATION IN DJANGO:**

### **3.1 CREATING PROJECT IN DJANGO**

1) Django set up :

Install pycharm and install Django using following code

- Pip Install Django

2) Create project:

Create project in a project file

- `django-admin startproject projectname`

3) Run project:

Run project in the server

- `python manage.py runserver`

### **3.2 DJANGO APPS**

In Django, an "app" refers to a self-contained module that encapsulates a specific functionality or a set of related functionalities within a larger Django project.

Each Django app can include models, views, templates, and other components necessary to build a specific feature or aspect of a website. Apps are intended to be reusable and can be plugged into different projects, making it easier to organize and manage complex web applications.

Here's a brief overview of the components typically found within a Django app:

**Models:** Models define the structure of your data and how it is stored in the database. Each app can have its own models, representing the data specific to that app's functionality.

**Views:** Views handle the logic of processing user requests and returning appropriate responses. They interact with models to retrieve or modify data and then render templates to generate HTML for the user.

**Templates:** Templates are used to generate HTML dynamically. They allow you to present data fetched from the views in a user-friendly manner.

**URLs:** URLs map incoming HTTP requests to the appropriate view functions. Each app can define its own set of URLs, making it easy to organize your project's URL structure.

**Forms:** Forms are used for handling user input, such as user registration, login, and data submission. Django provides tools to generate and process forms efficiently.

Static Files: Static files like images, stylesheets, and JavaScript files are stored within app-specific directories and can be served to users without being processed.

Admin: Django's built-in admin interface allows you to manage your app's data through a user-friendly interface. You can define custom admin views to control how your app's data is presented and manipulated.

Tests: Django apps often come with their own unit tests to ensure that the functionality is working as expected. Testing is an integral part of Django development.

Code for crate apps:

- Python manage.py startapp appname



Fig 3.1 Django Project running on server

### 3.3 SUPER USER AND PERMISSION IN DJANGO

In Django, a superuser is a user with administrative privileges. Superusers have access to the Django admin interface, which allows them to manage and manipulate data within the application's database. They can perform actions like creating, editing, and deleting records, managing users, and more. Superusers have full control over the application and can perform tasks that regular users typically cannot.

- Python manage.py createsuperuser



Fig 3.2 Admin panel for backend

## Chapter 4.CONCEPT OF MODEL IN DJANGO:

### 4.1 CREATING MULTIPLE MODEL

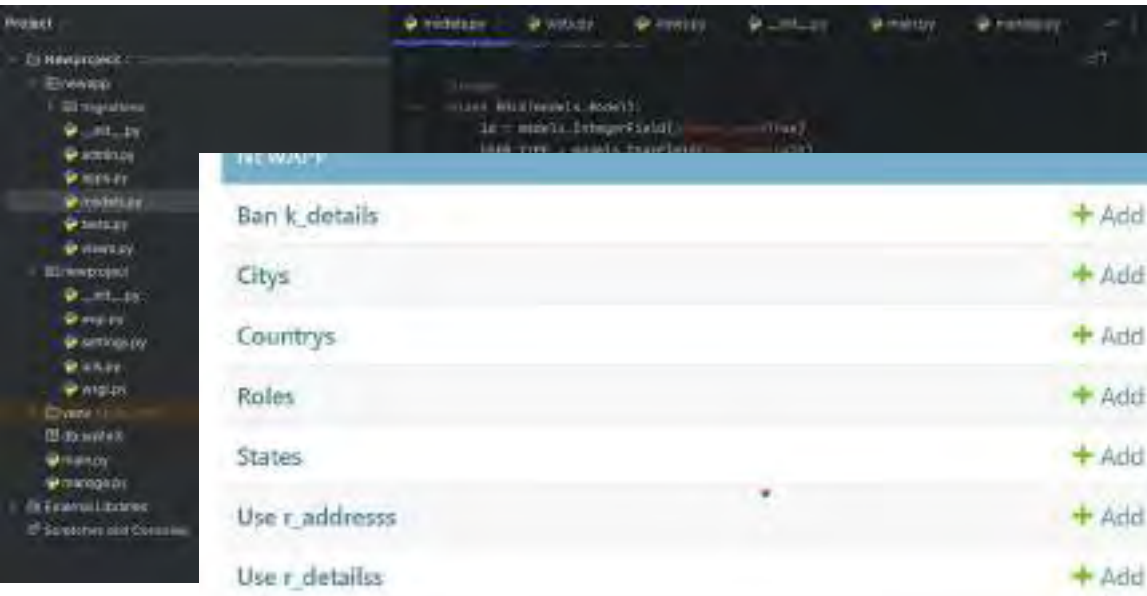


Fig. 4.1 Code for different model

Fig 4.2 Output at administration panel

### 4.2 CONCEPT OF FOREIGN KEY

In Django, a popular web framework for Python, the concept of foreign keys is used to define relationships between models (database tables) within the Object-Relational Mapping (ORM) system. The Django ORM abstracts the complexities of working with databases, allowing you to define relationships between your models using Python classes and attributes.

### 4.3 ASSIGNMENT OF BACKEND PANEL



```

class USER_DETAILS(models.Model):
    id = models.IntegerField(primary_key=True)
    U_NAME = models.CharField(max_length=20)
    U_PASSWORD = models.CharField(max_length=10)
    U_EMAIL = models.EmailField()
    U_PHONE = models.CharField(max_length=20)
    U_TYPEROLE = models.ForeignKey(ROLE, on_delete=models.CASCADE)
    U_STATES = models.ForeignKey(STATE, on_delete=models.CASCADE)

class USER_ADDRESS(models.Model):
    id = models.CharField(primary_key=True, max_length=20)
    U_ID = models.ForeignKey(USER_DETAILS, on_delete=models.CASCADE)
    Building_name = models.CharField(max_length=10)
    Street_name = models.CharField(max_length=20)
    City_name = models.ForeignKey(CITY, on_delete=models.CASCADE)
    Pincode = models.IntegerField()

class STATE(models.Model):
    id = models.IntegerField(primary_key=True)
    STATE_ID = models.ForeignKey(STATE, on_delete=models.CASCADE)
    STATE_NAME = models.CharField(max_length=10)

class CITY(models.Model):
    id = models.IntegerField(primary_key=True)
    STATE_ID = models.ForeignKey(STATE, on_delete=models.CASCADE)
    CITY_NAME = models.CharField(max_length=10)

```

Fig 4.3 Models for backend

```

class USER_DETAILS(models.Model):
    id = models.IntegerField(primary_key=True)
    U_NAME = models.CharField(max_length=20)
    U_PASSWORD = models.CharField(max_length=10)
    U_EMAIL = models.EmailField()
    U_PHONE = models.CharField(max_length=20)
    U_TYPEROLE = models.ForeignKey(ROLE, on_delete=models.CASCADE)
    U_STATES = models.ForeignKey(STATE, on_delete=models.CASCADE)

class USER_ADDRESS(models.Model):
    id = models.CharField(primary_key=True, max_length=20)
    U_ID = models.ForeignKey(USER_DETAILS, on_delete=models.CASCADE)
    Building_name = models.CharField(max_length=10)
    Street_name = models.CharField(max_length=20)
    City_name = models.ForeignKey(CITY, on_delete=models.CASCADE)
    Pincode = models.IntegerField()

class BANK_DETAIL(models.Model):
    id = models.IntegerField(primary_key=True)
    U_ID = models.ForeignKey(USER_DETAILS, on_delete=models.CASCADE)

```

Fig 4.4 Models for backend

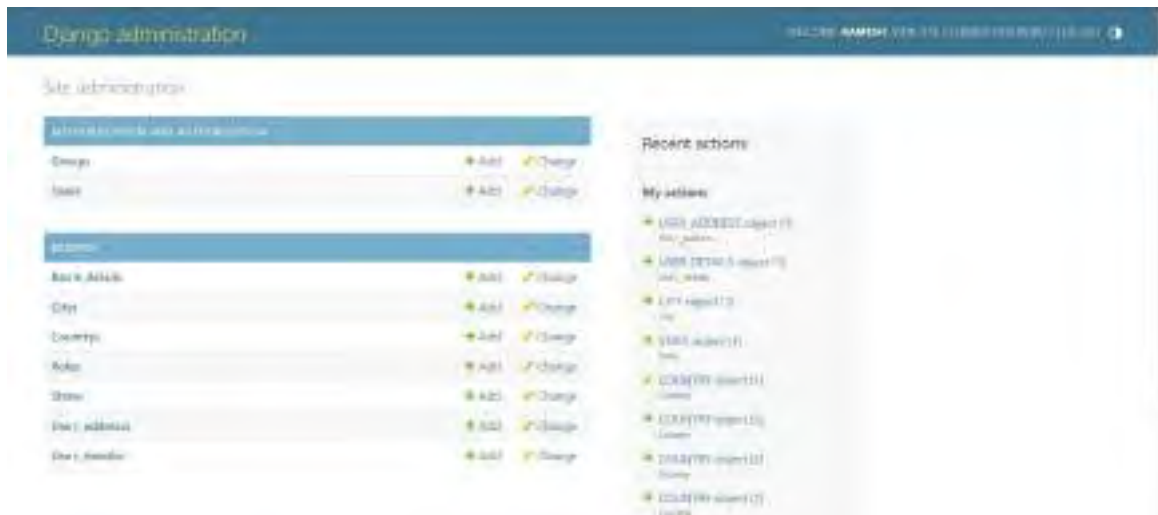


Fig 4.5 Backend Administration panel

# Chapter 5. LOADING STATIC FILE:

## 5.1 LOADING HTML AND OTHER STATIC FILE

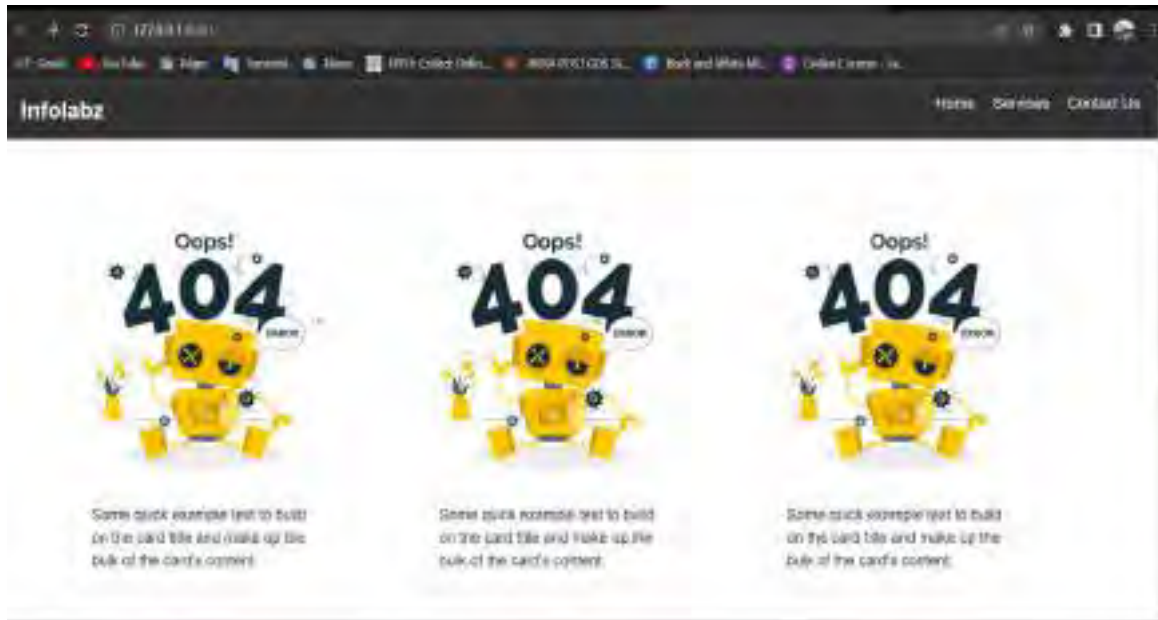


Fig 5.1 Loading Of Basic HTML Page

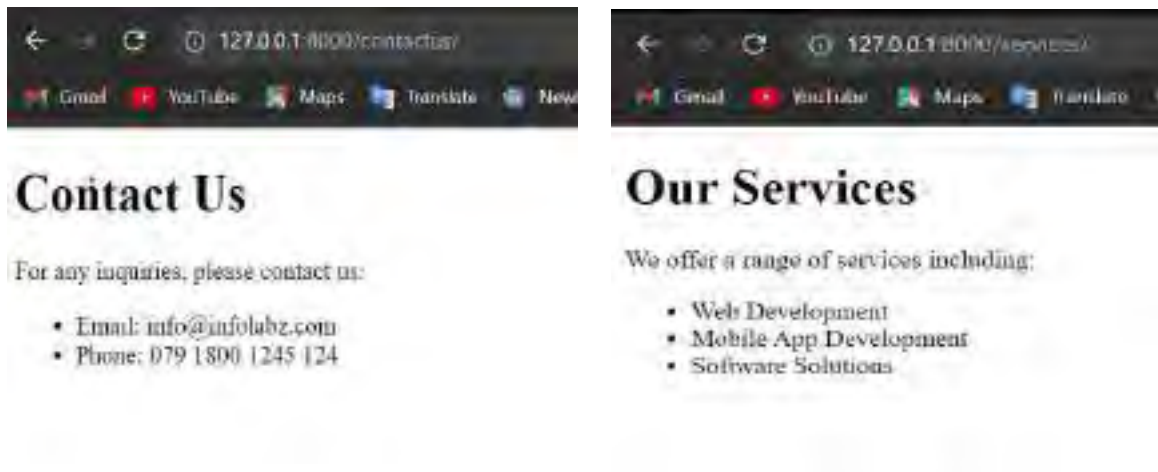


Fig 5.2 Routing of HTML page

## 5.2 BOOTSTRAP

Bootstrap is a popular open-source front-end framework that provides a set of tools, components, and styles for building responsive and visually appealing websites and web applications. It simplifies the process of designing and developing user interfaces by offering a standardized way to create layouts, forms, navigation bars, modals, and more.

Bootstrap cdn link:

```
<link  
rel="stylesheet"href="https://cdn.jsdelivr.net/npm/bootstrap@3.3.7/dist/css/b  
ootstrap.min.css"  
integrity="sha384BVYiiSIFeK1dGmJRAkycuHAHRg32OmUcww7on3RY  
dg4Va+PmSTsz/K68vbdEjh4u" crossorigin="anonymous">
```

## Chapter 6. API:

### 6.1 DICTIONARY IN PYTHON

In Python, a dictionary is a built-in data type that allows you to store and manage data in key-value pairs. Each key in a dictionary maps to a corresponding value, and you can use keys to access the associated values quickly. Dictionaries are also known as associative arrays or hash maps in other programming languages.

You can create a dictionary by enclosing key-value pairs in curly braces `{}`. Keys and values are separated by colons, and pairs are separated by commas.

Example :

```
person = {  
    "name": "John",  
    "age": 30,  
    "city": "New York"  
}
```

### 6.2 WORKING ON API

An API, or Application Programming Interface, is a set of rules and protocols that allows different software applications to communicate and interact with each other. APIs define the methods and data structures that developers can use to integrate their applications with external services, libraries, or platforms. APIs enable software components to work together and exchange information seamlessly.

Worked on two different API'S

Covid API : <https://data.covid19india.org/data.json>

Bitcoin : <https://api.coindesk.com/v1/bpi/currentprice.json>

```

# curly bracket
# key (left) : value (right)
# to access value key is required.
mydata = {"Ahmedabad":100,"Surat":200,"Rajkot":300}
print(mydata["Rajkot"])
mydata1 = {"Ahmedabad":100,"Surat":[200,250,1],"Rajkot":300}
print(mydata1["Surat"][1])

mydata2 = {"Ahmedabad":[{"date":"5 Aug 2023","cases":15},
                        {"date":"6 Aug 2023","cases":25},
                        {"date":"7 Aug 2023","cases":35}],
           "Surat":[200,250,1],
           "Rajkot":300}
print(mydata2["Ahmedabad"][1]["date"])
print(mydata.keys())

```

Fig 6.1 Dictionary For API

```

import requests
url = requests.get("https://data.covid19india.org/data.json")
mydata = url.json()

print(mydata.keys())
print(mydata["cases_time_series"][0]["date"])
print(len(mydata["cases_time_series"]))

```

Fig 6.2 API calling using JSON

## 6.3 ASSIGNMENT 2



Fig 6.3 API Based News Website



Fig 6.4 View Full News

## Reference

- [1] Infolabz.in , “Codes and theory from the website”.
- [2] W3school website, “Reference of html and Django”.
- [3] getbootstrap.in , “Reference of bootstrap from the website”.
- [4] Youtube , “Channel: Great adib”.



# **INTERNSHIP AT CREART SOLUTIONS PVT LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

*Haresh Makvana*

**200390107068**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
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SAFFRONY INSTITUTE OF TECHNOLOGY

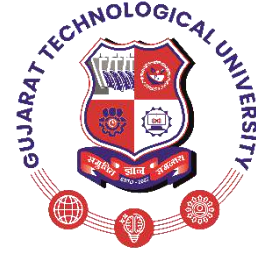


**Gujarat Technological University, Ahmedabad**

**August, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report **CreArt Solutions PVT LTD.** submitted along with the project entitled **Internship at CreArt Solutions PVT LTD.** has been carried out by **Haresh Makvana** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

Sign

Sign

Prof.

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate

## INTERNSHIP JOINING LETTER



Date: 27<sup>th</sup> July 2023

*This is to certify that*

Mr./Ms. Hareesh Makwana  
Enrollment No : 200300107068  
College : Saffron institute of technology

has been selected for the 15 days of summer internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at  
CreArt Solutions, Ahmedabad.

We wish him/her all the best for his future endeavours.

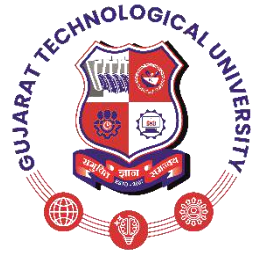
---

**Krishnamohan Gupta**  
Director

**CreArt Solutions PVT LTD.**  
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Ahmedabad, Gujarat, India - 380008  
www.creat.in | [hr@creart.in](mailto:hr@creart.in) | **Office Locations** INDIA | USA | UK



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CreArt Solutions PVT LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. FirstName LastName & FirstName LastName (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Haresh Makvana**

---

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## **ACKNOWLEDGMENT**

In this review, I would like to extend my heartfelt acknowledgments to all those who have made my online internship a valuable and enriching experience.

First and foremost, I am immensely grateful to Alkesh Kaba for their unwavering guidance and mentorship throughout this internship. Their expertise, constructive feedback, and willingness to share insights have been instrumental in shaping my understanding and skills.

I would also like to thank the entire CreArt Solutions PVT LTD. team for their warm welcome and constant support. The collaborative environment and open discussions allowed me to immerse myself in real-world projects and gain practical exposure.

My gratitude extends to my fellow interns who made this journey even more enjoyable. Our teamwork, brainstorming sessions, and shared learning significantly enhanced my internship experience.

Furthermore, I express my appreciation to Sublime Text for providing essential resources and tools that facilitated my tasks and learning during the internship.

Lastly, I am indebted to my family and friends for their encouragement and understanding throughout this remote internship period.

In conclusion, I am honored to have had the opportunity to be a part of this internship, and the collective efforts of everyone mentioned above have contributed immensely to my growth and learning.

Thank you all for your support.

Sincerely,  
[Your Name]

## **Abstract**

This report contains the work done by the author during his internship at *CreArt Solutions PVT LTD*. This internship report provides an overview of practical learning during a Python Django web development internship. Focused on hands-on experience, the report details the exploration of Django's components and their application in projects like Notice Hub Web App. The internship underscored the importance of translating theory into practical skills, showcasing the ability to create dynamic web applications.

# **Chapter 1: Introduction to the industry**

## **1.1 Company Profile**

CreArt is a privately owned venture of IT Solutions and IT Consultants formed in 2013. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

CreArt is dedicated towards perfection in every aspect. Professionalism is the main ingredient of CreArt. We strongly believe in delivering the best services to the clients till their satisfaction. Main objective of CreArt is to provide professional , qualitative , innovative and accessible services in every possible form.



## **Chapter 2: Introduction to the project**

### **2.1 Project summary**

The Django Notice Hub Web App is a dynamic platform designed to efficiently manage and disseminate notices within an organization or community. Built using the Django framework, the app offers user-friendly features for both administrators and users. Administrators can seamlessly create, edit, and categorize notices, while users can easily access and search for relevant information. The app employs Django's authentication system to ensure secure access and offers an intuitive user interface for a streamlined experience. With its emphasis on simplicity and effectiveness, the Django Notice Hub Web App serves as a valuable tool for optimizing internal communication and information sharing.

### **2.2 Project features**

It contains features such as notice creation ,modification and updation. It also shows the date and time when notice was published on the web-app and also shows the date and time of updated notice by the administration. Admin can edit the notice when requires and also it has a feature of deleting multiple notices from the interface. We can add user and generate password for them to acces admin portal. We can see recent actions taken into the site such as notice creation ,updation or deletion. There is a feature of a changing password as well for the admin.

### **2.3 Project technology**

The Notice Hub Web App is developed using the Django framework, which serves as the foundational technology for building the entire application. Django, a high-level Python web framework, provides a robust and efficient environment for creating dynamic web applications. Its core features, such as the Model-View-Controller (MVC) architecture, object-relational mapping (ORM), and built-in user authentication system, enable the seamless development of complex applications like the Notice Hub. Additionally, Django's support for templating, database management, security measures, and URL routing contributes to the app's user-friendly interface, scalability, and overall performance.

## Chapter 3: Notice hub web-app

### 3.1 Interface of the web-app

This is the landing page of the notice hub web-app which shows the latest notices uploaded by the administrator and also shows the date and time of creation and updation as well.



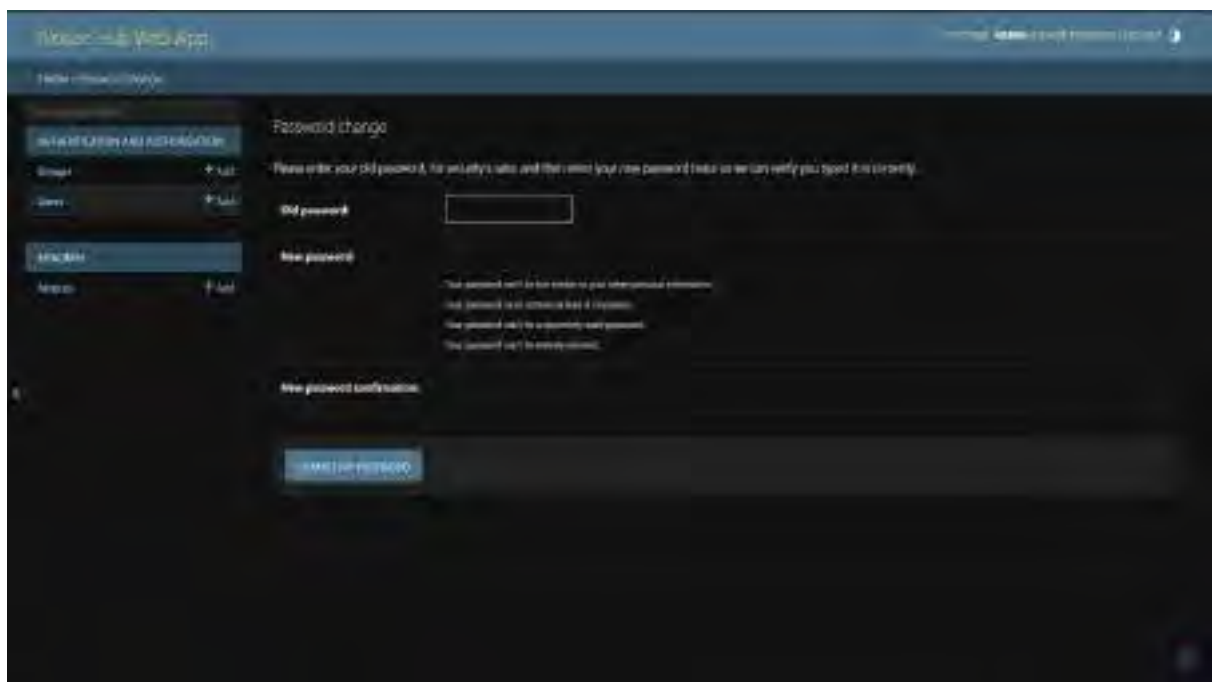
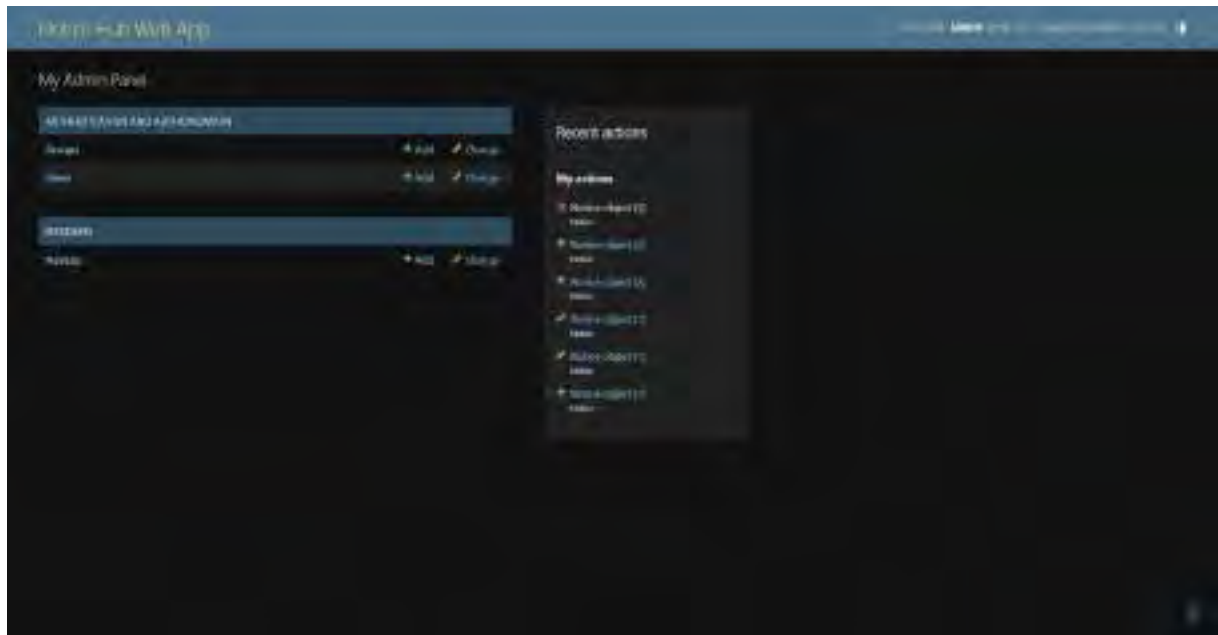
### 3.2 Admin panel of the notice hub

This is the login page for the admin to access the backend of the notice hub where user can login via his credentials such as username and password.



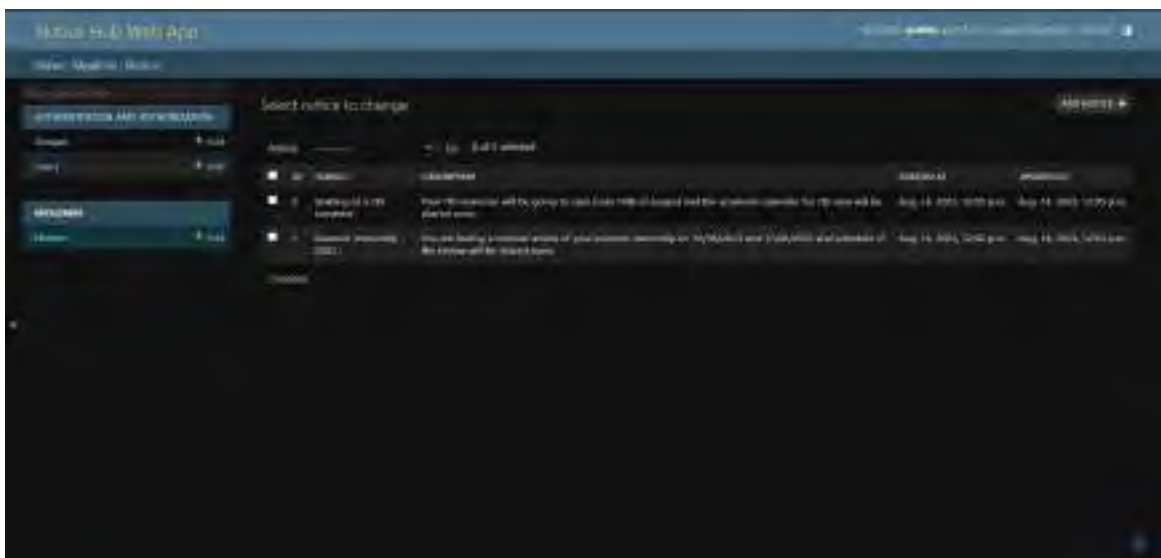
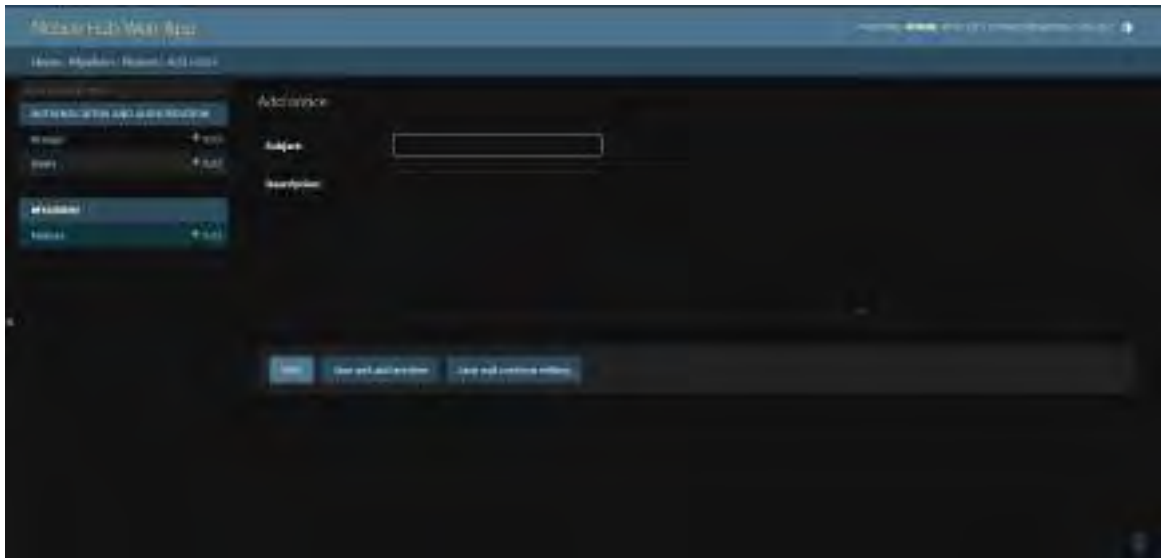
### 3.3 Admin panel of the notice hub

This is an admin panel of the notice hub web-app where admin can see recent action taken by the administrator and it can also add notices to the interface via here. Admin can also perform certain task such as authorization and authentication of the user and groups and admin can also change his password and also log out from here.



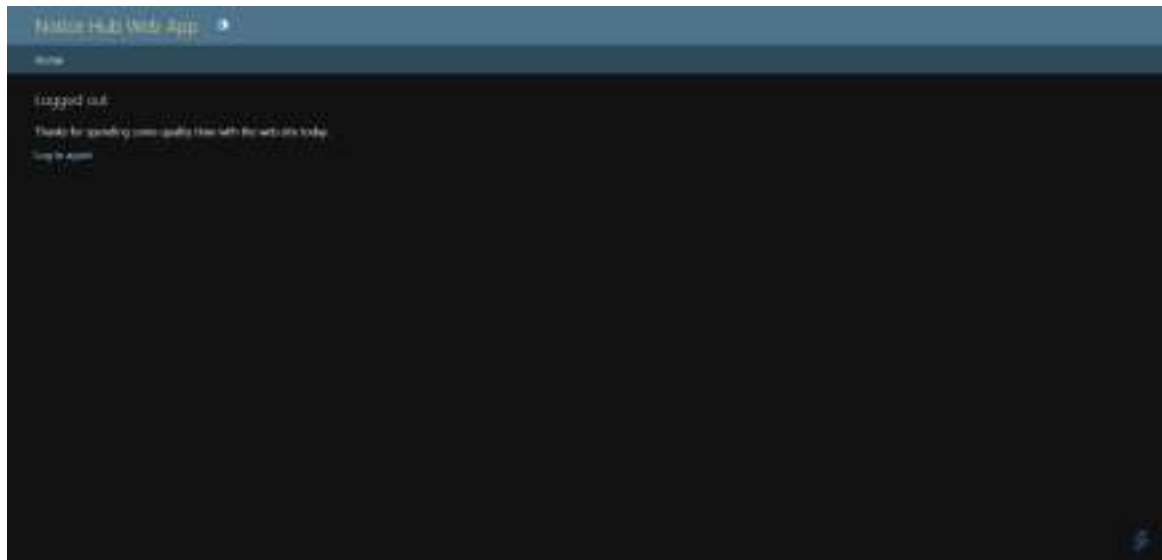
### 3.4 Notice management

This is the page where admin can add notices with the respective subject and description of the notices , also admin has a option for the saving the notice and save and add another notice or save and continue editing the notice. And admin can also see all the created notice on the platform and see the changes or made the changes as well. If user want to delete multiple notices at a time that also can be done here on this page.



### 3.5 Logout page

After clicking onto logout user will redirected to this page and here there is a option of login again if admin want to.



## References

# **INTERNSHIP AT TECHNO IT HUB**

**AN INTERNSHIP REPORT**

*Submitted by*

**Harsh Ashvinbhai Gajjar**

**190390107008**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**





**S.P.B. PATEL**  
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SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Techno IT Hub** has been carried out by **Harsh Ashvinbhai Gajjar** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

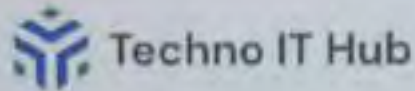
Prof. Upashana Goswami

Prof. Akshay Kansara

Internal Guide

Head of Department

## Company Certificate



April 23, 2023

### To Whomsoever It May Concern

This is to certify that **Harsh Gajjar** has successfully completed his internship as a **Software Developer Intern** in our organization starting from **January 20, 2023**, to **April 25, 2023**.

For and On-behalf of Techno IT Hub



Mitendra Sharma,  
CEO, Techno IT Hub

---

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**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Techno IT Hub** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a Bonafide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Bhumi Sharma (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Harsh Ashvinbhai Gajjar**

\_\_\_\_\_

## ACKNOWLEDGMENT

I am quite pleased and satisfied with the outcome of my **Techno IT Hub** project. My dissertation would not have been finished if it hadn't been for the help and support we received along the route.

I thank our distinguished internal guide **Prof. Upashana Goswami** and industrial mentor **Ms. Bhumi Sharma** (Founder of Techno IT Hub) from the bottom of my heart for always directing me in the right direction and for her priceless support. Not only am I grateful to our guide for deftly strategizing and guiding us through every phase of my project, but I am also grateful for her patience.

Finally, I'd like to express my gratitude to everyone who has helped me with my project at any level but whose name does not appear in this acknowledgement.

Yours sincerely

Harsh Gajjar

190390107008

## **Abstract**

“Techno IT Hub” is a web-based application that will help students to buy technical courses which are created by the start-up Techno IT Hub or apply for internships that are provided by it; they can access anything by registering themselves.

This website will allow users to view their events and achievements which they established in the past; students can register themselves and by logging in, they can access the courses and internships in which they are already enrolled. Additionally, students can also get in touch with the Techno IT Hub start-up’s mentors to solve their doubts and get future guidance by filling out the contact form which is on the website. It is the best way for buying courses and services by Techno IT Hub.

It is developed to make the system reliable, easier, and fast. It is developed intending to make the interaction between industry mentors and students reliable, easier, and fast. The website is made for desktop and mobile, both. A non-technical persons can also interact with the processing on the website easily.

Tools and Technology:

JavaScript ECMAScript 2023

ReactJS Library 18.2.0

HTML, CSS, JavaScript, Bootstrap

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## **Abbreviations**

TIH	Techno IT Hub
HTML	Hypertext Markup Language
CSS	Cascading Style Sheets
JS	JavaScript



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## CHAPTER 1. OVERVIEW OF COMPANY

### 1.1 COMPANY PROFILE:



Fig 1.10 Company Logo

- Techno IT Hub bridges the gap between students and their relevant industries by providing quality courses at highly affordable rates. Apart from that, we are providing mentoring, internships and Job opportunities to our students. We have a team of Trainees would work to flourish in their dream projects. We provide supports to Hackathons and start-ups.

### 1.2 MISSION AND VISION OF THE COMPANY:

#### MISSIONS

- To associate students with industries.
- Make Students all rounder and industry material.
- Develop them strongly in terms of technical knowledge.

#### VISIONS

- Quality education at the most affordable rates.
- Opportunities in technical as well as non-technical fields.
- Mentoring the young generation.

### 1.3 DIFFERENT PRODUCT/ SCOPE OF WORK:

- Graphic Designing
- Social Media Handling
- Collaboration with NGO
- Startup Ecosystem and Boosting up
- Website Development
- Application Development
- Hackathon Mentoring
- Teaching Different Languages
- Career and Technical Mentoring
- Project Support and Learning
- Career and Technical Mentoring

Techno IT Hub bridges the gap between students and their relevant industries by providing quality courses at highly affordable rates. Apart from that, they provides mentoring, internships and Job opportunities to our students. It have a team of Trainees would work to flourish in their dream projects. It provide supports to Hackathons and start-ups.

## 1.4 SERVICES

- **MERN Stack Development:** Full stack development refers to the development of both frontend and backend portions of an application.
- **Web Development:** Salesforce is a game changing technology and Customer Relationship Management cloud software addresses all your customer interface concerns, and cases.
- **Java Development:** Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have better performance and run on any platform.
- **Mobile Development:** Mobile developers are a type of software developer. They specialize in mobile technology such as building apps for Google's Android, Apple's iOS and Microsoft's Windows Phone platforms.
- **Social media handling:** We are helping your business to grow digitally with us, by connecting your business and its updates on social media.
- **Student trainings:** It provides live project training to the students, by making them learn latest technologies in the easiest way and making their implementation live.
- **Startup Ecosystem:** We are believing in the team-work, for the same we are supporting different startups and collaborated with them to growing together.
- **Graphic Designing:** Designing and Creative is the best way to attract Students to your business, we are helping you with your logo, letterhead, business cards, posters, banners design etc.
- **Training and placement opportunities:** We are believing in implementation more than learning, and for that we are providing different internship and job Opportunities to students.
- **Mentoring and hackathon support:** We are mentor our students for different kind of technologies, career options and many competitions like hackathon.

### Industries:

- Education
- Software Production
- Servicing Product
- Manufacturing

## 1.5 SCOPE OF WORK :

An IT company's scope of work typically includes designing, developing, and implementing software applications, managing and maintaining computer networks, providing technical support, and offering consulting services related to information technology. These companies may also specialize in a specific area, such as cybersecurity, cloud computing, mobile app development, or data analytics.

In addition to these core services, an IT company may also provide training and education services to help clients develop their own IT skills or stay up-to-date with the latest technologies. Some IT companies also offer hardware and infrastructure solutions, including servers, storage devices, and other IT equipment. Overall, the scope of work for an IT company can vary widely depending on the company's size, expertise, and focus, but it generally revolves around using technology to help businesses achieve their goals more efficiently and effectively.

### 1.5.1 Current Problem

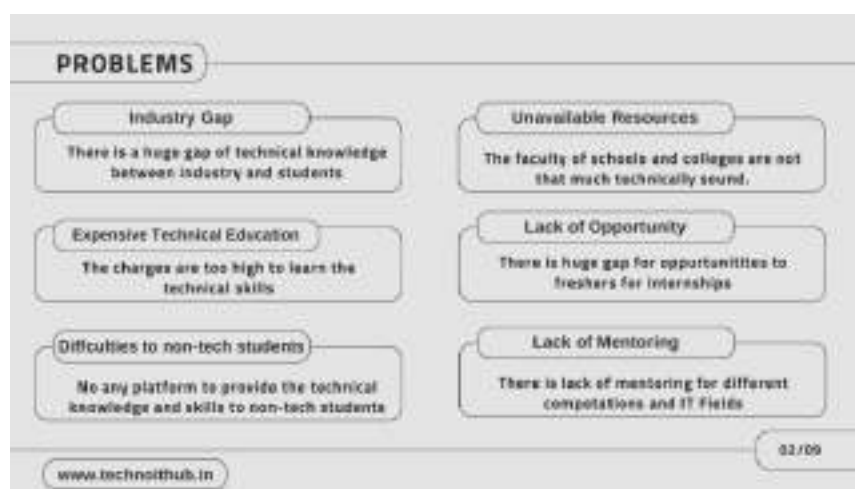


Fig 1.10 Problems

1.5.2 Solutions Offered by TIH

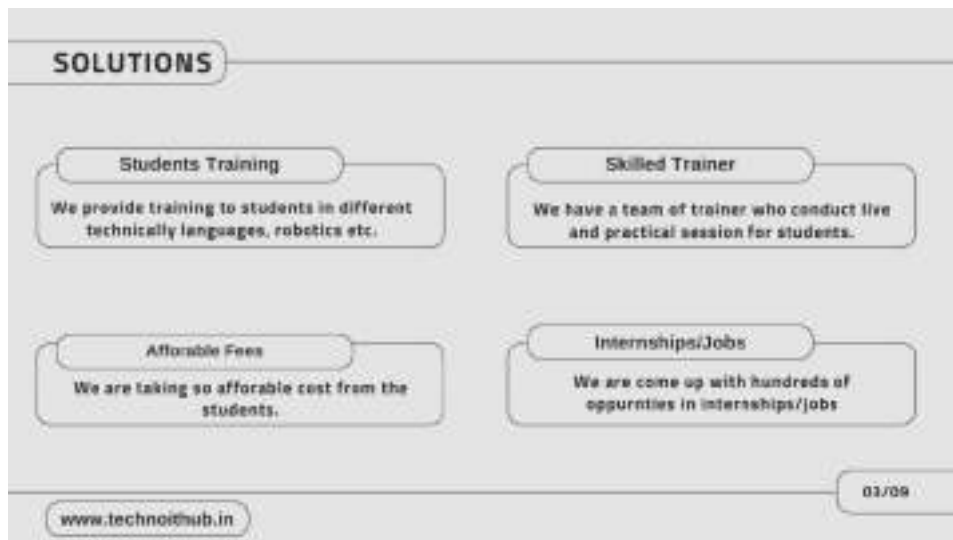


Fig 1.11 Solution



Fig 1.12 Solution

### 1.5.3 Values Created

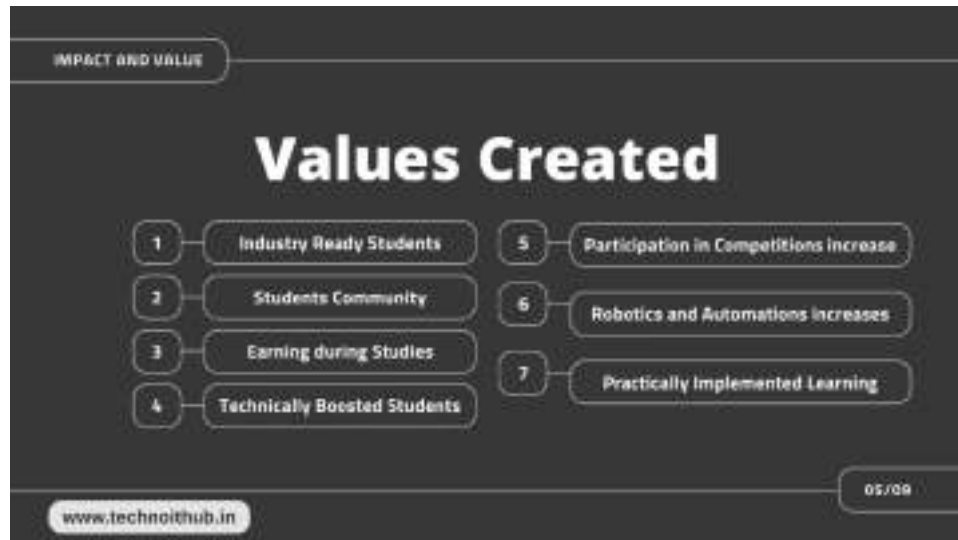


Fig 1.13 Impact and values created

### 1.6 Website :

❖ <https://www.technoithub.in/>



## CHAPTER 2. INTERNSHIP OVERVIEW

### 2.1 DETAILS ABOUT THE WORK BEING CARRIED OUT IN EACH DEPARTMENT

#### 2.1.1 Website Design and development

- IT services encompass a wide range of technical expertise, including web design and development. A well-designed and functional website is a crucial component of any modern business, as it serves as the primary point of contact with potential customers and clients.
- Web designers and developers work together to create websites that are not only visually appealing but also user-friendly and optimized for search engines.
- They use various tools and programming languages to create a website that meets the specific needs of the business, such as e-commerce functionality or mobile responsiveness.
- Additionally, they ensure that the website is secure and can handle high levels of traffic without crashing or slowing down.



Fig 1.2 Web design and development

- Involves coding the website using programming languages such as HTML, CSS, and JavaScript. Finally, the website is thoroughly tested to ensure that it functions correctly and is ready for deployment.
- Overall, web design and development play a critical role in creating a strong online presence for businesses and organizations of all sizes.

### 2.1.2 Mobile App Development

- Mobile app development is a crucial IT service that involves creating applications that run on mobile devices such as smartphones and tablets. With the increasing use of mobile devices, mobile app development has become a vital aspect of IT services.
- Mobile apps have a wide range of applications, including entertainment, social networking, e-commerce, education, and healthcare.
- Mobile app development requires expertise in programming languages, frameworks, and platforms that are used for developing mobile applications. IT service providers that specialize in mobile app development have the necessary expertise to create high-quality, user-friendly mobile apps that meet the needs of their clients.



Fig 1.3 Mobile app development

- To develop a mobile app, a thorough understanding of the target audience and their needs is necessary. The app should be designed with the user in mind, with a focus on providing a seamless and intuitive user experience.
- Mobile app development involves several stages, including ideation, design, development, testing, and deployment. The development process requires collaboration between designers, developers, and quality assurance teams to ensure that the app is functional, user-friendly, and meets the needs of the client.
- IT service providers that specialize in mobile app development can create customized solutions that meet the unique needs of businesses and organizations, helping them to improve their operations and enhance their customer experience.

### 2.1.3 Digital Marketing

- IT service providers can greatly benefit from digital marketing strategies to attract and retain clients in the highly competitive market.
- Digital marketing allows IT service providers to reach a wider audience and showcase their expertise in various areas such as cloud computing, cybersecurity, software development, and more.
- By creating engaging and informative content such as blogs, infographics, and social media posts, IT service providers can establish themselves as thought leaders in the industry and build trust with potential clients.
- In addition, digital marketing can help IT service providers generate leads and conversions by utilizing targeted advertising campaigns, search engine optimization (SEO), and email marketing.



Fig 1.4 Digital Marketing

- In the digital age, customers expect to find businesses online and have a seamless experience from start to finish. By having a strong digital presence, IT service providers can demonstrate their capabilities, showcase their successes, and provide a user-friendly experience for potential clients.
- Digital marketing also allows IT service providers to track and analyze the performance of their campaigns, allowing for continuous improvement and optimization.
- Overall, digital marketing is a valuable tool for IT service providers to establish their brand, increase their reach, and ultimately grow their business.

### 2.1.4 Social Media Marketing

- Social Media Marketing is the use of social media platforms to promote a product or service.
- It is a form of digital marketing that uses social media channels such as Facebook, Twitter, LinkedIn, Instagram, and others to connect with potential customers and promote a business.
- The primary goal of social media marketing is to increase brand awareness, engage with customers, and ultimately drive sales.
- It involves creating and sharing content, running advertisements, and building a community of followers who can become loyal customers.



Fig 1.5 Social Media Marketing

- One of the benefits of social media marketing is that it can be highly targeted, allowing businesses to reach specific demographics and interest groups.
- For example, a company selling athletic wear can target their advertising to people who are interested in fitness and sports.
- This kind of targeted advertising can be much more effective than traditional advertising methods because it allows businesses to reach people who are already interested in their products or services.

- Additionally, social media marketing can be more cost-effective than traditional advertising methods, making it an attractive option for businesses of all sizes. With the right strategy and execution, social media marketing can be a powerful tool for building brand awareness, driving sales, and growing a business.

### 2.1.5 Search Engine Optimization

- Search Engine Optimization, commonly referred to as SEO, is the process of optimizing a website or web page to improve its visibility and ranking on search engine results pages.
- SEO is crucial for any online business as it helps to attract more organic traffic, which in turn leads to increased visibility, higher conversions, and ultimately more revenue.



Fig 1.6 Search Engine Optimization

- There are several components of SEO, including keyword research, on-page optimization, link building, and content creation.
- Keyword research involves identifying the most relevant and popular keywords that users are searching for in relation to a particular topic or industry. On-page optimization includes optimizing the website's content and structure to ensure that it is search engine friendly.
- Link building involves acquiring links from other reputable websites to improve the website's authority and relevance. Content creation involves creating high-quality, engaging, and informative content that is optimized for both search engines and users.
- Overall, SEO is an essential component of any successful online business strategy. By implementing SEO best practices, businesses can improve their online visibility, attract more organic traffic, and ultimately drive more sales and revenue.

#### **2.1.6 E-commerce Development**

- E-commerce development is a vital IT service that involves building online platforms for businesses to conduct sales transactions, customer interactions, and marketing activities.
- The development process involves designing, developing, and implementing e-commerce platforms that are user-friendly, secure, and scalable.
- E-commerce development is critical for businesses that want to compete effectively in the digital age and expand their customer base beyond geographic boundaries.
- With an e-commerce platform, businesses can showcase their products and services, manage orders, process payments, and engage with customers in real-time.



Fig 1.7 E-commerce development

- E-commerce development has become more important than ever due to the growing trend of online shopping. Customers are increasingly turning to online platforms to shop for products and services due to convenience, cost-effectiveness, and a wider selection of goods.
- E-commerce development enables businesses to leverage this trend by providing customers with a seamless and personalized shopping experience. Moreover, e-commerce platforms enable businesses to collect valuable data on customer preferences, behaviors, and buying habits, which can be used to optimize sales strategies and improve customer satisfaction.
- Overall, e-commerce development is a crucial IT service that can help businesses stay competitive and succeed in the digital marketplace.

### 2.1.7 Email Marketing

- Email marketing is a powerful tool that IT service providers can use to reach out to potential and existing customers. With email marketing, IT service providers can keep customers informed about their latest offerings, updates, and promotions.
- The key to successful email marketing is to provide customers with relevant and valuable information that can help them solve their problems. By offering valuable content, IT service providers can build trust with their audience and establish themselves as experts in their field.
- Additionally, email marketing can help IT service providers to stay top of mind with their customers, which can lead to repeat business and referrals.



Fig 1.8 Email Marketing

- To run a successful email marketing campaign, IT service providers need to have a well-crafted email list, which should be built with the consent of the recipients.
- IT service providers should also segment their email list based on factors such as customer interests, buying habits, and demographics to ensure that the content they send is targeted and relevant.
- The emails themselves should be designed to be visually appealing and easy to read, with a clear call to action that encourages recipients to take action.
- Finally, IT service providers should track the performance of their email campaigns using metrics such as open rates, click-through rates, and conversion rates, and use this data to refine their email marketing strategy over time.

#### **2.1.8 Graphic Designing**

- IT services often include graphic designing as an essential component. Graphic design is a crucial aspect of creating digital media, marketing materials, and branding assets for businesses.
- IT companies offer graphic designing services to cater to the needs of businesses that require design work for their websites, social media, advertisements, and other marketing collaterals.





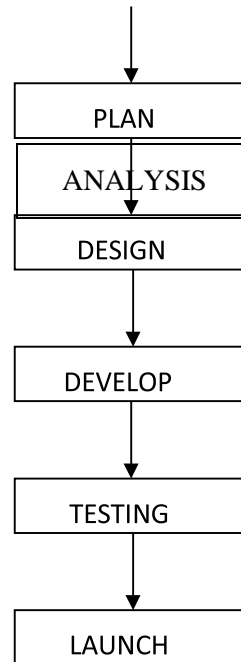
Fig 1.9 Graphic Designing

- Graphic designing involves the creation of visual content using software like Adobe Illustrator, Photoshop, or InDesign. Designers use various elements such as typography, colors, images, and illustrations to create appealing and effective designs.
- With the help of IT services, businesses can access the expertise of professional graphic designers who can help them create unique designs that resonate with their brand identity and target audience.
- By investing in graphic designing services, businesses can enhance their online presence and attract more customers, which can ultimately lead to higher sales and revenue.

## 2.2 LIST THE TECHNICAL SPECIFICATIONS OF MAJOR EQUIPMENT USED IN EACH DEPARTMENT

Processor-Intel core i5-11800H  
Display: - 15.6 Inch FHD 250nits  
Memory: - 16 GB  
Storage: - 1TB SSD  
Graphics: - NVIDIA 2GB  
OS: - Windows 10

### 2.3 PREPARE SCHEMATIC LAYOUT WHICH SHOWS THE SEQUENCE OF OPERATION FOR MANUFACTURING OF END PROJECT



## **2.4 EXPLAIN IN DETAILS ABOUT EACH STAGE OF PRODUCTION**

### **ANALYSIS**

They analyze, refine, and scrutinize the gathered requirements to make consistent and unambiguous requirements. This activity reviews all requirements and may provide a graphical view of the entire system.

### **PLAN**

In this stage team perform size and cost estimation, development time, resources requirement and project scheduling.

### **DESIGN**

Software design is the process by which an agent generates a specification for a software artifact that is meant to achieve goals and is based on a set of primitive components and restrictions.

### **DEVELOP**

They apply engineering principles to the process of building software. Using programming languages like Android, iOS, React Native, java, C, C++, Python, etc. they design software for computer applications, mobile apps, cloud platforms, and web applications.

### **TESTING**

Check the developed product with given requirement of client. It involves manual testing of all functionality of software. Assesses the software for errors and bugs if there any.

### **LAUNCH**

In this phase deploy the created technical courses in real world and give it to the client after perform testing of all modules

## CHAPTER 3. INTRODUCTION TO INTERNSHIP

### 3.1 PROJECT SUMMARY

- This project deals with developing an educational Website.
- It provides the students with a list of the various courses available for purchase at the **Techno IT Hub** start-up. For the convenience of online access of courses and internship materials, a registration process with proper authentication is provided to the user.
- After the selection of the content to buy, it is sent for the enrolment confirmation process.
- Also, online registration to the events which are organized by TIH, itself is facilitated.
- The system is implemented using JavaScript's library ReactJS

### 3.2 PURPOSE

- Purpose of this project is to make technical content access convenient for students.
- TIH Start-up also can sell variety of technical content without any physical store and huge inventory
- This project will provide interactive interface for students as they can view and buy technical content easily.
- It's also give admin panel to TIH authority so they can add and sell their distinct courses and internships.

### 3.3 OBJECTIVE

- By this project students who are really new to the technical world will get this educational website.

- TIH can simply list their content, events and achievements on this platform and get more students.
- As a results they can expand their start-up all over the country.
- Students can easily get their desired content delivered as online mode in the short duration.
- So, this project will helpful for both students as well as TIH.
- The only authorized person who has the appropriate access authority can access the software.

### **3.4 SCOPE**

- The scope of the project will be limited to some functions of an educational website.
- It will display courses, students can select catalog and select technical courses, and can remove them from their cart specifying the quantity of each item. Selected items will be proceeded to the online payment.
- At payment gateway, the item will be presented as an order.
- Students can pay for the items to complete the buying.
- This project has great future scope. The project also provides security with the use of login ID and passwords, so that no unauthorized users can access your account.

### **3.5 TECHNOLOGY AND LITERATURE REVIEW**

- HTML, CSS, JavaScript, Bootstrap, MySQL is used to make frontend and backend of website.
- The main framework of this project is ReactJS.

#### **3.5.1 HTML**

- Hypertext Markup Language (HTML) is the standard markup language for documents designed to be viewed in a web browser.

### 3.5.2 CSS

- CSS is the programming language used to style an HTML document. CSS specifies how HTML elements should be rendered.

### 3.5.3 JavaScript

- JavaScript is a programming language that is used by coders to develop dynamic and interactive web content such as apps and browsers.

### 3.5.4 ReactJS

- The ReactJS framework is an open-source JavaScript framework and library developed by Facebook. It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code than you would with vanilla JavaScript

### 3.5.5 How does ReactJS works?

While building client-side apps, a team of Facebook developers realized that the DOM is slow (The Document Object Model (DOM) is an application programming interface (API) for HTML and XML documents.

It defines the logical structure of documents and the way a document is accessed and manipulated.). So, to make it faster, React implements a virtual DOM that is basically a DOM tree representation in JavaScript. So when it needs to read or write to the DOM, it will use the virtual representation of it. Then the virtual DOM will try to find the most efficient way to update the browser's DOM.

Unlike browser DOM elements, React elements are plain objects and are cheap to create. React DOM takes care of updating the DOM to match the React elements. The reason for this is that JavaScript is very fast and it's worth keeping a DOM tree in it to speed up its manipulation. Although React was developed to be used in the browser, because of its design it can also be used in the server with Node.js.

## **3.6 INTERNSHIP PLANNING**

### **3.6.1 Development approach and justification**

Activities we followed for this project is listed below:

- Planning the work objectives
- Analysis & design of objectives
- Assessing and controlling risk
- Allocation of resources
- Organizing the works

#### **Waterfall Model**

- The Waterfall Model was the first Process Model to be introduced. It is also referred to as a linear-sequential life cycle model.
- It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases.
- The Waterfall model is the earliest SDLC approach that was used for software development.



Fig 3.1 Waterfall Model

### 3.6.2 Effort, time and cost estimation

Cost required to develop project=effort\*rs/month

- Effort Estimation (E):  
 In Organic=2.4 (KLOC)1.05 PM  
 In semidetached=3.0(KLOC)1.12 PM In Embedded=3.6(KLOC)1.20PM
- Time Estimation (D):  
 In Organic=2.5(effort)0.38months  
 In semidetached=2.5(effort)0.35 months In Embedded=2.5((effort)0.32months
- Person Estimation:  
 $P=E/D$  KLOC=Kilo Line of Code



Modules	Page	Estimated line of code
Student	-	1250
	Dashboard	100
	My Courses	150
	Other courses	100
	Courses details	100
	Internships	200
	Other Internships	200
	Technical	100
	Achievements	200
	Events	100

- Total line of code=1250
- KLOC=1.25

We are using Organic Project Type, Effort Estimation

(E):

$$=2.4 (\text{KLOC})^{1.05} \text{ PM}$$

$$=3.033 \text{ PM}$$

Duration Estimation (D):

$$= 2.5(\text{effort})^{0.38} \text{ month}$$

$$=2.5(3.033)^{0.38} \text{ months}$$

$$=3.811 \text{ months Project Cost:}$$

$$=\text{effort} * \text{RS/month}$$

$$=3.033 * 10000$$

$$=30,330 \text{ RS}$$

### 3.6.3 Role and responsibilities

- Investigation
- Requirement Analysis
- Design
- Coding
- Testing

### 3.6.4 Group Dependencies

I will be complete all the module by myself as it is individual project

## 3.7 GANTT CHART



Fig 3.2 Gantt Chart

3.8 JOB DETAILS

Website developer	5 days working, Yearly vacation, Games, etc..	8 hours/day
Full-time   <del>Part-time</del>	Block 3, GTU Innovation Council, University Rd, near L.D. College of Engineering, Ahmedabad	Fresher
<del>Overtime</del>	<del>travel</del>	<del>evening/weekend work</del>

[

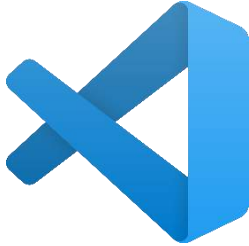



2.2.0.1 Job Profile Matrix]

### 3.9 WORK ENVIRONMENT

- **TIH** has an open floor plan with furniture and plenty of natural light. Its very important for students to work with Startup for understanding ground reality of research and project work.



## 3.10 SOFTWARE TOOL'S TABLE

Index	Tool Name	Logo/Image	Use Case
1.	Visual Studio Code		Visual Studio Code is a free coding editor that helps you start coding quickly. Use it to code in any programming language, without switching editors. Visual Studio Code has support for many languages, including Python, Java, C++, JavaScript, and more.
2.	Jira		<b>JIRA</b> is a software development tool used for <b>project management</b> and <b>issue tracking</b> . It is a popular tool among software development teams to plan, track, and release software projects
3.	Slack		Slack makes it easy to contact your colleagues – you can message anyone inside or outside your organisation and collaborate just as you would in person. People can work in dedicated spaces called channels, which bring the right people and information together.
4.	GitHub		GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere.

[2.4.0.1 Software &amp; Tools Table]

## CHAPTER 4. SYSTEM ANALYSIS

### 4.1 STUDY OF CURRENT SYSTEM

- By this project, TIH start-up will get this Educational website. They can simply list their technical courses and internship details on this platform and get more students. As a results they can grow their start-up.
- For TIH, this project makes it simple to sell things to a big number of students.
- Students can easily get their desired technical courses delivered to the home in short duration.
- So, this project will helpful for both Students as well as TIH, itself.

### 4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

- Currently there are several educational websites but they are not based on
- ReactJS framework
- In majority of current system there is technical person require to operate the system of seller software.

### 4.3 REQUIREMENTS OF NEW SYSTEM

User Requirement:

- It should be a very easy and interactive website for users and it has the simple UI and features.
- It should also be responsive website for every device

Documentation of functional requirement:

- For documenting the functional requirement, we need to specify the set of functionalities supported by the system.
- A function can be identified the state at which the data to input to the system, its input data domain, the output data domain, and the type of possessing to be carried out on the input data to obtain the output data.

## 4.4 SYSTEM FEASIBILITY

4.4.1 Does The System Contribute To Overall Objectives Of Organization?

Yes

4.4.2 Can The System Be Implemented Using The Current Technology Within The Given Cost?

Yes

4.4.3 Can The System Be Integrated With Other Systems Which Are Already In Place?

No

## 4.5 ACTIVITY

There are two main sides of this system:

1. Admin (seller)
2. User (customer)

Admin:

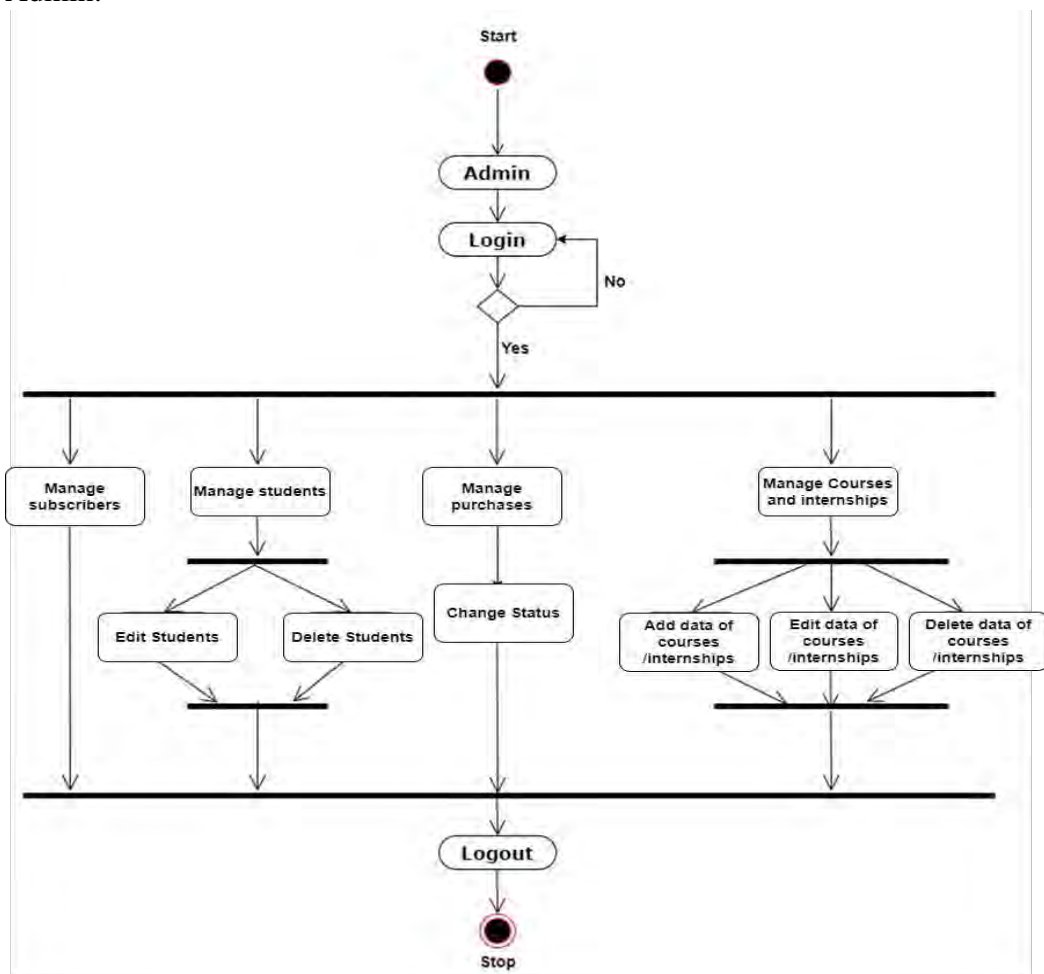


Fig 4.1 Admin activity diagram

User:

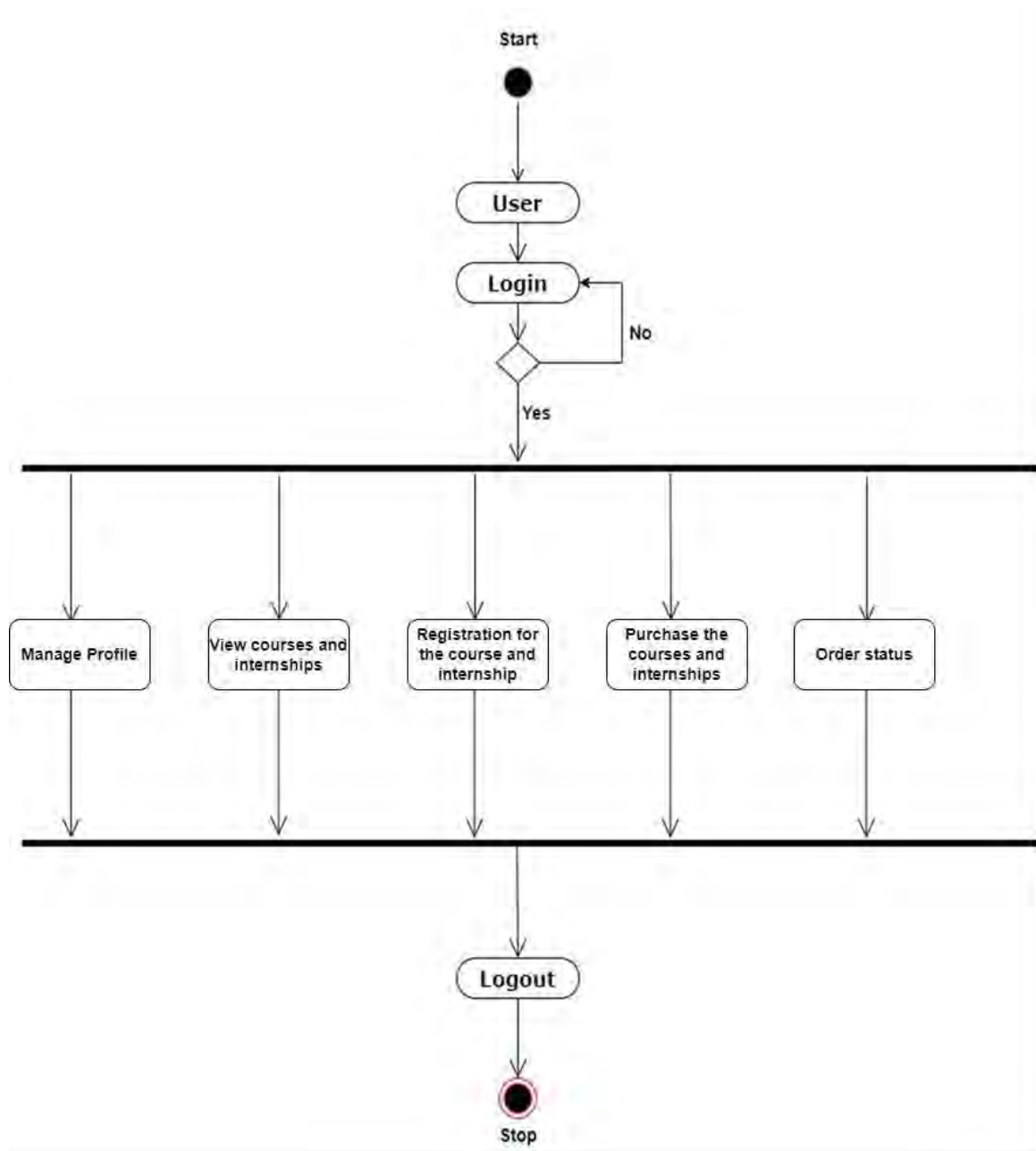


Fig 4.2 User activity diagram

#### 4.6 FEATURE OF NEW SYSTEM

- It is a very easy and interactive website for users.
- It has the simple UI and features like easy signup and login, user profile, multiple technical courses, payment gateway.



- It is also responsive website for every device like mobile, tablet, laptop.

#### **4.7 LIST MAIN MODULES**

- The online registration can be used to buy technical courses online.
- The main modules involved in this system are:
  1. Signup/Login
  2. Admin access
  3. User interaction

#### **4.8 SPECIFICATION OF HARDWARE AND SOFTWARE**

Hardware Requirements:

- Laptop / Desktop / Smartphone
- RAM: 4GB minimum
- CPU: Intel Core i3

Software requirement: -

- VS code
- Firebase Database
- JavaScript ECMA Script 2023
- ReactJS 18.2.0

## CHAPTER 5. SYSTEM DESIGN

### 5.1 SYSTEM DESIGN AND METHODOLOGY

- The process of establishing the architecture, components, modules, interfaces, and data for a system in order to meet certain criteria is known as systems design.
- The System Design Description report gives a summary or thorough description of a module-based and component-based system design. As a result, systems design is the process of defining and developing systems to meet the user's specific requirements.
- The System Design process' goal is to offer enough specific data and knowledge about the system and its components to allow for the compliant implementation of structural organizations as defined in the system model and perspective.

### 5.2 DATABASE DESIGN

Firebase is a real-time database platform developed by Google that allows developers to store and sync data in real-time. Here are some key aspects of database design in Firebase:

1. **Data Structure:** Firebase is a NoSQL database, which means that it does not have a fixed schema like traditional SQL databases. Instead, data is stored as JSON objects, which are flexible and can be easily modified. The structure of the data can be hierarchical, which means that there can be multiple levels of data within a single object.
2. **Data Modelling:** In Firebase, data modelling involves designing the structure of the data, defining relationships between different data types, and determining how the data will be stored and retrieved. The key to successful data modelling in Firebase is to keep the data as renormalized as possible, which means that the data is duplicated across multiple locations to ensure faster access.
3. **Security Rules:** Firebase allows developers to define security rules to control access to their data. These rules are written in a simple JSON-based syntax and can be used to restrict access to specific data based on the user's authentication status or other criteria.

4. Indexing: Firebase automatically indexes all data by default, making it easy to retrieve data quickly. However, developers can also create custom indexes to improve performance for specific queries.
5. Scalability: Firebase is designed to be highly scalable, with the ability to handle large amounts of data and high volumes of traffic. This is achieved through a distributed infrastructure that replicates data across multiple servers and provides automatic load balancing.

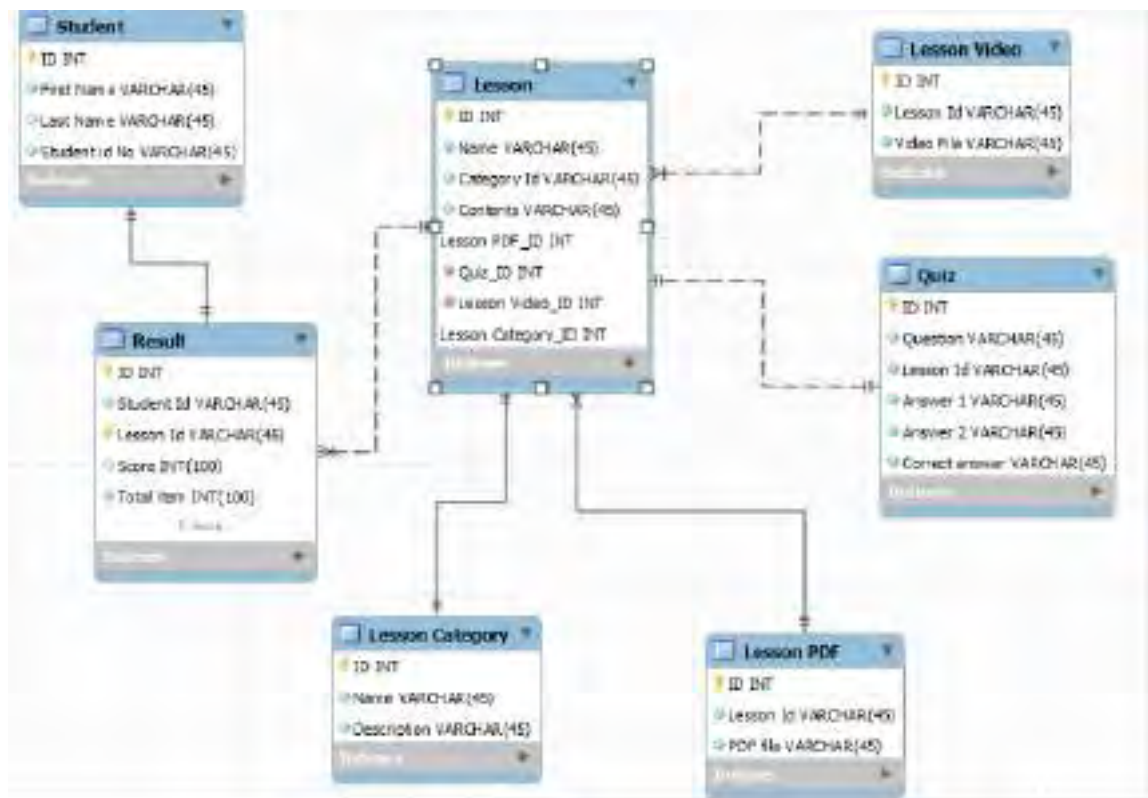


Fig 5.1 Database design

### 5.3 INPUT / OUTPUT AND INTERFACE DESIGN

#### 5.3.1 State Transition Diagram

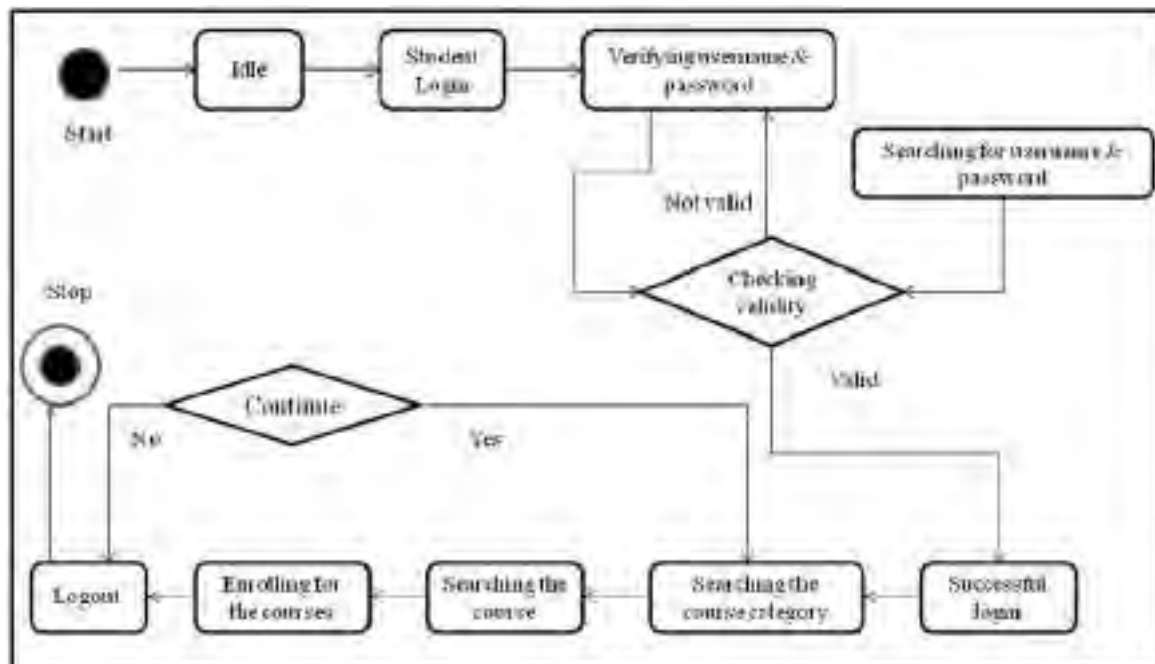


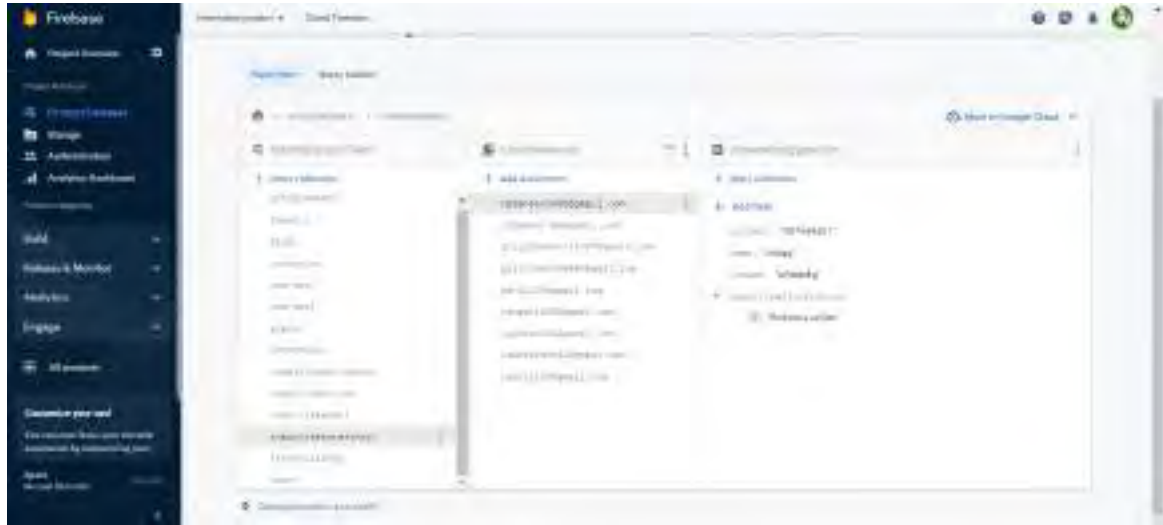
Fig 5.2 State Transition Diagram

#### 5.3.2 Samples of Forms, Reports and Interface

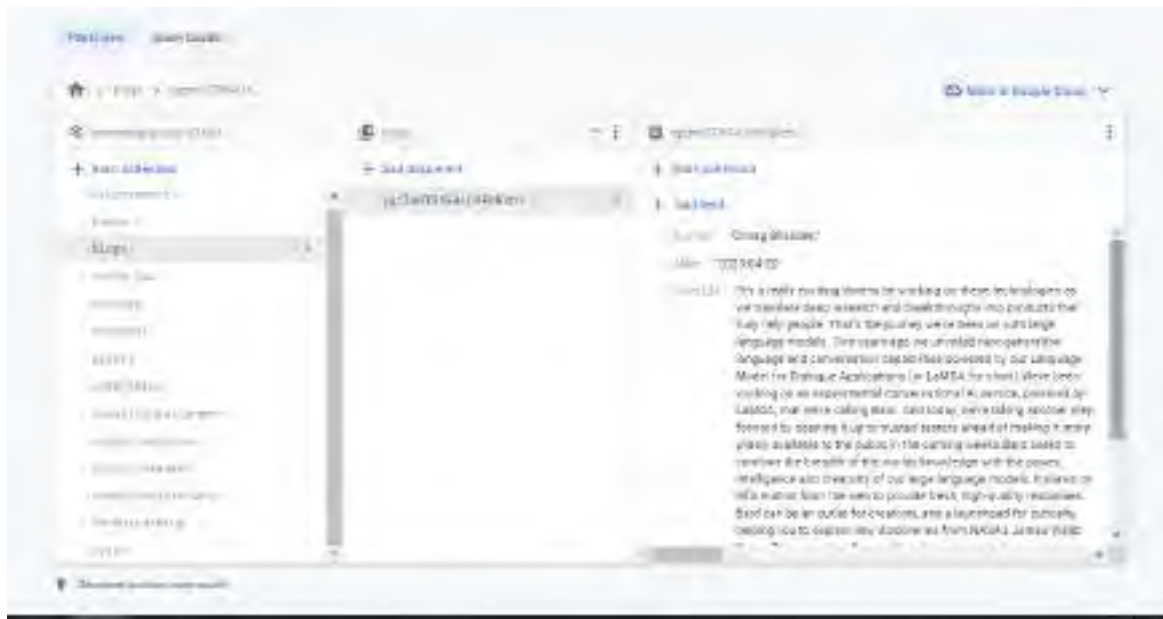
Firebase database: Here, different components and its' data are shown.



List of subscribers who are enrolled in the internships

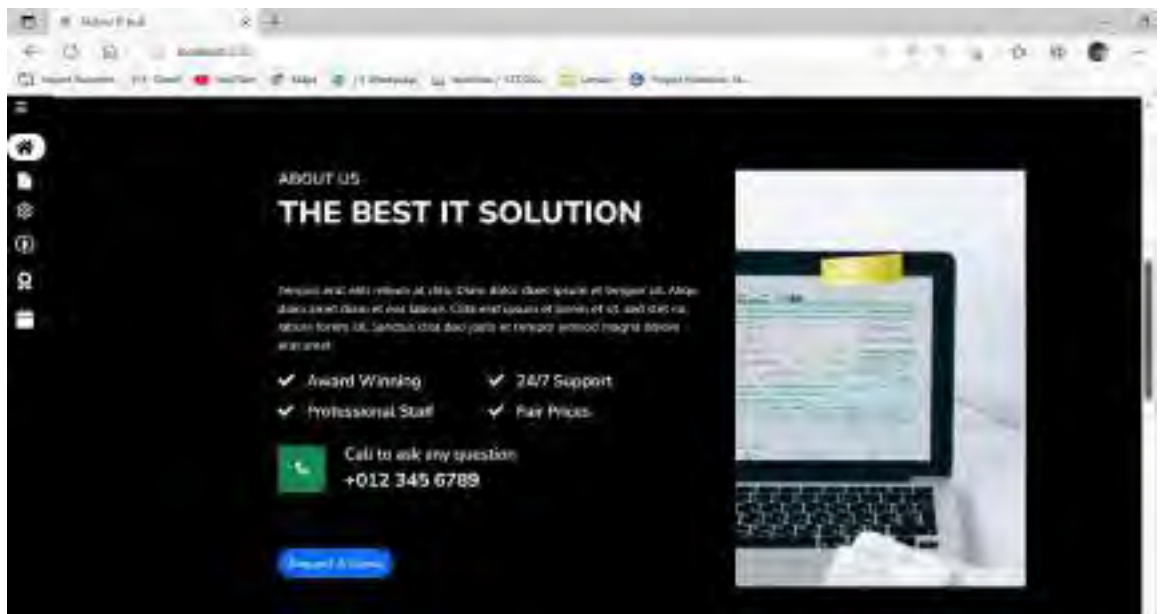


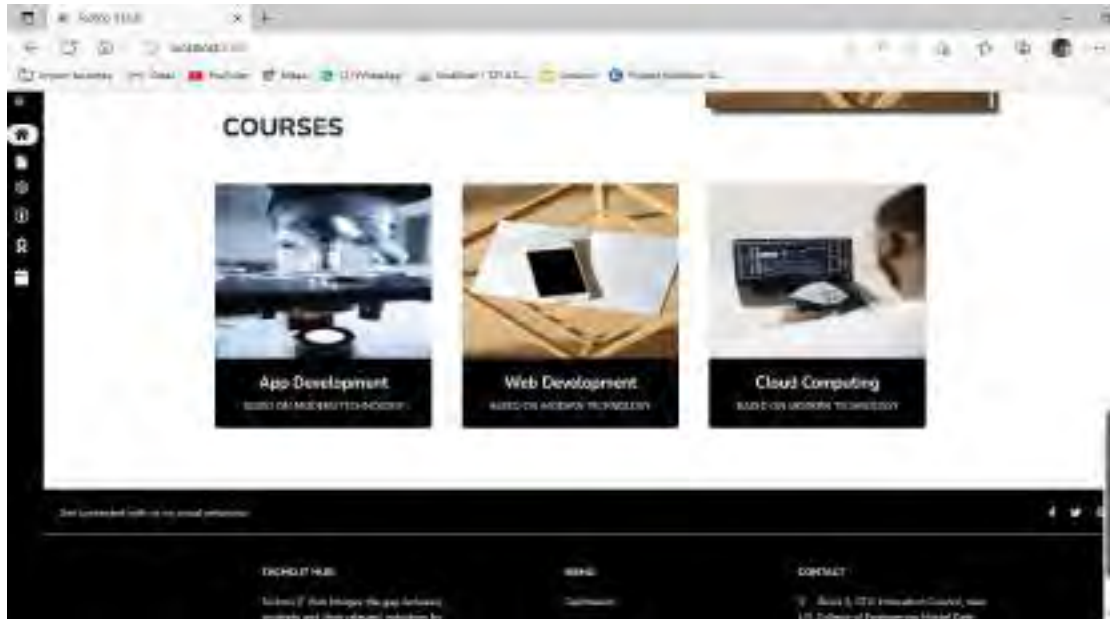
Details of blogs:



Output screenshots:













## CHAPTER 6. IMPLEMENTATION

### 6.1 IMPLEMENTATION ENVIRONMENT:

#### **Firestore:**

Firestore is a real-time database platform developed by Google that allows developers to store and sync data in real-time.

#### **JavaScript:**

JavaScript is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else

#### **ReactJS:**

The React.js framework is an open-source JavaScript framework and library developed by Facebook. It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code than you would with vanilla JavaScript.

## 6.2 MODULE SPECIFICATION

### ReactJS :



- ReactJS is a **declarative, efficient,** and flexible **JavaScript library** for building reusable UI components.
- It is an open-source, component-based front end library which is responsible only for the view layer of the application.
- It was initially developed and maintained by Facebook and later used in its products like WhatsApp & Instagram.
- Our ReactJS tutorial includes all the topics which help to learn ReactJS. These are ReactJS Introduction, ReactJS Features, ReactJS Installation, Pros and Cons of ReactJS, ReactJS JSX, ReactJS Components, ReactJS State, ReactJS Props, ReactJS Forms, ReactJS Events, ReactJS Animation and many more.
- The main objective of ReactJS is to develop User Interfaces (UI) that improves the speed of the apps. It uses virtual DOM (JavaScript object), which improves the performance of the app. The JavaScript virtual DOM is faster than the regular DOM. We can use ReactJS on the client

and server-side as well as with other frameworks. It uses component and data patterns that improve readability and helps to maintain larger apps.

**JavaScript :**

- JavaScript is an *object-based scripting language* which is lightweight and cross-platform.
- JavaScript is not a compiled language, but it is a translated language. The JavaScript Translator (embedded in the browser) is responsible for translating the JavaScript code for the web browser.
- JavaScript (js) is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document.
- It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses js to provide several forms of interactivity and simplicity.

**Firestore :**

- Firestore is a mobile and web application development platform that provides a variety of backend services and tools to help developers build high-quality applications. Here are some of the main functionalities of Firestore:
  - Real-time database: Firestore provides a real-time database that enables developers to store and sync data in real-time across multiple clients. This can be useful for building applications that require real-time collaboration, such as chat apps and multiplayer games.
  - Authentication: Firestore includes an authentication service that allows developers to add user authentication to their applications with just a few lines of code. Firestore supports a variety of authentication providers, including email/password,

Google, Facebook, and Twitter.

- Cloud messaging: Firebase provides a cloud messaging service that enables developers to send push notifications and messages to their users across multiple platforms.
  
- Cloud storage: Firebase provides cloud storage for developers to store and serve user-generated content such as images, audio, and video files.
  
- Hosting: Firebase includes a web hosting service that allows developers to quickly and easily deploy their web applications to a secure, global content delivery network.
  
- Machine learning: Firebase includes a suite of machine learning tools that enable developers to easily add image and text recognition, language translation, and other AI capabilities to their applications.
  
- Analytics: Firebase includes an analytics service that provides insights into user behaviour and app usage, allowing developers to make data-driven decisions about how to improve their applications.



- Overall, Firebase provides a comprehensive set of backend services and tools that help developers build high-quality, scalable applications quickly and easily.

**Thunder Client :**

- Thunder Client is a lightweight and easy-to-use REST API client that is available as a browser extension for Google Chrome and Microsoft Edge. It provides a variety of features and tools that can help developers to test and debug REST APIs. Here are some of the main uses of Thunder Client:
  - API testing: Thunder Client allows developers to quickly and easily test REST APIs by sending HTTP requests and viewing the responses. Developers can also save requests and responses for later use.
  - API debugging: Thunder Client provides a variety of tools to help developers debug REST APIs, including the ability to view request and response headers, inspect JSON and XML payloads,

and set breakpoints.

- API documentation: Thunder Client allows developers to create and save API documentation, including request and response examples, parameters, and headers. This can be useful for sharing documentation with team members or for reference during development.
  - API automation: Thunder Client supports scripting with JavaScript, allowing developers to automate API testing and integrate with other tools in their development workflow.
- Overall, Thunder Client is a useful tool for developers who work with REST APIs, providing a simple and intuitive interface for testing, debugging, documenting, and automating API request.

### 6.3 OUTCOME

- After completing the project, I discovered a lot of stuff that I had not learned in college.
- I also got a first-hand look at what it's like to work as a software engineer in a company.
- Requirements vary after project phase 1 is completed, thus this project is also completed in a real-world, where clients' demands alter and developers must be able to make those adjustments in completed projects.

- The project's major goal was to create a platform for dynamically adding items from the admin side, which is currently unavailable in most systems.
- The website's second purpose is to make it more user-friendly, so that individuals without much technical expertise may use it, and it will also assist me in the near future in the workplace.

## **6.4 RESULT ANALYSIS**

- The results of this project were as expected after it was completed.
- There were a few revisions to the project requirements, which were completed effectively and on t

## CHAPTERS 7. TESTING

### 7.1 TESTING STRATEGY

#### Unit Testing

Software testing methods are traditionally divided into white and black-box testing.

1. Black Box Testing - Whether or not a specific class satisfies the specification's requirements.
2. White Box Testing - While testing the class as a black box, the tester looks inside that class and checks for errors in the code that aren't discovered.

#### Integration Testing

1. User Interface Testing - Moving through each and every menu item in the interface in a topdown or bottomup manner is used to test it.
2. Interaction Testing - Whenever the framework performs information handling, Interaction between different classes is tried.

#### Validation Testing

- We performed functional test cases for the Validation Testing stage, and the findings were compared in the form of actual and predicted outcomes.
- The testing confirmed that the Validation met the requirements outlined in the Use Case and SRS (Software Requirement Specification).
- The integration of form design, login, admin management and rights, and salary management was successfully tested.

#### System Testing

- It's checked to make sure that functionality-related sets of units that are employed together work as intended.
- According to the system test specifications, improper system operation is limited down to incorrect unit(s) operation, which is handled by filing the units.

## 7.2 TEST RESULTS AND ANALYSIS

### 7.2.1 Test Cases

Test id-1 testing at userside

Action	Expected output	Actual output
Click on login page	Login page will be displayed	Login page displayed
Click on course	course Page will be opened	Course Page is opened
Click on register for course	Registration should be done	Registration should be done
Click on a particular event	a particular event should be displayed	Event is displayed
Submit the query on contact us	Query should be submitted to the admin	Query is submitted to the admin
Navigate to different pages using sidebar	Navigation should be done smoothly	Navigation is done smoothly
Access the online material in the courses and internship	Materials should be accessible	Materials are accessible
Able to upload assignments	Students should be able to upload assignments	Students are able to upload assignments
Click on Buy Now button	Payment Page will be opened	Payment Page is opened

Table 7.1 Testid-1 (Testing of Userside)

Test id-2 testing of admin dashboard

Action	Input	Expected output	Actual output
Click on subscribers		Subscribers details page will be displayed	Subscribers details page is displayed
Click on courses categories		Courses categories page will be opened	Courses categories page is opened
Click on events		Events details page will be opened	Events details page is opened
Click on technical		Technical details page will be opened	Technical details page is opened
Click on internships		Internship details page will be opened	Internship details page is opened
Click on dashboard content		The data of dashboard page will be opened	The data of dashboard page is opened
Click on course Attributes		Course Attributes page will be opened	Course Attributes page is opened
Click on purchased courses by students		Purchased courses by students page will be opened	Purchased courses by students page is opened
Click on Order Items		Order Items page will be opened	Order Items page is opened
Click on student responses		Student responses page will be opened	Student responses page is opened

Table 7.2 Test Id-3 (Testing Of Admin Dashboard)

## CHAPTERS 8. CONCLUSION AND DISCUSSION

### 8.1 OVERALL ANALYSIS OF INTERNSHIP

- The major goal of this internship was to learn new things and gain technical professional experience.
- When I start this internship I had not much knowledge about JavaScript and ReactJS.
- I learnt JavaScript and ReactJS from the ground up and expanded my understanding of CSS, HTML, and Bootstrap.
- I began working on the project after understanding the fundamentals of JavaScript.

Overall, it was an amazing experience, and the senior staff was quite helpful during my internship.

### 8.2 DATES OF CONTINUOUS EVALUATION

- CE-I : 4<sup>th</sup> March, 2023
- CE-II : 1<sup>st</sup> April, 2023

### 8.3 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTION

- In this project, there is a problem that students are facing difficulty about their purchased online contents because they have no idea about delivery status as after payment of the content. Students can see status of paid when admin change that status.
- To overcome this hurdles, in upcoming days there would be live tracking feature in student's dashboard from which they can see current status of purchased contents.



## 8.4 SUMMARY OF INTERNSHIP

- First few days of internship I learnt about basics HTML and CSS. Then I started learning JavaScript and ReactJS from basic.
- I completed numerous task based on web development
- After learning all of this, I started to make website(frontend).
- My company guide, senior, and institute mentor provided me with continue support throughout this internship.
- After completing the website, the company mentor changed some of the requirements and code, giving me a better understanding of the real-world scenario of professional work in the IT industry, where clients' needs change.
- Overall, it was an incredible event from which I learned a great deal.

## 8.5 LIMITATION AND FUTURE ENHANCEMENT

- Live tracking of content is not possible for user.
- If there are a large number of students then it may become overburdened.
- Admin will be able to generate and print receipt.

## References

- Structuring the web with HTML:-[://developer.mozilla.org/enUS/docs/Learn/HTML](https://developer.mozilla.org/enUS/docs/Learn/HTML)
- Learn to style HTML using CSS:- [https://developer.mozilla.org/en-](https://developer.mozilla.org/en-US/docs/Learn/CSS)
- [US/docs/Learn/CSS](https://developer.mozilla.org/en-US/docs/Learn/CSS)
- JavaScript:- <https://developer.mozilla.org/en-US/docs/Learn/JavaScript>
- Introduction of ReactJS:- <https://legacy.reactjs.org/>
- How to create website with ReactJS :- <https://www.geeksforgeeks.org/how-to-create-a-website-in-react-js/>
- <https://www.github.com>
- <https://www.stackoverflow.com>
- <https://www.tutorialspoint.com>
- <https://www.w3schools.com>

**INTERNSHIP AT GUJARAT TECHNOLOGICAL  
UNIVERSITY-IT SECTION, AHMEDABAD  
A PROJECT REPORT**

*Submitted by*

**HEMANG ATULKUMAR SUKHADIYA**

**190390107057**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**COMPUTER ENGINEERING**

**S.P.B. PATEL ENGINEERING COLLEGE, MEHSANA**



**Gujarat Technological University, Ahmedabad**



**S.P.B. PATEL ENGINEERING COLLEGE, MEHSANA**

**CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **INTERNSHIP AT GUJARAT TECHNOLOGICAL UNIVERSITY-IT SECTION, Ahmedabad** has been carried out by **HEMANG ATULKUMAR SUKHADIYA** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in **COMPUTER ENGINEERING**, 8<sup>th</sup> Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

**Prof. AKSHAY KANSARA**  
Internal Guide

Gujarat Technological University

**Prof. AKSHAY KANSARA**  
Head of the Department

S.P.B. Patel Engineering College



# GUJARAT TECHNOLOGICAL UNIVERSITY

(Established by Government of Gujarat under Gujarat Act No. : 20 of 2007)

## ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી

(ગુજરાત સરકારના ગુજરાત અધિનિયમ ક્રમાંક : ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

GTU/ITAP/2023/CERTIFICATE/ ૨૧૫૭

Date: 4/5/2023

### TO WHOM IT MAY CONCERN

This is to certify that Mr. Hemang AtulKumar Sukhadiya, a student of S.P.B Patel Engineering College has successfully completed his internship in the field of Full Stack Development with ASP.NET from 13/02/2023 to 13/05/2023 (Total number of Weeks:13) under the guidance of Mr. Mahesh Panchal (GTU-IT Head).

His internship activities include Development of GTU – IKS (Indian Knowledge System) Website along with Hands-on training in ASP.Net and MySQL.

During the period of his internship program with us, he had been exposed to different process and was found diligent, hardworking, and inquisitive.

We wish him every success in his life and career.



*(Signature)*  
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## **S.P.B. PATEL ENGINEERING COLLEGE, MEHSANA**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship/Project entitled **INTERNSHIP AT GUJARAT TECHNOLOGICAL UNIVERSITY-IT SECTION, Ahmedabad** submitted in partial fulfillment for the degree of Bachelor of Engineering in **COMPUTER ENGINEERING** to Gujarat Technological University, Ahmedabad, is a Bona fide record of original project work carried out by me / us at **GUJARAT TECHNOLOGICAL UNIVERSITY-IT SECTION, Ahmedabad** under the supervision of **Prof. Akshay Kansara** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

**Name of the Student**

**Sign of Student**

1. HEMANG ATULKUMAR SUKHADIYA

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The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of people whose ceaseless corporation made it possible, whose constant guidance and encouragement grown all effort with success.

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We are thankful to Gujarat Technological University to giving the opportunity for assigning this Industry internship work.

**HEMANG ATULKUMAR SUKHADIYA (190390107057)**

## ABSTRACT

*I reported at the training center of Gujarat technological university, Chandkheda, Ahmedabad on February 13th, 2023. We met the business unit head and human resources head on our teams. We understood the organizational overview, organizational chart. Then they explained how the training was going to be scheduled. We were asked to work in a group and maintain discipline in the workshop. Workshop timings were from 10:30 a.m. to 6:10 p.m. The staff working in the office were very cooperative and kind to us and helped us in all possible ways. The problem we faced was that we had theoretical knowledge and they worked practically. The questions asked by us sometimes were difficult for them to answer due to their only practical knowledge. Thus, there was a small communication gap for a month, after which we were familiar with the language used by them. Well, the training at gtu-it section is very humble and well-cultured. I have learnt about what the real corporate culture looks like, how to maintain proper work etiquette, and how to deal with different kinds of tasks and handle documentation related work. From the beginning of the training on February 13th, we have experienced both work from home and on-site work experience, really the whole environment at gtu-it section, Chandkheda It is worth it.*



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## Chapter - 1 - COMPANY PROFILE

Gujarat Technological University is a premier academic and research institution which has driven new ways of thinking since its 2007 founding, established by the Government of Gujarat vide Gujarat Act No. 20 of 2007. Today, GTU is an intellectual destination that draws inspired scholars to its campus, keeping GTU at the nexus of ideas that challenge and change the world.

GTU is a State University with 486 affiliated colleges in its fold operating across the state of Gujarat through its SIX zones at Ahmedabad, Gandhinagar, Vallabh Vidyanagar, Rajkot, Surat and Bhuj. The University caters to the fields of Engineering, Architecture, Management, Pharmacy and Computer Science. The University has about 2,25,000 students enrolled in a large number of Diploma, Under Graduate, Post Graduate programs along with the robust Doctoral program.

Our education empowers individuals to challenge conventional thinking in pursuit of original ideas. With a commitment to free and open inquiry, our scholars work transforms the way we understand the world, advancing – and creating – fields of study.



## **Chapter - 2 - Overview of different department of the organization**

### **2.1 Student Support**

The Student Support Section (SSS) works as a centralized system to support the students of the University. We Provide guidance, services and assistance to the students before and after completion of courses. All services of the section are online to ensure the paperless environment as a part of a green campus.

The Student Support Section issues various following list of certificates:

- Transcript Certificate (soft copy as well as Hard copy)
- Sharing Digital copy of transcript to WES (World Education Services).
- Migration Certificate.
- Rank Certificate.
- Language/Medium of instruction Certificate.
- CGPA/CPI Percentage Conversion Certificate.
- Attempt/Backlog Certificate.
- Duplicate & Misc. Grade-Sheet.
- Duplicate Degree/Diploma Certificate.
- Final Degree/Diploma Certificate.
- Authentication of Original Degree/Diploma Certificates.
- Sending student's academics documents to other Universities through email.
- Document Verification of Grade-sheets, Provisional Certificates, Degree/Diploma Final Certificates.
- Verification of Credential Evaluation Form for WES (World Education Services), GS-Transcript Evaluation form, NCEES (National Council of Examiners for Engineering surveying), IQAS (International Qualification assessment form), ICES (International Credential Evaluation Services), ICAS (International Credential Evaluation Services) and other forms if any and Miscellaneous Certificate related services for all courses of the University.

### **2.2 IT Section**

Information technology is pervasive and intrusive, adaptive and innovative, hence GTU is the first university in Gujarat who has implemented "CLOUD" concept. By sharing IT services in the cloud, educational institution can outsource noncore services and better concentrate on offering students, teachers, faculty, and staff the essential tools to help them succeed.

GTU – IT dept. have developed more than 150 different websites and portals for the different activities of the GTU. All the portals and websites have developed by in- house

team of the GTU. GTU have more than 2, 25,000 students and around 15000 faculties Who are accessing the different portals and websites of the GTU.GTU – IT have developed the Admin Panel for all the stakeholders of the university. All the students can apply for certificates, exams and different activities of the university. All the staff members can also access and update their profile in regular interval using staff portal. GTU IT dept. manage and maintain most of the data through AWS cloud and due to this all the IT related work are not compromised in any situations.

### **2.3 Store and Purchase Section**

The Department is responsible for the Purchase of the University Stores and other materials, Items demanded by various section which includes following processes:

1. Purchase through GeM
2. Purchase other than GeM (By Market Inquiry, Tender & E-Tender)
3. Cash Purchase
4. Communication with Telecom Company regarding CUG and Bills.
5. Purchase committee Meeting and Minutes preparation implementation
6. Records and Files Management
7. Government e-Market (GeM) bid, order & Pass for Payment Submission
8. Recording Stock/New Purchase Items to GPR & Dead Stock/consumable/Service Register with Indent Details.
9. Repairing of IT Items.
10. Providing Transportation facility.
11. Consumable Cartridge/Toner Refilling
12. Convocation related purchase and other duty.
13. Exam Stationary Management
14. Pulping for used Answer books and other stationary

### **2.4 Exam Section**

To make examination system more reliable, transparent and accountable, GTU has adopted many innovative approaches. To make the process of examination smoother, University has divided the whole examination department into various sections. Controller of Examination is the head of the examination section under whom below hierarchy for the purpose of faster administration is followed.

## CHAPTER - 3 - OVERVIEW OF TECHNOLOGIES AND ITS FUNCTIONALITY

### 3.1 INTRODUCTION TO ASP.NET

- 1. NET Introduction:** .NET is a framework developed by Microsoft that allows developers to build and run software applications on Windows. It provides a number of programming languages, such as C# and Visual Basic, and a set of libraries and tools that can be used to develop desktop applications, web applications, and mobile applications.
- 2. Objects:** In ASP.NET, objects are instances of classes that represent elements on a webpage, such as buttons, labels, and textboxes. These objects can be manipulated programmatically to modify their appearance, behavior, and other properties.
- 3. Auto Post back Property:** The AutoPostBack property is a property of some web controls that, when set to true, causes the control to automatically submit the form to the server when the control's value changes. This allows the server to process the new value and perform any necessary actions in response to the change.
- 4. Event Handler Parameters:** Event handler parameters are parameters that are passed to event handlers when an event is raised. These parameters contain information about the event that was raised, such as the sender object and any additional data that may be associated with the event.
- 5. Dynamically Initializing Controls:** Dynamically initializing controls is the process of creating and adding new web controls to a web page at runtime, rather than statically defining them in the page markup. This can be useful for Property can be used to determine whether to initialize controls or perform other actions that should only be done on the initial page load.
- 6. List Controls Control Properties and Methods:** List Controls are a group of controls in ASP.NET that allow users to select one or more items from a list. Some common properties and methods of list controls include DataSource, DataBind, Items, SelectedValue, and SelectedIndex.
- 7. FileUpload Control:** The FileUpload control is a web control in ASP.NET that allows

users to select and upload files to the server. This control can be used to allow users to upload images, documents, or other files as part of a web application.

- 8. Life Cycle of ASP.NET Page:** The life cycle of an ASP.NET page refers to the sequence of events that occur when a user requests a web page from the server. This sequence includes events such as Page\_Init, Page\_Load, and Page\_PreRender, and provides developers with hooks to perform initialization, data binding, and other tasks during the page life cycle.
- 9. How Control manages its State:** Controls in ASP.NET manage their state using a combination of view state, control state, and session state. View state is used to store the control's state between postbacks, while control state is used to store critical data that must be persisted even if view state is disabled.
- 10. What is EnableViewState:** EnableViewState is a property of web controls in ASP.NET that indicates whether the control should participate in view state management. When set to true, the control's state will be saved and restored between postbacks.
- 11. How Control Raises Events:** Controls in ASP.NET raise events when certain actions occur, such as when a button is clicked or when a list item is selected. These events can be handled by event handlers that are defined in the code-behind file of the web page, and can be used to perform actions such as updating the database or displaying a message to the user.



## 3.2 CSS

### *Work with CSS:*

Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML. CSS is used to apply styles and formatting to HTML elements. CSS allows web developers to separate the presentation of a website from its content. This makes it easy to update the look and feel of a website without having to change its content.

ASP.NET provides support for CSS through several built-in features. CSS can be used to control the layout and appearance of web pages in an ASP.NET application.

*Use Themes to Customize a Site:*

ASP.NET themes allow you to apply a consistent look and feel across all the pages in your application. Themes consist of a set of files that define the styles and layout of your site. A theme can be applied to an entire site or to individual pages.

In conclusion, ASP.NET provides a powerful set of tools for working with CSS. Themes and skins allow you to create a consistent look and feel across your site, while server-side styles allow you to customize the appearance of server-side controls. By using themes and profiles, you can further customize your site to meet the needs of your users.

## 3.3 MASTER PAGES

### *Introduction to MasterPage:*

Master Pages is an important feature of ASP.NET which enables us to define a consistent look and feel for a website by creating a template that other pages can use. A master page is like a skeleton of a website which defines the common layout and interface that should be shared across all the pages of a website.

### *ContentPlaceHolder and Content tags:*

The ContentPlaceHolder control is used to define the location where the content of a page will be placed. Content tags are used to specify the content that will be placed inside a ContentPlaceHolder control.

### *Accessing controls of MasterPage in ContentPage:*

We can access the controls of the master page in the content page using the FindControl method. This method allows us to search for a control within the master page and access its properties and methods.

***URL's in MasterPages:***

In a Master Page, we can define a base URL which can be used by all the pages that inherit from the Master Page. This base URL can be set in the Master Page's Page\_Load event by using the ResolveUrl method.

***UniqueID and ClientID:***

The UniqueID and ClientID properties are important properties of a control in ASP.NET. The UniqueID property is a unique identifier for a control which is automatically generated by the framework. The ClientID property is the identifier used by the client-side script to reference the control.

***Using Themes to Customize a Site:***

Themes are a powerful feature of ASP.NET that allow us to create a consistent look and feel for a website. A theme is a collection of files that define the styles, images, and other resources that are used to create a consistent appearance for a website.

***Naming Skins within a Theme:***

A skin is a file that defines the appearance of a specific control in a theme. We can create multiple skins for a control, each with a different appearance, and switch between them at runtime.

***Doing Server-Side Styles using Themes:***

We can use themes to define server-side styles that are applied to controls at runtime. These styles can be defined in the CSS file of the theme and applied to controls by setting the CssClass property of the control.

**3.4 USER CONTROL**

User Controls are a useful feature in ASP.NET that allow developers to encapsulate reusable pieces of UI code and functionality, and use them across multiple pages or applications. In this report, we will provide an overview of User Controls, discuss how to create and use them, and explore some of their key features.

## ***Overview of User Controls***

A User Control is essentially a custom ASP.NET control that encapsulates one or more other controls and can be reused across multiple pages. They are similar to server controls, but with a higher level of abstraction, as they can contain any number of controls and even entire layouts.

## ***Creating a User Control***

To create a User Control, we first need to create a new ASP.NET Web Application project. Once we have done that, we can add a new User Control to the project by right-clicking on the project in Solution Explorer, selecting "Add New Item", and choosing "Web User Control" from the list of templates.

Once we have added a User Control to our project, we can add any number of controls to it, just like we would add controls to an ASP.NET Web Form. We can also set properties on the User Control itself, such as its ID and default values for any properties that we add.

## ***Adding Properties to User Control***

One of the key benefits of User Controls is that they can be easily customized and reused across multiple pages. To enable this, we can add public properties to our User Control that can be set from the containing page or application. These properties can be used to customize the behavior or appearance of the User Control in a variety of ways.

## ***Adding Events to User Control***

In addition to properties, we can also add events to our User Control. These events can be raised by the User Control and handled by the containing page or application, allowing for a high degree of customization and interactivity. For example, we might add an event to our User Control that fires when a button is clicked, and then handle that event in the containing page to perform some custom logic.

## ***Using User Control in Web Form***

Once we have created a User Control, we can use it in any ASP.NET Web Form or Master Page by adding it to the page using the `<uc1:UserControl1>` tag. We can set any properties or handle any events that we have defined on the User Control, just as we would with any other control.

## 3.5 VALIDATION CONTROLS

Validation is a crucial aspect of web application development. Users expect that the data they enter in forms or other controls on a web page will be validated to ensure that it meets certain criteria. ASP.NET provides a set of validation controls that can be used to perform client-side and server-side validation of user input. This report will provide an overview of the validation controls available in ASP.NET and how they can be used in web application development.

**Base Validator:** The Base Validator is the abstract base class for all validation controls in ASP.NET. It defines common properties and methods that are shared by all validation controls.

**Required Field Validator:** The Required Field Validator is used to ensure that a field on a webform is not empty. It can be used to validate text boxes, drop-down lists, and other form elements.

**Compare Validator:** The Compare Validator is used to compare the value entered in one control with the value in another control or with a constant value. It can be used to validate that two passwords match, for example.

**Range Validator:** The Range Validator is used to ensure that a value entered in a control falls within a specified range of values. It can be used to validate numeric and date fields.

**Regular Expression Validator:** The Regular Expression Validator is used to ensure that a field matches a specified pattern. It can be used to validate email addresses, phone numbers, and other fields that have a specific format.

**Custom Validator:** The Custom Validator allows developers to write their own validation logic using server-side code. This control can be used to perform complex validation tasks that cannot be accomplished using the other validation controls.

## 3.6 ASP STATE MANAGEMENT

State management refers to the ability of a web application to maintain and manage data across multiple requests. In ASP.NET, there are several ways to manage state, including static members, view state, hidden fields, query strings, HttpContext, cookies, sessions, and application state.

### *Static Members*

Static members are a way to maintain state across all instances of a class. These members are declared with the keyword "static" and are shared across all instances of the class. Static members are useful for maintaining data that is shared across all users of an application.

### *View State*

View state is a mechanism for maintaining the state of a web page across postbacks. It is used to store the values of controls on a page between requests. View state is enabled by default in ASP.NET and can be used to store any serializable object.

### *Hidden Field in Form*

A hidden field is a field on a web form that is not displayed to the user. It is used to store data that needs to be maintained between requests. Hidden fields are a simple and lightweight way to maintain state, but they are not secure as the user can modify their value.

### *Query String*

A query string is a part of a URL that contains data that is passed between pages. Query strings are used to pass data between pages and can be used to maintain state.

### *HttpContext*

HttpContext is an ASP.NET object that provides access to information about the current request and response. It contains information such as the request and response objects, session state, and application state.

### *Cookies-HttpCookie*

Cookies are small pieces of data that are stored on the client's computer. They are used to maintain state between requests and can be used to store data such as user preferences or login information. Cookies are stored on the client's computer and can be accessed by any page on the same domain.

### ***Sessions-HttpSessionState***

Sessions are a way to maintain state across multiple requests from the same user. They are stored on the server and can be used to store any serializable object. Sessions are identified by a session ID, which is stored in a cookie on the client's computer.

### ***Application-HttpApplicationState***

Application state is a way to maintain state across all users of an application. It is stored on the server and can be used to store any serializable object. Application state is identified by a unique key and can be accessed by any page in the application.

### ***Summary of All Features***

ASP.NET state management provides a range of options for managing state in a web application. Each option has its strengths and weaknesses, and the choice of which option to use will depend on the specific requirements of the application. Static members, view state, hidden fields, query strings, HttpContext, cookies, sessions, and application state all provide ways to maintain state and manage data across multiple requests in an ASP.NET application.

## 3.7 WEB CONFIGURATION FILE

### ***Introduction:***

The WebConfiguration file and Global.asax are crucial components of an ASP.NET application that help in configuring the application and handling various events. In this report, we will discuss the different features and functionalities of these files.

### ***WebConfiguration File:***

The WebConfiguration file is an XML file that contains configuration information for an ASP.NET application. It is used to configure various aspects of the application such as authentication, session state, error handling, and caching. The file can be found at the root directory of the application and can be modified using a text editor or the Visual Studio IDE.

### ***Page Setting in Web.Config:***

Web.Config file can be used to configure page-specific settings for an ASP.NET application. For example, we can set the default page language, enable or disable session state, and define custom error pages.

### ***Custom Errors:***

The Custom Errors element in the Web.Config file is used to configure custom error pages for an application. We can define different error pages for different HTTP status codes and exceptions.

### ***URL Re-Writing:***

The URLRewrite element in the Web.Config file is used to rewrite URLs for an application. We can define different rules for URL rewriting based on regular expressions.

### ***Tracing:***

The Trace element in the Web.Config file is used to enable tracing for an application. This feature helps in debugging an application by providing detailed information about the request and response.

### ***Using ConfigSource Attribute:***

The ConfigSource attribute can be used to specify a separate file for configuration settings. This helps in separating the configuration information from the main Web.Config file.

### ***Using Location Section:***

The Location section in the Web.Config file is used to specify configuration settings for a specific folder or file. This helps in providing different settings for different parts of the application.

### ***Global.asax:***

The Global.asax file is used to handle various events in an ASP.NET application. It is a global file that can be used to define application-level events such as Application\_Start, Application\_End, Session\_Start, and Session\_End.

### ***HttpApplication Class:***

The HttpApplication class is used to handle various events in an ASP.NET application. It is the base class for the Global.asax file and provides various methods and properties to handle application-level events.



## 3.8 AUTHENTICATION AND AUTHORIZATION

Authentication and authorization are the two most important concepts in web application security. The process of authentication is used to validate the identity of a user, while authorization is used to determine the level of access that a user has to certain resources or functionality within the application. In this report, we will discuss in detail the concepts of authentication and authorization in ASP.NET.

### *Types of Authentication:*

There are mainly three types of authentication methods used in ASP.NET:

#### *1. Forms Authentication:*

Forms authentication is a cookie-based authentication method that stores user credentials in an encrypted cookie. When a user logs in to the application, their credentials are verified against the membership database. If the credentials are valid, a cookie is created that contains the user's identity and is sent back to the browser. This cookie is then used to authenticate the user on subsequent requests.

#### *2. Role Based Authentication:*

Role-based authentication is used to provide access control to users based on their roles. In this method, users are assigned to specific roles, and these roles are then associated with specific permissions or access levels within the application. Role-based authentication is useful in scenarios where multiple users need to access the same resources, but with different levels of permission.

#### *3. Windows and Basic Authentication:*

Windows authentication uses the Windows user account to authenticate the user. When a user accesses the application, their Windows credentials are used to authenticate them. Basic authentication is a simple authentication method that requires the user to enter a username and password to access the application. It is less secure than other authentication methods, as the user's credentials are transmitted in plain text.

## ***Authorization:***

Authorization is the process of determining what resources or functionality a user is authorized to access within the application. ASP.NET provides various authorization mechanisms, including role-based authorization and resource-based authorization.

### ***1. Role-Based Authorization:***

Role-based authorization is based on the user's role within the application. It is used to restrict access to certain resources or functionality based on the user's role. Role-based authorization is configured using the authorization element in the web.config file.

### ***2. Resource-Based Authorization:***

Resource-based authorization is used to restrict access to specific resources within the application. It is configured using the location element in the web.config file. This mechanism is useful in scenarios where different users need to access different resources within the application.

### ***Using location section in web.config:***

The location element is used to specify the location of a configuration section in the web.config file. This element can be used to configure different authentication and authorization settings for different sections of the application. For example, you can configure different authentication settings for the login page and the rest of the application.

## 3.9 DATA BOUND CONTROLS

### ***Introduction:***

Data Bound Controls in ASP.NET are used to bind the data to the controls like GridView, DetailsView, FormView, DataList, Repeater, and ListView. They are used to display and manipulate data from a database or other data source in web applications. In this report, we will discuss the Data Bound Controls in ASP.NET.

### ***Databinding traditional way:***

In the traditional way of databinding, we have to write the code to retrieve the data from the database and then bind the data to the controls. This process was time-consuming and required a lot of coding. But in ASP.NET, we have Data Bound Controls that simplify the process of databinding.

### ***SqlDataSource:***

SqlDataSource is a control that provides a connection to a database and retrieves data from it. It can be used with GridView, DetailsView, FormView, DataList, Repeater, and ListView controls. SqlDataSource has properties that allow you to specify the SQL query to retrieve data, the connection string to the database, and the parameters to be passed to the query.

### ***GridView:***

GridView is a control used to display data in a tabular format. It allows sorting, paging, and editing of the data. GridView can be bound to a data source using SqlDataSource or ObjectDataSource. GridView has columns that are defined in the markup, and the data is bound to these columns.

### ***DetailsView:***

DetailsView is a control used to display the details of a single record from a data source. It is similar to GridView, but it displays the data in a more detailed format. DetailsView can be bound to a data source using SqlDataSource or ObjectDataSource.

### ***FormView:***

FormView is a control used to display the details of a single record from a data source in a more customizable format. It allows you to define templates for the header, footer, and item. FormView can be bound to a data source using SqlDataSource or ObjectDataSource.

***DataList:***

DataList is a control used to display a list of data items in a customizable format. It allows you to define templates for the header, footer, and item. DataList can be bound to a data source using SqlDataSource or ObjectDataSource.

***Repeater:***

Repeater is a control used to display a list of data items in a customizable format. It is similar to DataList, but it is more lightweight and provides more flexibility. Repeater can be bound to a data source using SqlDataSource or ObjectDataSource.

***ListView:***

ListView is a control used to display a list of data items in a customizable format. It allows you to define templates for the header, footer, and item. ListView can be bound to a data source using SqlDataSource or ObjectDataSource.

***DataPager:***

DataPager is a control used to provide pagination for DataList, Repeater, and ListView controls. It allows you to specify the number of items to display per page and provides navigation links to move between pages.

## **3.10 UNDERSTANDING AND PUBLISHING WEB APPLICATION**

### ***Introduction:***

Publishing a web application on the internet is the final and essential step to make the application available to users globally. Before publishing, it is essential to ensure that the application is properly tested and ready for release. There are various hosting services available that can help deploy the application on the internet, but it is also possible to host an application on a local server using Internet Information Services (IIS). This report will discuss how to install IIS, create web applications in IIS, convert file system application to IIS application, using virtual directories, and publishing ASP.NET websites.

### ***Installing IIS on Windows 7 and Windows 8:***

Before creating a web application in IIS, we need to install IIS on the local machine. The steps to install IIS vary depending on the operating system. For Windows 7 and 8, follow the following steps:

1. Open the Control Panel.
2. Click on Programs and Features.
3. Click on the Turn Windows features on or off.
4. Scroll down to Internet Information Services and expand it.
5. Select the required components to install and click on OK.

### ***Creating Web Applications in IIS:***

Once IIS is installed, the next step is to create a web application in IIS. To create a web application, follow these steps:

1. Open IIS Manager.
2. Right-click on Sites and select Add Website.
3. Provide the website name and the physical path to the website content.
4. Select the appropriate binding and click on OK.

### ***Converting File System Application to IIS Application:***

Sometimes, web applications are created in the file system, and we need to move them to IIS. In this scenario, we need to convert the file system application to IIS application. To convert a file system application to an IIS application, follow these steps:

1. Open IIS Manager.
2. Right-click on the website and select Add Application.
3. Provide the application name and the physical path to the website content.
4. Select the appropriate application pool and click on OK.

### ***Using Virtual Directories:***

Virtual directories are used to access content outside of the website's root directory. To create a virtual directory, follow these steps:

1. Open IIS Manager.
2. Right-click on the website and select Add Virtual Directory.
3. Provide the virtual directory name and the physical path to the content.
4. Select the appropriate settings and click on OK.

### ***Publishing ASP.NET Website:***

To publish an ASP.NET website, we need to follow these steps:

1. Build the website.
2. Open the Publish Wizard.
3. Select the appropriate publishing method.
4. Provide the server details and credentials.
5. Select the appropriate settings and click on Publish.

### ***Culture Specific Formatting:***

Culture specific formatting is a feature provided by ASP.NET that allows us to format data based on the culture of the user. This feature is useful when developing web applications that need to be localized. To enable culture specific formatting, we need to specify the culture in the web.config file.

## CHAPTER - 4 -WORKING WITH MS SQL SERVER

### 4.1 INTRODUCTION

MS SQL Server is a relational database management system developed by Microsoft. It is widely used for storing, managing and retrieving data in various applications. ASP.NET is a web application framework developed by Microsoft, which can easily integrate with MS SQL Server. In this report, we will discuss various aspects of working with MS SQL Server in an ASP.NET web application.

#### *Connecting to MS SQL Server*

To connect to MS SQL Server, we need to provide connection details such as server name, database name, username, and password. In ASP.NET, we can define the connection string in the web.config file. Here is an example of a connection string for MSSQL Server:

```
<connectionStrings>
  <add name="MyConnection" connectionString="Data Source=ServerName;Initial
  Catalog=DatabaseName;UserID=UserName;Password=Password"
  providerName="System.Data.SqlClient" />
</connectionStrings>
```

Here, the Data Source parameter specifies the server name, Initial Catalog specifies the database name, and User ID and Password specify the login credentials.

#### *Executing SQL Queries*

To execute SQL queries in an ASP.NET application, we can use the SqlCommand class. Here is an example of executing a simple SQL query to retrieve data from a table:

```
using (SqlConnection connection = new SqlConnection (connectionString))
{
  String query = "SELECT * FROM Employees";
  SqlCommand command = new SqlCommand (query, connection);
  connection. Open();
  SqlDataReader reader = command.ExecuteReader();while
  (reader.Read())
  {
    // process data here
  }
}
```

Here, we first create a `SqlConnection` object using the connection string. Then, we define the SQL query and create a `SqlCommand` object with the query and connection. We open the connection and execute the query using the `ExecuteReader()` method of the `SqlCommand` object. Finally, we iterate over the results using a `SqlDataReader` object.

### *Using Stored Procedures*

Stored procedures are precompiled SQL statements that can be executed with a single call from an application. They offer several benefits such as improved performance, better security, and easier maintenance. In ASP.NET, we can execute a stored procedure using the `SqlCommand` class. Here is an example of executing a stored procedure that retrieves data from a table:

```
using (SqlConnection connection = new SqlConnection(connectionString))
{
    SqlCommand command = new SqlCommand("sp_GetEmployees", connection);
    command.CommandType = CommandType.StoredProcedure;
    connection.Open();
    SqlDataReader reader = command.ExecuteReader(); while
    (reader.Read())
    {
        // process data here
    }
}
```

Here, we first create a `SqlConnection` object using the connection string. Then, we create a `SqlCommand` object with the name of the stored procedure and the connection. We set the `CommandType` property of the command to `StoredProcedure` to indicate that we are executing a stored procedure. We open the connection and execute the stored procedure using the `ExecuteReader()` method of the `SqlCommand` object. Finally, we iterate over the results using a `SqlDataReader` object.

### Using Object-Relational Mapping (ORM) Frameworks

ORM frameworks such as Entity Framework and NHibernate provide a higher level of abstraction for working with databases. They allow us to define our data model using object-oriented programming concepts, and automatically generate SQL queries to interact with the database. In ASP.NET, we can use these frameworks to simplify our database access code and improve productivity. Here is an example of using Entity Framework to retrieve data from a table:



## 4.2 STARTING AND STOPPING SQL SERVER INSTANCES / SERVICES

Starting and stopping SQL Server instances/services is an important aspect of managing SQL Server. The process is necessary when you need to perform certain maintenance tasks or when there is an issue with the SQL Server. In this report, we will discuss how to start and stop SQL Server instances/services. There are different ways to start SQL Server instances/services depending on the version of SQL Server installed on the system. Here are the general steps:

1. Open the SQL Server Configuration Manager. This can be done by searching for it in the Windows Start menu or by opening it from the SQL Server program group.
2. In the left pane of the Configuration Manager, expand the "SQL Server Services" node to see the list of SQL Server instances/services that are installed on the system.
3. Select the instance/service that you want to start and then click the "Start" button in the right pane.
4. Wait for the service to start. You can check the status of the service by looking at the "State" column in the right pane of the Configuration Manager.
5. Once the service is started, you can connect to it using SQL Server Management Studio or any other tool that connects to SQL Server.

***To stop a SQL Server instance/service, follow these steps:***

1. Open the SQL Server Configuration Manager.
2. In the left pane, select the instance/service that you want to stop.
3. Click the "Stop" button in the right pane.
4. Wait for the service to stop. You can check the status of the service by looking at the "State" column in the right pane of the Configuration Manager.
5. Once the service is stopped, you can perform any maintenance tasks that need to do.

In conclusion, starting and stopping SQL Server instances/services is a fundamental task in managing SQL Server. The SQL Server Configuration Manager provides an easy-to-use interface for performing this task, as well as other important configuration tasks. It is important to understand how to start and stop SQL Server instances/services to ensure that your SQL Server environment is always up and running.

## 4.3 INTRODUCTION TO MANAGEMENT STUDIO:

SQL Server Management Studio (SSMS) is an integrated environment for managing any SQL infrastructure. SSMS provides tools to configure, monitor, and administer instances of SQL Server and databases. It is a graphical user interface (GUI) tool that allows developers and database administrators (DBAs) to manage SQL Server instances.

### *Features of Management Studio:*

- 1. Object Explorer:** Object Explorer provides an interface to view and manage databases, tables, stored procedures, and other database objects.
- 2. Query Editor:** Query Editor is used to write and execute SQL queries against the database. It provides features such as syntax highlighting, code completion, and debugging.
- 3. Scripting:** Management Studio can generate scripts for any database object, which can then be edited and executed against a database.
- 4. Database Diagrams:** Management Studio provides a visual database design tool that allows you to create, edit, and manage database diagrams.
- 5. Activity Monitor:** Activity Monitor provides a real-time view of current processes, locks, and other activity on an instance of SQL Server.
- 6. Maintenance Plans:** Management Studio includes a set of wizards that help you create and manage maintenance plans, which are used to automate common database maintenance tasks.

### *Starting and Stopping SQL Server Instances / Services:*

Starting and stopping SQL Server instances/services is an important task for database administrators. The following are the steps to start and stop SQL Server instances/services:

1. Open SQL Server Configuration Manager.
2. In the left pane, click SQL Server Services.
3. In the right pane, select the instance of SQL Server that you want to start/stop.
4. To start the instance/service, right-click on it and select Start.
5. To stop the instance/service, right-click on it and select Stop.
6. Alternatively, you can start/stop the instance/service using the Services snap-in in Windows.

## 4.4 CREATE DATABASE USING MANAGEMENT STUDIO

Creating a database is an important aspect of working with Microsoft SQL Server Management Studio (SSMS). The following report will provide an overview of how to create a database using SSMS.

*To create a new database in SSMS, follow the steps below:*

1. Open SSMS and connect to the SQL Server instance.
2. In the Object Explorer pane, right-click on the Databases folder and select "New Database."
3. In the "New Database" dialog box, enter a name for the database in the "Database Name" field.
4. (Optional) Specify the owner of the database in the "Owner" field.
5. (Optional) Choose a collation for the database from the "Collation" drop-down list.
6. Click "OK" to create the database.

Once the database is created, it will appear in the Object Explorer pane under the Databases folder. From here, you can manage the database's properties, create tables and other database objects, and perform other administrative tasks.

SSMS also provides options for creating databases using Transact-SQL (T-SQL) commands. For example, you can use the following T-SQL code to create a database:

```
CREATE DATABASE MyDatabase;
```

This code can be executed in a new query window in SSMS to create the database.

In addition to creating a new database, you can also restore a database from a backup file, attach a database from a file, or copy a database to create a new one.

Overall, creating a database in SSMS is a straightforward process that can be done either through the graphical interface or using T-SQL commands. Understanding how to create and manage databases is essential for working with SQL Server and developing applications that interact with the database.

## 4.5 DDL, DML, DQL, DCL AND TCL

### 1. *Data Definition Language (DDL):*

DDL stands for Data Definition Language. DDL commands are used to define the database schema and create or modify database objects such as tables, indexes, views, and stored procedures. Some common DDL commands are CREATE, ALTER, and DROP.

### 2. *Data Manipulation Language (DML):*

DML stands for Data Manipulation Language. DML commands are used to manipulate data in the database. These commands are used to insert, update, and delete data from tables. Some common DML commands are INSERT, UPDATE, and DELETE.

### 3. *Data Query Language (DQL):*

DQL stands for Data Query Language. DQL commands are used to retrieve data from tables in the database. The most commonly used DQL command is SELECT.

### 4. *Data Control Language (DCL):*

DCL stands for Data Control Language. DCL commands are used to control access to the database objects. These commands are used to grant or revoke permissions on database objects. Some common DCL commands are GRANT and REVOKE.

### 5. *Transaction Control Language (TCL):*

TCL stands for Transaction Control Language. TCL commands are used to manage transactions in the database. Transactions are a group of SQL statements that are executed as a single unit of work. TCL commands are used to control the transactions in the database. Some common TCL commands are COMMIT, ROLLBACK, and SAVEPOINT.

## 4.6 WORKING WITH BASIC OF SUB QUERIES

### *Introduction to Subqueries:*

Subqueries or nested queries are a powerful feature in SQL that allows you to write a query within another query. A subquery is executed before the outer query and the result of the subquery is used in the outer query. Subqueries are used to simplify complex queries by breaking them down into smaller and more manageable components.

### *Types of Subqueries:*

There are two types of subqueries: correlated and non-correlated. Non-correlated subqueries are executed only once and produce a single result set, which is then used by the outer query. Correlated subqueries are executed for each row processed by the outer query and can reference columns from the outer query.

### *Working with Basic Subqueries:*

The basic syntax of a subquery is as follows:

...

```
SELECT column1, column2 ...  
FROM table1  
WHERE column1 OPERATOR (SELECT column1 FROM table2 WHERE condition);
```

...

In the above query, the subquery `(SELECT column1 FROM table2 WHERE condition)` returns a single value or a set of values that are then used with the operator in the outer query. The operator can be any comparison operator such as `=, >, <, >=, <=, <>` etc.

Let's take an example to understand the basic subquery:

Suppose we have two tables, `employees` and `departments`. The `employees` table contains information about the employees working in the company, and the `departments` table contains information about the different departments in the company.

\*\*\*

Employees table:

emp\_id | emp\_name | dept\_id | salary

-----

1	John	1	50000
2	Mary	2	60000
3	Bob	1	55000
4	Jane	3	70000

departments table:

dept\_id | dept\_name

-----

1	IT
2	HR
3	Finance

\*\*\*

Now, let's say we want to find the names of the employees who work in the IT department. We can use a subquery to achieve this as follows:

\*\*\*

```
SELECT emp_name
FROM employees
WHERE dept_id = (SELECT dept_id FROM departments WHERE dept_name = 'IT');
```

\*\*\*

In the above query, the subquery `(SELECT dept\_id FROM departments WHERE dept\_name = 'IT')` returns the `dept\_id` for the IT department, which is then used in the outer query to find the names of the employees who work in that department

## 4.7 STORED PROCEDURES: CREATING, EXECUTING, MODIFYING, DROPPING

Stored Procedures in SQL Server are programs that are compiled and stored in the database. They are used to execute a set of SQL statements or a procedure repeatedly, without having to write the entire code again and again. In this report, we will discuss the basics of creating, executing, modifying and dropping stored procedures.

### *Creating Stored Procedures:*

To create a stored procedure in SQL Server, we use the CREATE PROCEDURE statement. A stored procedure can have input parameters, output parameters, or both. The syntax for creating a stored procedure is:

```

...
CREATE PROCEDURE procedure_name
    @parameter1 datatype = default_value,
    @parameter2 datatype = default_value,
    ...
AS
BEGIN
    -- SQL statements to be executed
END
...

```

### *Executing Stored Procedures:*

To execute a stored procedure, we use the EXECUTE statement or the EXEC keyword followed by the procedure name. We can pass input parameters to the stored procedure while executing it. The syntax for executing a stored procedure is:

```

...
EXECUTE procedure_name @parameter1 = value1, @parameter2 = value2,...
...

```

### *Modifying Stored Procedures:*

We can modify an existing stored procedure using the ALTER PROCEDURE statement. We can modify the input parameters, output parameters or the SQL statements within the BEGIN and END blocks. The syntax for modifying a stored procedure is:

```

...
ALTER PROCEDURE procedure_name
    @parameter1 datatype = default_value,
    @parameter2 datatype = default_value,
    ...

```

## 4.8 TRIGGERS: CREATING, ALTERING, DROPPING

Triggers are a database object that are used to automatically execute a set of instructions in response to specific events, such as inserting, updating, or deleting data from a table. Triggers are often used for enforcing business rules, auditing changes to data, and implementing referential integrity constraints.

### *Creating Triggers:*

Triggers can be created using SQL Server Management Studio or by writing SQL scripts. The basic syntax for creating a trigger is:

```
...  
CREATE TRIGGER trigger_name  
ON table_name  
FOR {INSERT, UPDATE, DELETE}  
AS  
BEGIN  
  
    -- trigger code here  
END;  
...
```

This syntax creates a trigger named `trigger\_name` on the table `table\_name` for the specified trigger event (INSERT, UPDATE, or DELETE). The trigger code is then written between the BEGIN and END statements.

### *Altering Triggers:*

To modify an existing trigger, the ALTER TRIGGER statement is used. The basic syntax for altering a trigger is similar to that of creating a trigger:

### *Dropping Triggers:*

To remove a trigger from a table, the DROP TRIGGER statement is used. The basic syntax for dropping a trigger is:

It is important to note that dropping a trigger will permanently remove it from the database, so it should be used with caution.

Triggers can be used to enforce complex business rules and constraints that cannot be easily implemented using other database objects, such as check constraints or foreign key constraints. They can also be used for auditing purposes, allowing you to track changes to data over time.



## Chapter - 5 - First Task Assigned

### 5.1 Definition of task:

Create a relation database of these three tables :(1) student master (2) subject master (3) result master. The fields in each of these three tables are shown in below Table 1. Create a project in ASP.NET to import the details of at least 5 subjects for each student and at least 2 semesters. From an excel file. Update/Delete the data based on conditions. Retrieve all the details of Student, Subject and Result based on various searching criteria using grid view/repeater.

Table	Field	Validation
student master	enrollment number	Primary key, must be of 12 digits
	student name	Not null
	date of birth	Not null, DD-MM-YYYY
	mobile number	Not null, must be of 10 digits
	email id	Not null
subject master	subject code	Primary key, must be of 7 digits
	subject name	Not null
	credit	Not null, must be of 1 digit
	semester	Not null, must be between 1 to 10 (both inclusive)
result master	enrollment number	Foreign key referencing to primary key of student master
	subject code	Foreign key referencing to primary key of subject master
	theory marks	Not null, must be between 0 to 70 (both inclusive)
	practical marks	Not null, must be between 0 to 30 (both inclusive)
	Total marks	theory marks + practical marks
	grade	as per below given Table 2
	SPI	as per below given formula in Table 3
CPI	as per below given formula in Table 4	

Table 1: Structure of Tables to be created

Total Marks	85-100	75-84	65-74	55-64	45-54	40-44	35-39	Below 35
Grade	AA	AB	BB	BC	CC	CD	DD	FF
Grade Points	10	9	8	7	6	5	4	0

Table 2: Grade from Total marks

$$SPI = \frac{\sum_{i=1}^n C_i \times G_i}{\sum_{i=1}^n C_i}$$

where n = no. of subject in a semester  
C = credit of subject  
G = Grade Point

Table 3: Formula for SPI

$$CPI = \frac{\sum_{i=1}^n C_i \times G_i}{\sum_{i=1}^n C_i}$$

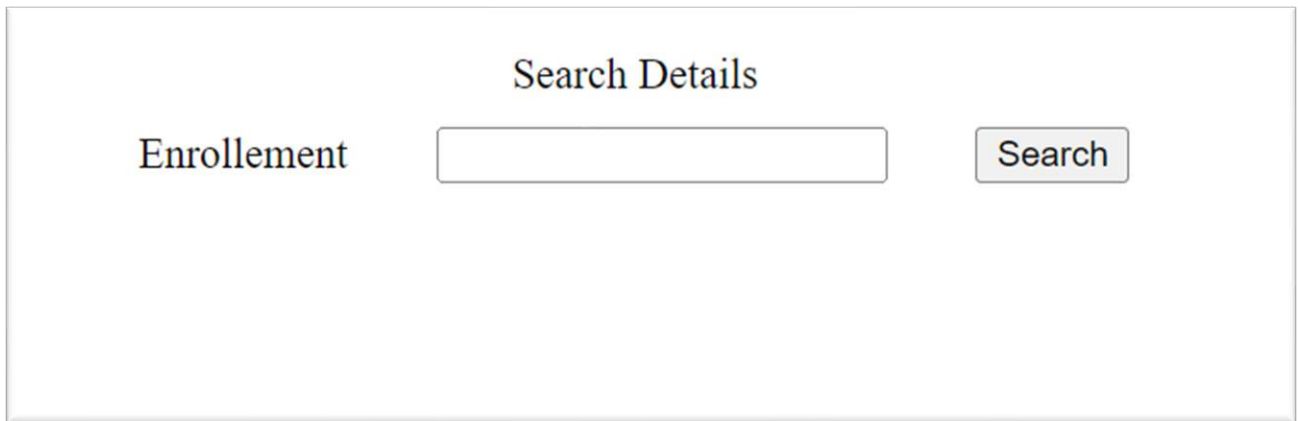
Where n = no. of subject in all semesters  
C = credit of subject  
G = Grade Point

Table 4: Formula for CPI

Figure 1: Task

### 5.2 Frontend work:

A text box to accept enrollment number is taken with some label to define to fields.



The image shows a web form titled "Search Details". On the left, there is a label "Enrollement". To its right is a rectangular text input field. Further to the right is a button labeled "Search". The entire form is enclosed in a light gray border.

**Figure 2: Frontend**

A Grid view is also added to display the result.

When search button is clicked the query is executed from which the result is converted into data Source and it is binded with grid view.

Benefits of using Grid view:

1. **Data presentation:** Grid view allows you to present data in a tabular format, making it easy for users to view and interpret. This can be especially useful when dealing with large datasets or complex data structures.
2. **Sorting and Filtering:** Grid view provides built-in support for sorting and filtering data, allowing users to easily find the information they need.

### 5.3 Backend work:

- The main purpose of this code is to collect data from excel sheet and transfer them into database so further tasks can be carried out.
- Onload of the page, first the file is located from the storage.
- Further, data from 3 different sheets of an excel sheet is collected and is transferred to 3 different tables into the database.
- This process is done using bulk SQL query.
- When clicking on the search button, the function submit\_onClick () is executed.
- Firstly, it collects the enrollment number from the text box. If the box is empty than it gives error to user.
- From enrollment number query is executed and then text boxes are filled accordingly and the table is made visible to users.

## 5.4 Output:

- When search button is clicked with valid enrollment number than all the details are displayed in a fixed table structure.
- The second table shows subject code, theory marks, total marks, semester and credit of the subject.

Search Details

Enrollement

Enrollement 190320107060

Student Name PATEL DEEPKUMAR DINESHBHAI

Date of birth 05-05-2001 00:00:00

Mobile number 5497479623

Emailid abc@gmail.com

address Sciencecity

subjectCode	theoryMarks	practicalMarks	totalMarks	semester	credit
3110003	30	25	55	1	3
3110006	46	30	76	1	3
3110007	45	15	60	1	4
3170720	50	30	80	1	2
3110018	50	20	70	2	4

**Figure 3: Output**

## CHAPTER - 6 - INTRODUCTION TO PROJECT

### 6.1 PROJECT SUMMARY

#### **Project Title: Development of GTU-IKS (Indian Knowledge System) Website**

This project is of development of GTU-IKS website for GTU organization using ASP.NET, MySQL, HTML, CSS, JavaScript, and Bootstrap technology. The website provides the information regarding the School of India Knowledge System (SIKS) of the GTU. It also includes the information regarding the courses that are being offered by the SIKS. It has the Admin panel with the restricted login for admins only to edit the information on the website related to courses, subjects, media coverage, images of image slider, gallery and much more.

### 6.2 OBJECTIVES

The objectives of the GTU-IKS website includes:

1. To develop a user-friendly website that simplifies the process of accessing the information and academic details of GTU-IKS.
2. To provide a reliable and efficient platform to GTU for easy manipulation of information through “Admin panel” interface.
3. To make various components of GTU-IKS website like “image slider”, “media coverage”, “Courses/Subjects”, etc. which keeps on updating day by day.
4. To have a user-friendly GUI of admin interface for easy accessibility of Admin panel.

### 6.3 TOOLS & TECHNOLOGIES USED:





## 6.4 Pages in GTU-IKS Website:



Figure 4: Home Page



Figure 5: Vision-Mission & Objectives



Figure 6: Message from Hon. VC



Figure 7: About SIKS



Figure 8: Contact Us



Figure 9: Search Bar



Figure 10 : Admin Panel Image Slider

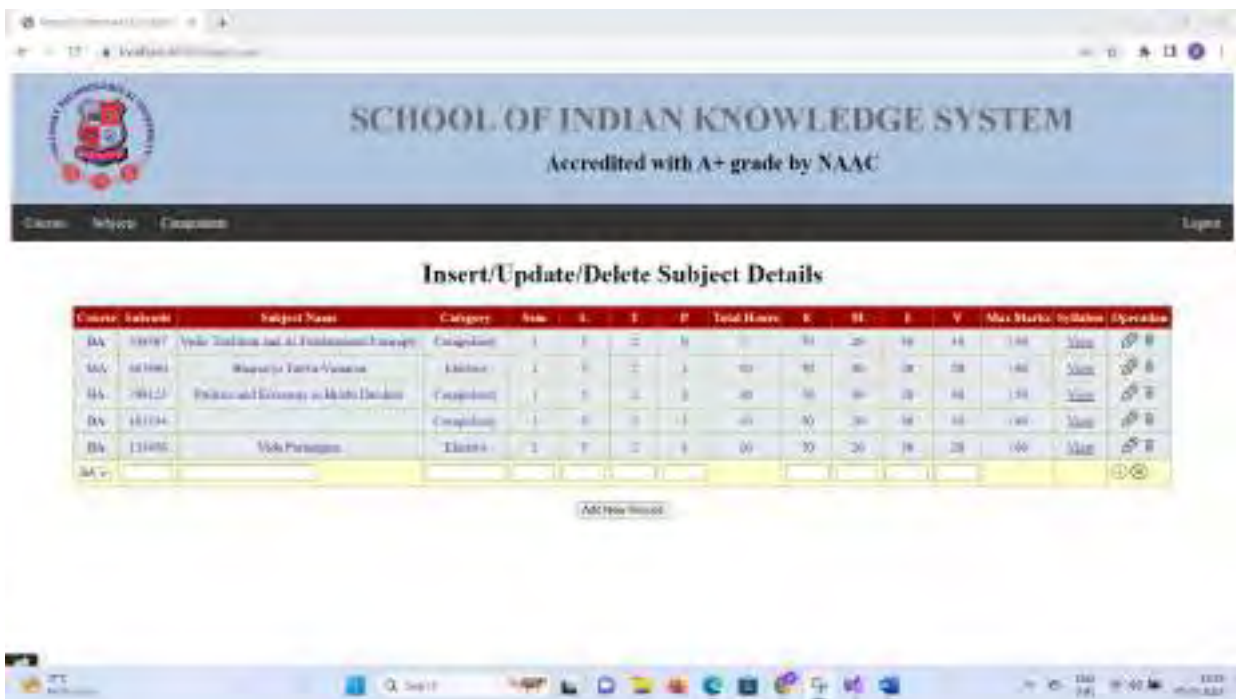


Figure 11: Admin Panel Subject Details



**SCHOOL OF INDIAN KNOWLEDGE SYSTEM**  
Accredited with A+ grade by NAAC

Home Admin Courses Logout

### Insert/Update/Delete Course Details

Course	Course Position	Total Books	Total Subject	Total Fee	
B.A.	History & Art	1	18	4	
B.A.	History & Art	8	24	8	

Figure 12: Admin Panel Courses Details


## Conclusion

During my 3 months internship at GTU IT-Section, I worked on GTU-IKS website development using ASP.NET. During this time, I learned how to use various tools and frameworks such as C#, ASP.NET MVC, Entity Framework, and SQL Server. I was involved in the entire software development life cycle, from requirements gathering to testing and deployment. This experience helped me to develop my analytical and problem-solving skills, as well as my ability to work with complex data models and build robust and scalable systems.

Overall, my internship at GTU-IT section was a great opportunity for me to apply the theoretical knowledge I gained in my studies to real-world scenarios. It allowed me to gain hands-on experience in two different technologies, both of which are widely used in the industry. I am grateful for the support and guidance of my mentors and colleagues, and I believe that the skills and experience I gained during my internship will be valuable assets in my future career.

## Appendix

### Internship Offer Letter:



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
 (Established by Government of Gujarat under Gujarat Act No. : 20 of 2007)  
**ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી**  
 (ગુજરાત સરકારના ગુજરાત અધિનિયમ ક્રમાંક : ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

---

GTU/ITAP/Offer.letter/૧૧૪

Date: 8<sup>th</sup> February 2023

**OFFER LETTER**

**Internship under "IT Department" Gujarat Technological University,  
Chandkheda. (With Stipend)**

Dear SUKHADIYA HEMANG ATULKUMAR,  
 Enrollment Number: 190390107057  
 Institute: S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA

Greetings from Integrated Training & Placement Cell (ITAP), Gujarat Technological University

You are being offered this internship opportunity based on your merit w.r.t. to the result of your exam.

Following are the job roles you need to perform during the entire training:

- To work in various development of modules/applications/portals /websites of GTU under the guidance of external guide from GTU and Internal guide from college.
- The work includes meaningful tasks that focus on developing the knowledge, skills & abilities of students that are applicable to future employment opportunities.

You may accept this offer with consideration of following terms & conditions:

1. Internship duration will be of 3 months from date of reporting. However, the same can be extended for few more days if require by IT department of GTU.
2. A fix stipend of INR 12,000/- shall be paid to the selected interns for the entire internship duration. No other allowances will be paid by GTU.
3. The selected students need to manage their accomodation/food expenses/travelling/other expenses by themselves.
4. This is purely an internship opportunity. The selected students will not be eligible to claim this internship as a provision for permanent job during/after the training period at GTU.
5. The students who are engaged in this training will have to behave in accordance with the rules, regulations and working hours of the GTU.
6. Each student will have to submit the work report of the training at IT Section, GTU.
7. The performance of the student will be evaluated every week by IT Section, GTU.

Winners of: "Most Promising University of India 2020" ♦ "1<sup>st</sup> Rank Among All Universities in Gujarat 2020 by Uni Rank"  
 ♦ "1<sup>st</sup> Rank in Gujarat State Institutional Ratings Framework (GSIRF) 2019" ♦ "National Leadership Excellence Award 2015 in  
 Technical Education" ♦ "India's Most Trusted State University 2015" ♦ "Outstanding University in West India 2019"

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Head office : GTU Campus, Nr. Visat Three Road , Visat-Gandhinagar Road , Chandkheda, Ahmedabad - 382 424. Gujarat, India.  
 Phone :- +91 979-23287521/570 e-mail : info@gtu.ac.in Website : www.gtu.ac.in

Figure 13: Offer Letter

## Annexure I :



GUJARAT TECHNOLOGICAL UNIVERSITY  
(Established under Gujarat Act No. 20 of 2007)

ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ થી સ્થાપિત)

Annexure I

Enrollment no:

140345107007

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: HEMANG RATIKUMAR SURHADYA  
 DIARY OF THE WEEK: DE: 13/02/2023 TO 17/02/2023  
 DEPARTMENT: COMPUTER ENGINEERING SEM: 08<sup>th</sup>  
 NAME OF THE ORGANISATION: GUJARAT TECHNOLOGICAL UNIVERSITY - GTU  
 NAME OF THE PLANT/SECTION/DEPARTMENT: I T SECTION - GTU  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: DR. Mahesh Bhatt

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- We have reviewed all the different portals of GTU like student portal, Result Portal, Recruitment Portal etc.
- Explored Backend working of GTU - IT - section.
- Tasks - Creating a relational database along with PHP NET project to import details of student result based on card ID. Import the stu. data from Excel file.
- Working with VS C# → SQL Server Management studio.
- learnt some basic like master page building → working, validation control, front end → database linkage etc.
- \* Project problem Dept. - GTU - File Tracking System
  - Keeping record of IN → DOT files for each user.
  - To track file → show status → login
  - To approve / disapprove, add remarks etc features included



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
(Established under Gujarat Act No. 20 of 2007)

ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
ગુજરાત અધિનિયમ ક્રમાંક ૨૦ ૨૦૦૭ બારા સ્થાપિત

TOTAL HOURS 38 Hours

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

[Signature]  
Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 20/1/2021

Date: 20/1/2021

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Annexure I

Enrollment no:

191210104031

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: HEMANCH ATULKUMAR SUKHADIYA  
 DIARY OF THE WEEK: DL: 20/07/2023 TO 24/07/2023  
 DEPARTMENT: Computer Engineering SEM: 08  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: MTU-IT SECTION  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Mahesh Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Front end designing of login/sign up → back-end of login-signup
- Problem depth of "Dev. of GTU-IKS website".
- Meeting → Review of content of GTU-IKS website
- Review of other IKS websites → other universities, education institution websites
- Building → responsive Bar, Header, & Routes.
- Building master's page
- Academic work: points registration, submission-A (week-1)
- Basic menu frontend designing
- Responsive large slider designing
- Redesigning of Home page.

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TOTAL HOURS - 28 hours -

SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of officer-in-charge of Dept./Section / Plant

Date:

Date: 27/8/23

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Annexure I

Enrollment no:

190390107057


**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Arunay Attarames Surendra  
 DIARY OF THE WEEK: DI: 02/2/2023 TO 08/2/2023  
 DEPARTMENT: Computer Engineering SEM: 08  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT-Section  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Manish Panchal

**DESCRIPTION OF THE WORK DONE IN BRIEF**

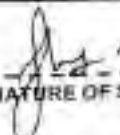
- In this week we have done designing → content placing of the website → creation of all the pages at basic level.
- Creation of pages at basic level is done with the redirecting of pages from one page to another → linking other websites with it.
- We have created all the pages like About site, contact us, blog - from vc, blog - from smc, blog from register.
- Have also improve designing → background of the home page and restructuring it by placing some CSS animation on the created page.
- Reviewed the site with the section head and the coordinators from IKS department → implemented suggested changes.




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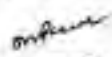
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TOTAL HOURS: 46 hours

  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

  
 Signature of officer-in-charge  
 of (Dept.) Section / Plant

Date:

Date: 4/5/23

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Annexure 1

Enrollment no:  
190340109027

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Sukhadiya Hemang A  
 DIARY OF THE WEEK: ID: 6/3/2023 to 10/3/2023  
 DEPARTMENT: Computer Engineering SEM: 08  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: SI-Department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Nishu Pandhal


**DESCRIPTION OF THE WORK DONE IN BRIEF**

- In this week we have Redesign the objectives, building css cards for the objectives.
- Have done changes in motto, About site & making motto multi-lingual.
- Applying animation technique which is most relevant after seeing in diff. examples.
- Swapped regarding different string units like fonts and images ie, 'px to 'hv', 'hw', 'rem'.
- Also learned regarding @media query tag that is in CSS to make website responsive.
- Also implemented 'max-width', 'min-width' statements of the @media query to make the website responsive.



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TOTAL HOURS: <u>38 hours</u>	 SIGNATURE OF STUDENT
<input checked="" type="checkbox"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR	
Signature of Faculty Mentor	Signature of officer-in-charge of Dept. / Section / PSEit
Date:	Date: <u>15/10/23</u>
<input checked="" type="checkbox"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.	



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Assessment I

Enrollment no. (A 2012) 0905 7

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Surbhadra Hemang B  
 DIARY OF THE WEEK: IN 13/12/2013 TO 18/12/2013  
 DEPARTMENT: Computer Engineering SEM: 08  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT-Section (GTO)  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Mahesh Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- CSS Styling of Flip-card of "Vision" & "mission".
- Learning about string para. like 'em', 'vh', 'vml', 'rem' & '@media queries' in detail.
- Redesigning 'contact us' page & content search for 'about' 'sites' page.
- Start meeting with 'the head' for content of about sites.
- Build & redesign nav. bar & removal of bootstrap icons addition based on need of site.
- Academic work: Internship Internal Review (CUR-I) & Submission.
- structure design of various components that needs to be dynamic.
- Project Review with ext. guide & suggestion writing.



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ગુજરાત અભિવિકાસ ક્રમ ક્ર. 20/2003 અન્વયે

TOTAL HOURS 46 Hours

Signature of Student

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Signature of Faculty Mentor

Signature of Head of Department

Date

Date: 20/11/18

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1

Enrollment no:  
190390107029

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Hemang A. Jankhadiya  
 DIARY OF THE WEEK: DL: 20/3/23 TO 24/03/23  
 DEPARTMENT: Computer Engineering SEM: 07  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT-Department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Prakash Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Learning about the @media queries → screen resolution criteria → syntax.
- Adding queries to "media", 'obj.-media' on the head page
- Rebuilding → redesigning of nav-bar
- Exploration of various CSS → margin padding
- Removing bootstrap from navbar, quizes → other components
- Implementing media queries like font-size, content size for various screen resolutions like mobile, tab & desktop
- Implementing the changes suggested by the test guide in review II.
- Planning of backend working structure of BITV-sites
- on paper structuring of d/b tables → admin side
- Designing 'course search page'.

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TOTAL HOURS ----- ૦૪ -----

SIGNATURE OF STUDENT -----

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor -----

Signature of officer in charge of Deptt / Section / Plant -----

Date: -----

Date: -----

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Annexure 1

Enrollment no.  
19031001037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jemang J. Shikadia  
 DIARY OF THE WEEK: DE: 27/03/2023 TO 01/04/2023  
 DEPARTMENT: Computer Engineering SEM: 02  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: B. Department  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mrs. Kanchan Parulal

**DESCRIPTION OF THE WORK DONE IN BRIEF**

In this week we have written media queries for vision-mission page for different resolution. We have tutored for CRUD operations in ASP.NET. Designing of academics page → its connect to Admin panel database creation.

- Establishing connection between backend to Front end of admin panel.
- Adding the dynamic items like "edit", "delete", "view" etc.
- Database table creation for course details.
- Database table creation for buy details for admin panel.
- Learning about the syntax & application of triggers in MS-management studio.
- Writing triggers for insert, update, delete operations.





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TOTAL HOURS: 38 hours

  
 SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor \_\_\_\_\_

Signature of officer-in-charge  
 of Dept. / Section / Plant \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

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Annexure I

Enrollment no:  
17030107017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Ahmed Ali Subhan  
 DIARY OF THE WEEK: Di. 2/4/13 to 2/11/13  
 DEPARTMENT: Computer Engineering SEM: 08  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: IT-Section  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Mahesh Parikh

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Redesigning my "ranked us" page adding location of Google map and some new features
- Learning about "triggers" for making dynamic range slider to add image from database
- Activation of triggers based on various queries like insert, update, delete
- Ability "login page" give specific dynamic admin's authority access to "ADD optn" in "courses offered" & "subject details"
- Changing the way base of Home page based on the suggestion given
- Dynamic input of "courses offered" table to "subject details" table of CAVS database.

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TOTAL HOURS: 38 hours

SIGNATURE OF STUDENT: \_\_\_\_\_

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor: \_\_\_\_\_

Signature of officer-in-charge of Dept./ Section / Plant: \_\_\_\_\_

Date: \_\_\_\_\_

Date: 13/11/13

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1  
Enrollment no: 190390157057

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Shravan - Akshay - Sankhija  
 DIARY OF THE WEEK: DC: 10/4/23 TO 15/4/23  
 DEPARTMENT: Computer Engineering SEM: 08  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT SECTION DEPARTMENT: IT-IT section  
 NAME OF OFFICER INCHARGE OF THE PLANT SECTION DEPARTMENT: Dr. Mihir Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Displaying of the "courses offered" using the gridview to SQL.
- Changes in nav bar "Academics started" → "students zones" and
- Learning how to integrate stored procedure of SQL with ASP.NET project.
- Building of subj. search bar based on param. like "course" "subj" "institute" "sub name" to "search"
- Working on some of database in gridview of search bar
- Learning how to fetch img. from user & store in the db.
- Fetching the img. from user & rendering the rendered user for upload & delete
- Retrieval of data from SQL db & using loop down
- Addn of img. from user to display add / upload img.

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TOTAL HOURS: 38 hours

SIGNATURE OF STUDENT  
*[Signature]*

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Signature of Faculty Mentor \_\_\_\_\_

Signature of officer in charge  
of Dept. / Section / Plant  
*[Signature]*

Date: 14/5/22

Date: \_\_\_\_\_

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Annexure I

Enrollment no:

150190102017

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: Keerang - Atharva Jadhav  
 DIARY OF THE WEEK: DI: 6/4/23 TO 23/4/23  
 DEPARTMENT: Computer Science SEM: 08  
 NAME OF THE ORGANISATION: Computer - International University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: HR-IT Center  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Mr. Anand Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Learning about file I/O & the V1 version of AWS and about its updation.
- ImageCloner applying along with browser inspector to delete functionalities for admin panel.
- Add a dropdown list to "course filter" of "subject details" page for admin panel.
- "Inactive" option for easy manipulation of long list of image slides on Admin panel.
- Add a new sort: Subcategory.
- Conversion of range to binary and for binary to learn "spread forward" for applying range from user in string p in the
- Add a "requirements" column in "subject" page for representing "requirements" part.
- Ability to apply ImageCloner using browser p with "edit" button



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TOTAL HOURS ----- 25 PAGES -----

SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member

Signature of officer-in-charge of Dept./ Section / Page

Date

Date

Grading of Work for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:

૧૦૨૧૦૧૦૭૦૩૭

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT:

Jeevany Jadhava

DIARY OF THE WEEK: DI:

24/4/23 TO 28/4/23

DEPARTMENT:

Computer Engineering SEM: 08

NAME OF THE ORGANISATION:

Gujarat Technological University

NAME OF THE PLANT/SECTION/DEPARTMENT:

GITD-IT-Section

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT:

Mr. Mahesh Khandel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Reviewing various methods of AWS like, Functions, Etc, Amazon amplify etc to host website on AWS server.
- Rebuilding the search bar on subject page and accordingly writing SQL queries based on various search options.
- Retrieval of "courses" dropdown list data from the db dynamically.
- Learning how to insert & retrieve images from the SQL search db & implementing it for "media coverage" page.
- Use of datatable tool for the displaying of media coverage img. in dynamic view.
- Enabling admin panel Puth to insert & display images of "media coverage" page.





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(ગુજરાત સરકારના અધિનિયમ નં. ૨૦/૨૦૦૭ ની અન્વયે)

TOTAL MARKS

૩૪૫/૩૫૦

SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by student is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member

SIGNATURE OF OFFICER IN CHARGE  
of Dept. / Section / P.O.

Date

Date

Grading of Work, for student may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
(Established under Gujarat Act No. 20 of 2007)

ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

190390107057

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jeevany Jethaniya  
 DIARY OF THE WEEK: Dt: 24/4/23 TO 28/4/23  
 DEPARTMENT: Computer Engineering SEM: 08  
 NAME OF THE ORGANISATION: Gujarat Technological University  
 NAME OF THE PLANT/SECTION/DEPARTMENT: GTO-IT-SECTION  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ms. Madhvi Patel


**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Reviewing various methods of AWS like Amazon, EC2, Amazon amplify etc to host website on AWS server.
- Redesigning the search bar of subject page and creating writing SQL queries based on various search options.
- Retrieval of "courses" dropdown list data from the db dynamically.
- Learning how to insert & retrieve images from the SQL server db & implementing it for "media coverage" page.
- Use of database tool for the displaying of media coverage img. in dynamic view.
- Enabling admin panel Auth to insert & display images of "media coverage" page.





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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ માં સ્થાપિત)

TOTAL HOURS: 38 hours SIGNATURE OF STUDENT: 

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member:  Signature of officer-in-charge of Dept./ Section / Plant: 

Date: \_\_\_\_\_ Date: \_\_\_\_\_

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## Annexure II



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 2

## Feedback Form by Industry expert

Student Name: Hemang A Subhadia

Date: 10/5/23

Work Supervisor: Mr. Mahesh Panchal

Title:

Company/Organization: Gujarat Technological University - IT-section

Enrollment No: 190390107059

Internship Address: GTU Campus, Nr. Vistad 3 Road, Chandkheda Ahmedabad 382426

Dates of Internship: From 13/2/23 to 13/5/23

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility			✓	
Uses technical knowledge and expertise				✓
Analyzes problems effectively				✓
Communicates well and writes effectively			✓	

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):

Excellent

Additional comments, if any:

-

Signature of Industry person with name and Stamp:



(Mahesh Panchal)

Signature of the Faculty Mentor

## References

### WEB RESOURCES:

- Book: “.NET Platform Architecture” by Alexey Zimarev.
- Book: “C# in Depth” by Jon Skeet
- <https://dotnet.microsoft.com/en-us/apps/aspnet/>
- <https://www.mysql.com/>
- <https://www.gtu.ac.in/>
- <https://dharohar.gtu.ac.in/>
- <https://www.w3schools.com/>
- <https://iksindia.org/>
- <https://www.geeksforgeeks.org/>

# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Hepil Italiya**

**200390107049**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

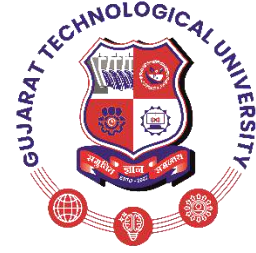


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ** has been carried out by **Hepil Italiya** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. First Name Last Name

Prof. FirstName Last Name

Internal Guide

Head of Department

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390107049  
Semester: 7<sup>th</sup>, Computer Engineering  
Saffrony Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Hepil Italiya.

In this internship tenure, we have covered the fundamentals of Data Analytics and Machine Learning. In the data analytics part, we have worked on API data and covered the basics of analysis using pandas and data visualization using matplotlib. In machine learning, we have implemented elementary regression models.

We wish Hepil Italiya all the best for future endeavors.



Ms. Twinkle Shah  
Internship Coordinator  
InfoLabz, Ahmedabad



+91 8866682662  
+91 8141236662



info@infolabz.in  
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405 Vraj Avenue, Above SAM'S Pizza  
Nr, Commerce Six Rd, Navrangpura,  
Ahmedabad, Gujarat 380009





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INFOLABZ** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Chintan Nagrecha (Director of Infolabz)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

**Hepil Italiya**

Sign of Student

## **COMPANY PROFILE**

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make its own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years, we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard-working developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concepts which could be used by millions of people.

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# Week 1

27 JULY 2023

- **Basics of Data Analytics, Type of Data:**

Data Analytics is one of the most important and helpful factors for business growth. Data analytics is the process of examining, cleaning, transforming, and interpreting data to discover meaningful insights, draw conclusions, and support decision-making. We can do analysis on any data using python libraries like numpy and pandas. Analyzed data can be visualized by matplotlib. Data Analysis is useful for decision making and machine learning model development. We will develop machine learning model using some data to predict important parameters.

Types of Data:

- **Structured Data:** This type of data is highly organized and follows a specific format. Examples include sales data, customer information, and financial records.
- **Unstructured Data:** Unstructured data does not have a specific format and is often more complex. It includes text-heavy content like social media posts, emails, customer reviews and images, audio files, and video footage.
- **Semi-Structured Data:** This type of data lies between structured and unstructured data. Examples include JSON files, XML files, and certain types of logs.

- **Dictionary:**

- In Python, a dictionary is a built-in data type that stores key-value pairs. It's also known as an associative array or a hash map in other programming languages. Dictionaries are mutable, unordered collections, meaning the order of elements is not guaranteed, and they allow for fast retrieval of values based on their associated keys.
- Dictionaries are widely used in Python for various purposes, such as storing configuration settings, representing JSON data, and efficiently storing and retrieving data based on unique identifiers (keys).

- Key : Value pair - To access value, a key is required.

# Creating a dictionary:

```
mydata = {"ahmedabad": [{"date": "25 July 2023", "cases": 25},  
                  {"date": "26 July 2023", "cases": 35},  
                  {"date": "27 July 2023", "cases": 45}],  
         "surat": [200, 210, 0],  
         "rajkot": 300}
```

- **Concept of API:**

- The concept of an API (Application Programming Interface) revolves around providing a set of rules, protocols, and tools that allow different software applications to communicate and interact with each other. An API (Application Programming Interface) serves as a bridge between different software applications, enabling them to interact and exchange information seamlessly.
- In an offline context, a dictionary in Python functions as a basic API, allowing data organization through key-value pairs. In a live scenario, JSON (JavaScript Object Notation) often serves as the format for APIs, such as exemplified by a data.json file.
- When utilizing APIs, a loop iterates through keys rather than values, as keys serve as identifiers for accessing corresponding values, illustrating the crucial role of keys in information retrieval.

Example:

```
import requests  
url = requests.get("https://data.covid19india.org/data.json")  
mydata = url.json()  
print(mydata)
```

- **Requests Package:**

- This package is indeed a powerful tool for making HTTP requests and

interacting with web services. The requests library in Python is a third-party package that simplifies the process of sending HTTP requests and handling their responses. It abstracts the complexities of making HTTP connections and provides a clean, human-readable interface for working with web services. With the requests library, developers can easily perform tasks like fetching data from web APIs, submitting form data, downloading files, and more.

Example:

```
In [1]: import requests  
  
In [2]: url=requests.get("https://api.postalpincode.in/pincode/380001")  
        data=url.json()
```

Fig 1.1 Requests package example

# Week 1

## 28 JULY 2023

- **API Handling:**

**Covid API:** There are various APIs that provide COVID-19 related data, such as cases, deaths, recoveries, and vaccination statistics. One popular source is the COVID-19 Data API provided by Johns Hopkins University. You can use the requests library to make requests to the API and process the received data.

```
In [1]: import requests

In [2]: url=requests.get("https://data.covid19india.org/data.json")
data=url.json()

In [3]: for i in data:
        print(i)

cases_time_series
stateselse
tested
```

Fig 1.2 Covid API Example

**ISRO API:** The Indian Space Research Organization (ISRO) provides APIs to access information about their missions, satellites, and other space-related data. The exact endpoints and details may vary, so it's important to refer to ISRO's official API documentation.

```
In [1]: import requests

In [2]: url=requests.get("https://isro.vercel.app/api/spacecrafts")
data=url.json()

In [3]: for i in data:
        print(i)

spacecrafts
```

Fig 1.3 ISRO API Example



**Bitcoin API:** Bitcoin Price Index (BPI) API provides information about the current price of Bitcoin in various currencies. Your code retrieves data from the API and interacts with the returned JSON data.

```
In [1]: import requests

In [2]: url=requests.get("https://api.coindesk.com/v1/bpi/currentprice.json")
        data=url.json()

In [3]: for i in data:
        print(i)

time
disclaimer
chartName
bpi
```

Fig 1.4 Bitcoin API Example

**Mutual Fund API:** Depending on the structure of the data returned by the Mutual Fund API, you can extract and manipulate the information you're interested in. This could involve iterating through lists of mutual funds, Scheme name, extracting their names, Scheme code, or other relevant details.

```
In [1]: import requests

In [3]: url=requests.get("https://api.mfapi.in/mf")
        data=url.json()

In [5]: count=0
        for i in data:
            count=count+1
        print("Total NUMBER OF MUTUAL FUND IS - ",count)

Total NUMBER OF MUTIAL FUND IS - 45505
```

Fig 1.5 Mutual Fund API Example

- **API Search:** The process of searching for APIs programmatically using Python, with fetching COVID-19 data from a specific API URL and determining the highest number of daily confirmed cases along with the corresponding date.

```
import requests

url=requests.get("https://data.covid19india.org/data.json")
data=url.json()

count=0
for j in range(0,len(data["cases_time_series"])):
    if count<int(data["cases_time_series"][j]["dailyconfirmed"]):
        count=int(data["cases_time_series"][j]["dailyconfirmed"])

print("Highest case =",count)
for p in range(0, len(data["cases_time_series"])):
    if int(data["cases_time_series"][p]["dailyconfirmed"])==count:
        print(data["cases_time_series"][p]["date"])
```

```
Highest case - 414280
6 May 2021
```

Fig 1.6 API search Example

# Week 1

31 JULY 2023

- **Data Visualization using Matplotlib:**

- Data visualization using Matplotlib is a fundamental skill in data analysis and presentation. Matplotlib is a popular Python library that provides a wide range of tools for creating static, interactive, and animated visualizations.
- Matplotlib is a popular Python library for creating various types of data visualizations, such as line charts, bar charts, scatter plots, histograms, and more. It provides a flexible and powerful way to visualize data and is widely used for exploratory data analysis and presentation of results.
- Support for Various Plot Types: Matplotlib supports a wide range of plot types, including line plots, scatter plots, bar charts, histograms, pie charts, 3D plots, and more.
- Customization: Users can extensively customize visual elements such as colours, markers, line styles, titles, axes labels, legends, and more to create polished and informative visualizations.
- Multiple Backends: Matplotlib can generate plots in various formats, including PNG, PDF, SVG, and interactive formats for web applications. It also supports rendering plots in different GUI environments.
- Integration with NumPy: Matplotlib works seamlessly with NumPy arrays, making it easy to visualize data from numerical computations.
- Subplots and Layouts: Matplotlib allows you to create multiple plots within a single figure using subplots. You can customize the arrangement and layout of subplots.

- **Bar Plot:**

```
import matplotlib.pyplot as plt

cities=["Ahmedabad","Surat","Rajkot"]
case=[215,196,175]

plt.bar(cities,case,color="r")
plt.xlabel("cities")
plt.ylabel("Cases")
plt.show()
```

**Output:**

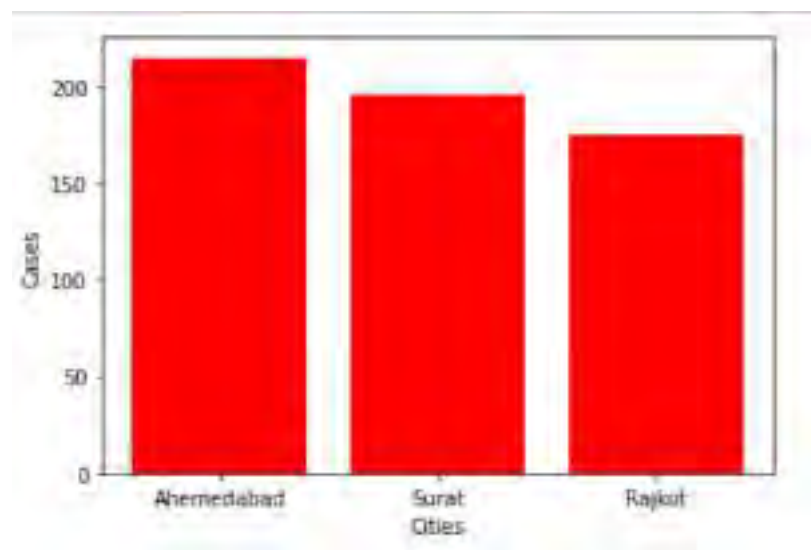


Fig 1.7 Bar Plot example

- **Pie Chart:**

```
import matplotlib.pyplot as plt  
  
brance=["CE", "IT", "CS", "EC", "CIVIL", "AUTO"]  
seats=[200,175,130,15,40,18]  
  
plt.pie(seats,labels=brance, shadow=True, autopct="%1.0f%%",explode=(0.2,0,0,0,0,0))  
plt.show()
```

**Output:**

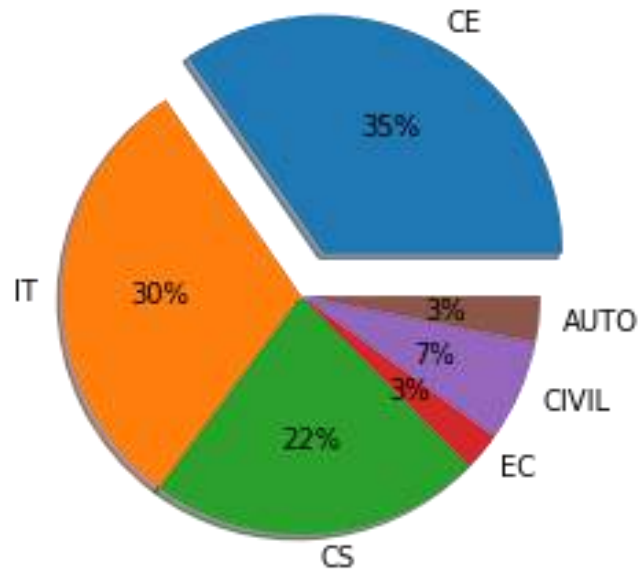


Fig 1.8 Pie Chart example

- **Scatter Plot:**

```
import matplotlib.pyplot as plt

dhoni=[15,75,20,65,99]
rohit=[22,7,45,19,35]
kohli=[2,85,13,75,4]
matches=[1,2,3,4,5]

plt.scatter(matches,dhoni,label="Dhoni")
plt.scatter(matches,rohit,label="Rohit")
plt.scatter(matches,kohli,label="Kohli")

plt.legend()
plt.show()
```

**Output:**

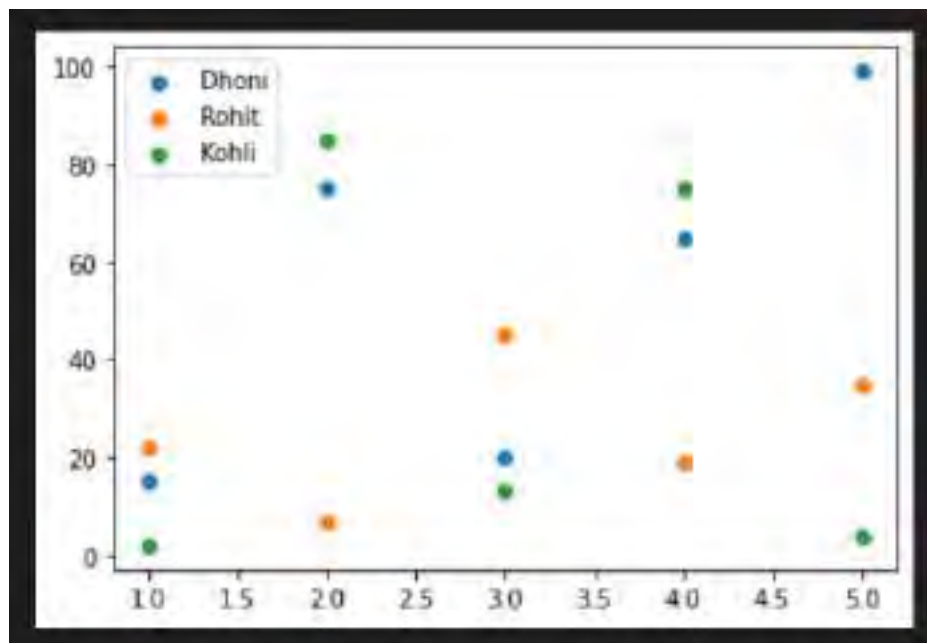


Fig 1.9 Scatter Plot example

# Week 1

## 1 AUGUST 2023

- **Data Visualization:**

- Data visualization is the representation of data in graphical or visual formats to help people understand and interpret information more easily.
- Visualizations enable you to explore patterns, trends, relationships, and insights that might not be immediately obvious in raw data. Effective data visualization is a crucial aspect of data analysis, communication, and decision-making across various fields.
- Python offers several powerful libraries for data visualization, and two of the most commonly used ones are Matplotlib and Seaborn.

- **API Data Visualization:**

- API data visualization involves fetching data from APIs (Application Programming Interfaces) and then using visualization libraries to create graphical representations that provide insights into the data.
- This process allows you to dynamically retrieve and display information from external sources, which is particularly useful for displaying real-time or frequently updated data. Here's a general outline of how to perform API data visualization:

1. Choose an API:

Select an API that provides the data you want to visualize. This could be data related to weather, stock prices, social media posts, COVID-19 statistics, or any other domain-specific information.

2. Retrieve Data from the API:

Use a library like requests in Python to send HTTP requests to the API's endpoints and retrieve the data. This may involve sending parameters to specify the type of data you're interested in.

### 3. Process Data:

Once you receive the data from the API, process it into a format suitable for visualization. This might involve transforming the data, aggregating it, or extracting relevant fields.

### 4. Choose a Visualization Library:

Select a suitable data visualization library such as Matplotlib, Seaborn, Plotly, or any other library that fits your needs and provides the type of visualizations you want to create.

### 5. Create Visualizations:

Use the chosen library to create the desired visualizations. Depending on the nature of the data, you might create line charts, bar charts, pie charts, maps, heatmaps, or other types of plots.

### 6. Display the Visualizations:

Show the visualizations on your preferred platform. This could be in a Jupyter Notebook, a web application, a desktop application, or any other environment that supports the chosen visualization library.

### Example:

```
import requests
import matplotlib.pyplot as plt

state=[]
totalconfirmed=[]
for st in range(0,len(data["statewise"])):
    state.append(data["statewise"][st]["state"])
    totalconfirmed.append(data["statewise"][st]["confirmed"])
plt.barh(state,totalconfirmed)
plt.xlabel("Covid-19 confirm cases by state in india")
plt.ylabel("Total confirm cases")
plt.show()
```



Output:

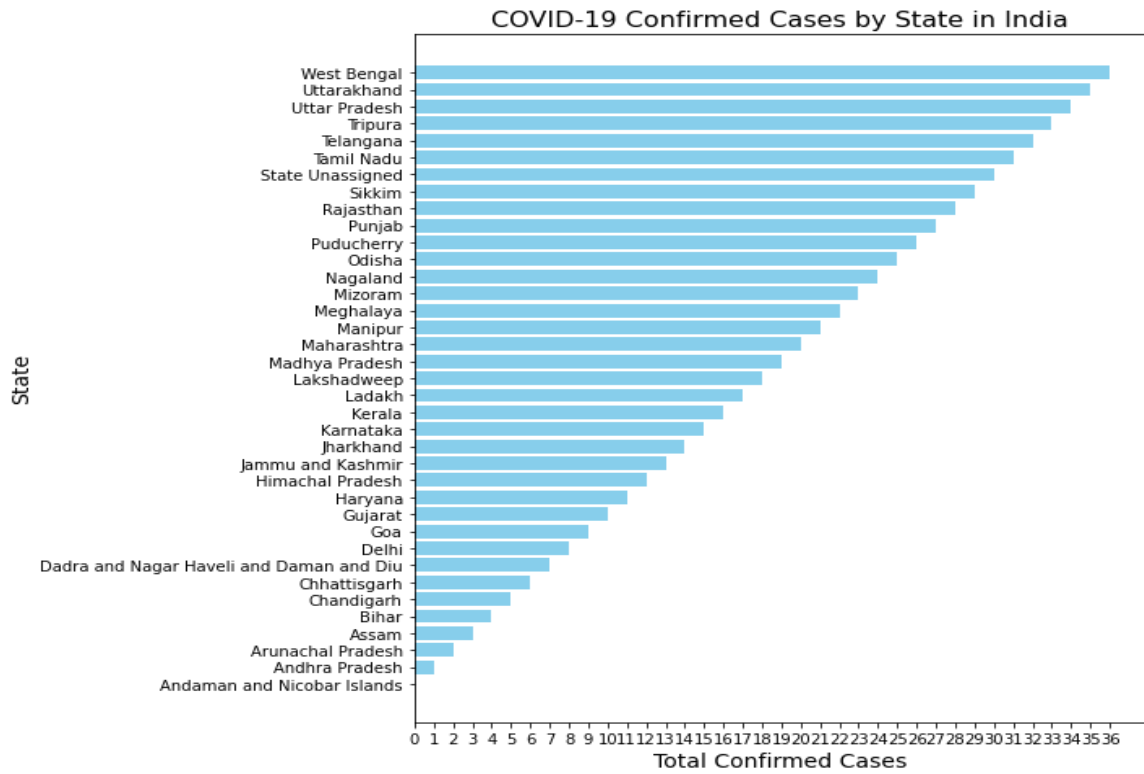


Fig 1.10 API - Data Visualization example

**Week 1**  
**2 AUGUST 2023**  
**Assignment 1**

- **INSHORTS NEWS API:**

<https://inshortsapi.vercel.app/news?category=all>

1) How many main keys are there in this API? Extract and print all keys.

2) How many news are available in this API?

3) Print all news in bellow format.

1. News content , Author: AUTHOR NAME, DATE: Date of news

2. News content , Author: AUTHOR NAME, DATE: Date of news

3. News content , Author: AUTHOR NAME, DATE: Date of news .

```
In [1]: import requests

In [2]: url=requests.get("https://inshortsapi.vercel.app/news?category=all")
        data=url.json()

In [12]: print("Total key is-")
         for i1 in data:
             print(i1)

Total key is-
category
data
success

In [16]: print(len(data["data"]), "news are available in this API")

25 news are available in this API
```

Fig 1.11

```

for (let i=0; i<data.length; i++) {
  console.log('News Content is ' + data[i]['content'] + ', author name ' + data[i]['author'] + ', date of news is ' + data[i]['date']);
}

```

NEWS CONTENT IS After BJP's anti Niyati claimed that late Indian Air Force (IAF) officer Rajesh Pilot, who was also a Congress leader, dropped bombs in Mizoram on March 5, 1986, his son Congress leader Gashin Pilot said he posted the wrong fact. "He was commissioned into the IAF only on 29th October 1986," Pilot posted alongside his father's verification on Tuesday. | AUTHOR NAME Athira Saeedwar, DATE OF NEWS IS Wednesday, 18 August, 2022

NEWS CONTENT IS Two male drunk US tourists were found sleeping inside the Eiffel Tower on Monday after violating security the previous night. They paid to visit the landmark at around 10:40 pm on Sunday and hopped security barriers while coming down the stairs, police said. The two men were found in an area normally closed to the public by the guards. | AUTHOR NAME Athira Saeedwar, DATE OF NEWS IS Wednesday, 18 August, 2022

NEWS CONTENT IS BJP MP Navi Shrivastava said that by renaming Noma Memorial Museum and Library (NMM&L) as Noma Ministers Memorial Museum and Library (NMM&L), PM Narendra Modi gave a respectful position to all the PMs. Seeking to Congress' criticism, Shrivastava said, "There is a basic difference between thinking of Congress...and PM Narendra Modi. They think that only Nehru ji and family matters." | AUTHOR NAME Subhanshu Singh, DATE OF NEWS IS Wednesday, 18 August, 2022

NEWS CONTENT IS ED M. K. Chaudhary said late PM Atal Bihari Vajpayee had made British name the IP of Bharat. "It'll be good if [Kumar] remembers this," he added. Chaudhary was reacting to Kumar's visit to Delhi, where he's set to meet opposition leaders and visit the 'samadhi' of Vajpayee on his death anniversary. Chaudhary said it doesn't matter whoever Kumar meets. | AUTHOR NAME Nidhi Singh, DATE OF NEWS IS Wednesday, 18 August, 2022

Fig 1.12

- **API Data Visualization:**

API: <https://isro.vercel.app/api/spacecrafts>

API: [https://isro.vercel.app/api/customer\\_satellites](https://isro.vercel.app/api/customer_satellites)

- TRY TO GENERATE PIE CHART INDICATING PERCENTAGE OF ISRO'S OWN SPACECRAFTS VS CUSTOMERSATELLITES FROM ABOVE API(S) FOR ANALYSIS OF DOMESTIC VS FOREIGN CUSTOMER INVOLVEMENT.

```

import requests
import matplotlib.pyplot as plt

url1=requests.get("https://isro.vercel.app/api/customer_satellites")
url2=requests.get("https://isro.vercel.app/api/spacecrafts")
foreign=url1.json()
own=url2.json()

print("own keys ",own.keys())
print("foreign keys", foreign.keys())

own keys dict_keys(['spacecrafts'])
foreign keys dict_keys(['customer_satellites'])

setelites=[len(own["spacecrafts"]), len(foreign["customer_satellites"])]
names=["DOMESTIC", "FOREIGN"]

plt.pie(setelites,labels=names,autopct="%1.01f%%")
plt.show()

```

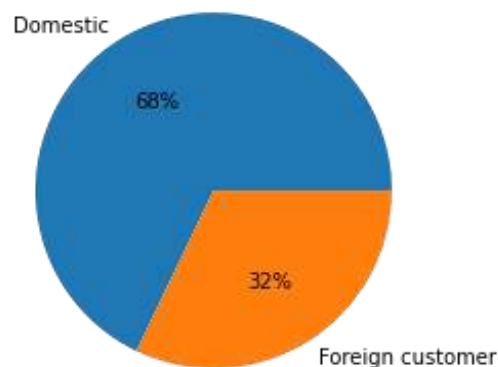


Fig 1.13

- **Dynamic API - PINCODE:**

API: <https://api.postalpincode.in/pincode/380001>

- Allow user to insert pincode
- Print name of all areas which comes under that pincode
- Pincode entered by user shell be merged in below url's xxxxxx part.
- URL: <https://api.postalpincode.in/pincode/XXXXXX>

```

import requests

url=requests.get("https://api.postalpincode.in/pincode/380001")
data=url.json()

data[0].keys()

dict_keys(['Message', 'Status', 'PostOffice'])

pincode=int(input("Enter Pincode:"))
url=requests.get("https://api.postalpincode.in/pincode/"+str(pincode))
data=url.json()
for i1 in range(len(data[0]["PostOffice"])):
    if pincode==int(data[0]["PostOffice"][i1]["Pincode"]):
        print(data[0]["PostOffice"][i1]["Name"])

Enter Pincode:384001
Basana
Dela
Dhamanva
Gadha
Gorad
Kansarakui
Kherva
Lakhvad
Mahesana
Mahesana Bazar
Mahesana JSM
Meghaliasana
Mitha
Nagalpur
Piludra
Sametra
Savala
Sobhasan
Tarati
Udalpur

```

Fig 1.14

## Week 2

3 August 2023

- **Pandas - Data Frame:**

- Pandas is a powerful Python library widely used for data manipulation and analysis. One of its core components is the DataFrame, which is a two-dimensional labeled data structure similar to a spreadsheet or a SQL table. DataFrames are highly versatile and provide functionalities for cleaning, transforming, analyzing, and visualizing data.

```
import numpy as np
import pandas as pd

data=np.array([[8000,1000,18000],[15000,18000,25000]])
pdata=pd.DataFrame(data,index=["RAMESH","MAHESH"],columns=[2020,2021,2022])
print(pdata)

pdata["TOTAL"]=12*pdata[2022]+(pdata[2022]*0.30)
print(pdata)

pdata.to_csv(filename.csv)
```

	2020	2021	2022	
RAMESH	8000	1000	18000	
MAHESH	15000	18000	25000	
	2020	2021	2022	TOTAL
RAMESH	8000	1000	18000	221400.0
MAHESH	15000	18000	25000	307500.0

Fig 2.1 Pandas – Data Frame example

- **Pandas - Excel:**

- Pandas is a popular Python library used for data manipulation and analysis, while Excel is a widely-used spreadsheet software developed by Microsoft. Pandas provides a powerful and flexible way to work with structured data in Python, and you can use it to read, write, and manipulate Excel files.

```

1 pip install openpyxl

Collecting openpyxl
  Downloading openpyxl-3.1.2-py2.py3-none-any.whl (249 kB)
  ----- 250.0/250.0 kB 639.3 kB/s eta 0:00:00
Collecting et_xmlfile (from openpyxl)
  Downloading et_xmlfile-1.1.0-py3-none-any.whl (4.7 kB)
Installing collected packages: et_xmlfile, openpyxl
Successfully installed et_xmlfile-1.1.0 openpyxl-3.1.2
Note: you may need to restart the kernel to use updated packages.

```

```

import pandas as pd
import matplotlib.pyplot as plt

```

```

data1=pd.read_excel("D:\INFOLABZ\RESULT1.xlsx")
data2=pd.read_excel("D:\INFOLABZ\RESULT2.xlsx")

```

data1

	SRNO	BRANCH	NAME	TOTAL	PERCENTAGE	PASSFAIL
0	1	CE	RAMESH	210	70	1
1	2	CE	SURESH	150	50	1
2	3	IT	MAHESH	225	75	1
3	4	IT	NARESH	180	60	1
4	5	CE	JAYESH	90	30	0

data2

	SRNO	BRANCH	NAME	TOTAL	PERCENTAGE	PASSFAIL
0	1	EC	RATAN	150	50	1
1	2	CE	JATAN	270	90	1
2	3	IT	KATHAN	285	95	1
3	4	EC	NAYAN	195	65	1
4	5	IT	RAMAN	165	55	1

Fig 2.2 Pandas - Excel example

- **Pandas - API to CSV:**

- Pandas is a versatile Python library that can be used to manipulate and analyze data in various formats, including CSV (Comma-Separated Values). Here's how you can work with CSV files using Pandas:

```
import requests
import pandas as pd

url=requests.get("https://data.covid19india.org/data.json")
data=url.json()

df = pd.DataFrame(data["cases_time_series"])
print(df)
```

	dailyconfirmed	dailydeceased	dailyrecovered	date	dateymd
0	1	0	0	30 January 2020	2020-01-30
1	0	0	0	31 January 2020	2020-01-31
2	0	0	0	1 February 2020	2020-02-01
3	1	0	0	2 February 2020	2020-02-02
4	1	0	0	3 February 2020	2020-02-03
..	...	...	...	...	...
560	40081	583	42156	12 August 2021	2021-08-12
561	38761	477	35759	13 August 2021	2021-08-13
562	36135	491	37936	14 August 2021	2021-08-14
563	33245	421	35936	15 August 2021	2021-08-15
564	24692	438	36862	16 August 2021	2021-08-16

	totalconfirmed	totaldeceased	totalrecovered
0	1	0	0
1	1	0	0
2	1	0	0
3	2	0	0
4	3	0	0
..	...	...	...
560	32116848	429695	31294596
561	32155609	430172	31330355
562	32191744	430663	31368291
563	32224989	431084	31404227
564	32249681	431522	31441089

[565 rows x 6 columns]

Fig 2.3 Pandas – API to CSV



- **XLRD:**

- XLRD is a third-party Python library that provides the capability to read data from Excel files, specifically in the older .xls format (Excel 97-2003). It's important to note that this library is not required for reading Excel files in .xlsx format (Excel 2007 and later) as Pandas and other libraries have built-in support for .xlsx files.
- If you have Excel files in the .xls format and want to use the xlrd library to read data from them, here's a basic example:

```
import xlrd
import matplotlib.pyplot as plt

xlrd.xlsx.ensure_elementtree_imported(False, None)
xlrd.xlsx.Element_has_iter=True

wb=xlrd.open_workbook("D:\INFOLABZ\IPL.xlsx")
data=wb.sheet_by_index(0)

print("Total rows =",data.nrows)
print("Total columns =",data.ncols)

print("\nPlayer name is...")
for i in range(1,data.ncols):
    print(i+1, ". ",data.cell_value(0,i))

Total rows = 15
Total columns = 6

Player name is...
2 . BUTTLER
3 . RAHUL
4 . DEKOCK
5 . HARDIK
6 . MILLER
```

Fig 2.4 XLRD example

## Week 2

4 August 2023

- **Introduction to Machine Learning:**

- Machine Learning (ML) is a subset of artificial intelligence (AI) that focuses on developing algorithms and models that enable computers to learn and make decisions from data without being explicitly programmed. In other words, it's about creating systems that can learn and improve from experience.
- Types of Machine Learning:
  1. Supervised Learning: In this type, the algorithm learns from labeled data, meaning it's provided with input-output pairs. The goal is to learn a mapping function that can predict outputs for new inputs.
  2. Unsupervised Learning: Here, the algorithm is given unlabeled data and tasked with finding patterns, structures, or relationships in the data. Clustering and dimensionality reduction are common tasks in unsupervised learning.
  3. Reinforcement Learning: This type involves training an agent to interact with an environment and learn by receiving feedback in the form of rewards or penalties. The agent learns optimal actions to maximize cumulative rewards.

- **Linear Model - Mathematics:**

- Linear Regression is one of the fundamental and widely used techniques in machine learning and statistics for modeling the relationship between a dependent variable and one or more independent variables. It's a type of supervised learning algorithm used for regression tasks, where the goal is to predict a continuous output value.
- In simple linear regression, you have a single independent variable (feature) and a single dependent variable. The goal is to find the best-fitting linear line (a straight line) that minimizes the squared differences between the predicted values and the actual values.

The equation of a simple linear regression model can be represented as:

$$y = mx + b$$

where:  $y$  is the dependent variable (target)

$x$  is the independent variable (feature)

$m$  is the slope of the line

$b$  is the  $y$ -intercept

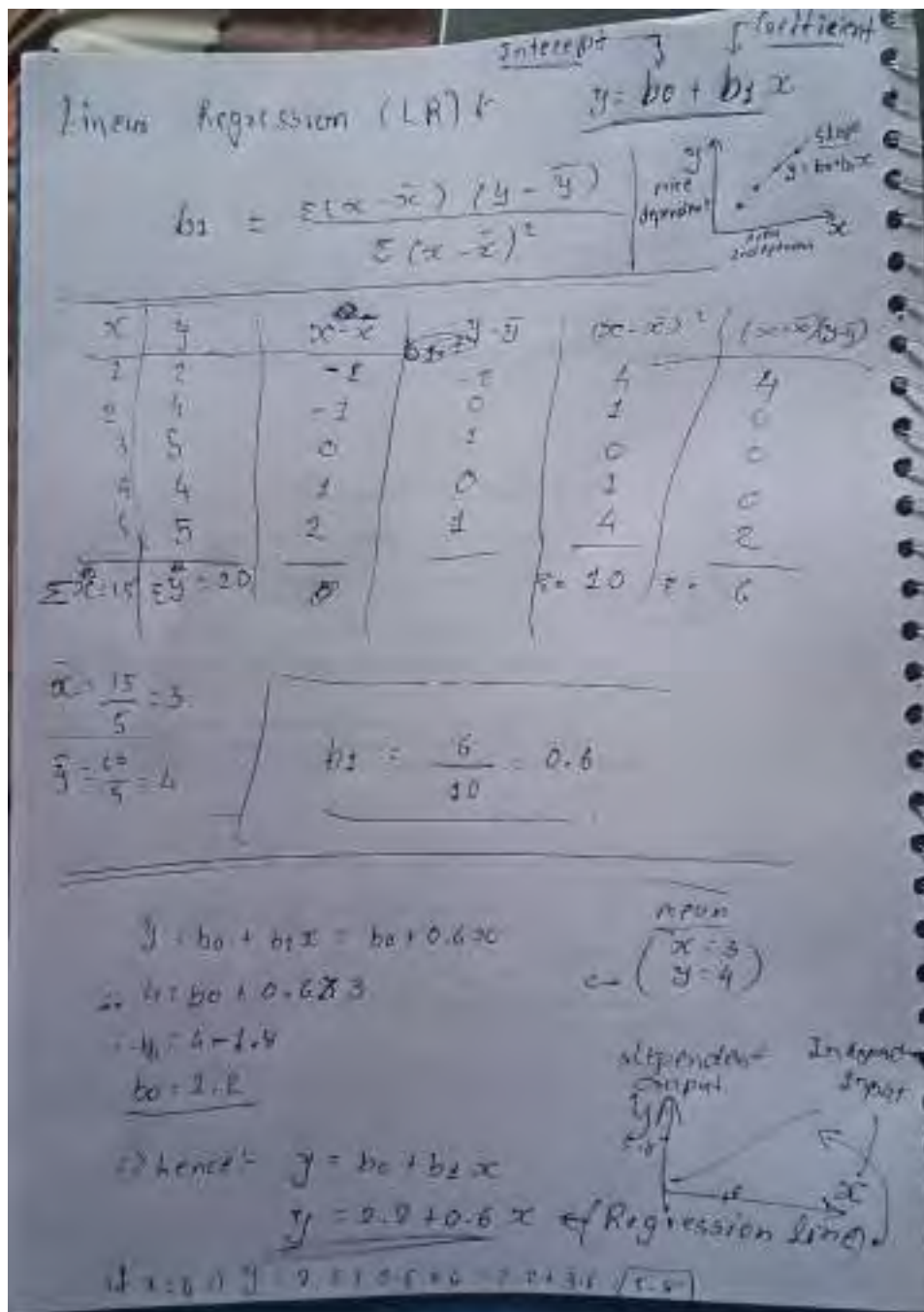


Fig 2.5 Linear Regression (LR)

- **Linear Model Implementation:**

```
import pandas as pd
from matplotlib import pyplot as plt
from sklearn import linear_model

df = pd.read_csv("D:\INFOLABZ\Prices.csv")
print(df)

plt.scatter(df.area, df.price, color="r")
plt.plot(df.area, df.price, color="b")
plt.xlabel('Area')
plt.ylabel('Price')
plt.show()
```

**OUTPUT:**

	area	price
0	800	5180000
1	1100	7190000
2	1500	9820000
3	1800	12100000
4	2200	14900000

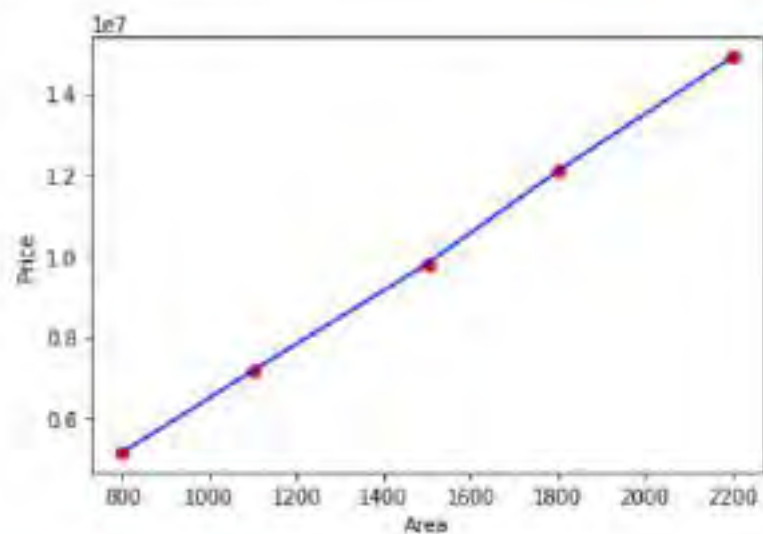


Fig 2.6 Linear Model

## Week 2

7 August 2023

- **Multiple Linear Model: Mathematics:**

- In multiple linear regression, you have multiple independent variables. The equation of a multiple linear regression model can be represented as:

$$y = b_0 + b_1 \cdot x_1 + b_2 \cdot x_2 + \dots + b_n \cdot x_n$$

where:  $y$  is the dependent variable (target)

$x_1, x_2, \dots, x_n$  are the independent variables (features)

$b_0, b_1, b_2, \dots, b_n$  are the coefficient

\* Multiple Linear Regression (MLR) :-

$$\hat{y} = b_0 + b_1 x_1 + b_2 x_2$$

$$b_1 = \frac{(E x_1^2)(E x_2 y) - (E x_1 x_2)(E x_1 y)}{(E x_1^2)(E x_2^2) - (E x_1 x_2)^2}$$

$$b_2 = \frac{(E x_2^2)(E x_1 y) - (E x_1 x_2)(E x_2 y)}{(E x_1^2)(E x_2^2) - (E x_1 x_2)^2}$$


---


$$E x_1^2 = E x_1 x_1 = \frac{(E x_1)(E x_1)}{N}$$

$$E x_2^2 = E x_2 x_2 = \frac{(E x_2)(E x_2)}{N}$$

$$E x_1 y = E x_1 y = \frac{(E x_1)(E y)}{N}$$

$$E x_2 y = E x_2 y = \frac{(E x_2)(E y)}{N}$$

$$E x_1 x_2 = E x_1 x_2 = \frac{(E x_1)(E x_2)}{N}$$

$x_1$	$x_2$	$y$	$x_1 x_1$	$x_2 x_2$	$x_1 y$	$x_2 y$	$x_1 x_2$
1)	3	2	9	9	6	6	9
2)	4	5	16	16	20	20	16
3)	5	7	25	25	35	35	25
4)	6	3	36	36	18	18	36
5)	2	1	4	4	2	2	4
$\Sigma$	$\Sigma$	$\Sigma$	$\Sigma$	$\Sigma$	$\Sigma$	$\Sigma$	$\Sigma$
20	24	28	100	140	100	100	100

---


$$E x_1^2 = \frac{100}{5} = 20$$

$$E x_2^2 = \frac{140}{5} = 28$$

$$E x_1 y = \frac{100}{5} = 20$$

$$E x_2 y = \frac{100}{5} = 20$$

$$E x_1 x_2 = \frac{100}{5} = 20$$

$$b_1 = \frac{(20)(20) - (20)(20)}{(20)(28) - (20)^2} = \frac{0}{160 - 400} = 0$$

$$b_2 = \frac{(28)(20) - (20)(20)}{(20)(28) - (20)^2} = \frac{160 - 400}{160 - 400} = 1$$

$$b_0 = \bar{y} - b_1 \bar{x}_1 - b_2 \bar{x}_2 = 5.6 - 0(4) - 1(4.8) = 0.8$$

Fig 2.7 Multiple Linear Regression (MLR)

- **Multiple Linear Model Implementation:**

```
import pandas as pd
from sklearn.linear_model import LinearRegression
import numpy as np

data=pd.read_csv("D:\INFOLABZ\multiple_regression.csv")
data=data.values

linear=LinearRegression()
output=linear.fit(data[:,0:3],data[:,3:])

print(pd.DataFrame(data))

   0    1    2    3
0 2000 4500 35 450000
1 2865 5705 32 713125
2 3175 6475 30 971250
3 3500 7750 28 124000
4 4200 9257 26 1943970
5 5000 13450 24 3497000

print(linear.predict(np.array([[2800,4500,35]])))

[[233633.726311]]
```

Fig 2.8 Multiple Linear Model

## Week 2

8 August 2023

- **Polynomial Linear Regression Model Implementation:**

- Polynomial Linear Regression is an extension of the traditional Linear Regression model where the relationship between the independent variable and the dependent variable is modeled as an nth-degree polynomial. This allows the model to capture non-linear relationships in the data.

```
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd

from sklearn.linear_model import LinearRegression
from sklearn.preprocessing import PolynomialFeatures

df = pd.read_csv("polynomial.csv")
plt.scatter(df.slot, df.amount)

poly=PolynomialFeatures(degree=5)
x_poly= poly.fit_transform(df[["slot"]])

reg=LinearRegression()
reg.fit(x_poly,df[["amount"]])

print("Amount :",reg.predict([[2,3,4,5,6,7]]))

Amount : [[2223347.72730994]]
```

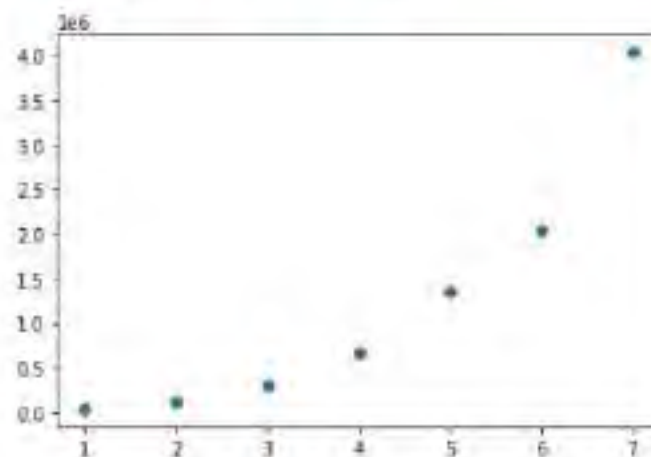


Fig 2.9 Polynomial Linear Regression


- **Image Data:**

- To work with image data using TensorFlow, NumPy, Matplotlib, OpenCV, and Keras' ImageDataGenerator. It demonstrates loading and displaying images from a directory using Python.
- Image analysis and machine learning tasks, you would need to incorporate image preprocessing, data augmentation, model creation, and training steps.

```
import cv2 as cv
import os
import numpy as np
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Conv2D,Dense,Flatten,MaxPooling2D
import tensorflow as tf
from tensorflow.keras.preprocessing.image import load_img
import matplotlib.pyplot as plt

image=load_img("D:\laptop1.png")
plt.imshow(image)

<matplotlib.image.AxesImage at 0x2b713f7e048>
```



The figure shows a Python code snippet for loading and displaying an image. The code imports necessary libraries (cv2, os, numpy, TensorFlow Keras models and layers, TensorFlow, TensorFlow Keras image preprocessing, and Matplotlib) and then loads an image from a file named 'laptop1.png'. The image is then displayed using Matplotlib's imshow function. The resulting plot shows a laptop with a colorful screen, with the x and y axes ranging from 0 to 200.

Fig 2.10 Image Data



```
train_image=[]  
for i in os.listdir("D:\INFOLABZ\dataset\laptop"):  
    train_image.append("D:\INFOLABZ\dataset\laptop\\"+i)
```

```
for i in train_image:  
    image=load_img(i)  
    plt.imshow(image)  
    plt.show()
```



Fig 2.11 All Image Data

**Week 2**  
**9 August 2023**  
**Assignment 2**

- **Task 1: CNN Model**

- Developing Convolutional Neural Network (CNN) which could predict the images from the testing folder. Neural Network is a part of deep learning which is very much higher concept of Data Science.

**Step 1: Folder Structure:**

- Create the following folder structure:
- Imagedata:
  1. training --> laptop & mobile
  2. validation --> laptop & mobile
  3. testing --> laptop & mobile

**Step 2: Loading and Preprocessing Data**

- Load and preprocess the images:

```
import cv2 as cv
import os
import numpy as np
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Conv2D,Dense,Flatten,MaxPooling2D
import tensorflow as tf
from tensorflow.keras.preprocessing.image import load_img
import matplotlib.pyplot as plt

train_image=[]
test_image=[]
for i in os.listdir("D:\INFOLABZ\dataset\laptop"):
    train_image.append("D:\INFOLABZ\dataset\laptop\\"+i)

for j in os.listdir("D:\INFOLABZ\dataset\mobile"):
    test_image.append("D:\INFOLABZ\dataset\mobile\\"+j)

all_data=[]
count=0
for k in range(0,50):
    all_data.append(train_image[k])

for k2 in range(50,100):
    all_data.append(test_image[count])
    count+=1
```

```

all_label=[]
for p in range(0,100):
    if p<50:
        all_label.append(0)
    if p>=50:
        all_label.append(1)

def process(data):
    x=[]
    for i in data:
        image=cv.imread(i)
        image=cv.resize(image,(200,100))
        x.append(image)
    x=np.array(x)
    return x

X=process(all_data)

all_label=np.array(all_label)

```

Fig 2.12 Load & Preprocess Data

### Step 3: Building the CNN Model:

- Creation of a simple CNN model using Keras:

```

model=Sequential()
model.add(Conv2D(32, kernel_size=3, input_shape=(100, 200, 3), activation="ReLU"))
model.add(MaxPooling2D(2))

model.add(Conv2D(64, kernel_size=3, activation="ReLU"))
model.add(Conv2D(128, kernel_size=3, activation="ReLU"))
model.add(MaxPooling2D(2))

model.add(Flatten())

model.add(Dense(100, activation="ReLU"))
model.add(Dense(1, activation="sigmoid"))

model.compile(optimizer="adam", loss="binary_crossentropy", metrics=["accuracy"])
model.summary()

```

Layer (type)	Output Shape	Param #
conv2d_33 (Conv2D)	(None, 197, 264, 32)	896
max_pooling2d_15 (MaxPooling2D)	(None, 65, 88, 32)	0
conv2d_34 (Conv2D)	(None, 63, 86, 64)	18496
conv2d_35 (Conv2D)	(None, 59, 82, 128)	284928
max_pooling2d_16 (MaxPooling2D)	(None, 29, 27, 128)	0
flatten_11 (Flatten)	(None, 65664)	0
dense_34 (Dense)	(None, 100)	6566500
dense_35 (Dense)	(None, 1)	101

```

Total params: 8,700,021
Trainable params: 8,700,021
Non-trainable params: 0

```

Fig 2.13 CNN Model

#### Step 4: Training the Model:

- Train the model using the prepared generators:

```
model.fit(X,all_lable,epochs=10,steps_per_epoch=20)
Epoch 1/10
20/20 [=====] - 17s 848ms/step - loss: 0.2902 - accuracy: 0.8500
Epoch 2/10
20/20 [=====] - 17s 856ms/step - loss: 0.2103 - accuracy: 0.9300
Epoch 3/10
20/20 [=====] - 17s 862ms/step - loss: 0.1529 - accuracy: 0.9400
Epoch 4/10
20/20 [=====] - 17s 859ms/step - loss: 0.1278 - accuracy: 0.9700
Epoch 5/10
20/20 [=====] - 17s 860ms/step - loss: 0.1074 - accuracy: 0.9800
Epoch 6/10
20/20 [=====] - 17s 866ms/step - loss: 0.0907 - accuracy: 0.9700
Epoch 7/10
20/20 [=====] - 17s 862ms/step - loss: 0.0828 - accuracy: 0.9800
Epoch 8/10
20/20 [=====] - 17s 854ms/step - loss: 0.0424 - accuracy: 0.9900
Epoch 9/10
20/20 [=====] - 17s 861ms/step - loss: 0.0540 - accuracy: 0.9700
Epoch 10/10
20/20 [=====] - 17s 851ms/step - loss: 0.1928 - accuracy: 0.9400
```

Fig 2.14 Train the model

#### Step 5: Predict the model

- After training, Predict the model's performance on the testing data:

```
for j2 in test:
    images = cv2.imread(j2)
    img=load_img(j2)
    plt.imshow(img)
    plt.show()
    images = cv2.resize(images, [256, 199])
    image_batch = np.expand_dims(images, axis=0)
    if model.predict(image_batch)<0.5:
        print("Laptop")
    else:
        print("Mobile")
```



```
1/1 [=====] - 8s 111ms/step
Laptop
```

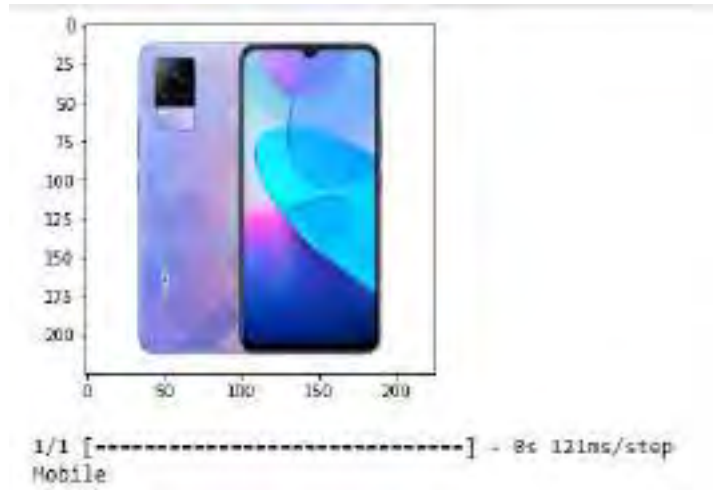


Fig 2.15 Evaluate the model

- **Task 2: OPEN CV:**

- Open Camera:

```
cap=cv.VideoCapture(0)

while True:
    _,image=cap.read()
    cv.imshow("image",image)
    stop=cv.waitKey(30)
    if stop==27:
        cap.release()
        cv.destroyAllWindows()
        break
```



Fig 2.16 Open camera

- Open Camera in gray scale mode (black and white):

```
cap=cv.VideoCapture(0)

while True:
    _,image=cap.read()
    image=cv.cvtColor(image,cv.COLOR_BGR2GRAY)
    cv.imshow("image",image)
    stop=cv.waitKey(30)
    if stop==27:
        cap.release()
        cv.destroyAllWindows()
        break
```

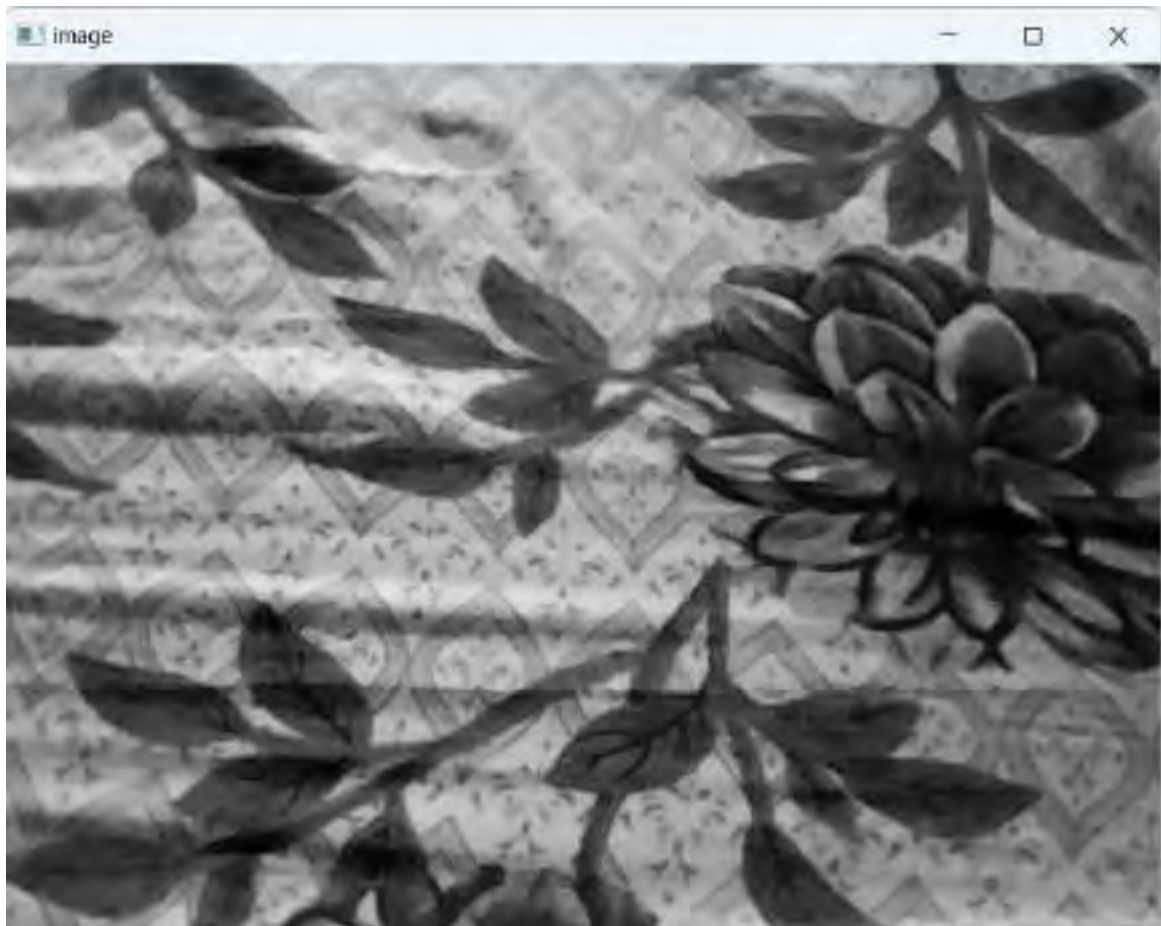


Fig 2.17 Open camera in Gray Mode

- Capture image on click of key “c” while camera is open:

```
cap=cv.VideoCapture(0)

while True:
    _,image=cap.read()
    cv.imshow("image",image)
    stop=cv.waitKey(30)

    if cv.waitKey(1) & 0xFF ==ord("c"):
        cv.imwrite("image_photo.jpg",image)

    if stop==27:
        cap.release()
        cv.destroyAllWindows()
        break
```



Fig 2.18 Captured Image



## **Week 2**

**10 August 2023**

- **Conclusion:**

In these 15 days, I've had an amazing chance to learn about data analytics and machine learning.

I got to work with experts and understand how data helps us make decisions. I did hands-on stuff like preparing data, studying it, and making models.

Working closely with experienced professionals, I've gained hands-on experience in data preprocessing, analysis, and model development. I learned different ways to analyze data and how they're used in real life. I also got to know the basics of machine learning, like teaching computers to predict things and solve hard problems.

Now I have a strong base to keep exploring data and machine learning. I'm excited to use what I've learned for future projects, as these skills are super important in our digital world.

## References

- [1] Kaggle: <https://www.kaggle.com/>
- [2] COVID API: <https://data.covid19india.org/data.json>
- [3] ISRO API: <https://isro.vercel.app/api/spacecrafts>
- [4] Bitcoin API: <https://api.coindesk.com/v1/bpi/currentprice.json>
- [5] Mutual Fund API: <https://api.mfapi.in/mf>
- [6] Inshorts News API: <https://inshortsapi.vercel.app/news?category=all>
- [7] ISRO Foreign API: [https://isro.vercel.app/api/customer\\_satellites](https://isro.vercel.app/api/customer_satellites)
- [8] Postal Pin code API: <https://api.postalpincode.in/pincode/380001>

# **INTERNSHIP AT INFOLABZ SERVICES PVT. LTD.**

**AN INTERNSHIP REPORT**

*Submitted by*

**HET NILESH PATEL**

**200390107005**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ IT SERVICES PVT. LTD.** has been carried out by **HET NILESH PATEL** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Mr. Chintan Nagrecha

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390107005  
Semester: 7<sup>th</sup>, Computer Engineering  
Saffrony Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Het Patel.

In this internship tenure, we have covered the fundamentals of Data Analytics and Machine Learning. In the data analytics part, we have worked on API data and covered the basics of analysis using pandas and data visualization using matplotlib. In machine learning, we have implemented elementary regression models.

We wish Het Patel all the best for future endeavors.



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**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INFOLABZ IT SERVICES PVT. LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chintan Nagrecha** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Het Nilesh Patel**

---

## **ACKNOWLEDGMENT**

I am deeply grateful for the opportunity to acknowledge and express my heartfelt appreciation to everyone who contributed to my enriching internship experience at INFOLABZ IT Services Pvt Ltd in the field of Data Analytics and Machine Learning.

Chintan Nagrecha:

I extend my sincere gratitude to Mr. Chintan Nagrecha, my mentor and guide, for his exceptional mentorship and continuous support throughout my internship. His insights, guidance, and expertise in the realm of Data Analytics and Machine Learning have been instrumental in shaping my understanding of advanced techniques and real-world applications.

INFOLABZ IT Services Pvt Ltd:

I want to convey my sincere appreciation to INFOLABZ IT Services Pvt Ltd for providing me with an opportunity to work on challenging projects and immerse myself in the practical aspects of data analysis and machine learning. The exposure to diverse projects and the dynamic work environment have contributed significantly to my growth as a data professional.

Saffrony Institute of Technology:

I would like to acknowledge Saffrony Institute of Technology for providing me with the academic foundation that has enabled me to translate classroom learning into practical skills during my internship.

The internship journey with INFOLABZ IT Services Pvt Ltd, under the guidance of Chintan Nagrecha, has been an enlightening experience that has equipped me with valuable insights and skills in the field of Data Analytics and Machine Learning. I am sincerely grateful for the opportunities, knowledge, and support that I have received.

## **Abstract**

This report contains the work done by the author during the internship at **INFOLABZ IT SERVICES PVT. LTD.** It shows the work I did in the company during my internship period. In this report, the author discusses the concepts of data analytics and machine learning. The report also includes the tools and libraries used for data analytics and machine learning. In the machine learning part, the mathematical as well as coding part is mentioned by the author. Overall the report signifies the learning of the author during this internship period.



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## **List of Abbreviations**

ML	Machine Learning
DL	Deep Learning
DA	Data Analytics
DS	Data Science
CNN	Convolutional Neural Network
NLP	Natural Language Processing

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# **Chapter 1. INTRODUCTION TO COMPANY**

## **1.1 COMPANY PROFILE:**

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make its own position in the IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard working developers. Our developers who are always willing to take on new challenges and looking forward to learning new things, are the heart of this company.

## **1.2 MISSION AND VISION OF THE COMPANY:**

Our objective is to sustain exponential growth in the IT industry. Our mission is to deliver the best with top notch quality every quarter and our vision is to develop a product with one of its kind concepts which could be used by millions of people.

## Chapter 2. INTRODUCTION TO PYTHON FOR DA&ML

### 2.1 BASICS OF DATA ANALYTICS AND TYPES OF DATA:

In data science, data analytics involves the process of examining, cleaning, transforming, and interpreting data to extract valuable insights. Different types of data included in the life cycle are:

1. Numerical Data: This type includes continuous data (e.g., temperature, age) and discrete data (e.g., counts, ratings).
2. Categorical Data: Categorical data represents specific categories and can be nominal (without order) or ordinal (with order).
3. Textual Data: Unstructured text data requires techniques like natural language processing (NLP) to analyze.

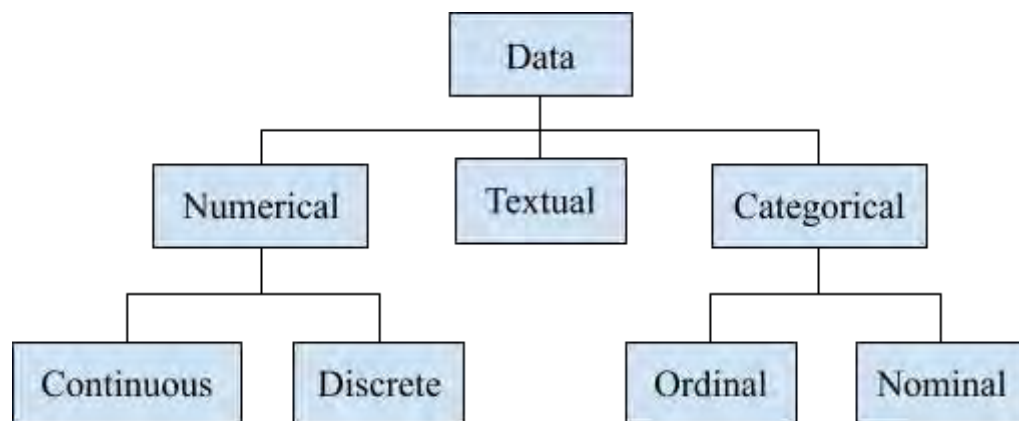


Figure 1. Types of Data

### 2.2 DICTIONARY:

A dictionary in Python is a versatile and dynamic data structure that allows the storage of key-value pairs. It serves as a fundamental tool in data manipulation and analysis by enabling the association of unique keys with corresponding values. Dictionaries provide rapid access to values through keys, promoting efficient information retrieval and updating. Within the context of data analysis and machine learning, dictionaries are often employed for tasks such as creating feature mappings, storing configuration parameters,

or aggregating data. Mastery of dictionary manipulation facilitates seamless interaction with structured and unstructured data, enhancing the proficiency of data scientists in extracting valuable insights.

```
student = {  
    "name": "Het Patel",  
    "age": 22,  
    "major": "Computer Engineering"  
}  
print(student["name"])  
  
Het Patel
```

Figure 2. Dictionary code

In the above student dictionary, we have *name*, *age*, *major* as our key and *Het Patel*, *22*, *Computer Engineering* as our values. We can access the value of the dictionary by using a key.

### 2.3 REQUEST PACKAGE:

The requests package in Python emerges as a powerful tool for making HTTP requests and interacting with web services. In the context of data analysis and machine learning, the requests package facilitates the retrieval of data from online sources, such as APIs and websites, enabling seamless integration of external data into analytical workflows. This section elucidates the usage of the requests package for sending HTTP requests, handling responses, and extracting relevant data. Proficiency in utilizing this package empowers data scientists to access a wealth of real-time and historical data, broadening the scope of analyses and enriching the decision-making process.

```
import requests  
  
url = requests.get("https://data.comid8193india.org/data/2008")
```

Figure 3. requests package code

We need to use the library called requests, that facilitates making HTTP requests and interacting with web services. requests.get() method takes the url as a parameter and provides the HTTP response from the HTTP requests to that url.

## 2.4 HANDLING JSON DATA USING PYTHON:

JSON (JavaScript Object Notation) stands as a widely utilized format for data interchange, owing to its simplicity and compatibility with various programming languages. Python's built-in libraries, such as json, empower data scientists to parse and generate JSON data effortlessly. The ability to effectively manage JSON structures is crucial for interfacing with web APIs, storing configuration settings, and exchanging data between diverse systems. A comprehensive understanding of JSON manipulation equips data professionals with the skills to seamlessly integrate data from diverse sources and platforms.

```
import requests

url = requests.get("https://data.covid19india.org/data.json")

data = url.json()

print(data)

{'cases_time_series': [{'dailyconfirmed': '1', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '30 January 2020', 'dateymd': '2020-01-30', 'totalconfirmed': '1', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '31 January 2020', 'dateymd': '2020-01-31', 'totalconfirmed': '1', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '1 February 2020', 'dateymd': '2020-02-01', 'totalconfirmed': '1', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '1', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '2 February 2020', 'dateymd': '2020-02-02', 'totalconfirmed': '2', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '1', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '3 February 2020', 'dateymd': '2020-02-03', 'totalconfirmed': '3', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 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'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '20 February 2020', 'dateymd': '2020-02-20', 'totalconfirmed': '3', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '21 February 2020', 'dateymd': '2020-02-21', 'totalconfirmed': '3', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '22 February 2020', 'dateymd': '2020-02-22', 'totalconfirmed': '3', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '23 February 2020', 'dateymd': '2020-02-23', 'totalconfirmed': '3', 'totaldeceased': '0', 'totalrecovered': '0'}, {'dailyconfirmed': '0', 'dailydeceased': '0', 'dailyrecovered': '0', 'date': '24 February 2020', 'dateymd': '2020-02-24', 'totalconfirmed': '3', 'totaldeceased': '0', 'totalrecovered': '0'}, 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```

Figure 4. JSON data handling code

This json() method parses the JSON content of the response. We can access the json content in the same manner as we access the dictionary content. As we can see, the output of the above code is a dictionary with key and value pairs.

## Chapter 3. INTRODUCTION TO API

### 3.1 API HANDLING:

Application Programming Interfaces (APIs) serve as crucial conduits for seamless communication and interaction between different software systems. This chapter elucidates the fundamentals of API handling, encompassing the process of making requests to APIs, receiving responses, and extracting relevant data. The mechanics of HTTP requests, including methods such as GET and POST, are explored in detail. Mastery of API handling empowers data professionals to retrieve, manipulate, and integrate external data sources into their analytical workflows, facilitating real-time data updates and enriching the decision-making process.

```
import requests

INSHORTS NEWS API API: https://newsdataquest.com/news?category=all

1) How many main keys are there in this API? Extract and print all keys. 2) How many news are available in this API? 3) Print all news in below format:

1. News content: Author: AUTHOR NAME DATE: Date of news
2. News content: Author: AUTHOR NAME DATE: Date of news
3. News content: Author: AUTHOR NAME DATE: Date of news (In advance level of Data Science, student can use this API for sentiment analysis to identify - positive / negative / neutral)

inshorts_api = requests.get('https://newsdataquest.com/news?category=all')
inshorts_data = inshorts_api.json()

# How many main keys are there in this API? Extract and print all keys.
keys = inshorts_data.keys()
print('No. of main keys present in API are:', len(keys), '\n')
print('Keys are:', inshorts_data.keys())
print('Keys in data key are:', inshorts_data['data'][0].keys(), '\n')

No. of main keys present in API are: 3

Keys are: dict_keys(['category', 'data', 'success'])
Keys in data key are: dict_keys(['author', 'content', 'date', 'id', 'image0-1', 'readMore0-1', 'time', 'title', 'url'])

# How many news are available in this API?
no_of_news = len(inshorts_data['data'])
print('No. of news available in API are:', no_of_news)

No. of news available in API are: 3
```

Figure 5. API handling code



```

# Print all news in format -> News content, Author, Date, Title, Date of news
def
for news in inshorts_data['data']:
    print("\n", news['content'])
    print("\nAuthor Name: ", news['author'])
    print("\nDate: ", news['date'], "\n\n")
    +1+

```

1. The Border Security Force (BSF) troops shot dead a Pakistani intruder while he was trying to cross the International Border in Punjab's Pathankot in the early hours of Monday. This comes ahead of the 77th Independence Day celebrations. "The infiltrator was repeatedly challenged and subsequently neutralised in self-defence to prevent imminent danger," the BSF Punjab Frontier said.
2. Internet has been restored in Haryana's Huk, two weeks after communal clashes broke out in the district. At least six people were killed and several others were injured in the violence which erupted during a Vishva Hindu Parishad procession. Earlier, the state government had extended the suspension of mobile internet, 9G and other digital services till August 15.
3. CarTrade Tech has acquired OLX India's classified and auto transactions business from OLX India BV for \$535.54 crore. The Bengaluru-based used cars platform, in collaboration with OLX, could attract roughly 68 million average monthly unique visitors. "We were really excited to acquire such a strong brand and work with such a really talented team," CarTrade Tech founder Vinay Singh said.
4. The ISRO shared pictures of Aditya-L1 satellite after it arrived at the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh, ahead of its expected launch by August end. "Aditya-L1, the first space-based Indian observatory to study the Sun, is getting ready for the launch," the space agency said. The satellite was realised at the DR Rao Satellite Centre in Bengaluru.
5. Seven people, including a 13-day-old newborn baby, her 12-year-old brother and their parents, were killed due to Russian shelling in Ukraine's Kherson region on Sunday. Furthermore, 13 people sustained injuries as a result of Russian shelling. According to the kids' death, Oleksandr Prokudin, Kherson region military administration's head, said, "Kherson region has been shaken

Figure 6. API handling code.

In the above example we used Inshorts News API. Where we extracted some data from the api and displayed them in output. We extracted all the keys, number of news in api and various other types of data.

### 3.2 API SEARCH:

APIs often offer extensive datasets and functionalities, and effective search mechanisms are vital for discovering the resources and data points that best match specific requirements. This section focuses on the intricacies of API search techniques, equipping data scientists with the skills to locate relevant APIs, understand their documentation, and access the desired information. Topics covered include query parameters, authentication methods, and pagination, which collectively enable precise and efficient data retrieval from APIs. Proficiency in API search empowers data professionals to uncover valuable data sources, optimize data collection processes, and streamline the integration of external information into analytical projects.

```

# Allow user to enter name of spacecraft. Print spacecraft is found or spacecraft not found
isro_api = requests.get('https://isro.vercel.app/api/spacecrafts')
isro_data = isro_api.json()

sp_name = input("Enter name of spacecraft:")
for spacecraft in isro_data['spacecrafts']:
    if spacecraft['name'] == sp_name:
        print('Spacecraft found with id: ', spacecraft['id'])
        break
else:
    print('spacecraft not found')

Enter name of spacecraft:GSAT-1
Spacecraft found with id: 31

```

Figure 7. API search code

```

# Allow user to enter name of spacecraft. Print spacecraft is found or spacecraft not found
isro_api = requests.get('https://isro.vercel.app/api/spacecrafts')
isro_data = isro_api.json()

sp_name = input("Enter name of spacecraft:")
for spacecraft in isro_data['spacecrafts']:
    if spacecraft['name'] == sp_name:
        print('Spacecraft found with id: ', spacecraft['id'])
        break
else:
    print('spacecraft not found')

Enter name of spacecraft:APOLLO-11
spacecraft not found

```

Figure 8. API search code

```

# Print all spacecrafts names from API
for spacecraft in isro_data['spacecrafts']:
    print(spacecraft['id'], ': ', spacecraft['name'])

1 : Aryabhata
2 : Bhaskara-I
3 : Rohini Technology Payload (RTP)
4 : Rohini Satellite RS-1
5 : Rohini Satellite RS-D1
6 : APPLE
7 : Bhaskara-II
8 : INSAT-1A
9 : Rohini Satellite RS-D2
10 : INSAT-1B
11 : SROSS-1
12 : IRS-1A
13 : SROSS-2
14 : INSAT-1C
15 : INSAT-1D
16 : IRS-1B
17 : SROSS-C
18 : INSAT-2A
19 : INSAT-2B

```

Figure 9. Printing all items in API

## Chapter 4. INTRODUCTION TO DATA VISUALIZATION

### 4.1 WORKING WITH BARGRAPH:

A bar graph is a visual representation used in data science to showcase and compare categorical data. It consists of bars of different lengths, where each bar represents a category and its height represents a value or count associated with that category. Bar graphs help in easily spotting trends, comparing data sets, and making informed decisions. They're ideal for presenting frequency distributions, tracking changes over time, and simplifying complex data for better understanding.

```
data = {'arunachalpradesh':[120,200,10],
        'assam':[130,175,7],
        'rajasthan':[75,150,15]}

cities = list(data.keys())
values = list(data.values())
position = range(len(cities))
label = ['recovered', 'active', 'deaths']

plt.figure(figsize=(10,6))

for i in range(len(values[0])):
    plt.bar([pos + i*0.2 for pos in position], [v[i] for v in values], width=0.3, label = label[i])

plt.xticks([pos + i * 0.2 for pos in range(len(cities))], cities)
plt.legend()
plt.xlabel('Cities')
plt.ylabel('Total cases')
plt.title('Total covid 19 cases by states in India')
```

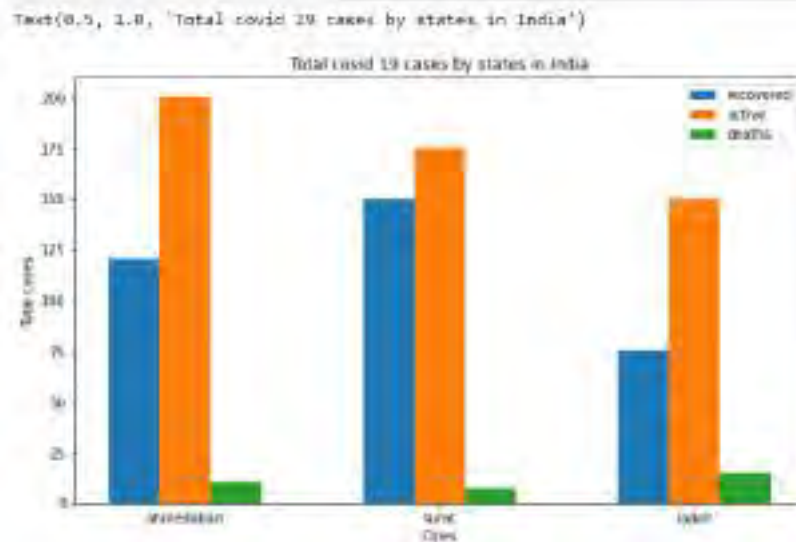


Figure 10: Vertical Bar Graph

```

state = {}
total_confirm = []
for i in range(1, len(covid_data['states'])):
    state.append(covid_data['states'][i]['state'])
    total_confirm.append(int(covid_data['states'][i]['confirmed']))

plt.figure(figsize=(10,10))
plt.barh(state, total_confirm)
plt.xlabel('Total Confirmed Cases')
plt.ylabel('States')
plt.title('COVID-19 Total Confirmed Cases by State in India')
plt.show()

```

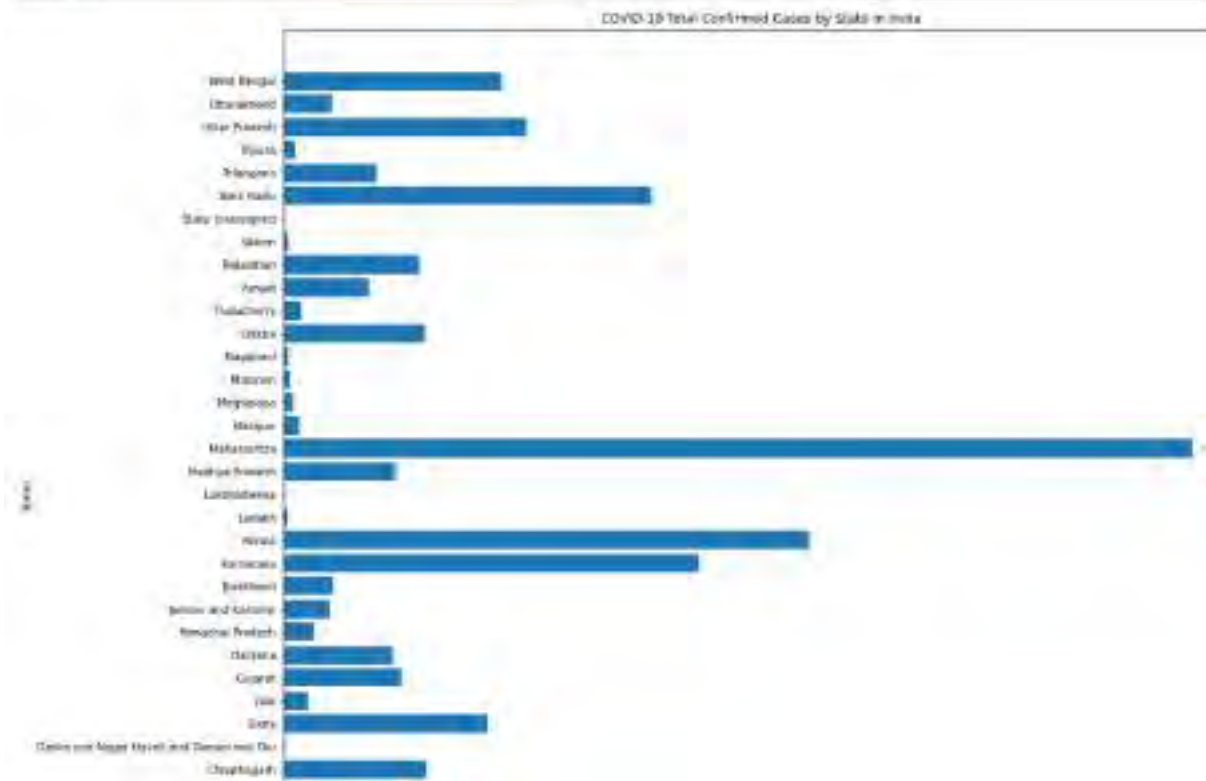


Figure 11: Horizontal Bar Graph

## 4.2 WORKING WITH PIE CHART:

A pie chart is a widely used data visualization tool in the field of data science. It presents data as a circular graph, divided into segments, where each segment represents a specific category or class within the dataset. The size of each segment is proportional to the quantity or proportion it represents in relation to the whole data set.

```

import requests
import matplotlib.pyplot as plt

isro_cust_api = requests.get('https://isro.vencel.app/api/customer_satellites')
isro_cust_data = isro_cust_api.json()

no_of_foreign_satellite = len(isro_cust_data['customer_satellites'])
no_of_indian_spacecraft = len(isro_data['spacecrafts'])

plt.pie([no_of_foreign_satellite, no_of_indian_spacecraft], labels=['Foreign', 'India'],
        autopct='%1.1f%%', radius=1.5, explode=[0,0.2])

([<matplotlib.patches.Wedge at 0x18a76cd3138>,
  <matplotlib.patches.Wedge at 0x18a76cd3850>,
  [Text(0.8788027819908888, 1.396497644233386, 'Foreign'),
   Text(-0.9053243313331184, -1.5657700050506454, 'India')],
  [Text(0.4793409719998956, 0.701725987703005, '32.1%'),
   Text(-0.5850685113332054, -0.9380084204889242, '67.9%')])

```

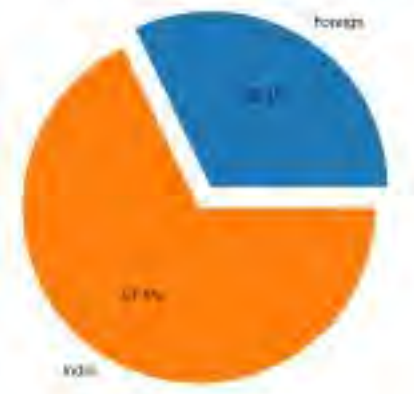


Figure 12: Pie Chart

### 4.3 WORKING WITH LINE GRAPH:

A line graph is a fundamental and widely used data visualization tool in the field of data science. It is particularly effective for representing and analyzing continuous data over a range of values, such as time periods or numerical intervals. In a line graph, data points are connected by lines, forming a visual representation of how a variable changes over the specified range.

```

import matplotlib.pyplot as plt

# Sample data for multiple lines
x = [1, 2, 3, 4, 5]
y1 = [2, 4, 6, 8, 10]
y2 = [1, 3, 5, 7, 9]
y3 = [5, 4, 3, 2, 1]

# Create a line graph with multiple lines
plt.plot(x, y1, marker='o', linestyle='-', color='b', label='Line 1')
plt.plot(x, y2, marker='x', linestyle='--', color='r', label='Line 2')
plt.plot(x, y3, marker='s', linestyle=':', color='g', label='Line 3')

# Add labels and title
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Multiple Line Graph')

# Add a legend
plt.legend()

# Display the plot
plt.show()

```

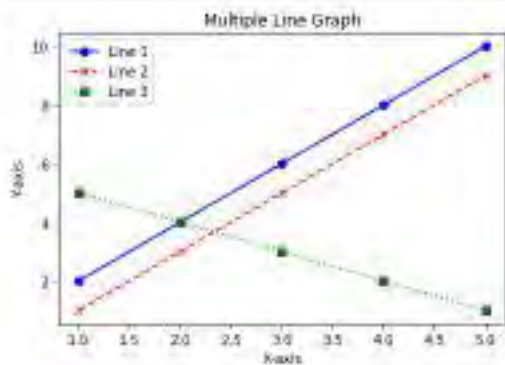


Figure 13: Line Graph

#### 4.4 WORKING WITH SCATTER PLOT:

A scatter plot is a popular data visualization technique used in data science to display the relationship between two continuous variables. It consists of individual data points, each represented by a dot or marker, positioned on a two-dimensional graph. The horizontal axis typically represents one variable, while the vertical axis represents the other variable. Scatter plots are particularly useful for identifying patterns, trends, clusters, and correlations within data.

```
import matplotlib.pyplot as plt

# Sample data for scatter plot
x = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
y = [2, 4, 5, 7, 8, 10, 11, 13, 14, 16]

# Create a scatter plot
plt.scatter(x, y, color='blue', marker='o', label='Data Points')

# Add labels and title
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Scatter Plot Example')

# Add a legend
plt.legend()

# Display the plot
plt.show()
```

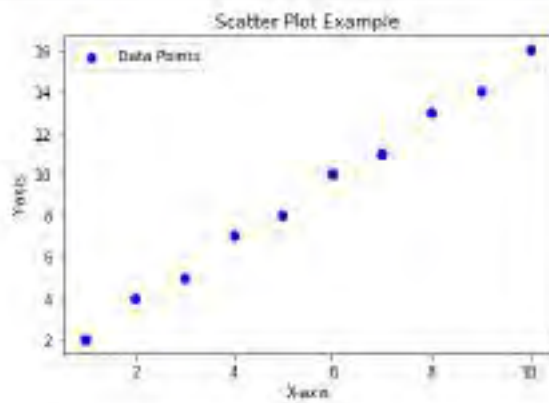


Figure 14: Scatter Plot

## Chapter 5. INTRODUCTION TO STRUCTURE DATA

### 5.1 WORKING WITH PANDAS DATAFRAME:

Structured data, organized in tabular formats, forms the cornerstone of many data analysis tasks. This chapter introduces data scientists to the Pandas library, a versatile and powerful tool for data manipulation and analysis. The focus lies on Pandas' primary data structure, the DataFrame, which offers a flexible and intuitive way to handle structured data. Topics covered include data loading, indexing, filtering, aggregation, and transformation using Pandas functions and methods. By mastering Pandas DataFrame operations, data scientists gain the ability to efficiently explore, clean, preprocess, and analyze data, thus forming a solid foundation for subsequent stages of the data science pipeline.

```
1 import pandas as pd
2 import numpy as np
3
4 mydata = [15,25,35]
5 pddata = pd.DataFrame(mydata)
6 print(pddata)
7
8 newdata = (15,25,35)
9 newpddata = pd.DataFrame(newdata)
10 print(newpddata)
11
12 iopdata = {'a':[30,20], 'b':[40,10], 'c':[50,0]}
13 ioppddata = pd.DataFrame(iopdata)
14 print(ioppddata)
15
16 game = pd.DataFrame([['ROHIT', 'BATSMAN', 50], ['KOHLI', 'BATSMAN', 88], ['BIRRAH', 'SCHLER', 15]],
17                     columns=['NAME', 'TYPE', 'SCORE'])
18 print(game)
19 print(game['NAME'])
20
21 empdata = np.array([[1000, 10000, 10000], [15000, 10000, 25000]])
22 pdempdata = pd.DataFrame(empdata, index=['RAJESH', 'MAHESH'], columns=[2020, 2021, 2022])
23 print(pdempdata)
24 pdempdata['TOTAL'] = 11*(pdempdata[2020]+pdempdata[2021]+pdempdata[2022])
25 print(pdempdata)
26
```

Figure 15. Pandas DataFrame Code

```
27 pdempdata[2023] = pdempdata[2022] + (pdempdata[2022]*0.10)
28 print(pdempdata)
29
30 pdempdata.to_csv('f:\name.csv')
```

Figure 16. Pandas DataFrame Code



We use pandas dataframe to make the data structured. In machine learning we prefer structured data (tabular data), so pandas dataframe helps us to convert any data type in it. Pandas offer various functions by which we can read csv/excel data, save to csv/excel data and many more.

## **5.2 WORKING WITH XLRD LIBRARY:**

Excel spreadsheets remain a common medium for data storage and distribution. The xlrd library in Python facilitates the extraction of data from Excel files, enabling data scientists to seamlessly incorporate spreadsheet data into their analyses. This section focuses on the practical usage of the xlrd library, covering topics such as reading data from Excel sheets, handling various data types, and navigating through spreadsheet structures. Proficiency in working with the xlrd library enhances a data scientist's ability to efficiently extract and integrate data from Excel files, bridging the gap between spreadsheet-based data sources and the analytical capabilities of Python.

```

1 # pip install xlrd==1.2.0
2
3 import xlrd
4
5 xlrd.xlsx.ensure_elementtree_imported(False,None)
6 xlrd.xlsx.Element_has_iter = True
7
8 loc = ("IPL.xlsx")
9 wb = xlrd.open_workbook(loc)
10 sheet = wb.sheet_by_index(0)
11
12 print(sheet.cell_value(0,0))
13 print(sheet.cell_value(0,2))
14 print(sheet.cell_value(3,1))
15
16 print("Total number of Rows: ",sheet.nrows)
17 print("Total number of Columns: ",sheet.ncols)
18 print("Total number of matches: ",sheet.nrows-1)
19
20 for i in range(1,sheet.ncols):
21     print(sheet.cell_value(0,i))
22
23
24
25
26
27
28
29
30
31 # FIND THE PLAYER AND PRINT THE DATE OF ALL MATCHES
32
33
34
35
36
37
38
39
40
41 # Allow user to insert player name, Print total, High score, Low Score and Average player
42 # Any library
43
44
45
46
47
48
49
50

```

Figure 18. xlrd library code

In the above code we used an IPL excel file to access data from the file using xlrd library. Using xlrd library is not commonly used after the existence of pandas library as we can perform the same operation with very few lines of code. xlrd library gives us a better understanding of the basic programming required to access excel files.

## Chapter 6. INTRODUCTION TO MACHINE LEARNING

### 6.1 INTRODUCTION TO ML:

Machine Learning (ML) forms the cornerstone of modern data science, enabling systems to learn from data and make predictions or decisions without being explicitly programmed. This chapter provides a foundational overview of ML concepts, including supervised, unsupervised, and reinforcement learning. Fundamental terminologies such as features, labels, training, and testing are introduced, along with the distinction between classification and regression tasks. Data scientists gain insight into the iterative process of model training, validation, and evaluation, setting the stage for more advanced ML techniques.

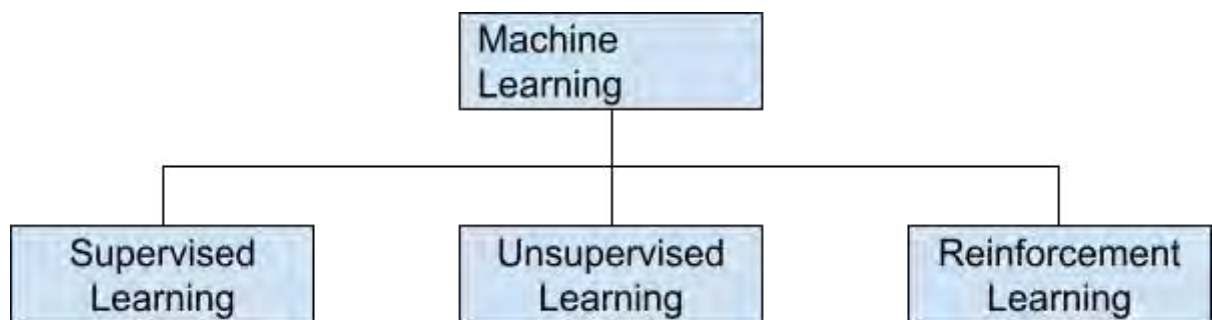


Figure 19. Types of Machine Learning

### 6.2 EXPLORING LINEAR ML MODEL:

Linear models serve as a fundamental class of supervised machine learning algorithms. This section delves into linear regression, a versatile technique used for predicting a continuous target variable based on one or more input features. Data scientists learn the mechanics of fitting a linear model to data, estimating model parameters, and interpreting coefficients. Topics covered include the ordinary least squares (OLS) method and the assessment of model performance through metrics such as mean squared error (MSE). By mastering linear regression, data professionals gain the ability to model and analyze relationships between variables, paving the way for more complex regression techniques.

```
df_new = pd.read_csv('Salary_Data.csv')

df_new.head()

   YearsExperience  Salary
0                1.1  39343.0
1                1.3  46205.0
2                1.5  37731.0
3                2.0  43525.0
4                2.2  39091.0

X = df_new[['YearsExperience']]
y = df_new['Salary']

from sklearn.linear_model import LinearRegression
model = LinearRegression()

model.fit(X, y)

LinearRegression()

model.coef_
array([9449.96232146])

model.intercept_
25792.20019866871

y_pred = model.coef_*X + model.intercept_
```

Figure 20. Linear Regression ML model code

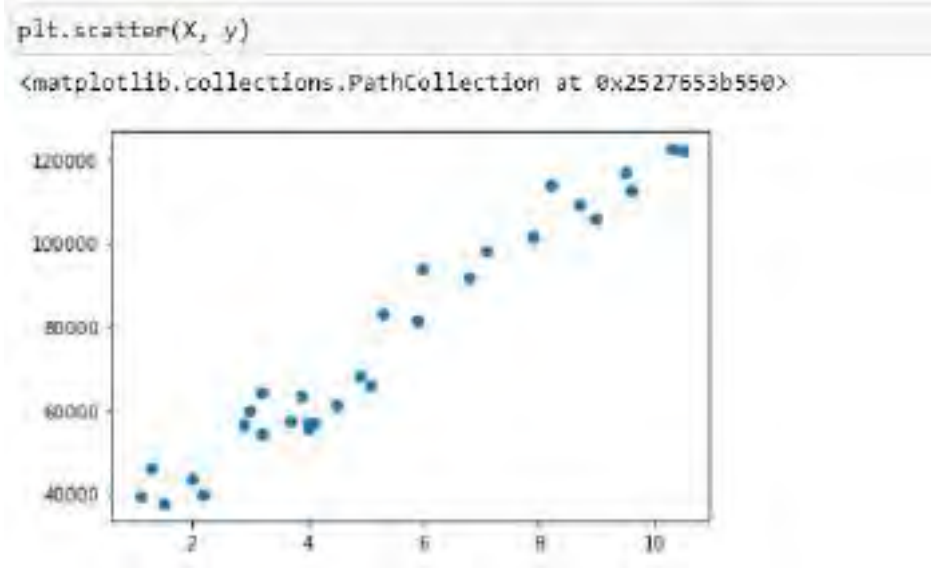
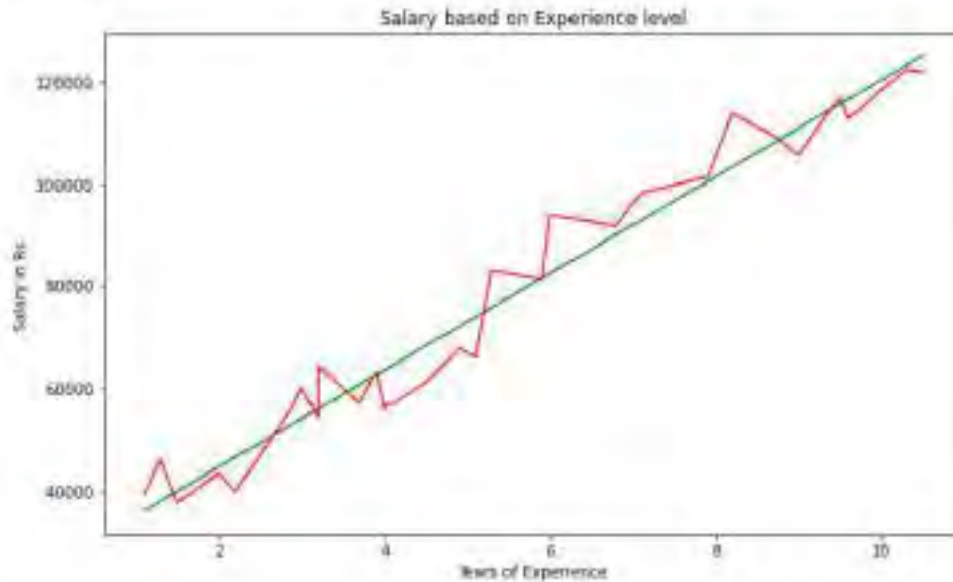


Figure 21. Scatter plot for linear model

```
import matplotlib.pyplot as plt
```

```
plt.figure(figsize=(10,6))  
plt.plot(df_new['YearsExperience'], df_new['Salary'], c='r')  
plt.plot(df_new['YearsExperience'], model.coef_*df_new['YearsExperience'] + model.intercept_, c='g')  
plt.xlabel('Years of Experience')  
plt.ylabel('Salary in Rs.')  
plt.title('Salary based on Experience level')  
plt.show()
```



```
model.predict([[10]])
```

```
array([[120291.82341322]])
```

Figure 22. Plotting prediction line

### 6.3 EXPLORING MULTIPLE LINEAR ML MODEL:

Building upon the concepts of linear regression, this section introduces multiple linear regression, a model that accommodates multiple input features. Data scientists learn how to extend the linear model to capture interactions and associations among multiple predictors. Feature scaling, regularization techniques, and model diagnostics are explored to enhance model robustness and interpretability. Proficiency in multiple linear regression empowers data professionals to address more intricate real-world problems by incorporating multiple variables into predictive models.

```
df = pd.read_csv("C:/Users/hetn2/Downloads/50_Startups.csv")

df.drop(['State'], axis=1, inplace=True)

df.head()


```

	R&D Spend	Administration	Marketing Spend	Profit
0	165349.20	136897.80	471784.10	192281.83
1	162597.70	151377.59	443898.53	191792.06
2	153441.01	101145.55	407934.54	191050.39
3	144372.41	118571.88	383199.62	182501.99
4	142107.34	91381.77	366168.42	168187.94

```

X = df[['R&D Spend', 'Administration', 'Marketing Spend']]
y = df['Profit']

from sklearn.linear_model import LinearRegression
model = LinearRegression()

model.fit(X, y)

LinearRegression()

model.coef_

array([ 0.80571505, -0.02681597,  0.02722805])

model.intercept_

50122.192989865274

model.predict([[165349.20, 1336897.80, 471784.10]])

array([165705.28449533])

```

Figure 23. Multiple Linear Regression Model

## 6.4 EXPLORING POLYNOMIAL LINEAR REGRESSION:

Polynomial linear regression expands the linear model to capture nonlinear relationships between variables by introducing polynomial features. This section elucidates the incorporation of polynomial terms into the linear regression framework, enabling data scientists to model curvilinear patterns in data. Topics covered include polynomial degree selection, overfitting mitigation, and feature engineering. Proficiency in polynomial linear regression equips data professionals with the capacity to model complex data patterns and provides a stepping stone toward more advanced nonlinear regression techniques.

```

import numpy as np
import matplotlib.pyplot as plt
import pandas as pd

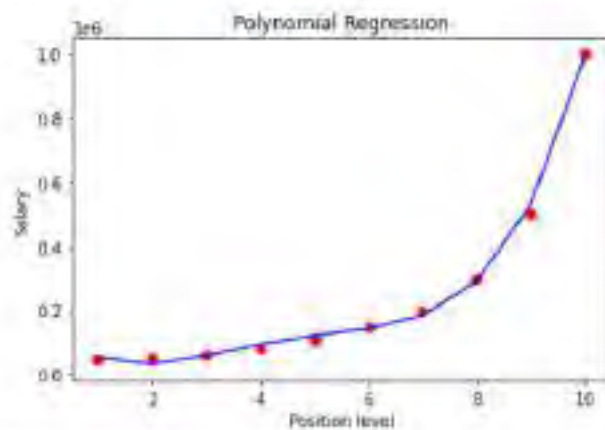
dataset = pd.read_csv('Position_Salaries.csv')
X = dataset.iloc[:, 1:2].values
y = dataset.iloc[:, 2].values

from sklearn.preprocessing import PolynomialFeatures
poly_reg = PolynomialFeatures(degree = 4)
X_poly = poly_reg.fit_transform(X)
poly_reg.fit(X_poly, y)
lin_reg_2 = LinearRegression()
lin_reg_2.fit(X_poly, y)

plt.scatter(X, y, color = 'red')
plt.plot(X, lin_reg_2.predict(poly_reg.fit_transform(X)), color = 'blue')
plt.title('Polynomial Regression')
plt.xlabel('Position level')
plt.ylabel('Salary')
plt.show()

lin_reg_2.predict(poly_reg.fit_transform([[6.5]]))

```



```
array([[158862.45265153]])
```

Figure 24. Polynomial Regression Model

# Chapter 7. INTRODUCTION TO IMAGE DATA

## 7.1 EXPLORING IMAGE DATA:

Visual data, in the form of images, is prevalent and rich with information. This chapter introduces data scientists to the unique challenges and opportunities presented by image data. Topics covered include image representation, pixel manipulation, and color spaces. Techniques for loading, displaying, and preprocessing images using libraries OpenCV are explored. Data scientists gain insights into the importance of data augmentation in improving model generalization and learn how to prepare image data for subsequent analysis and modeling.

## 7.2 EXPLORING CNN MODEL:

Convolutional Neural Networks (CNNs) stand as a foundational architecture for image analysis and recognition tasks. This section delves into the mechanics of CNNs, elucidating the concepts of convolution, pooling, and feature extraction. Data scientists learn how CNNs automatically capture hierarchical features within images, leading to improved performance on visual tasks. Model architecture, hyperparameters, and training processes are discussed, enabling professionals to build, train, and evaluate CNNs for image-related projects.

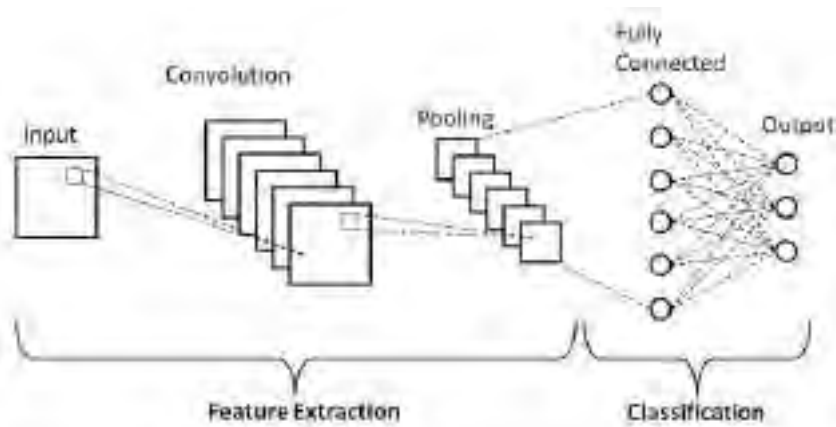


Figure 25. CNN Model Architecture



There are 5 Layers of Convolutional Neural Network:

1. Convolutional Layer: In this layer, the mathematical operation of convolution is performed between the input image and a filter of a particular size  $M \times M$ .
2. Pooling Layer: The primary aim of this layer is to decrease the size of the convolved feature map to reduce the computational costs.
3. Fully Connected Layer: The Fully Connected (FC) layer consists of the weights and biases along with the neurons and is used to connect the neurons between two different layers.
4. Dropout: a dropout layer is utilized wherein a few neurons are dropped from the neural network during the training process resulting in reduced size of the model.
5. Activation Functions: They are used to learn and approximate any kind of continuous and complex relationship between variables of the network

### **7.3 CNN PROJECT - MOBILE & LAPTOP CLASSIFICATION:**

Putting theory into practice, this section guides data scientists through a hands-on project involving image classification using CNNs. The project centers around distinguishing between images of mobile phones and laptops. Data preprocessing, dataset splitting, model design, and training procedures are detailed step-by-step. Data scientists gain experience in constructing a CNN architecture tailored to a specific task, fine-tuning hyperparameters, and interpreting model performance metrics. By completing this project, professionals acquire the ability to apply CNNs to real-world image classification challenges and gain insights into best practices for optimizing model accuracy.

```

# Build the CNN model
model = models.Sequential()
model.add(layers.Conv2D(32, (3, 3), activations='relu', input_shape=(img_width, img_height, 3)))
model.add(layers.MaxPooling2D((2, 2)))
model.add(layers.Conv2D(64, (3, 3), activations='relu'))
model.add(layers.MaxPooling2D((2, 2)))
model.add(layers.Flatten())
model.add(layers.Dense(64, activations='relu'))
model.add(layers.Dense(num_classes, activations='softmax'))

# Compile the model
model.compile(optimizer='adam', loss='categorical_crossentropy', metrics=['accuracy'])

# Train the model
history = model.fit(
    train_generator,
    steps_per_epoch=train_generator.samples // batch_size,
    epochs=epochs,
    validation_data=validation_generator,
    validation_steps=validation_generator.samples // batch_size
)

# Evaluate the model
test_loss, test_accuracy = model.evaluate(test_generator, steps=test_generator.samples // batch_size)
print("Test accuracy:", test_accuracy)

```

Figure 26. CNN model for mobile & laptop classification

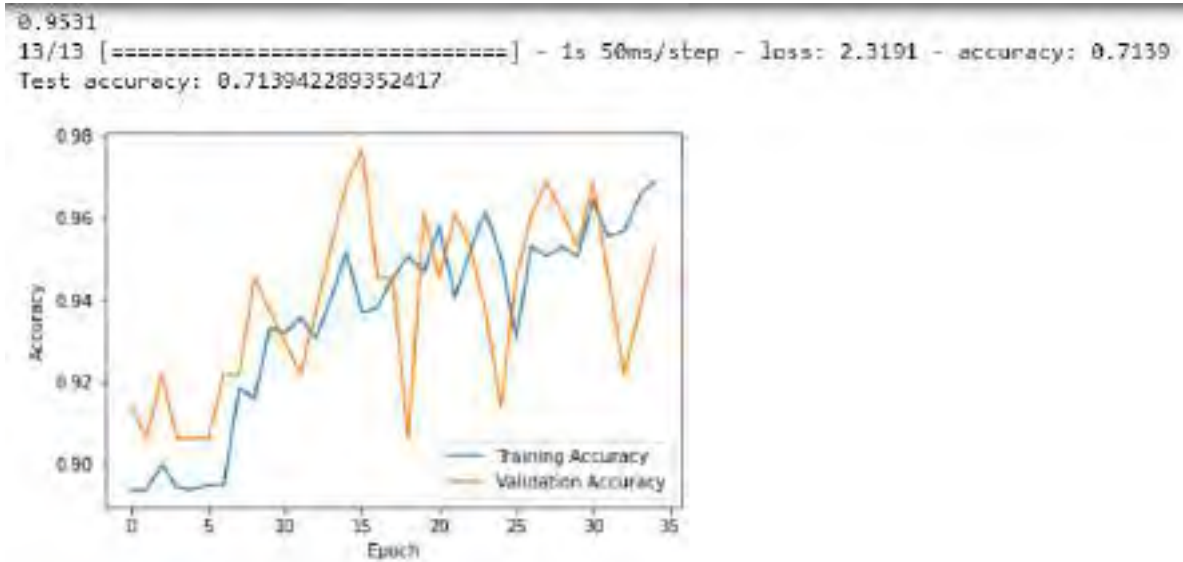


Figure 27. Training & Validation Accuracy Graph

# **INTERNSHIP AT INFOLABZ IT SERVICES**

**AN INTERNSHIP REPORT**

*Submitted by*

**Mane Hrushikesh Raghunath**

**190390107018**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ IT SERVICES** has been carried out by **Mane Hrushikesh Raghunath** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Upasana Ghoswami

Prof. Akshay Kansara

Internal Guide

Head of Department

## Company Certificate



**INFOLABZ IT SERVICES PVT. LTD.**  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

Date: 23 / 04 / 2023

### TO WHOM IT MAY CONCERN

This is to certify that **Harshillesh Raghunath Mann** has successfully completed his internship in the field of Web Development from 23 January 2023 to 15 April 2023 (Total number of Weeks: 12) under the guidance of Mr. Chintan Nagrecha.

His internship activities include front-end web development in React, API development and integration.

During the period of his internship program with us, he had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish him every success in his life and career.



Ms. Zaina Shah,  
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**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INFOLABZ IT SERVICES** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasana Ghoswami & Chintan Nagrecha (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Mane Hrushikesh Raghunath**

\_\_\_\_\_

## ACKNOWLEDGMENT

First I would like to thanks Mr.Chintan Nagrecha, Sr. Developer at INFLOABZ IT SERVICES Ahmedabad for giving me the opportunity to do an internship within the organization.I would like to express my sincere gratitude to INFOLABZ IT SERVICES for providing me with the opportunity to complete my internship with their esteemed organization.I am grateful to the company for allowing me to work on the Single page REACT application, which involved developing a Dashboard and Analytics Platform which is a comprehensive solution designed to provide businesses with real-time insights and analytics.The project provided me with valuable experience in the field of REACT, and I am grateful to the company for entrusting me with this responsibility.

I would also like to express my appreciation to my supervisor and team members, who provided me with guidance and support throughout my internship. I am highly indebted to Prof. Upasana Ghoswami , for the facilities provided to accomplish this internship.I would like to thank my Head of the Department Prof. Akshay Kansara for his constructive criticism throughout my internship.I would like to thank Meet Jani, College internship coordinator Department of CSE.

## ABSTRACT

*This report is a detailed overview of my internship journey at INFLOABZ IT SERVICES. During my Internship I have learned a lot about how the industry of REACT development actually works, what are the parameters, how to work on an actual project, how to work in a flow of teamwork. I have known about the work flow of react developers roles and responsibilities.*

*This project aims to develop a React Dashboard and analytics platform, where businesses are provided with real-time insights and analytics. The platform is built using React and integrates with various data sources to provide a centralized view of business metrics and KPIs. The platform's intuitive dashboard displays up-to-date information on key performance indicators and trends, enabling businesses to quickly identify areas of improvement and track progress towards their goals. The platform also features advanced analytics capabilities, such as data visualisation and predictive analytics that allow businesses to gain deeper insights into their data and make informed decisions. With its user-friendly interface and real-time updates, the Dashboard and Analytics Platform is an essential tool for businesses looking to stay ahead of the curve and make data-driven decisions.*

*The internship with INFOLABZ IT SERVICES provides an excellent opportunity to gain practical experience in developing a real-world Smart Factory solution.*



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## Abbreviations

DOM	Document Object Model
SEO	Search Engine Optimization
NPM	Node Package Manager
NPX	Node Package eXecute
JSON	JavaScript Object Notation
SRC	Source attribute
HTML	HyperText Markup Language
CSS	Cascading Style Sheets
JS	Javascript

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# CHAPTER 1. OVERVIEW OF THE COMPANY



INFOLABZ IT SERVICES are providing technical solutions and services. We strive to provide you with innovative and client-focused solutions.

INFOLABZ helps customers modernise their networks in order to improve their market strategy and profitability. Also provides excellence while ensuring quality customer service with expert team, advanced technologies, and seamless processes.

We believe quality education is the base of any good developer, keeping this in context we have best trainers having experience of 8 years just to train our developers, trainees and students. Our student training and education segment is very limited but it is strongest and quality driven.

## 1.1 HISTORY OF COMPANY

Established in 2016, Infolabz managed to achieve a reputation and respected position in the information technology industry. Our developers are hard working, Self motivated and constantly updating themselves according to current trends. Our aim is to achieve expertise in most latest technologies so we could deliver client's projects in the most latest and advanced technologies.

## 1.2 DIFFERENT PRODUCT / SCOPE OF WORK:

INFOLABZ's full range of services is intended to meet your project and business needs. We have a dedicated team to handle your requirements. We have experienced staff to provide you with services for your business. People are trusting us for these services: Web Development, Application Development, Data Science, and IOT solutions.

### Web Development:

Web development is the process of creating and maintaining websites. It involves a range of activities, including web design, web content development, client-side scripting, and server-side scripting. A well-designed website not only looks appealing but is also easy to use, quick to load, and secure. With the increasing importance of the internet in our daily lives, having a robust and reliable website has become essential for businesses of all sizes. Our company provides comprehensive web development services that can help you create an online presence that is both engaging and effective.

### Application Development:

Application development involves designing, building, testing, and deploying software applications that meet specific business needs. From mobile apps to enterprise-level software, applications can help businesses streamline their operations, enhance customer experiences, and drive revenue growth. Our company specializes in creating customized applications that are tailored to meet the unique needs of each client. We use the latest tools and technologies to build high-quality applications that are both efficient and scalable.

### Data Science:

Data science is an interdisciplinary field that involves the extraction of insights from structured and unstructured data using statistical, mathematical, and computational techniques. By leveraging data science, businesses can gain a deeper understanding of their customers, identify new market opportunities, and optimize their operations. Our company offers a range of data science services, including data analysis, data visualization, machine learning, and artificial intelligence. With our data science solutions, we can help you make informed decisions and gain a competitive edge in your industry.

IoT Solutions:

The Internet of Things (IoT) refers to the network of physical devices, vehicles, home appliances, and other items embedded with sensors, software, and connectivity that allows them to collect and exchange data. IoT solutions can help businesses automate processes, improve efficiency, and create new revenue streams. Our company provides end-to-end IoT solutions that include hardware design, software development, and connectivity services. Whether you need to track inventory, monitor equipment, or optimize energy consumption, we can help you implement an IoT solution that meets your specific needs.

### 1.3 AIM/GOALS OF COMPANY:

Our clients and development context is very broad. We always keep these 3 things in mind:

- 1) Well specific and detailed Requirement Gathering
- 2) Quality development and
- 3) On time Delivery.

Because of this ethics we have more than 100+ clients across the globe. We are adding but we are sustaining our old clients and we thing that is the most important part for us and our relation.

## **CHAPTER 2. OVERVIEW OF HTML, CSS, JS**

HTML, CSS, and JavaScript are three fundamental technologies used for creating dynamic and interactive websites.

HTML (HyperText Markup Language) is used to structure content on a web page. It provides a way to describe the meaning and structure of different elements on a page, such as headings, paragraphs, lists, and links.

CSS (Cascading Style Sheets) is used to define the presentation and layout of a web page. It allows designers to style HTML elements by specifying things like font size, color, margins, and padding. CSS also enables designers to create complex layouts, responsive designs, and animations.

JavaScript is a programming language used to create interactive and dynamic behavior on a web page. It can be used to validate user input, create animations, change page content without reloading, and communicate with servers to retrieve or send data.

## 2.1 INTRODUCTION OF HTML, CSS

HTML (HyperText Markup Language) and CSS (Cascading Style Sheets) are two core technologies used to create websites.

HTML is a markup language used to structure content on a web page. It provides a way to describe the meaning and structure of different elements on a page, such as headings, paragraphs, lists, and links. Some of the main functions of HTML include:

- Creating the basic structure of a web page by defining sections and elements.
- Adding headings and subheadings to provide structure and hierarchy to content.
- Creating lists to organize information into bullet points or numbered items.
- Adding links to allow users to navigate between different pages or websites.
- Embedding images, videos, and other multimedia content into a web page.



CSS, on the other hand, is used to define the presentation and layout of a web page. It allows designers to style HTML elements by specifying things like font size, color, margins, and padding. Some of the main functions of CSS include:

- Controlling the visual appearance of text, including font styles, sizes, and colors
- Creating page layouts, including positioning elements, defining column widths, and creating responsive designs that adapt to different screen sizes
- Adding visual effects, such as animations, transitions, and hover effects
- Creating complex visual elements, such as drop-down menus, tabs, and accordions

## 2.2 INTRODUCTION OF JAVASCRIPT

JavaScript is a programming language used to create dynamic and interactive behavior on a web page. It can be used to validate user input, create animations, change page content without reloading, and communicate with servers to retrieve or send data. Some of the main functions of JavaScript include:

- Manipulating the Document Object Model (DOM): JavaScript can be used to manipulate the HTML and CSS on a web page dynamically, allowing for the creation of interactive user interfaces and animations.
- Handling user events: JavaScript can detect and respond to user events, such as clicks, key presses, and mouse movements, allowing for the creation of interactive elements and applications.
- Validating form input: JavaScript can be used to validate form input, ensuring that user input is in the correct format before it is submitted to a server.

- Communicating with servers: JavaScript can send HTTP requests to servers to retrieve data or send data to be stored, allowing for dynamic content and user experiences.
- Creating dynamic content: JavaScript can be used to create dynamic content that changes based on user input or other factors, such as the time of day or the user's location.
- Creating animations and effects: JavaScript can be used to create animations and effects, such as scrolling text, fading images, and sliding panels.

## CHAPTER 3. OVERVIEW OF REACT JS

The React.js framework is an open-source JavaScript framework and library developed by Facebook. It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code.

### 3.1 INTRODUCTION OF REACT JS

ReactJS is a **declarative**, **efficient**, and flexible **JavaScript library** for building reusable UI components. It is an open-source, component-based front end library which is responsible only for the view layer of the application. It was initially developed and maintained by Facebook and later used in its products like WhatsApp & Instagram. Some of the main functions of REACT include:

- Creation of Dynamic web applications is easier
- It increases productivity and also helps in maintenance
- Ensures faster rendering of Virtual DOM
- It ensures to have a stable code
- It has SEO Friendly features
- A helpful developer toolset
- React Native is great for mobile application development
- Easy to learn

## CHAPTER 4. MORE ABOUT REACT JS

Starting a new React project is very complicated, with so many build tools. It uses many dependencies, configuration files, and other requirements such as Babel, Webpack, ESLint before writing a single line of React code. Create React App CLI tool removes all that complexities and makes React app simple. For this, you need to install the package using NPM, and then run a few simple commands to get a new React project.

The **create-react-app** is an excellent tool for beginners, which allows you to create and run React project very quickly. It does not take any configuration manually. This tool sets up the development environment, provides an excellent developer experience, and optimizes the app for production.

### 4.1 REQUIREMENTS

The Create React App is maintained by **Facebook** and can works on any **platform**, for example, macOS, Windows, Linux, etc. To create a React Project using create-react-app, you need to have installed the following things in your system.

1. Node version  $\geq 8.10$
2. NPM version  $\geq 5.6$

Let us check the current version of **Node** and **NPM** in the system.

Run the following command to check the Node version in the command prompt.

```
$ node -v
```

Run the following command to check the NPM version in the command prompt.

```
$ npm -v
```

### 4.2 INSTALLATION & CREATING NEW PROJECT

We can install React using npm package manager by using the following command. There is no need to worry about the complexity of React installation. The create-react-app npm package manager will manage everything, which needed for React project.

```
npm install -g create-react-app
```

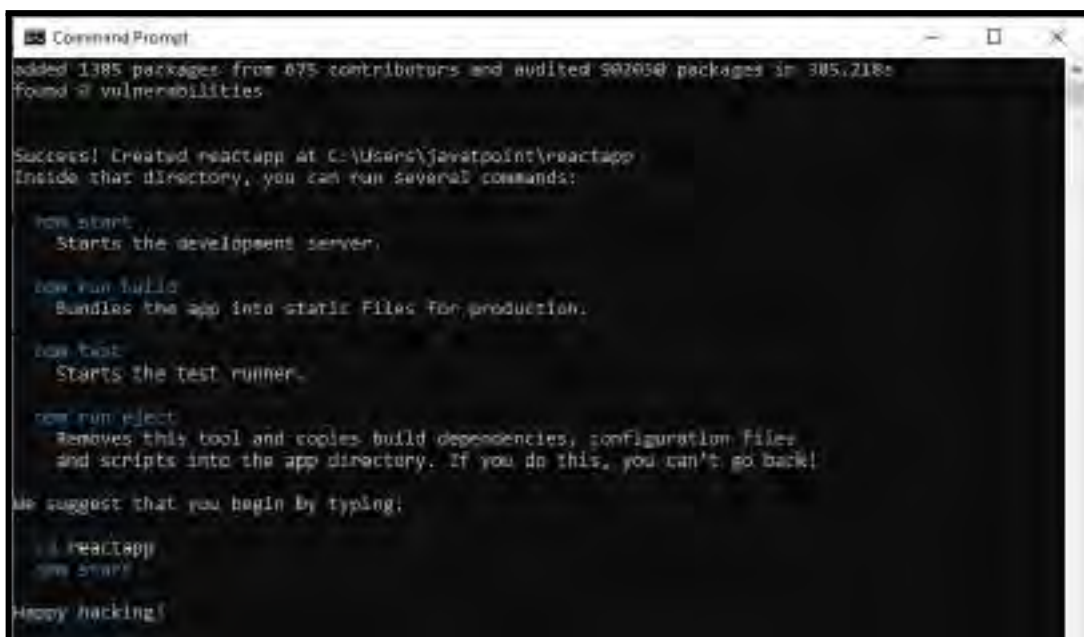
Once the React installation is successful, we can create a new React project using create-react-app command. Here, I choose "reactproject" name for my project.

```
create-react-app reactproject
```

We can combine the above two steps in a single command using npx. The npx is a package runner tool which comes with npm 5.2 and above version.

### **npx create-react-app reactproject**

Now, we can see in the fig. 4.1, the terminal as like below:



```
Command Prompt
added 1385 packages from 675 contributors and audited 502050 packages in 305.218s
found 0 vulnerabilities

Success! Created reactapp at C:\Users\javarpoint\reactapp
Inside that directory, you can run several commands:

  npm start
    Starts the development server.

  npm run build
    Bundles the app into static files for production.

  npm test
    Starts the test runner.

  npm run eject
    Removes this tool and copies build dependencies, configuration files
    and scripts into the app directory. If you do this, you can't go back!

We suggest that you begin by typing:

  cd reactapp
  npm start

Happy hacking!
```

Fig 4.1

The above screen tells that the React project is created successfully on our system. Now, we need to start the server so that we can access the application on the browser. Type the following command in the terminal window.

- 1. \$ cd Desktop**
- 2. \$ npm start**

NPM is a package manager which starts the server and access the application at default server <http://localhost:3000>. Now, we will get the following screen as shown in fig. 4.2.



Fig 4.2

Next, open the project on Code editor. Here, I am using Visual Studio Code. Our project's default structure looks like the image below as shown in fig. 4.3:

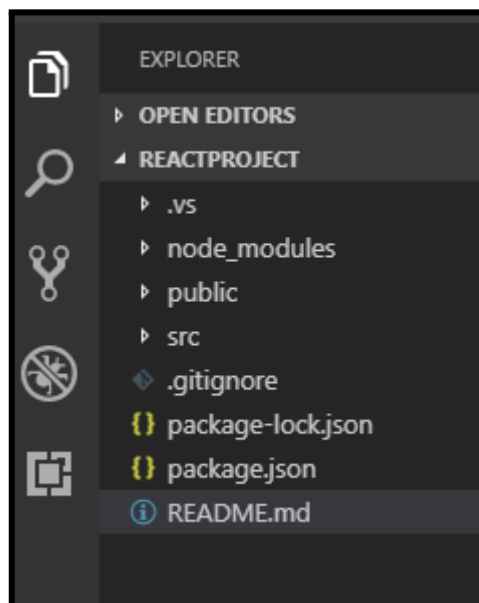


Fig 4.3

In React application, there are several files and folders in the root directory. Some of them are as follows:

1. **node\_modules:** It contains the React library and any other third party libraries needed.
2. **public:** It holds the public assets of the application. It contains the index.html where React will mount the application by default on the `<div id="root"></div>` element.
3. **src:** It contains the App.css, App.js, App.test.js, index.css, index.js, and serviceWorker.js files. Here, the App.js file always responsible for displaying the output screen in React.
4. **package-lock.json:** It is generated automatically for any operations where npm package modifies either the node\_modules tree or package.json. It cannot be published. It will be ignored if it finds any other place rather than the top-level package.
5. **package.json:** It holds various metadata required for the project. It gives information to npm, which allows to identify the project as well as handle the project's dependencies.
6. **README.md:** It provides the documentation to read about React topics.

### 4.3 REACT ENVIRONMENT SETUP

Now, open the **src >> App.js** file and make changes which you want to display on the screen. After making desired changes, **save** the file. As soon as we save the file, Webpack recompiles the code, and the page will refresh automatically, and changes are reflected on the browser screen. Now, we can create as many components as we want, import the newly created component inside the **App.js** file and that file will be included in our main **index.html** file after compiling by Webpack.

Next, if we want to make the project for the production mode, type the following command. This command will generate the production build, which is best optimized.

**\$ npm build**

# CHAPTER 5. INTERNSHIP AND PROJECT

## 5.1 INTRODUCTION TO BUSINESS ANALYTICS DASHBOARD:

A Business Analytics Dashboard Project using React JS is a web application that enables users to visualize and interact with data in a meaningful way. It allows businesses to track key performance indicators (KPIs), monitor trends, and make data-driven decisions.

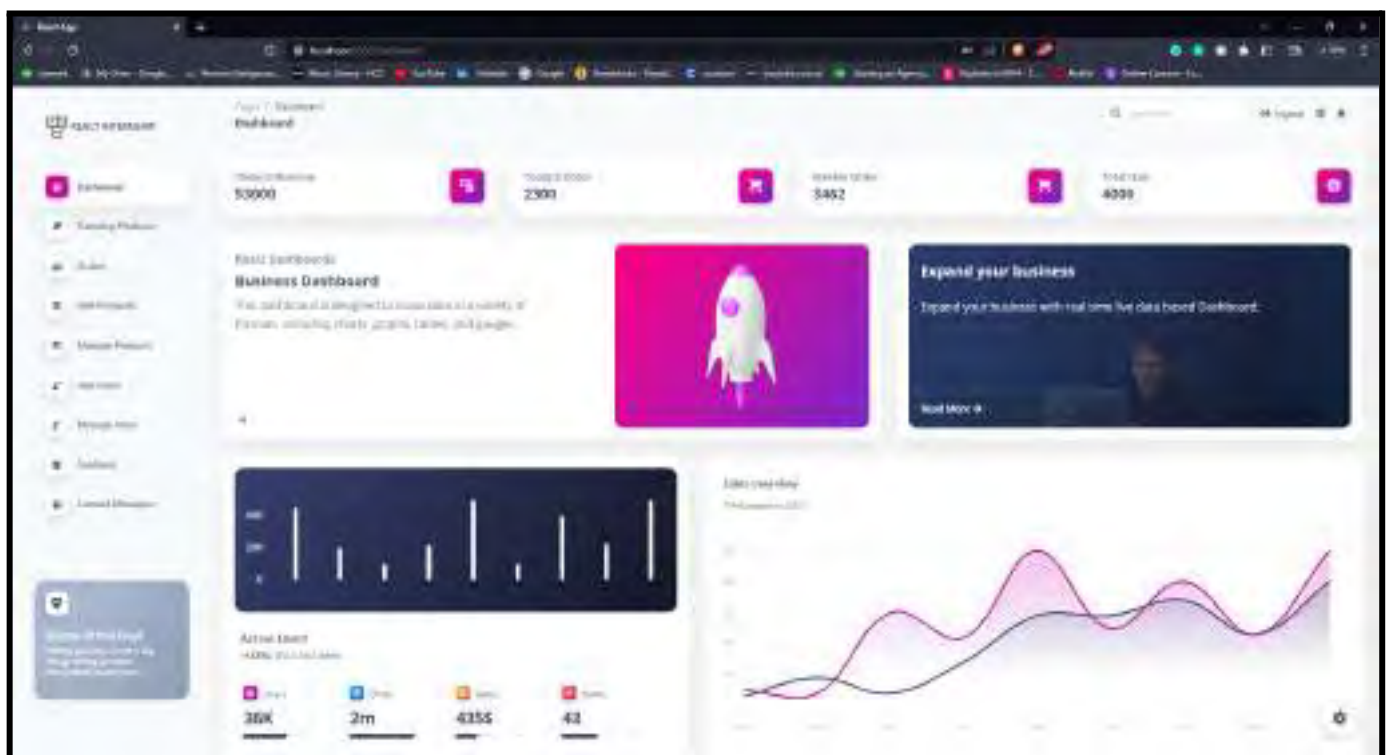


Fig 5.1 Business Analytics Dashboard

Here's an overview of how a Business Analytics Dashboard Project using React JS might work:

### Data collection:

Data collection is a critical component of any business analytics dashboard project using React. To create an effective dashboard, businesses need to collect data from a variety of sources, including internal databases, external APIs, and third-party tools. The data



collected should be relevant to the key performance indicators (KPIs) that the dashboard is designed to monitor, and should be collected in a consistent and standardized manner. Businesses may need to work with data scientists and data engineers to develop and implement data collection strategies that are optimized for the specific needs of the dashboard.

One common approach to data collection is to use data pipelines, which are automated systems that collect, process, and store data from multiple sources. Data pipelines can help ensure that the data collected is consistent and accurate, and can also help businesses scale their data collection efforts as their needs evolve over time. Another approach is to use data warehouses, which are centralized repositories that store data from multiple sources. Data warehouses can help businesses analyze large volumes of data quickly and efficiently, and can also help ensure that the data collected is secure and compliant with relevant regulations.

In summary, data collection is a critical component of any business analytics dashboard project using React. To create an effective dashboard, businesses need to collect relevant data from multiple sources and store it in a consistent and standardized manner. Businesses may need to work with data scientists and data engineers to develop and implement data collection strategies that are optimized for the specific needs of the dashboard.

### **Data processing:**

Data processing is also a critical step in any business analytics dashboard project using React. Once data has been collected, it needs to be processed in order to make it usable for analysis and visualization. Data processing typically involves several steps, including cleaning, transforming, and aggregating data.

Cleaning data involves identifying and correcting errors in the data, such as missing values, duplicate records, and inconsistencies. Transforming data involves converting data into a format that is suitable for analysis and visualization. For example, businesses may need to convert data into a specific data type or format in order to create visualizations that accurately reflect the underlying data.

Aggregating data involves summarizing data into meaningful metrics and KPIs. Businesses may need to aggregate data at different levels, such as by day, week, month, or year, in order to monitor performance over time. Aggregating data can help businesses identify trends and patterns in the data, and can also help stakeholders make data-driven decisions.

Once data has been processed, it can be visualized using a variety of tools, such as charts, graphs, and tables. These visualizations can help stakeholders understand and interpret the data, and can also help businesses identify areas for improvement and optimization.

In summary, data processing is an important step in any business analytics dashboard project using React. It involves cleaning, transforming, and aggregating data in order to make it usable for analysis and visualization. Once data has been processed, it can be visualized using a variety of tools, allowing stakeholders to make data-driven decisions and optimize their operations.

### **Data visualization:**

Data visualization is the third step in a business analytics dashboard project using React. The purpose of data visualization is to communicate complex data in a clear and easily understandable way. Effective data visualization can help stakeholders identify trends, patterns, and outliers in the data, and can also help businesses make data-driven decisions.

React provides a variety of powerful tools for data visualization, including charting libraries, graphing libraries, and visualization frameworks. These tools enable businesses to create a wide range of visualizations, such as bar charts, line graphs, scatter plots, heat maps, and more.

When designing data visualizations for a business analytics dashboard, it's important to keep in mind the specific needs of the stakeholders who will be using the dashboard. Different stakeholders may have different preferences for visualizations, depending on their roles and responsibilities. For example, a marketing manager may prefer visualizations that highlight customer demographics and engagement metrics, while a finance manager may prefer visualizations that highlight revenue and expense trends.

In addition to selecting the right types of visualizations, it's also important to design visualizations that are easy to read and interpret. This involves selecting appropriate colors, fonts, and styles, and presenting data in a logical and intuitive way.

In summary, data visualization is a valuable part of any business analytics dashboard project using React. Effective data visualization can help stakeholders identify trends and patterns in the data, and can also help businesses make data-driven decisions. React provides a variety of powerful tools for data visualization, and it's important to design visualizations that are tailored to the specific needs of stakeholders and easy to read and interpret.

### **Dashboard design:**

The dashboard is the primary interface through which stakeholders will access and interact with the data, so it's important to design a dashboard that is intuitive, informative, and easy to use.

When designing a dashboard, it's important to start by identifying the specific needs of the stakeholders who will be using the dashboard. Different stakeholders may have different goals and priorities, so it's important to tailor the dashboard design to their specific needs. For example, a marketing manager may want to see metrics related to customer acquisition and engagement, while a finance manager may be more interested in revenue and expense trends.

Once the specific needs of the stakeholders have been identified, the dashboard can be designed around these requirements. Key metrics and KPIs should be prominently displayed, and visualizations should be designed to provide insight into trends and patterns in the data. Navigation should be intuitive and easy to use, with clear labeling and organization.

In addition to functionality, the aesthetics of the dashboard are also important. The dashboard should be visually appealing and engaging, with a design that is consistent with the branding and style of the business. The use of colors, fonts, and images should be consistent and aesthetically pleasing.

Finally, it's important to test the dashboard design with actual stakeholders to ensure that it meets their needs and is easy to use. Feedback from stakeholders can help identify areas for improvement and optimization.

In summary, the dashboard should be designed around the specific needs of stakeholders, with key metrics and KPIs prominently displayed and visualizations designed to provide insight into trends and patterns in the data. Navigation should be intuitive and easy to use, and the aesthetics of the dashboard should be visually appealing and consistent with the branding and style of the business.

Overall, a Business Analytics Dashboard Project using React JS can help businesses improve their decision-making processes by providing real-time insights into their operations and performance. By leveraging the power of data visualization and interactive UI components, businesses can gain a competitive edge and stay ahead of the curve.

## 5.2 ADVANTAGES AND CHALLENGES OF BUSINESS ANALYTICS DASHBOARD:

Business analytics dashboard projects using React offer a range of advantages and challenges. Some of the key advantages and challenges are:

Advantages:

1. Real-time data analysis: React-based business analytics dashboards can offer real-time data analysis, allowing businesses to stay up-to-date with the latest information and make informed decisions quickly.
2. Interactive visualizations: React's ability to create interactive and dynamic visualizations can help businesses better understand complex data sets and identify trends or patterns that might be missed with traditional data analysis methods.
3. Customization: React allows for easy customization of the dashboard's design, features, and functionality to meet the specific needs of a business or industry.

4. User-friendly interface: React's component-based approach can make the dashboard user-friendly and intuitive, allowing users to easily navigate the dashboard and access the information they need.
5. Scalability: React-based dashboards can easily scale to accommodate growing amounts of data and users, allowing businesses to expand their analytics capabilities as needed.
6. Cross-platform compatibility: React-based dashboards can be designed to be cross-platform compatible, allowing users to access the dashboard on different devices and platforms, including mobile devices.

#### Challenges:

1. Technical expertise: Developing a business analytics dashboard using React requires a high level of technical expertise in React and related technologies.
2. Data integration: Integrating data from multiple sources can be a challenge, requiring careful planning and execution to ensure data accuracy and consistency.
3. Security concerns: Business analytics dashboards often contain sensitive information, and ensuring the security of that information is critical. Proper security measures must be implemented to protect against unauthorized access or data breaches.
4. Performance issues: React-based dashboards may experience performance issues when working with large or complex data sets, and optimizing the dashboard's performance can be challenging.
5. Data quality: Data quality can be a challenge when working with multiple data sources, requiring careful data cleaning and validation to ensure that the dashboard is presenting accurate information.

6. Cost: Developing a high-quality business analytics dashboard using React can be expensive, requiring skilled developers and significant resources. The cost of maintaining and updating the dashboard over time should also be considered.

In summary, while business analytics dashboard projects using React offer significant advantages such as real-time data analysis and interactive visualizations, they also present challenges such as technical expertise requirements and security concerns. However, with careful planning and execution, businesses can successfully leverage React to develop powerful and effective analytics dashboards

### 5.3 REAL-TIME MONITORING AND MAINTENANCE IN BUSINESS ANALYTICS DASHBOARD:

Real-time monitoring and maintenance are critical components of a business analytics dashboard project using React. Here are some key considerations for implementing these features:

#### Real-Time Monitoring:

Real-time monitoring allows businesses to track key metrics and receive alerts as soon as important changes occur. This can help businesses respond quickly to emerging trends or issues and make data-driven decisions in real-time. To implement real-time monitoring in a React-based dashboard project, businesses should consider the following:

1. Define key performance indicators (KPIs): Businesses should identify the most important metrics to track and establish clear targets for each KPI.
2. Set up data streams: Data streams should be set up to continuously collect and update data from various sources, ensuring that the dashboard is always displaying up-to-date information.
3. Develop alerts and notifications: Alerts and notifications should be configured to notify stakeholders when KPIs fall outside of target ranges, enabling quick action to be taken.

4. Create real-time visualizations: Real-time visualizations, such as graphs or charts, can help stakeholders easily track and monitor KPIs and identify changes in real-time.
5. Integration with third-party tools: Integrating the dashboard with third-party tools can enhance real-time monitoring capabilities. For example, integrating the dashboard with social media monitoring tools can allow businesses to track mentions of their brand in real-time.
6. Automation: Automation can help improve the speed and accuracy of real-time monitoring. For example, setting up automated alerts when a KPI falls outside of target ranges can help businesses respond quickly to issues.
7. Customization: Customization options can enhance the usability of the dashboard and enable users to tailor the dashboard to their specific needs. For example, allowing users to customize the display of KPIs or set up custom alerts can help improve the effectiveness of real-time monitoring.
8. Predictive analytics: Incorporating predictive analytics into real-time monitoring can help businesses anticipate future trends and issues before they occur, enabling proactive decision-making.

#### Maintenance:

Maintenance is essential to ensure the reliability and functionality of a business analytics dashboard project using React. To maintain the dashboard effectively, businesses should consider the following:

1. Regular testing: Regular testing should be conducted to ensure that the dashboard is functioning properly and data is being displayed accurately.
2. Ongoing updates: Updates to the dashboard should be made as needed to address issues, fix bugs, and add new features.

3. Data quality checks: Regular data quality checks should be conducted to ensure that the data displayed in the dashboard is accurate and consistent.
4. Security checks: Regular security checks should be conducted to ensure that the dashboard is secure from potential data breaches or unauthorized access.
5. User feedback: Soliciting feedback from users can help businesses identify issues with the dashboard and improve its functionality over time.
6. Regular backups: Regular backups of the dashboard data should be made to ensure that data is not lost in the event of a system failure or other issue. Backups should be stored securely and tested regularly to ensure that they can be used if needed.
7. Performance monitoring: Regular performance monitoring can help businesses identify potential issues with the dashboard and optimize its performance. For example, monitoring page load times or server response times can help identify performance bottlenecks that need to be addressed.
8. Collaboration: Collaboration between different teams, such as developers and data analysts, can help ensure that the dashboard is maintained effectively and that issues are addressed quickly. Effective communication and collaboration can also help ensure that the dashboard meets the needs of all stakeholders.

In summary, real-time monitoring and maintenance are critical components of a business analytics dashboard project using React. Implementing real-time monitoring can help businesses make data-driven decisions in real-time, while ongoing maintenance ensures the reliability and functionality of the dashboard over time.



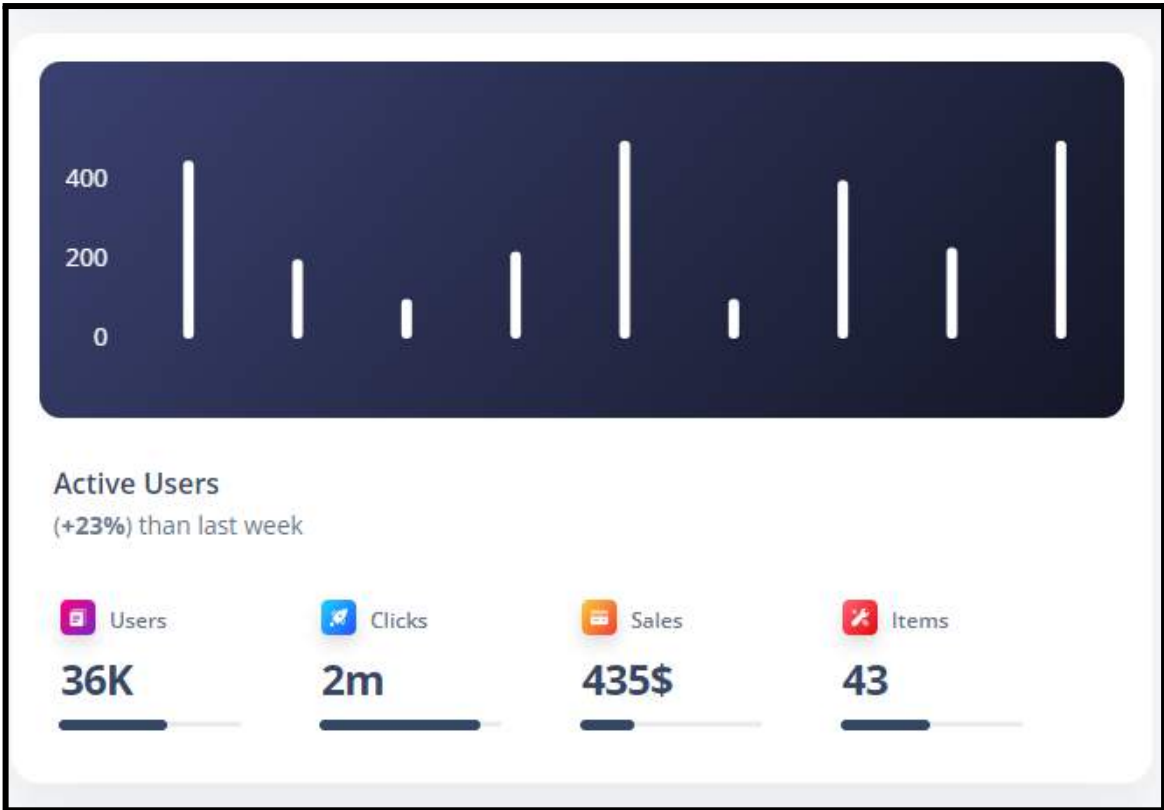


Fig 5.2 Users info

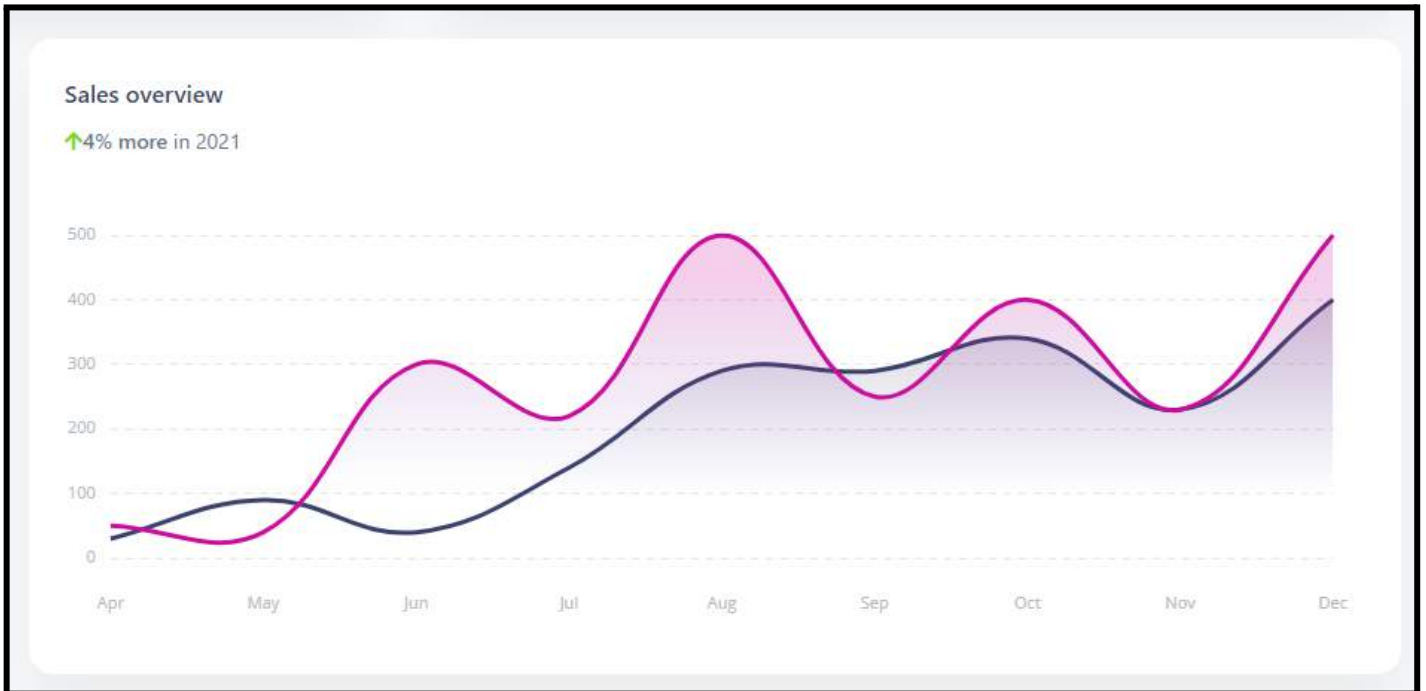


Fig 5.3 Sales Info



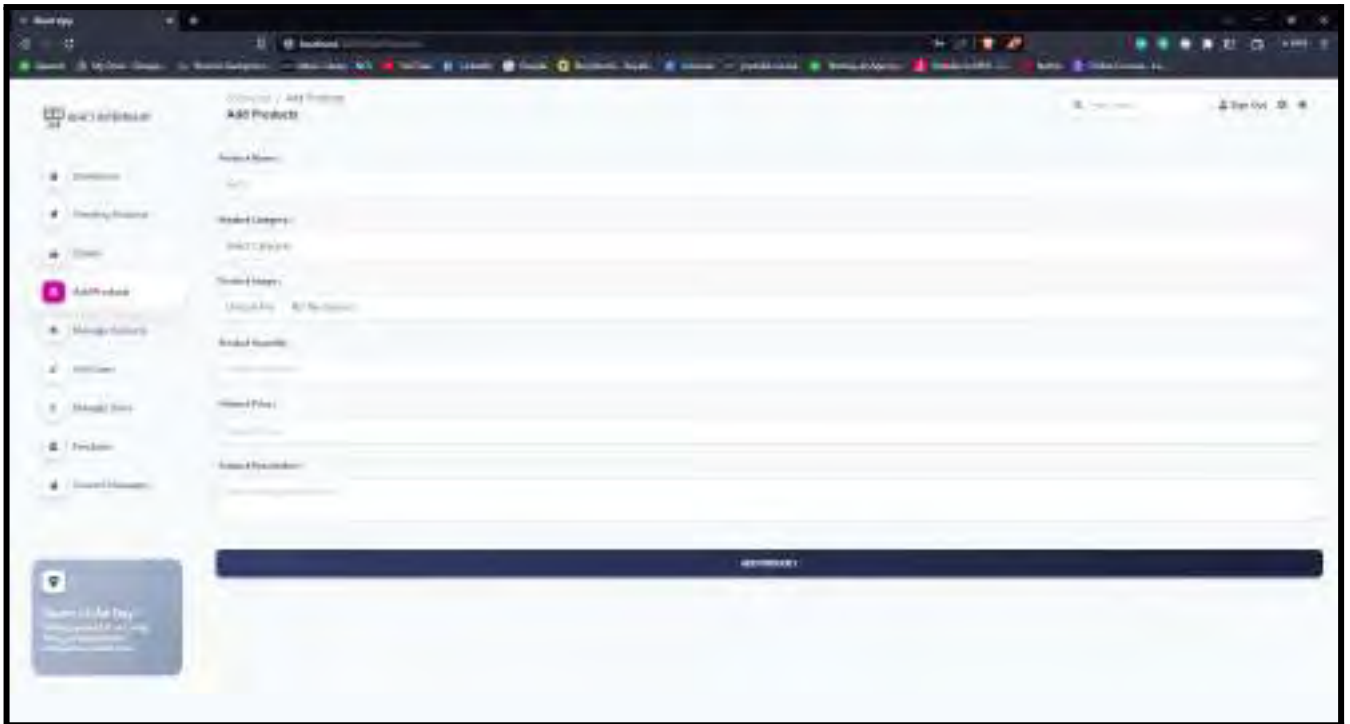


Fig. 5.6 Add Products

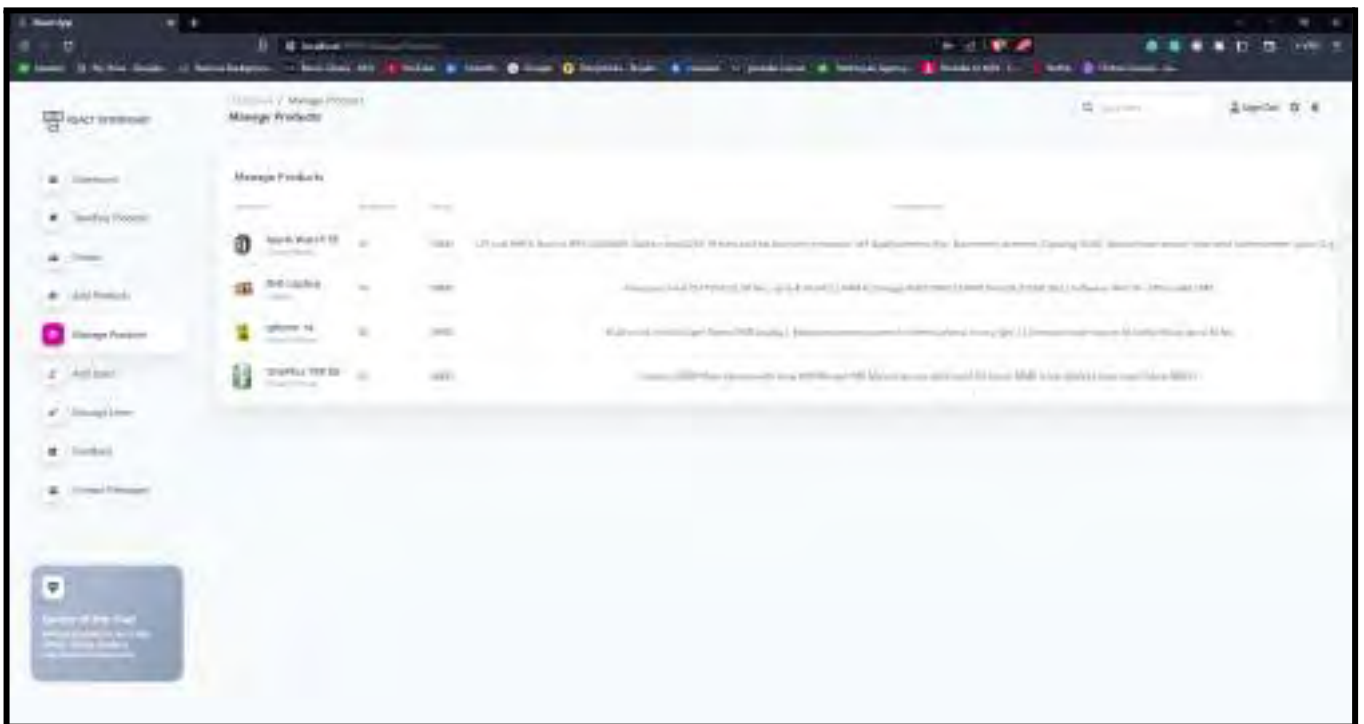


Fig. 5.7 Manage Products

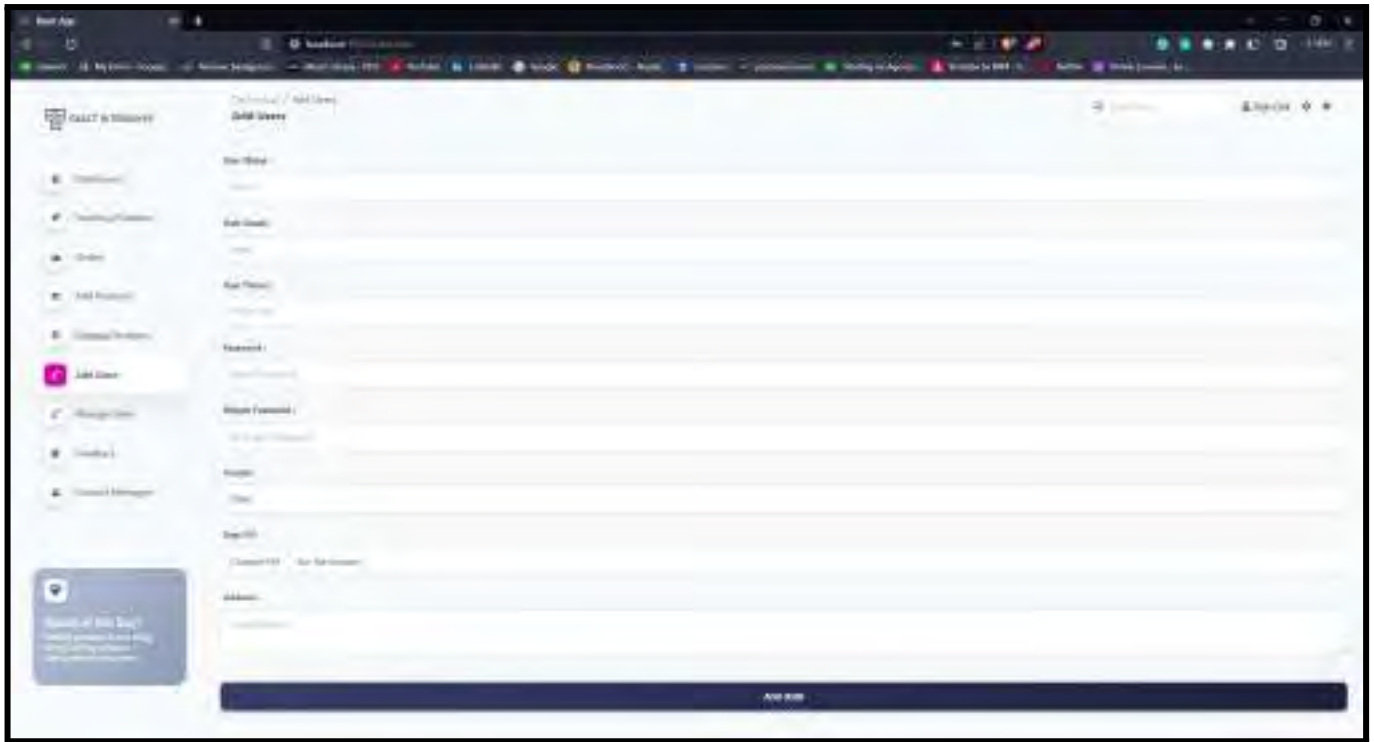


Fig. 5.8 Add users

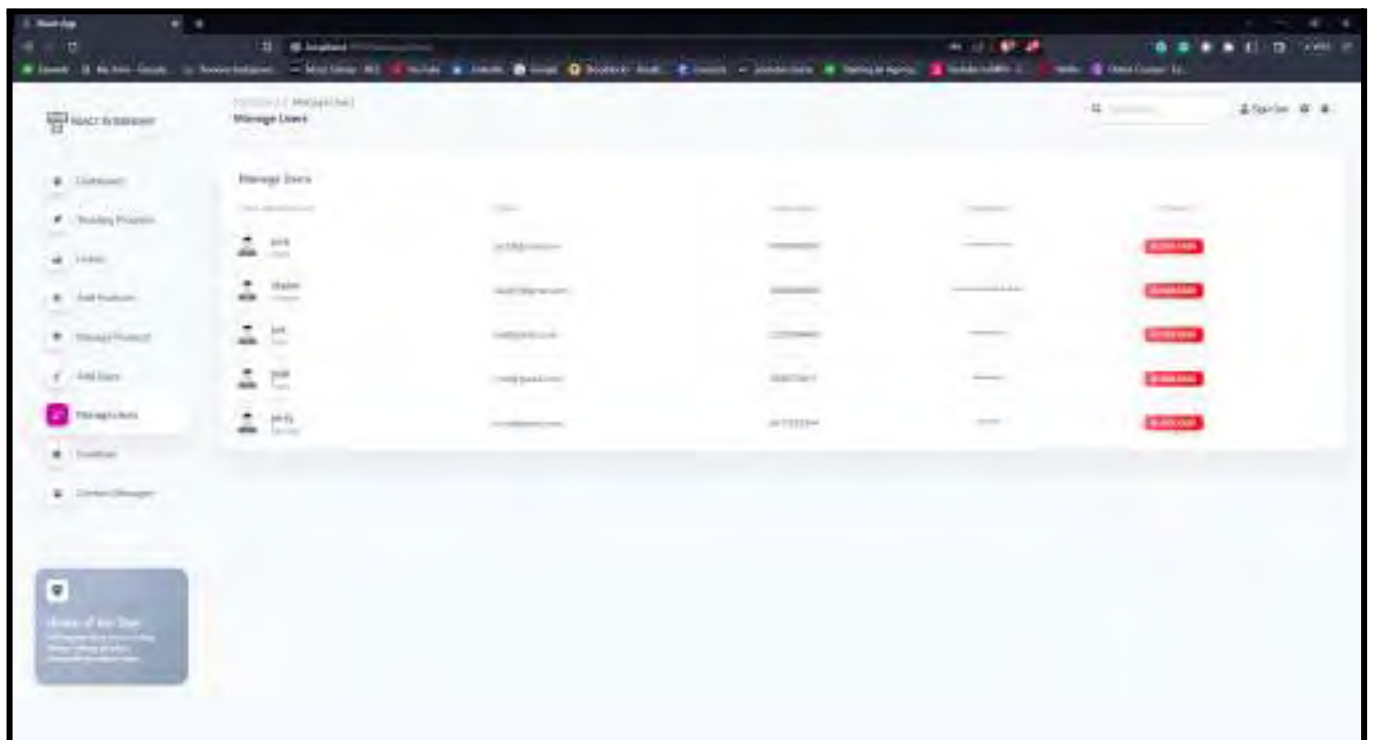


Fig. 5.9 Manage Users

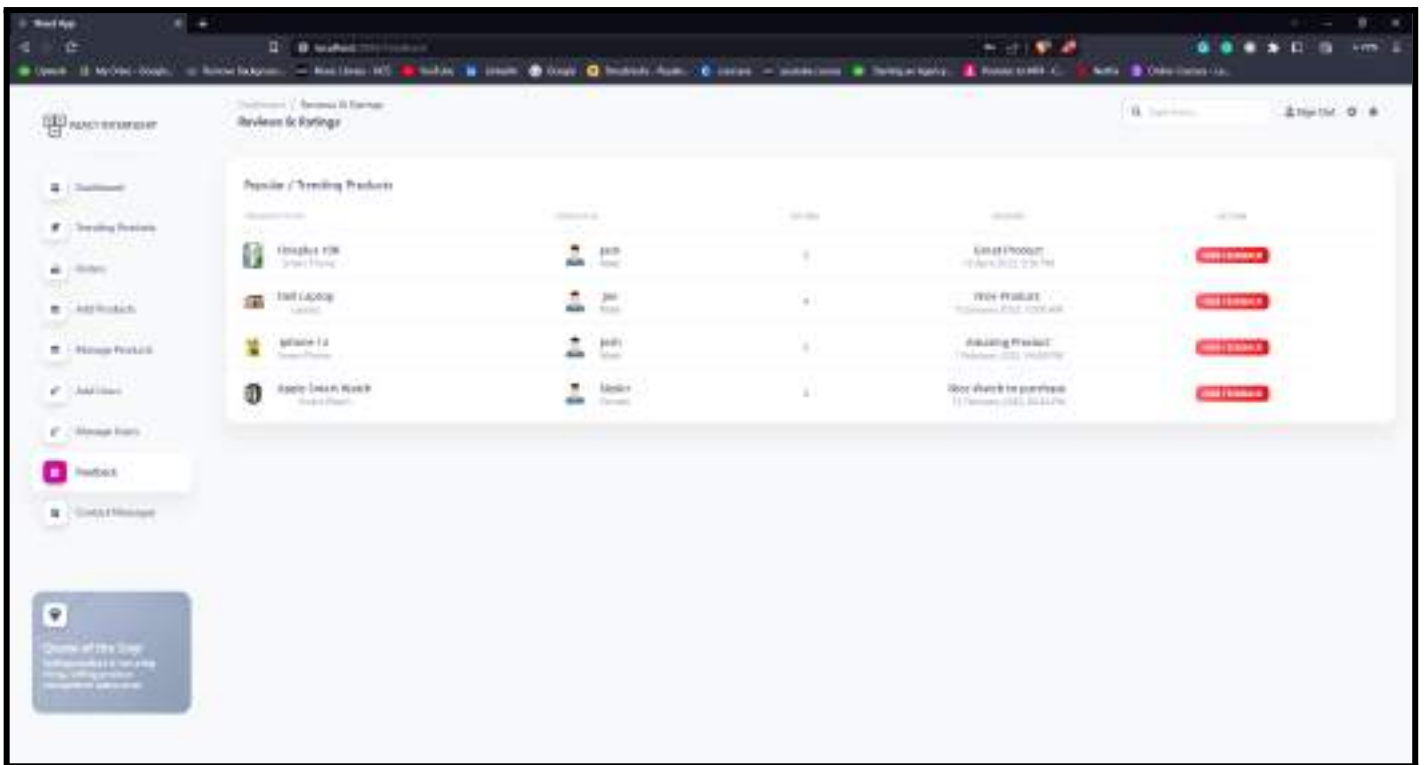


Fig. 5.10 Feedbacks

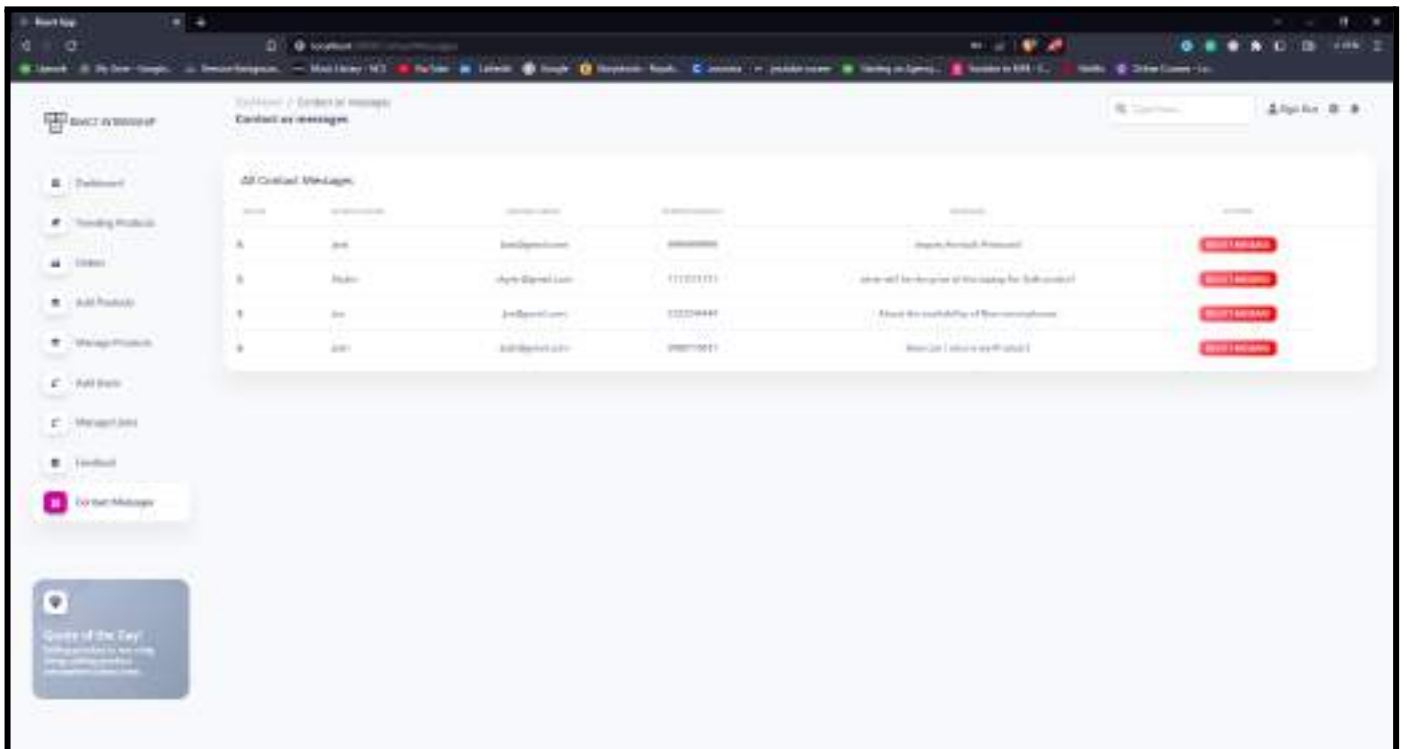


Fig. 5.11 Contact Us Messages

## 5.4 AUTH IN BUSINESS ANALYTICS DASHBOARD:

The Auth in Business Analytics Dashboard website gives us the basic admin panel log-in and sign-up. It also contains all the security measures that are required in a basic website. The fig. 5.2 depicts the layout of login form:

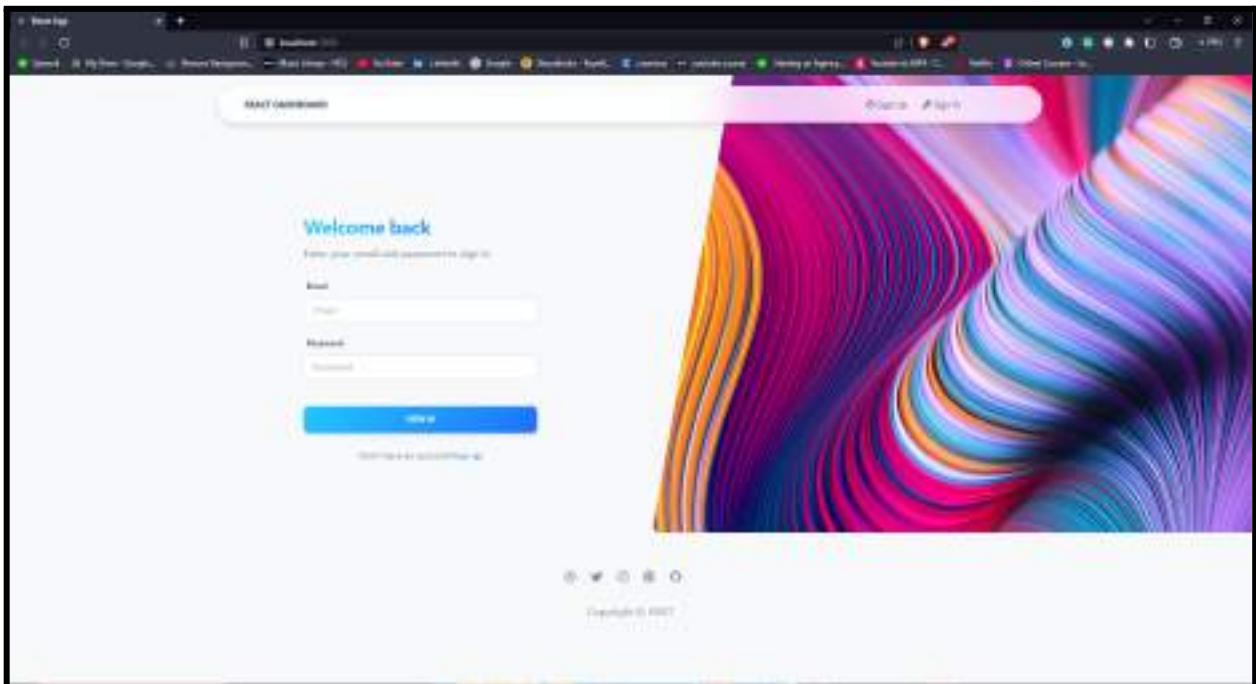


Fig 5.12 login-Form

## 5.5 TECHNOLOGIES USED:

Here, Table 5.1 depicts the table mentioning the Technologies used in the project.

Technologies
HTML
CSS
JAVASCRIPT
BOOTSTRAP
NODE JS
REACT JS

Table 5.1

## 5.6 IMPLEMENTATION CASES:

Business Analytics Dashboard Project is a powerful tool that can provide valuable insights and improve operations across a range of industries. It can be implemented in retail, healthcare, finance, marketing, manufacturing, education, and other industries to track sales, inventory, patient outcomes, campaign performance, production metrics, student performance, and more, allowing businesses to make data-driven decisions and improve operational efficiency. The flexibility and scalability of this technology makes it suitable for businesses of all sizes and types, providing valuable insights to drive business success.

There are many businesses and organizations that have successfully implemented business analytics dashboard projects using React. Here are some examples of implementation cases:

1. Uber: Uber uses React to power its internal data visualization tools. The company has developed a real-time dashboard that allows stakeholders to monitor key metrics, such as ride volume and driver availability, in real-time. The dashboard has helped Uber make data-driven decisions and optimize its operations.
2. Airbnb: Airbnb uses React to power its internal analytics dashboard, which enables stakeholders to monitor the performance of the platform in real-time. The dashboard provides real-time data on key metrics, such as booking volume and revenue, allowing Airbnb to respond quickly to emerging trends and issues.
3. Expedia: Expedia uses React to power its internal data visualization tools, which enable stakeholders to monitor the performance of the platform in real-time. The dashboard provides real-time data on key metrics, such as booking volume and revenue, allowing Expedia to make data-driven decisions and optimize its operations.
4. NASA: NASA uses React to power its data visualization and analytics tools, which enable stakeholders to monitor key metrics related to space exploration and research. The dashboard provides real-time data on spacecraft telemetry and other

important metrics, allowing NASA to make data-driven decisions and optimize its operations.

5. New York Times: The New York Times uses React to power its internal analytics dashboard, which enables stakeholders to monitor the performance of the website and mobile apps in real-time. The dashboard provides real-time data on key metrics, such as page views and user engagement, allowing the New York Times to make data-driven decisions and optimize its operations.
6. Netflix: Netflix uses React to power its internal analytics dashboard, which enables stakeholders to monitor the performance of the platform in real-time. The dashboard provides real-time data on key metrics, such as streaming volume and user engagement, allowing Netflix to make data-driven decisions and optimize its operations.
7. Twitter: Twitter uses React to power its internal analytics dashboard, which enables stakeholders to monitor the performance of the platform in real-time. The dashboard provides real-time data on key metrics, such as user engagement and ad performance, allowing Twitter to make data-driven decisions and optimize its operations. The dashboard also enables Twitter to track trends and sentiment on the platform, which can help the company identify emerging issues and opportunities.

In summary, many businesses and organizations have successfully implemented business analytics dashboard projects using React, allowing stakeholders to monitor key metrics in real-time and make data-driven decisions. These implementations have helped businesses optimize their operations and respond quickly to emerging trends and issues.



## 6. CONCLUSION AND DISCUSSION

### MY INTERNSHIP EXPERIENCE:

In conclusion, participating in an internship can be an incredibly valuable experience for individuals looking to gain practical skills and industry-specific knowledge. Through my own internship experience, I was able to apply the theoretical concepts I learned to real-world scenarios and gain exposure to different aspects of the field. Additionally, I had the opportunity to network with professionals in the industry, learn about career path, and develop important professional skills such as time management and communication. Overall, my internship experience provided me with a solid foundation for my future career aspirations and was an essential step in my personal and professional growth.

### WHAT I LIKE ABOUT MY INTERNSHIP EXPERIENCE

During my React internship, there were several things that stood out to me and contributed to my positive experience. Firstly, the level of guidance and support I received from my supervisor was exceptional. He was always available to answer any questions I had and provided constructive feedback on my work, which helped me to improve my skills and become more confident in my abilities. Additionally, I appreciated the opportunity to work on projects and contribute to the development of the applications. This gave me a sense of accomplishment and allowed me to see the impact of my work in a practical setting. Finally, I enjoyed working with a team of talented individuals who were passionate about their work and willing to collaborate and share their knowledge. The supportive and positive work environment made my internship a truly enjoyable and rewarding experience.

### CHALLENGES THAT I MET DURING MY INTERNSHIP

My React internship presented challenges, including adapting to the fast-paced nature of the work and learning new tools and technologies. However, I overcame these challenges through persistence, seeking guidance from my supervisor, and utilizing available resources. These experiences taught me the value of perseverance and seeking help when needed.

## REFERENCES

<https://www.infolabz.in/about.php>

[https://www.w3schools.com/html/html\\_intro.asp](https://www.w3schools.com/html/html_intro.asp)

[https://www.w3schools.com/css/css\\_intro.asp](https://www.w3schools.com/css/css_intro.asp)

<https://www.w3schools.com/jsref/default.asp>

<https://react.dev/reference/react>

<https://www.javatpoint.com/react-create-react-app>

# APPENDIX

## **Annexure 1**

# **Internship at Prospex Network Pvt. Ltd.**

## **AN INTERNSHIP REPORT**

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**190390107011**

*In partial fulfilment for the award of the degree of*

## **BACHELOR OF ENGINEERING** *in* **Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**April 2022**



**S.P.B. PATEL  
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SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat 384435**

### **CERTIFICATE**

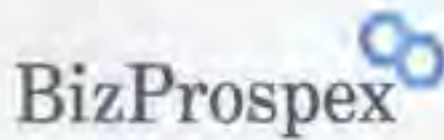
This is to certify that the project report submitted along with the project entitled **Internship at Prospex Network Pvt. Ltd** has been carried out by **Huzefa Ismail Jadliwala** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering, 8<sup>th</sup> Semester of Gujarat Technological University, Ahmadabad during the academic year 2021-22.

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## TO WHOMSOEVER IT MAY CONCERN

To,  
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Dahod - 389151 Gujrat

This is to certify that Mr. Huzefa Ismail Jadhwal has done his internship in Web Development department at Prospex Network Pvt Ltd, Burhanpur, MP from 30/01/2023 to 30/04/2023.

During Internship, Huzefa worked as "Python/ Django Developer". During this course of time, He has worked on multiple projects. Furthermore, He also showed his exceptional credibility by dealing with clients and fulfilling their requirements successfully.

During his internship he has demonstrated his skills with self-motivation to learn new skills. His performance exceeded our expectations, and he was able to complete the projects on time.

We wish him all the best for his upcoming career.

Many thanks and regards,  
Mr. Murtaza Husain  
Director, Prospex Network Pvt Ltd

Many thanks and regards,  
Mr. Rahul Malegaonkar  
HR/Admin, Prospex Network Pvt Ltd

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## **ACKNOWLEDGEMENT**

This internship opportunity I had with **Prospex Network Pvt. Ltd.** was a great chance for learning and professional development. Therefore, I consider myself a very lucky individual as I was provided with an opportunity to participate. I am also grateful for meeting so many wonderful people and professionals who led me through this internship period.

I am using this opportunity to express my deepest gratitude and special thanks to the CEO of Prospex Pvt. Ltd., Mr. Murtaza Hussain who despite being extraordinarily busy with his duties, took time out to hear, guide and keep me on the correct path and allowed me to carry out my project at their esteemed organization and extending during the training.

I express my deepest thanks to Mr. Rahul Malegaonkar, HR, for taking part in the useful decision, giving necessary advice and guidance, and arranging all facilities to make the experience wonderful. I choose this moment to acknowledge his contribution gratefully.

I perceive this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, to attain desired career objectives. I am also grateful for them to provide me with a job opportunity and work with these wonderful people at their esteemed organization after the internship opportunity.

## ABSTRACT

*This report contains the work done by the author during his internship at Prospex Network Pvt. Ltd. During my 3-month Python Django internship, I gained a comprehensive understanding of web development using Django and the Python programming language. I began by learning the basics of Python and then moved on to exploring Django, which is a powerful framework for building web applications. Throughout my internship, I worked on several projects that allowed me to put my newly acquired skills into practice. I learned how to use Django's built-in features such as its ORM, views, and templates to build dynamic web applications. Additionally, I gained experience with integrating third-party libraries and APIs into my projects. During the internship, I was also exposed to the Agile methodology and participated in daily stand-up meetings, sprint planning, and retrospectives. This experience taught me how to work collaboratively with a team and how to prioritize tasks based on project goals. Overall, my Python Django internship provided me with a solid foundation in web development and helped me develop valuable skills that I can apply to future projects.*



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## CHAPTER 1: OVERVIEW OF THE COMPANY

### 1.1. AIM OF THE COMPANY

With eight solid years' worth of experience, our vision of helping B2B companies optimize sales, clean data and data services is only getting bigger. We stand out as global leaders when it comes to CRM cleaning, Data appending, Data mining, tech install, Data Merging and Data De-duping for B2B clients.

Proudly associated with over 450 companies in the last eight years, we've helped our clients grow in a way that's sustainable, measurable and effective. BizProspex is counted among the three best organisations when it comes to manual data appending services. Our strict adherence to highly personalized, manual and multi-layer verification processes has enabled us to provide services that can propel companies along their path towards growth and sales.

We aim at supplying our clients with data of the highest quality to boost sales numbers. CRM data cleaning services aren't just an extravagance anymore, but an integral part of any organization's survival. At BizProspex, we focus on becoming the partner your organisation needs to survive, and in the long run, thrive. By understanding what your company's needs are, we're prepared to bring you solutions that truly make a difference.

Our team boasts of driven, highly skilled, comprehensively trained members who are well-versed with the latest data cleaning techniques. Designed specifically with B2B sales teams in mind, BizProspex's comprehensive data cleaning and data appending solutions will help grow your B2B business. Our services promise to give business of all sizes the opportunity to mine and append information to sell, service, market, develop, and succeed like never before.



Fig 1. 1 Company's history timeline

### 1.2. DIFFERENT SERVICES

- Data Mining
- CRM Cleaning
- Data Solution
- Web Development

- Team ID: 302042
- Tech Append
- Data Appending
- Email Appending
- Web Data Scraping
- Address Search
- Skip Tracing
- Multi Language CRM
- Google Maps Scrapping
- Events Data
- Hiring Intent
- Public Records Scrapping
- Data Annotation
- LinkedIn Data Scrapping
- Phone Appending
- Data Scrubbing
- Data Verification
- B2B Lead Generation
- Reverse Phone Appending
- Reverse Email Appending
- Business Information Appending
- Market Research
- Jobs Feed Data
- Worldwide Funding Data Feed
- Data Analytics
- Email List Cleaning

### 1.3. COMPANY CLIENTS



Fig 1. 2 Company clients list 1



Fig 1. 3 Company clients list 2



Fig 1. 4 Company clients list 3



Fig 1. 5 Company clients list 4

## CHAPTER 2: INTRODUCTION TO WEB DEVELOPMENT

### 2.1. WHAT IS A WEB APPLICATION?

A web application, also known as a web app, is a software program that is accessed through a web browser and designed to provide interactive functionality to users over the internet. Web applications can be simple or complex, and can range from a basic website with static content to a sophisticated platform that facilitates business processes, e-commerce transactions, or social networking. They are typically built using web development technologies such as HTML, CSS, JavaScript, and backend programming languages like Python, PHP, or Java. Web applications are ubiquitous in today's digital world and can be accessed from a wide range of devices, making them an essential part of modern computing.

### 2.2. WHAT COMPRISES IN WEB DEVELOPMENT?

Web development is a broad term that encompasses a variety of disciplines and technologies used to create and maintain web applications and websites. It typically involves the following components:

#### 2.2.1. Client-Side Technologies:

Client-side scripting simply means running scripts, such as JavaScript, on the client device, usually within a browser. All kinds of scripts can run on the client side if they are written in JavaScript, because JavaScript is universally supported. Other scripting languages can only be used if the user's browser supports them.

Server-side scripts run on the server instead of the client, often in order to deliver dynamic content to webpages in response to user actions. Server-side scripts don't have to be written in JavaScript, since the server may support a variety of languages.

#### 2.2.2. Server-Side Technologies:

These are the technologies that are executed on a web server to manage the back-end functionality of a web application or website. This includes programming languages like PHP, Python, Ruby, or Java, as well as server-side frameworks like Django, Flask, Ruby on Rails, or Spring.

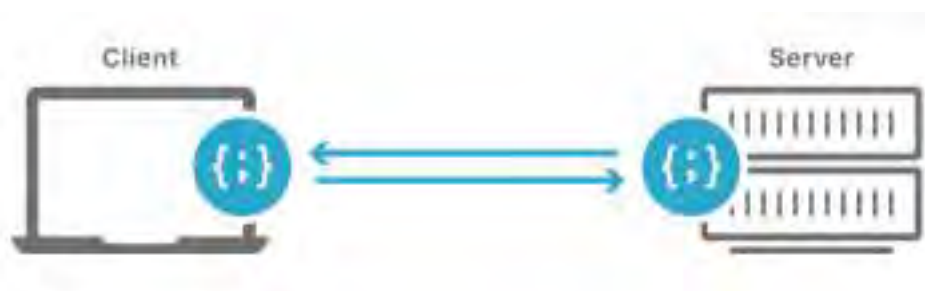


Fig 2. 1 Server-Client Communication

#### 2.2.3. Database Technologies:

These are the technologies used to store and manage data in a web application or website. Commonly used database technologies include MySQL, PostgreSQL, MongoDB, and SQLite.



Fig 2. 2 Database technologies

#### 2.2.4. Web Servers:

These are the software programs responsible for serving web pages to users over the internet. Commonly used web servers include Apache, Nginx, and IIS.



Fig 2. 3 Web servers

#### 2.2.5. Version Control Systems:

These are the software tools used to manage changes to the codebase of a web application or website. Commonly used version control systems include Git, Subversion, and Mercurial.

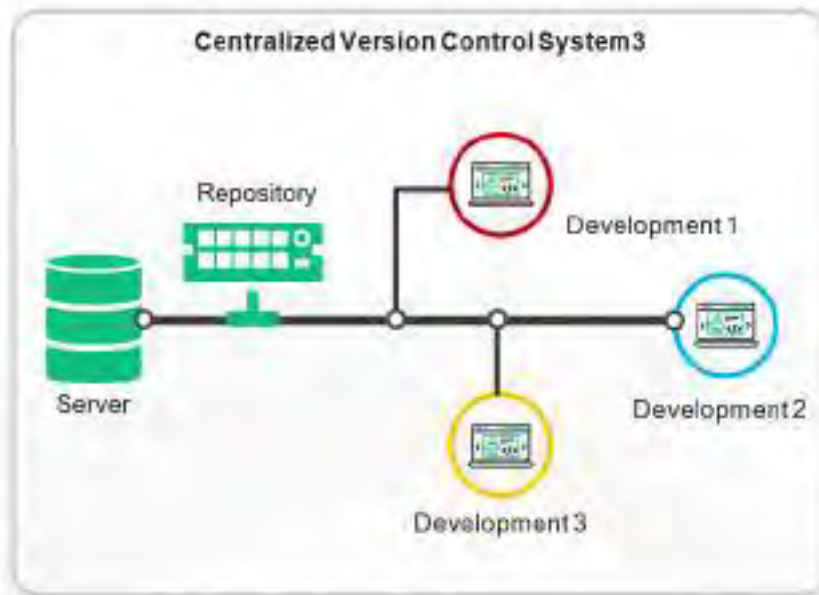


Fig 2. 4 Version control system

## 2.3. SOFTWARE USED FOR WEB DEVELOPMENT

Python Django is a powerful web framework that enables developers to build robust web applications quickly and easily. It offers a variety of tools and software packages that can be used to streamline the web development process. Some of the commonly used software tools for web development in Python Django include:

### 2.3.1. VSCode:

Visual Studio Code (VS Code) is a popular code editor that can be used for Django project development. Here are some ways in which VS Code can be helpful:

- (1) **Integrated Terminal:** VS Code comes with an integrated terminal that allows you to run Django commands and manage your project without leaving the editor.
- (2) **Python Extension:** VS Code has a Python extension that provides features such as linting, debugging, code completion, and refactoring for Python projects, including Django.
- (3) **Debugging:** VS Code's built-in debugger allows you to debug your Django application in real-time, enabling you to quickly identify and fix any issues.
- (4) **Git Integration:** VS Code has native support for Git, which makes it easy to manage your Django project's version control and collaborate with others.
- (5) **Code Snippets:** VS Code has a vast library of code snippets that can help speed up your Django project development. These snippets provide pre-written code for common Django functions, such as views, forms, and models.

Overall, VS Code can be an excellent tool for Django project development, as it provides a seamless workflow for managing your project and writing code efficiently.





Fig 2. 5 VSCode

### 2.3.2. GitHub:

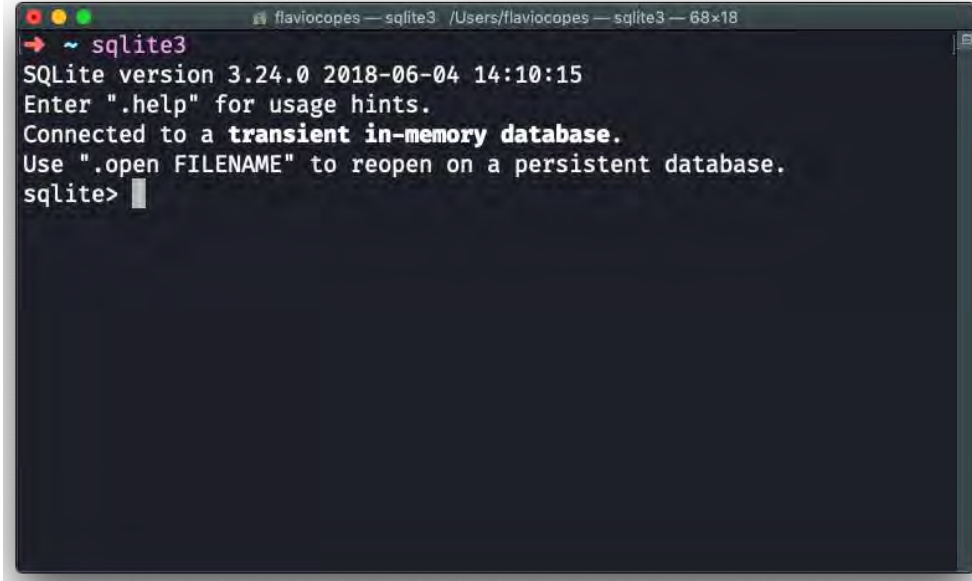
GitHub is a powerful tool that can be used in Django project development to streamline the collaborative coding process and manage version control. It is a web-based platform that allows developers to host, review, and collaborate on code repositories.

By creating a repository on GitHub for a Django project, developers can easily share their code with other team members and collaborate on the same project simultaneously. This makes it easier to manage version control and keep track of changes made to the codebase.

GitHub also offers a range of features that can help in Django project development, such as issue tracking, code reviews, and continuous integration. Issue tracking allows developers to keep track of bugs and feature requests, while code reviews provide a way to review and improve code quality. Continuous integration allows for automatic testing and deployment of code changes, reducing the time and effort required for manual testing.

Overall, using GitHub in Django project development can help to streamline the development process, improve code quality, and enhance collaboration among team members.



A screenshot of a terminal window titled 'sqlite3'. The window shows the SQLite version 3.24.0, the date and time of the session (2018-06-04 14:10:15), and instructions for using the CLI. The text displayed is: 'SQLite version 3.24.0 2018-06-04 14:10:15', 'Enter ".help" for usage hints.', 'Connected to a transient in-memory database.', 'Use ".open FILENAME" to reopen on a persistent database.', and 'sqlite>'. The prompt 'sqlite>' is followed by a cursor.

```
flaviocopes — sqlite3 /Users/flaviocopes — sqlite3 — 68x18
→ ~ sqlite3
SQLite version 3.24.0 2018-06-04 14:10:15
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
sqlite> █
```

Fig 2. 7 SQLite CLI

### 2.3.4. Adobe Photoshop:

Adobe Photoshop is a popular image editing software that can be used in Django project development to enhance the visual design of a website or application. It allows developers to create high-quality graphics, logos, icons, and other visual elements that can be integrated into the user interface of the project.

For example, Photoshop can be used to design custom website layouts, create image sliders and banners, and optimize images for web performance. It can also be used to create graphics for social media marketing, email marketing campaigns, and other promotional materials.

To use Photoshop in Django project development, developers can export the images in the appropriate file format, such as PNG or JPG, and then include them in their templates or static files. Alternatively, developers can use a third-party library such as Pillow to manipulate images directly in their Python code.

Overall, the use of Adobe Photoshop in Django project development can help to improve the visual appeal of the project and create a more engaging user experience.

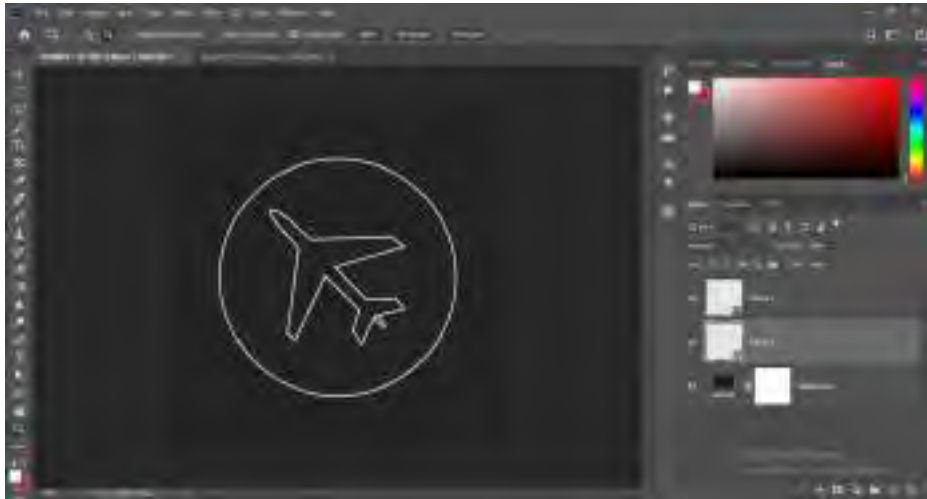


Fig 2. 8 Adobe Photoshop

### 2.3.5. Figma:

Figma is a powerful design tool that allows developers and designers to collaborate on designing user interfaces for web applications. In a Django project development, Figma can be used to create wireframes, mockups, and high-fidelity designs for the front-end of the application. The designs can then be exported as assets such as images, icons, or CSS code, which can be used in the Django project.

Using Figma in Django development can improve the design and development process by allowing for better collaboration between developers and designers, reducing the time and effort needed to create high-quality designs, and ensuring that the final product meets the needs of the end-users. Additionally, Figma's design system feature can help create a consistent design language across the application, making it easier to maintain and update the design as the project progresses.

Overall, Figma can be a valuable tool in the Django project development process, enabling developers to create visually appealing and user-friendly web applications that meet the needs of the end-users.



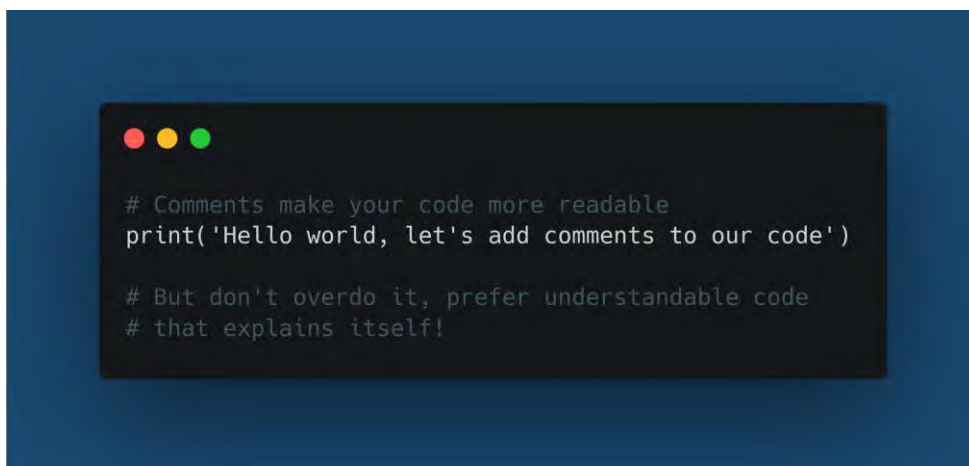
Fig 2. 9 Figma

## CHAPTER 3: INTRODUCTION TO PROGRAMMING AND PYTHON BASICS

### 3.1. COMMENTS:

Python comments are programmer-readable explanation or annotations in the Python source code. They are added with the purpose of making the source code easier for humans to understand, and are ignored by Python interpreter. Comments enhance the readability of the code and help the programmers to understand the code very carefully.

Just like most modern languages, Python supports single-line (or end-of-line) and multi-line (block) comments. Python comments are very much similar to the comments available in PHP, BASH and Perl Programming languages.



```
# Comments make your code more readable
print('Hello world, let's add comments to our code')

# But don't overdo it, prefer understandable code
# that explains itself!
```

Fig 3. 1 Python comments

There are three types of comments available in Python

- Single line Comments
- Multiline Comments
- Docstring Comments

### 3.2. VARIABLES:

Python variables are the reserved memory locations used to store values with in a Python Program. This means that when you create a variable you reserve some space in the memory.

Based on the data type of a variable, Python interpreter allocates memory and decides what can be stored in the reserved memory. Therefore, by assigning different data types to Python variables, you can store integers, decimals or characters in these variables.

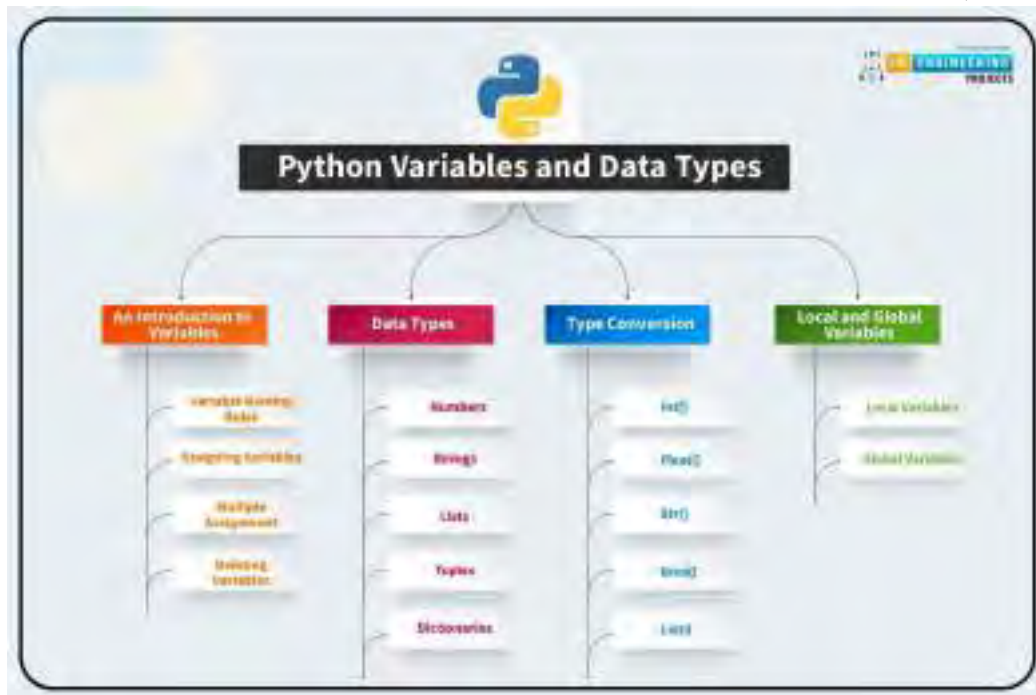


Fig 3. 2 Python Variables

### 3.3. DATA TYPES:

Python Data Types are used to define the type of a variable. It defines what type of data we are going to store in a variable. The data stored in memory can be of many types. For example, a person's age is stored as a numeric value and his or her address is stored as alphanumeric characters.

Python has various built-in data types which we will discuss with in this tutorial:

- Numeric - int, float, complex
- String - str
- Sequence - list, tuple, range
- Binary - bytes, bytearray, memoryview
- Mapping - dict
- Boolean - bool
- Set - set, frozenset
- None - NoneType

### 3.4. OPERATORS:

Python operators are the constructs which can manipulate the value of operands. These are symbols used for the purpose of logical, arithmetic and various other operations.

Consider the expression  $4 + 5 = 9$ . Here, 4 and 5 are called **operands** and + is called **operator**. In this tutorial, we will study different types of Python operators.



Fig 3.3 Python Operators

### 3.4.1. Types of Python Operators:

- Arithmetic Operators
- Comparison (Relational) Operators
- Assignment Operators
- Logical Operators
- Bitwise Operators
- Membership Operators
- Identity Operators

## 3.5. DECISION MAKING:

Decision making is anticipation of conditions occurring while execution of the program and specifying actions taken according to the conditions.

Decision structures evaluate multiple expressions which produce TRUE or FALSE as outcome. You need to determine which action to take and which statements to execute if outcome is TRUE or FALSE otherwise.

Following is the general form of a typical decision-making structure found in most of the programming languages –

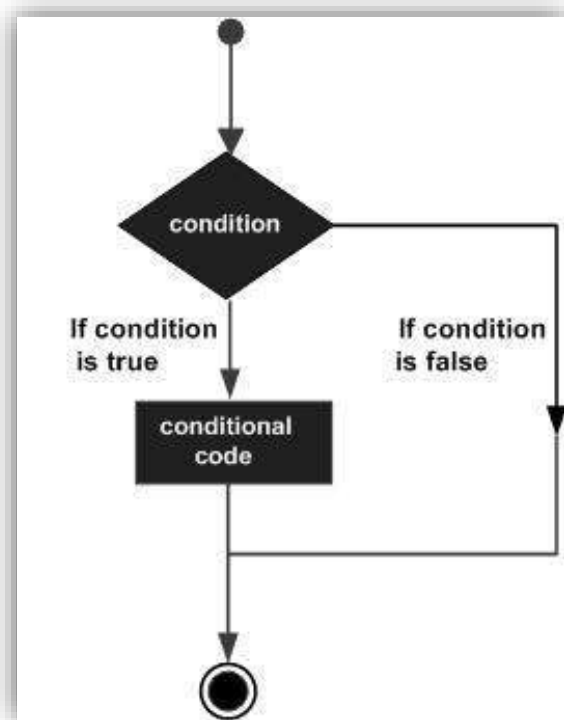


Fig 3. 4 Decision making flowchart in python

Table 3. 1 Types of decision-making statements

Sr.No.	Statement & Description
1	<p>If statements</p> <p>An if statement consists of a boolean expression followed by one or more statements.</p>
2	<p>If...else statements</p> <p>An if statement can be followed by an optional else statement, which executes when the boolean expression is FALSE.</p>
3	<p>Nested if statements</p> <p>You can use one if or else if statement inside another if or else if statement(s).</p>

### 3.6. LOOPS:

In general, statements are executed sequentially: The first statement in a function is executed first, followed by the second, and so on. There may be a situation when you need to execute a block of code several number of times.

Programming languages provide various control structures that allow for more complicated



execution paths.

A loop statement allows us to execute a statement or group of statements multiple times. The following diagram illustrates a loop statement –

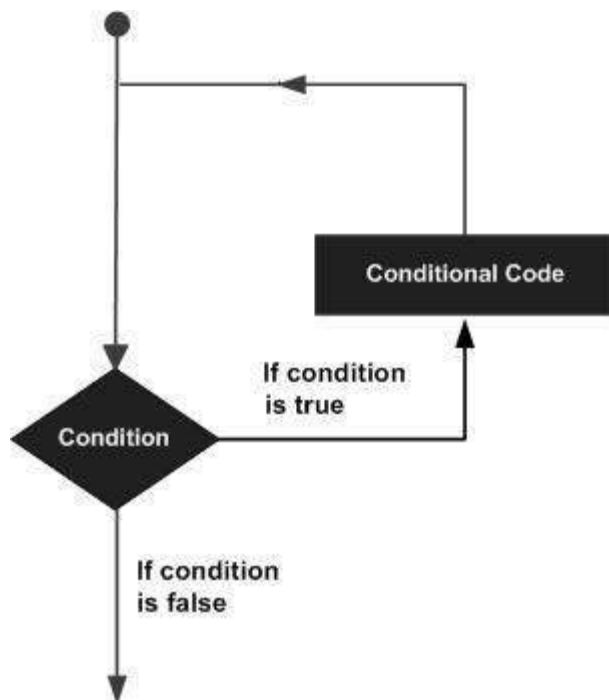


Fig 3. 5 Loops flowchart in python

Python programming language provides following types of loops to handle looping requirements.

Table 3. 2 Different types of looping statements

Sr.No.	Loop Type & Description
1	while loop Repeats a statement or group of statements while a given condition is TRUE. It tests the condition before executing the loop body.
2	for loop Executes a sequence of statements multiple times and abbreviates the code that manages the loop variable.
3	nested loops You can use one or more loop inside any another while, for or do..while loop.

### 3.6.1. Loop Control Statements

Loop control statements change execution from its normal sequence. When execution leaves a

scope, all automatic objects that were created in that scope are destroyed.

Python supports the following control statements. Click the following links to check their detail.

Let us go through the loop control statements briefly

Table 3.3 Different loop control statements

Sr.No.	Control Statement & Description
1	break statement Terminates the loop statement and transfers execution to the statement immediately following the loop.
2	continue statement Causes the loop to skip the remainder of its body and immediately retest its condition prior to reiterating.
3	pass statement The pass statement in Python is used when a statement is required syntactically but you do not want any command or code to execute.

### 3.7. NUMBERS:

Python supports four different numerical types –

- **int (signed integers)** – They are often called just integers or ints, are positive or negative whole numbers with no decimal point.
- **long (long integers )** – Also called longs, they are integers of unlimited size, written like integers and followed by an uppercase or lowercase L.
- **float (floating point real values)** – Also called floats, they represent real numbers and are written with a decimal point dividing the integer and fractional parts. Floats may also be in scientific notation, with E or e indicating the power of 10 ( $2.5e2 = 2.5 \times 10^2 = 250$ ).
- **complex (complex numbers)** – are of the form  $a + bj$ , where a and b are floats and J (or j) represents the square root of -1 (which is an imaginary number). The real part of the number is a, and the imaginary part is b. Complex numbers are not used much in Python programming.

### 3.7.1. Examples

Here are some examples of numbers

Table 3. 4 Types of Numbers and their range

int	long	float	complex
10	51924361L	0.0	3.14j
100	-0x19323L	15.20	45.j
-786	0122L	-21.9	9.322e-36j
080	0xDEFABCECBDAECBFBAEL	32.3+e18	.876j
-0490	535633629843L	-90.	-.6545+0J
-0x260	-052318172735L	-32.54e100	3e+26J
0x69	-4721885298529L	70.2-E12	4.53e-7j

### 3.8. STRINGS:

Strings are amongst the most popular types in Python. We can create them simply by enclosing characters in quotes. Python treats single quotes the same as double quotes. Creating strings is as simple as assigning a value to a variable.

#### 3.8.1. Built-in String Methods

Table 3. 5. Built-in String Methods

Sr.No.	Methods with Description
1	capitalize() Capitalizes first letter of string

2	<p><code>center(width, fillchar)</code></p> <p>Returns a space-padded string with the original string centered to a total of width columns.</p>
3	<p><code>count(str, beg= 0,end=len(string))</code></p> <p>Counts how many times str occurs in string or in a substring of string if starting index beg and ending index end are given.</p>
4	<p><code>decode(encoding='UTF-8',errors='strict')</code></p> <p>Decodes the string using the codec registered for encoding. encoding defaults to the default string encoding.</p>
5	<p><code>encode(encoding='UTF-8',errors='strict')</code></p> <p>Returns encoded string version of string; on error, default is to raise a ValueError unless errors is given with 'ignore' or 'replace'.</p>
6	<p><code>endswith(suffix, beg=0, end=len(string))</code></p> <p>Determines if string or a substring of string (if starting index beg and ending index end are given) ends with suffix; returns true if so and false otherwise.</p>
7	<p><code>expandtabs(tabsize=8)</code></p> <p>Expands tabs in string to multiple spaces; defaults to 8 spaces per tab if tabsize not provided.</p>
8	<p><code>find(str, beg=0 end=len(string))</code></p> <p>Determine if str occurs in string or in a substring of string if starting index beg and ending index end are given returns index if found and -1 otherwise.</p>
9	<p><code>index(str, beg=0, end=len(string))</code></p> <p>Same as find(), but raises an exception if str not found.</p>
10	<p><code>isalnum()</code></p> <p>Returns true if string has at least 1 character and all characters are alphanumeric and false otherwise.</p>
11	<p><code>isalpha()</code></p> <p>Returns true if string has at least 1 character and all characters are alphabetic and false otherwise.</p>

12	<code>isdigit()</code> Returns true if string contains only digits and false otherwise.
13	<code>islower()</code> Returns true if string has at least 1 cased character and all cased characters are in lowercase and false otherwise.
14	<code>isnumeric()</code> Returns true if a unicode string contains only numeric characters and false otherwise.
15	<code>isspace()</code> Returns true if string contains only whitespace characters and false otherwise.
16	<code>istitle()</code> Returns true if string is properly "titlecased" and false otherwise.
17	<code>isupper()</code> Returns true if string has at least one cased character and all cased characters are in uppercase and false otherwise.
18	<code>join(seq)</code> Merges (concatenates) the string representations of elements in sequence <code>seq</code> into a string, with separator string.
19	<code>len(string)</code> Returns the length of the string
20	<code>ljust(width[, fillchar])</code> Returns a space-padded string with the original string left-justified to a total of width columns.

### 3.9. LISTS:

The most basic data structure in Python is the **sequence**. Each element of a sequence is assigned a number - its position or index. The first index is zero, the second index is one, and so forth.

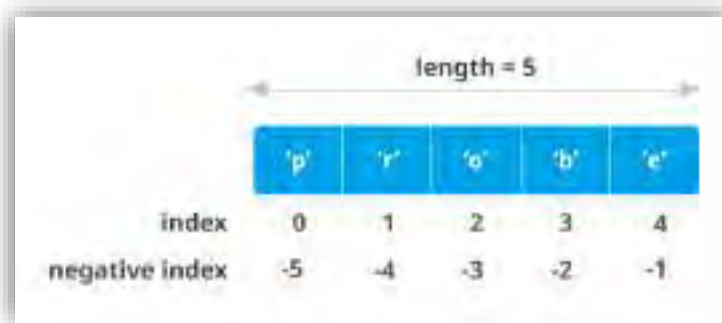


Fig 3. 6 List data structure in python

Python has six built-in types of sequences, but the most common ones are lists and tuples, which we would see in this tutorial.

There are certain things you can do with all sequence types. These operations include indexing, slicing, adding, multiplying, and checking for membership. In addition, Python has built-in functions for finding the length of a sequence and for finding its largest and smallest elements.

### 3.9.1. Built-in List Functions

Table 3. 6 Built-in List Functions

Sr.No.	Function with Description
1	<code>cmp(list1, list2)</code> Compares elements of both lists.
2	<code>len(list)</code> Gives the total length of the list.
3	<code>max(list)</code> Returns item from the list with max value.
4	<code>min(list)</code> Returns item from the list with min value.
5	<code>list(seq)</code> Converts a tuple into list.

**3.9.2. Built-in List Methods**

Table 3. 7 Built-in List Methods

Sr.No.	Methods with Description
1	<code>list.append(obj)</code> Appends object obj to list
2	<code>list.count(obj)</code> Returns count of how many times obj occurs in list
3	<code>list.extend(seq)</code> Appends the contents of seq to list
4	<code>list.index(obj)</code> Returns the lowest index in list that obj appears
5	<code>list.insert(index, obj)</code> Inserts object obj into list at offset index
6	<code>list.pop(obj=list[-1])</code> Removes and returns last object or obj from list
7	<code>list.remove(obj)</code> Removes object obj from list
8	<code>list.reverse()</code> Reverses objects of list in place
9	<code>list.sort([func])</code> Sorts objects of list, use compare func if given

### 3.10. TUPLES:

A tuple is a collection of objects which ordered and immutable. Tuples are sequences, just like lists. The differences between tuples and lists are, the tuples cannot be changed unlike lists and tuples use parentheses, whereas lists use square brackets.

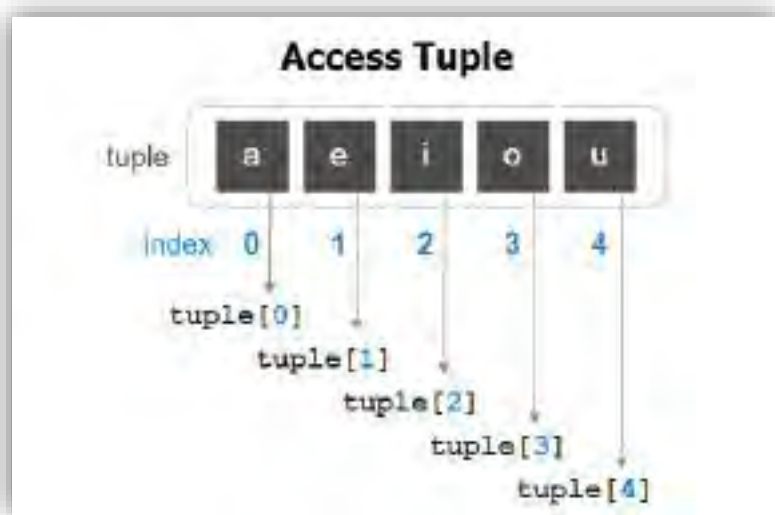


Fig 3. 7 Tuple data structure in python

Creating a tuple is as simple as putting different comma-separated values. Optionally you can put these comma-separated values between parentheses also.

#### 3.10.1. Built-in Tuple Functions

Table 3. 8 Built-in Tuple Functions

Sr.No.	Function with Description
1	cmp(tuple1, tuple2) Compares elements of both tuples.
2	len(tuple) Gives the total length of the tuple.



3	<code>max(tuple)</code> Returns item from the tuple with max value.
4	<code>min(tuple)</code> Returns item from the tuple with min value.
5	<code>tuple(seq)</code> Converts a list into tuple.

### 3.11. DICTIONARY:

Each key is separated from its value by a colon (:), the items are separated by commas, and the whole thing is enclosed in curly braces. An empty dictionary without any items is written with just two curly braces, like this: {}.

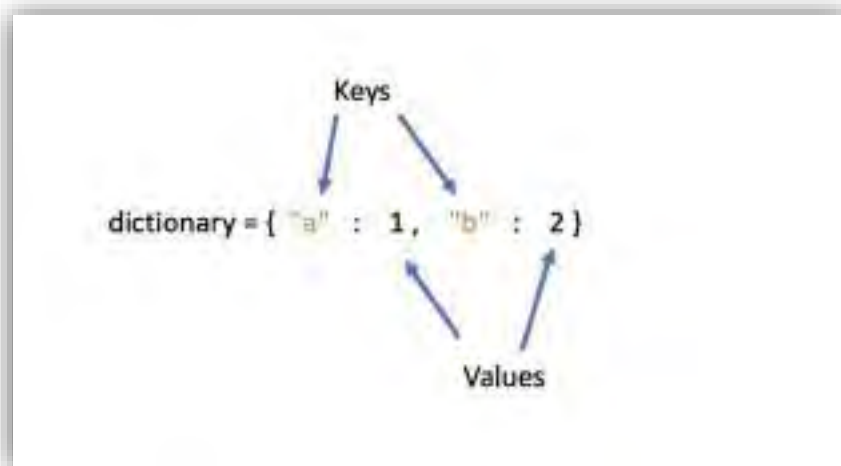


Fig 3. 8 Dictionary data structure in python

Keys are unique within a dictionary while values may not be. The values of a dictionary can be of any type, but the keys must be of an immutable data type such as strings, numbers, or tuples.

#### 3.11.1. Built-in Dictionary Functions

Table 3. 9 Built-in Dictionary Functions

Sr.No.	Function with Description
1	<code>cmp(dict1, dict2)</code> Compares elements of both dict.
2	<code>len(dict)</code> Gives the total length of the dictionary. This would be equal to the number of items in the dictionary.
3	<code>str(dict)</code> Produces a printable string representation of a dictionary
4	<code>type(variable)</code> Returns the type of the passed variable. If passed variable is dictionary, then it would return a dictionary type.

### 3.11.2. Built-in Dictionary Methods

Table 3. 10 Built-in Dictionary Methods

Sr.No.	Methods with Description
1	<code>dict.clear()</code> Removes all elements of dictionary dict
2	<code>dict.copy()</code> Returns a shallow copy of dictionary dict
3	<code>dict.fromkeys()</code> Create a new dictionary with keys from seq and values set to value.
4	<code>dict.get(key, default=None)</code> For key key, returns value or default if key not in dictionary

5	<code>dict.has_key(key)</code> Returns true if key in dictionary dict, false otherwise
6	<code>dict.items()</code> Returns a list of dict's (key, value) tuple pairs
7	<code>dict.keys()</code> Returns list of dictionary dict's keys
8	<code>dict.setdefault(key, default=None)</code> Similar to <code>get()</code> , but will set <code>dict[key]=default</code> if key is not already in dict
9	<code>dict.update(dict2)</code> Adds dictionary dict2's key-values pairs to dict
10	<code>dict.values()</code> Returns list of dictionary dict's values

### 3.12. FUNCTIONS:

A function is a block of organized, reusable code that is used to perform a single, related action. Functions provide better modularity for your application and a high degree of code reusing.

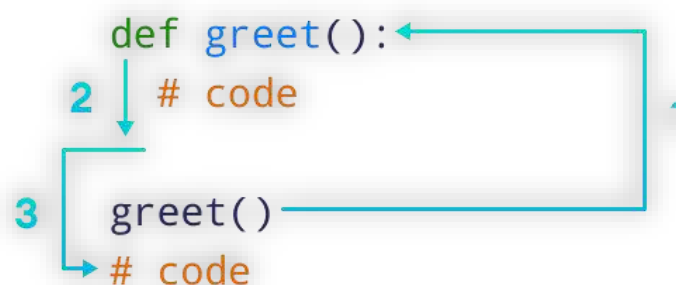


Fig 3. 9 Function in python

As you already know, Python gives you many built-in functions like `print()`, etc. but you can also create your own functions. These functions are called *user-defined functions*.

#### 3.12.1. Function Arguments

- Required arguments

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- Keyword arguments
- Default arguments
- Variable-length arguments

## CHAPTER 4: OOPS CONCEPT IN PYTHON

Object-Oriented Programming (OOP) is a programming paradigm that is based on the concept of objects. In OOP, objects are created from classes, which act as templates for creating objects. Python is a popular programming language that supports OOP, and in this answer, I will discuss some of the key OOP concepts in Python.

### 4.1. CLASSES AND OBJECTS:

In Python, a class is a blueprint for creating objects. A class contains methods and attributes that define the behaviour and properties of objects created from the class. To create an object from a class, you need to instantiate the class, which creates an instance of the class or an object. You can then use the object to access the attributes and methods of the class.

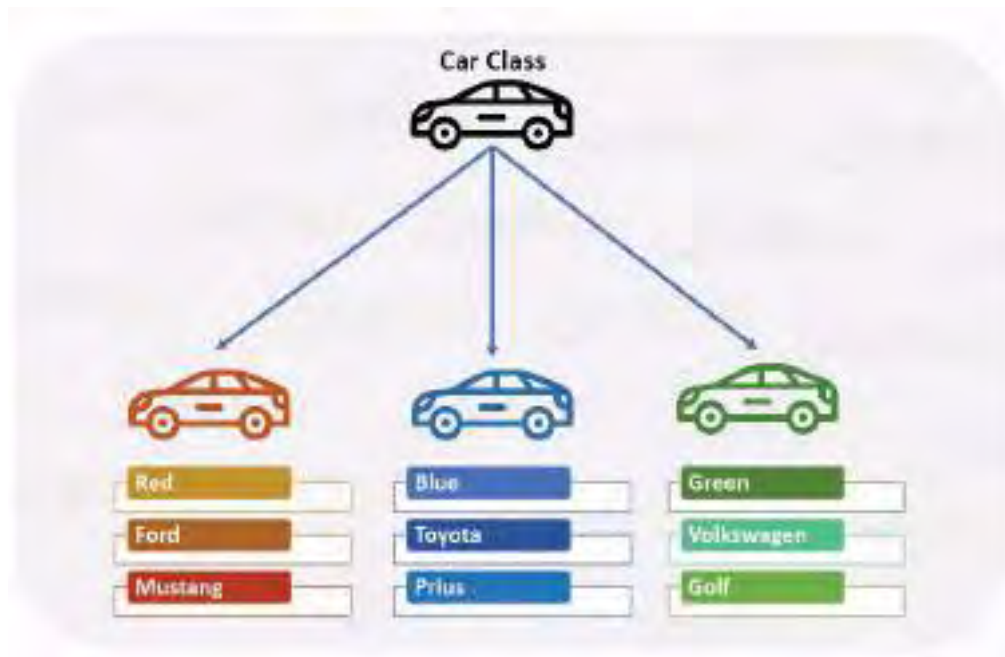


Fig 4. 1 Example of class and object

### 4.2. ENCAPSULATION:

Encapsulation is the process of hiding the implementation details of a class from the user. In Python, you can use access modifiers to restrict the access to the attributes and methods of a class. The access modifiers in Python are public, protected, and private. Public attributes and methods are accessible from outside the class, protected attributes and methods are accessible within the class and its subclasses, and private attributes and methods are accessible only within the class.

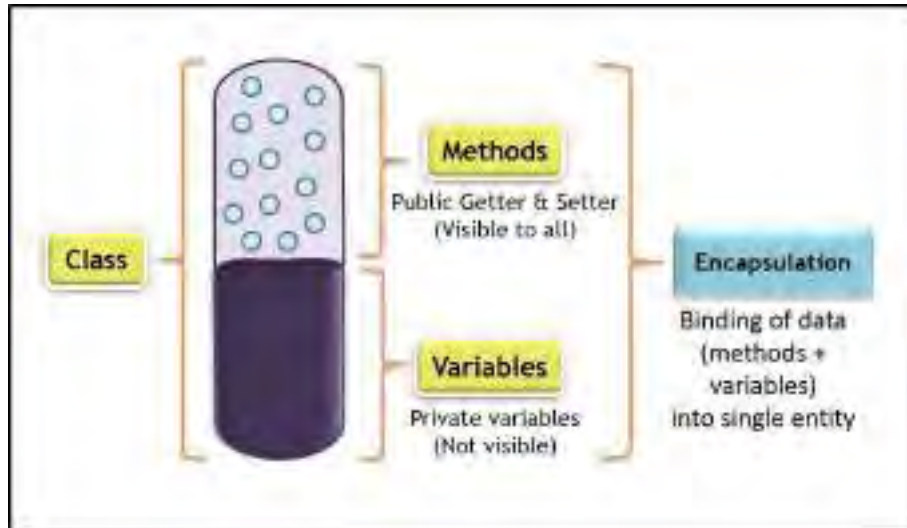


Fig 4. 2 Encapsulation

### 4.3. INHERITANCE:

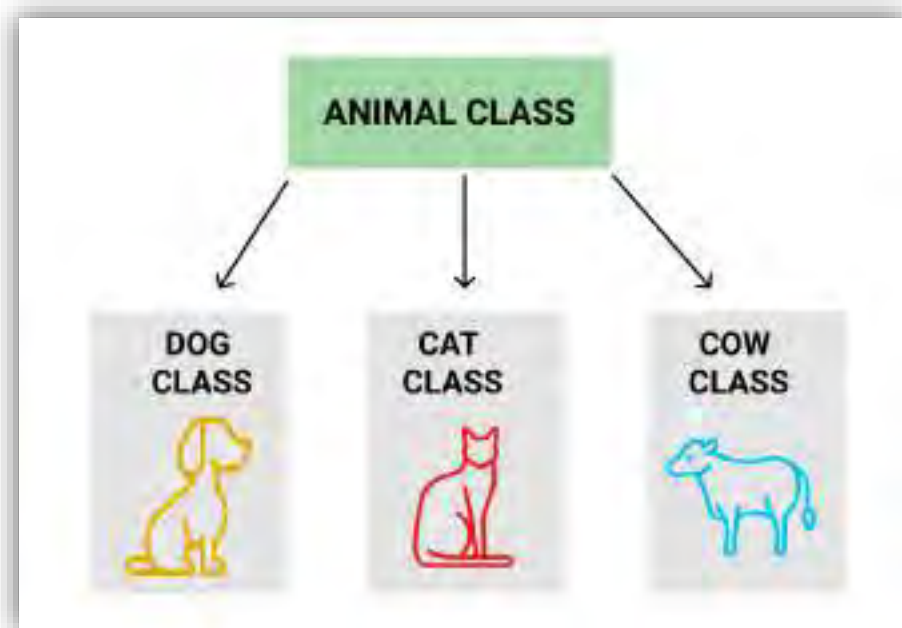


Fig 4. 3 Inheritance

Inheritance is the process of creating a new class from an existing class. The new class inherits the properties and behaviours of the existing class and can add new properties and behaviors or override existing ones. In Python, you can create a subclass by inheriting from a superclass using the ``class SubClassName(SuperClassName):`` syntax.

#### 4.4. POLYMORPHISM:



Fig 4. 4 Polymorphism

Polymorphism is the ability of objects of different classes to be used interchangeably. In Python, polymorphism is achieved through method overloading and method overriding. Method overloading allows you to define methods with the same name but different parameters, while method overriding allows you to redefine a method in a subclass.

#### 4.5. ABSTRACTION:

Abstraction is the process of hiding the implementation details of a class from the user and providing only the necessary information. In Python, you can create an abstract class using the `abc` module. An abstract class is a class that cannot be instantiated and is meant to be subclassed. Abstract classes can have abstract methods that have to be implemented by the subclasses.



Fig 4. 5 Abstraction

These are some of the key OOP concepts in Python. Python's support for OOP makes it a popular choice for Gujarat Technological University

developing complex applications that require modular and maintainable code. By using OOP concepts such as classes, encapsulation, inheritance, polymorphism, and abstraction, you can create flexible and extensible code that is easier to understand and maintain.



## CHAPTER 5: LEARNING DJANGO

### 5.1. UNDERSTANDING THE FUNDAMENTALS:

#### 5.1.1. Python Fundamentals:

To learn Django, it's essential to have a good grasp of Python programming language. Python is a popular, general-purpose programming language that has a clean syntax and is easy to learn. Before diving into Django, you should have a solid foundation in Python programming. Here are some essential Python concepts you should be familiar with:

- **Data Types:** Python supports various data types, including strings, integers, floats, and Booleans. Understanding the various data types and how to work with them is essential.
- **Control Structures:** Python provides control structures like if-else statements, loops, and functions to help control the flow of the program. Understanding how to use control structures and write efficient code is necessary.
- **Functions:** Functions are an essential part of Python programming. They are reusable blocks of code that perform a specific task. Understanding how to define functions, pass parameters, and return values is necessary.
- **Modules:** Python provides a vast library of modules that can be imported and used in your code. Understanding how to use modules and install new ones is essential.
- **Object-Oriented Programming:** Python is an object-oriented programming language. Understanding the concepts of classes, objects, and inheritance is necessary.

#### 5.1.2. Web Development Fundamentals:

To learn Django, you should have a good understanding of web development concepts. Here are some essential web development concepts you should be familiar with:

- **HTTP:** Hypertext Transfer Protocol (HTTP) is the protocol used for communication between the client (web browser) and the server (web application). Understanding HTTP methods like GET and POST and how to work with HTTP headers is essential.
- **HTML:** Hypertext Markup Language (HTML) is the standard markup language used to create web pages. Understanding the basics of HTML tags and how to create web pages is necessary.
- **CSS:** Cascading Style Sheets (CSS) is a language used to style HTML documents. Understanding how to use CSS to style web pages and create responsive designs is essential.
- **JavaScript:** JavaScript is a programming language used to add interactivity to web pages. Understanding the basics of JavaScript syntax and how to work with the Document Object Model (DOM) is necessary.

Once you have a good grasp of Python and web development concepts, you can start learning Django. Having a solid foundation in these areas will make it easier to learn Django's architecture and design principles and

apply them to develop complex and scalable web applications.

## 5.2. LEARNING DJANGO'S ARCHITECTURE:

Django is a Model-View-Controller (MVC) framework that follows the Don't Repeat Yourself (DRY) principle. Understanding the MVC architecture is crucial to learning Django's design principles.

MVC is a software design pattern that divides an application into three interconnected components: the model, view, and controller. The model represents the data and the database layer. The view represents the user interface and the presentation layer. The controller handles the user input and the application logic.

In Django, the model is responsible for managing the data and the database layer. The model is defined in Python as a subclass of `django.db.models.Model`. The model consists of fields that define the data schema, such as `CharField`, `IntegerField`, `DateField`, and `ForeignKey`. Each model corresponds to a table in the database.

Django provides a powerful Object-Relational Mapping (ORM) framework that maps Python objects to database tables. The ORM allows developers to interact with the database using Python objects and methods. The ORM provides a high-level abstraction layer that simplifies database access and reduces boilerplate code.

The view is responsible for handling the user requests and generating the responses. In Django, the view is defined as a Python function or class that takes a request object and returns a response object. The view can interact with the model to retrieve, update, or delete data from the database. The view can also render templates to generate HTML responses.

Django provides a powerful template engine that separates the presentation layer from the application logic. Templates are defined in HTML files that can include special syntax to access variables and control structures. The template engine can generate HTML responses that are customized based on the data passed from the view.

The controller is responsible for handling the user input and the application logic. In Django, the controller is implemented by the framework itself. Django provides a powerful URL routing mechanism that maps the user requests to the appropriate view function or class. The URL routing mechanism can also extract data from the URL and pass it to the view.

Django follows the DRY principle, which means that the code should not be repeated unnecessarily. In Django, the URL routing, model definition, and form definition are defined only once and reused throughout the application. The DRY principle reduces code duplication and makes the application more maintainable.

Django also follows the convention-over-configuration principle, which means that the framework provides sensible defaults that can be customized if needed. For example, Django provides a default project structure that includes a `settings.py` file that defines the database configuration, middleware, and other settings. The convention-over-configuration principle reduces the configuration burden and makes the development process faster.

In summary, learning Django's architecture involves understanding the MVC design pattern, the model, view, and controller components, the ORM framework, the template engine, the URL routing mechanism, the DRY and convention-over-configuration principles, and the default project structure. With these skills, developers can develop complex and scalable web applications with Django.

### **5.3. SETTING UP THE ENVIRONMENT:**

Setting up the development environment is the first step in learning Django. The development environment is the platform that developers use to write, test, and deploy their code. Setting up the environment involves installing Django and other required dependencies such as a database engine and configuring them to work together.

Here are the steps to set up the development environment for Django:

#### **5.3.1. Install Python:**

Django is built on Python, so the first step is to install Python on your machine. You can download the latest version of Python from the official Python website. Make sure to install the version compatible with your operating system.

#### **5.3.2. Install a code editor or an IDE:**

A code editor is a software tool that developers use to write and edit code. Some popular code editors for Python include Visual Studio Code, PyCharm, and Sublime Text. Choose an editor that best suits your preferences and install it on your machine.

#### **5.3.3. Install Django:**

Once you have installed Python and a code editor, the next step is to install Django. You can install Django using the pip package manager that comes with Python. Open the command prompt or terminal and run the following command:

```
pip install Django
```

This command will install the latest version of Django. If you want to install a specific version, you can specify the version number, for example:

```
pip install Django==3.2.4
```

#### **5.3.4. Create a virtual environment:**

A virtual environment is a tool that isolates the dependencies of different Python projects. Creating a virtual environment helps avoid conflicts between different Python packages and ensures that each project has its own set of dependencies. To create a virtual environment, run the following command:

```
python -m venv myenv
```

This command creates a virtual environment named "myenv" in the current directory.

### 5.3.5. Activate the virtual environment:

Once the virtual environment is created, activate it by running the following command:

```
source myenv/bin/activate
```

This command activates the virtual environment, and you should see the name of the virtual environment in the command prompt or terminal.

### 5.3.6. Install required dependencies:

In addition to Django, most Django projects require other dependencies, such as a database engine, a web server, and other Python packages. To install these dependencies, you can use the pip package manager. For example, to install the SQLite database engine, run the following command:

```
pip install sqlite3
```

Depending on the requirements of your project, you may need to install additional dependencies.

### 5.3.7. Verify the installation:

Once the environment is set up, verify that Django is installed correctly by running the following command:

```
python -m django --version
```

This command should print the version of Django installed on your machine.

Setting up the development environment can be challenging, especially for beginners. However, once the environment is set up correctly, it makes the development process more efficient and less error-prone. It is essential to keep the environment up-to-date with the latest versions of Django and other dependencies to ensure compatibility and security.

## 5.4. CREATING A PROJECT:

Creating a project is the first step in building a web application with Django. A project in Django is a collection of applications that work together to form a complete web application. Each project has its own settings, configuration files, and URL configurations.

To create a project in Django, you can use the `django-admin` command-line tool. The tool provides a `startproject` command that creates a new project with the given name. For example, to create a new project named `myproject`, you can run the following command:

```
django-admin startproject myproject
```

This command creates a new directory named `myproject` and populates it with the necessary files and directories for a Django project. The project directory contains a `settings.py` file that defines the project's settings, a `urls.py` file that defines the project's URL configuration, and a `wsgi.py` file that is used to run the project on a web server. Once the project is created, you can start creating applications that make up the project. Each application is a self-contained module that can be reused in other projects. Django provides a `startapp` command that creates a new application with the given name. For example, to create a new application named `blog`, you can run the following command:

```
python manage.py startapp blog
```

This command creates a new directory named `blog` and populates it with the necessary files and directories for a Django application. The application directory contains a `models.py` file that defines the application's data models, a `views.py` file that defines the application's views, and a `templates` directory that contains the

application's HTML templates.

In summary, creating a project in Django involves using the `django-admin` command-line tool to create a new project directory and populating it with the necessary files and directories. Once the project is created, you can start creating applications that make up the project. Each application is a self-contained module that can be reused in other projects.

## 5.5. CREATING APPLICATIONS:

In Django, applications are reusable components that can be plugged into multiple projects. Each application consists of models, views, templates, and URL configurations. Creating applications in Django involves following these steps:

1. **Create a new Django application:** The first step is to create a new Django application using the `python manage.py startapp` command. This creates a new directory with the application name and creates the necessary files for a Django application.
2. **Define the application models:** Models are Python classes that represent the database structure. Defining models involves creating a Python class that inherits from the Django `Model` class and defining attributes that represent the database fields.
3. **Register the models with the admin interface:** Django provides an admin interface that can be used to manage application data. Registering the models with the admin interface involves creating an `admin.py` file in the application directory and registering the models with the `admin.site.register()` function.
4. **Define the application views:** Views handle user requests and generate responses. Defining views involves creating a Python function that takes a request object and returns a response object. The response can be rendered using a template or returned as JSON data.
5. **Define the application templates:** Templates are HTML files that define the user interface. Defining templates involves creating an HTML file that includes template tags and filters that render dynamic data.
6. **Define the application URL configuration:** URL configurations map requests to views. Defining URL configurations involves creating a `urls.py` file in the application directory and defining URL patterns that map to views.
7. **Add the application to the project:** Once the application is defined, it needs to be added to the project. Adding the application involves modifying the project's `settings.py` file to include the application in the `INSTALLED_APPS` list.

Creating applications in Django provides a modular approach to web development, allowing developers to create reusable components that can be used across multiple projects. By following these steps, developers can create applications that define their own models, views, templates, and URL configurations, making them highly customizable and extensible.

## 5.6. CREATING MODELS

In Django, models are Python classes that represent the database structure. A model defines the fields of a database table and their types. Each field in a model represents a column in the corresponding database table. Models provide a way to interact with the database in a structured and organized way, making it easier to manage data and ensure consistency.

Creating models involves defining the structure of the database tables and their relationships. Django provides a powerful Object-Relational Mapping (ORM) layer that abstracts away the complexities of database management. The ORM allows developers to interact with the database using Python objects, rather

than SQL statements.

Here are the steps involved in creating models in Django:

1. **Define the model class:** The first step in creating a model is to define the model class. The class should inherit from the `django.db.models.Model` class, which provides the basic functionality for defining database models.
2. **Define fields:** Fields define the columns in the database table. Django provides a wide range of field types, such as `CharField`, `IntegerField`, `DateField`, and `ForeignKey`, among others. Each field type has specific options that can be set, such as the maximum length of a `CharField` or the default value of an `IntegerField`.
3. **Define relationships:** Relationships define how different models are related to each other. There are three types of relationships in Django: `OneToOneField`, `ForeignKey`, and `ManyToManyField`. `OneToOneField` and `ForeignKey` represent one-to-many relationships, while `ManyToManyField` represents a many-to-many relationship.
4. **Define methods:** Methods are functions that are defined on the model class. They can be used to perform operations on the model data, such as calculating derived values or performing validation.
5. **Define metadata:** Metadata provides additional information about the model. This includes the table name, ordering, and any unique constraints.
6. **Register the model:** After defining the model, it needs to be registered with the Django ORM. This is done by creating a migration file and running the migration.

Once a model is defined, it can be used to create, read, update, and delete data in the database. The ORM provides a high-level API for interacting with the database, making it easy to perform common operations such as querying, filtering, and sorting data. One of the key advantages of using Django models is that they provide an abstraction layer between the database and the application code. This means that developers can write Python code to interact with the database, rather than writing SQL statements directly. This makes it easier to manage the database and ensures that the application code is more maintainable and scalable.

In summary, creating models in Django involves defining the structure of the database tables and their relationships using Python classes. Models provide a way to interact with the database in a structured and organized way, making it easier to manage data and ensure consistency. By using Django's ORM, developers can write Python code to interact with the database, rather than writing SQL statements directly, making it easier to manage the database and ensuring that the application code is more maintainable and scalable.

## 5.7. CREATING VIEWS:

To create a view in Django, you can define a function or a class-based view. A function-based view is simply a Python function that takes a request object as its first parameter and returns an `HttpResponse` object. A class-based view, on the other hand, is a Python class that defines methods for handling different HTTP methods, such as `GET`, `POST`, `PUT`, `DELETE`, etc.

Once you have defined your view, you need to map it to a URL in your application. This is done through the use of URL patterns, which are defined in the `urls.py` file of your Django application. In the URL pattern, you specify the URL path that should trigger the view, as well as any additional parameters that should be passed to the view.

For example, let's say you have a view that displays a list of blog posts. You could define this view as follows:

```
from django.shortcuts import render
from .models import BlogPost

def blog_post_list(request):
    blog_posts = BlogPost.objects.all()
    return render(request, 'blog_post_list.html', {'blog_posts': blog_posts})
```

In this view, we import the render function from the `django.shortcuts` module, as well as the `BlogPost` model from our application's `models.py` file. We then define a function called `blog_post_list` that takes a request object as its first parameter. Inside the function, we retrieve all of the blog posts using the `BlogPost.objects.all()` method and store them in a variable called `blog_posts`. We then pass this variable to the render function along with the name of the template we want to use (`'blog_post_list.html'`).

To map this view to a URL, we would add a URL pattern to our `urls.py` file as follows:

```
from django.urls import path
from .views import blog_post_list

urlpatterns = [
    path('blog/posts/', blog_post_list, name='blog_post_list'),
]
```

In this URL pattern, we specify that any URL that starts with `'/blog/posts/'` should trigger the `blog_post_list` view, and we give this URL pattern the name `'blog_post_list'`. We can then use this name in our templates to generate links to this view.

Overall, creating views is an essential part of developing web applications with Django. By defining views, you can specify how your application should handle different HTTP requests and generate dynamic content for your users.

## 5.8. CREATING TEMPLATES:

After creating the views for our application, the next step is to create the templates. Templates are the HTML files that contain the design and structure of the web pages. They are responsible for presenting the data to the user in an understandable and visually appealing format.

Django provides a powerful templating engine called Django Templates, which makes it easy to create dynamic HTML pages. The Django Templates engine is built on top of the Python programming language and supports a wide range of features, including template inheritance, template tags, and filters.

To create templates in Django, we first need to create a folder named `'templates'` in the root directory of our application. Inside this folder, we can create subfolders for each of our application's views. For example, if we have a view for displaying a list of blog posts, we can create a folder named `'posts'` inside the `'templates'` folder. Inside the `'posts'` folder, we can create an HTML file named `'post_list.html'`. This file will contain the HTML code for displaying the list of blog posts. We can use the Django Templates language to insert dynamic data into the HTML file.

Django Templates use a special syntax for inserting dynamic data into HTML files. We can use the double curly braces `{{ }}` to insert variables and expressions into the HTML code. For example, if we want to display the title of a blog post, we can use the following code:

```
<h2>{{ post.title }}</h2>
```

Here, `post` is the variable that contains the blog post object, and `title` is the attribute of the object that contains the post's title.

Django Templates also support template inheritance, which allows us to reuse code across multiple templates. We can create a base template that contains the common HTML code and inherit it in other templates. To inherit a template, we use the `{% extends %}` tag. For example, if we have a base template named `base.html`, we can inherit it in our `post_list.html` template using the following code:

```
{% extends "base.html" %}

{% block content %}
    <!-- HTML code for displaying blog posts -->
{% endblock %}
```

Here, `{% block content %}` is a block tag that defines a section of the template that can be overridden in child templates. In our example, the `content` block contains the HTML code for displaying the blog posts.

Django Templates also support template tags and filters, which are useful for performing complex operations in the templates. Template tags are custom Python functions that can be called from the templates using a special syntax. Template filters are similar to tags but are used for transforming data values. Django provides a set of built-in tags and filters, and we can also create our own custom tags and filters.

In conclusion, creating templates in Django is a crucial step in building web applications. It allows us to present data to the user in an understandable and visually appealing format. With the powerful Django Templates engine, we can easily create dynamic HTML pages with features like template inheritance, tags, and filters.

## 5.9. HANDLING URLS:

In Django, URLs are used to map a particular URL pattern to a specific view. The process of mapping a URL to a view is known as URL routing. When a user requests a particular URL, Django uses the URL routing mechanism to find the view associated with that URL and then returns the response to the user.

The first step in handling URLs in Django is to define URL patterns in the `urls.py` file of the project or app. The `urls.py` file contains a list of URL patterns along with their corresponding views. The URL pattern is defined using a regular expression and can contain named groups that capture parts of the URL.

Here's an example of a simple URL pattern:

```
from django.urls import path
from . import views
```



```
urlpatterns = [
    path("", views.index, name='index'),
]
```

In the above example, we define a URL pattern that matches the root URL of the app and maps it to the `index` view. The `name` attribute is optional and is used to give the URL pattern a name that can be used to reference it in other parts of the app.

In addition to simple URL patterns, Django also supports more complex patterns such as optional parameters, regular expression groups, and URL namespaces. These features allow for more flexible and powerful URL routing. Once the URL patterns have been defined, the next step is to associate them with their corresponding views. Views are Python functions or classes that take a request object as input and return a response object. The response object can be an HTML page, a JSON object, or any other type of content.

Here's an example of a simple view:

```
from django.http import HttpResponse

def index(request):
    return HttpResponse("Hello, world!")
```

In the above example, we define a view that simply returns a "Hello, world!" message. This view can be associated with a URL pattern using the `path()` function in the `urls.py` file.

To associate a view with a URL pattern, we pass the view function or class as the second argument to the `path()` function. We can also specify any additional arguments or options for the URL pattern.

```
from django.urls import path
from . import views

urlpatterns = [
    path("", views.index, name='index'),
    path('blog/', views.blog, name='blog'),
    path('blog/<int:pk>/', views.blog_detail, name='blog_detail'),
]
```

In the above example, we define three URL patterns and associate them with their corresponding views. The first pattern matches the root URL and maps it to the `index` view. The second pattern matches the `blog/` URL and maps it to the `blog` view. The third pattern matches URLs of the form `blog/<int:pk>/` where `<int:pk>` is an integer parameter and maps them to the `blog_detail` view. In addition to the `path()` function, Django also provides the `re_path()` function for defining URL patterns using regular expressions.

In summary, handling URLs in Django involves defining URL patterns in the `urls.py` file and associating them with their corresponding views. URL patterns can be simple or complex and can contain named groups that capture parts of the URL. Views are Python functions or classes that take a request object as input and

return a response object. The ``path()`` and ``re_path()`` functions are used to define URL patterns, and additional arguments and options can be specified for each pattern.

## **5.10. HANDLING FORMS:**

### **5.10.1. Handling Forms:**

Django provides several ways to handle forms, from manually creating HTML forms to using Django's built-in form handling capabilities. In Django, a form is an HTML form that can be displayed on a web page and submitted by a user. Form handling is an essential part of web development, and Django provides a lot of built-in tools to make it easier.

### **5.10.2. Creating Forms:**

In Django, you can create forms using the built-in form classes, which are defined in the `django.forms` module. You can also create your custom form classes by subclassing `django.forms.Form` or `django.forms.ModelForm`. A `Form` is a collection of fields that the user fills in and submits. A `ModelForm` is a form that is created from a Django model and is used to create or update instances of that model.

### **5.10.3. Handling Form Data:**

Once a form is submitted, Django handles the form data for you. The form data is typically sent to the server using the POST method. In Django, you can access the form data using the `request.POST` dictionary. The `request.POST` dictionary contains the data that was submitted by the user. You can also use `request.GET` to access data sent using the GET method.

### **5.10.4. Validating Forms:**

In addition to handling form data, Django also provides built-in form validation. Form validation is the process of checking the data that was submitted by the user to ensure that it is valid. Django's form validation system is based on form fields. Each form field has a corresponding validator that checks the data for validity.

### **5.10.5. Displaying Forms:**

Once you have created a form, you need to display it on a web page. Django provides several ways to display forms, including using the form's `as_p`, `as_table`, and `as_ul` methods. These methods return the form as an HTML string in the specified format. You can also create your custom HTML template to render the form.

### **5.10.6. Conclusion:**

Form handling is a crucial part of any web application, and Django provides a lot of built-in tools to make it easier. With Django's built-in form handling capabilities, you can easily create and validate forms, handle form data, and display forms on your web pages. Whether you are creating a simple contact form or a complex data entry form, Django has everything you need to get started.

## **5.11. IMPLEMENTING AUTHENTICATION:**

### **5.11.1. Implementing Authentication:**

Authentication is a crucial component of most web applications, as it enables users to create and maintain personal accounts with secure access to sensitive information. Django provides built-in authentication views and forms, making it easy to add user authentication to your web application.

### **5.11.2. User Authentication:**

In Django, user authentication is the process of verifying a user's identity. Django provides built-in user authentication views and forms, which can be used to handle user authentication, registration, and password resets. To implement user authentication in your Django application, you need to create a user authentication system, which is responsible for creating, storing, and managing user accounts.

### **5.11.3. Creating a User Authentication System:**

Django provides built-in authentication views and forms, which can be used to create a user authentication system. You can use these views and forms to handle user registration, login, logout, and password resets. To create a user authentication system, you need to define your user model and authentication backend, which can be customized to fit your specific needs.

### **5.11.4. Authentication Middleware:**

Django also provides authentication middleware, which is responsible for enforcing authentication on certain views or URLs. This middleware can be used to protect sensitive information and restrict access to certain parts of your web application. You can use the built-in authentication middleware or create your custom middleware.

### **5.11.5. Customizing Authentication Views and Forms:**

Django provides several built-in authentication views and forms, which can be customized to fit your specific needs. You can override the default views and forms to add or remove fields, change the validation rules, or customize the appearance of the forms. This customization allows you to create a user authentication system that meets your specific requirements.

### **5.11.6. Conclusion:**

Authentication is an essential part of most web applications, and Django provides built-in tools to make it easy to implement. With Django's built-in authentication views and forms, you can quickly create a user authentication system, enforce authentication on specific views or URLs, and customize the authentication process to fit your specific needs. By implementing user authentication in your Django application, you can ensure the security of your users' personal information and enable them to access sensitive data with confidence.

## **5.12. TESTING:**

Testing is an essential part of software development, and Django provides a comprehensive testing framework that allows developers to write tests for their applications. Django's testing framework makes it easy to write and run tests, and it comes with several built-in tools that simplify the testing process.

### **5.12.1. Writing Tests:**

In Django, tests are written in Python and can be stored in a separate tests.py file or integrated into the application codebase. To write tests, you can use Django's built-in TestCase class or create your custom test classes. Tests in Django typically follow a arrange-act-assert pattern, where you set up the test environment, perform an action, and then check the result.

### **5.12.2. Running Tests:**

Django's testing framework provides several ways to run tests. You can run tests using the manage.py test

command, which automatically discovers and runs all tests in your application. You can also run specific tests or test cases using the `--pattern` option. Additionally, you can run tests using third-party tools such as `pytest` or `nose`.

### **5.12.3. Testing Tools:**

Django's testing framework comes with several built-in testing tools that make it easier to write and run tests. Some of these tools include the test client, which allows you to simulate HTTP requests and responses, and the test database, which provides a clean database for each test. Additionally, Django provides several testing utilities such as `assertContains`, `assertRedirects`, and `assertTemplateUsed`.

### **5.12.4. Integration Testing:**

Integration testing is a type of testing that verifies that different parts of the application work together correctly. In Django, integration tests are typically performed using the test client. Integration tests can be used to test the application's views, templates, and database interactions.

### **5.12.5. Conclusion:**

Django's testing framework provides a comprehensive set of tools for testing web applications. With Django's built-in testing tools, developers can easily write and run tests for their applications, ensuring that they are robust, reliable, and free of bugs. Whether you are testing individual components or performing integration tests, Django has everything you need to get started.

## CHAPTER 6: PROJECT NETWORK X

### 6.1. LANDING PAGE AND USER AUTHENTICATION:

The landing page is the first page that users see when they visit the application. It serves as an introduction to the application and provides information about the features and functionality of the application. User authentication is a crucial feature of the application that ensures that only authorized users can access the content and features of the application. In this project, we implemented user authentication using Django's built-in authentication system.



Fig 6. 1 Landing page of Network-X



Fig 6. 2 Sign-In page of Network-X

The user authentication system allows users to create an account and login to the application securely. Django provides a robust authentication system that includes features such as password hashing, password reset, and session management. The authentication system also allows users to stay logged in even after they close the application, making it more convenient for them to use the application.



Fig 6. 3 Sign-Up page of Network-X



Fig 6. 4 Password recovery page of Network-X

## 6.2. POSTS AND A SOCIAL FEED:

The posts and social feed feature allow users to create and share posts with their followers. The social feed displays posts from users that the logged-in user follows, allowing them to keep up with the latest updates and news from their friends and acquaintances. Creating posts is a fundamental feature of any social networking application, and in this project, we implemented the ability for users to create text-based posts. When a user creates a post, it is displayed on their profile page, and their followers can see it in their social feed.

The social feed feature uses algorithms to determine which posts to show to each user based on their interests and interactions on the platform. This ensures that users see the most relevant posts and can engage with the content that is most interesting to them.

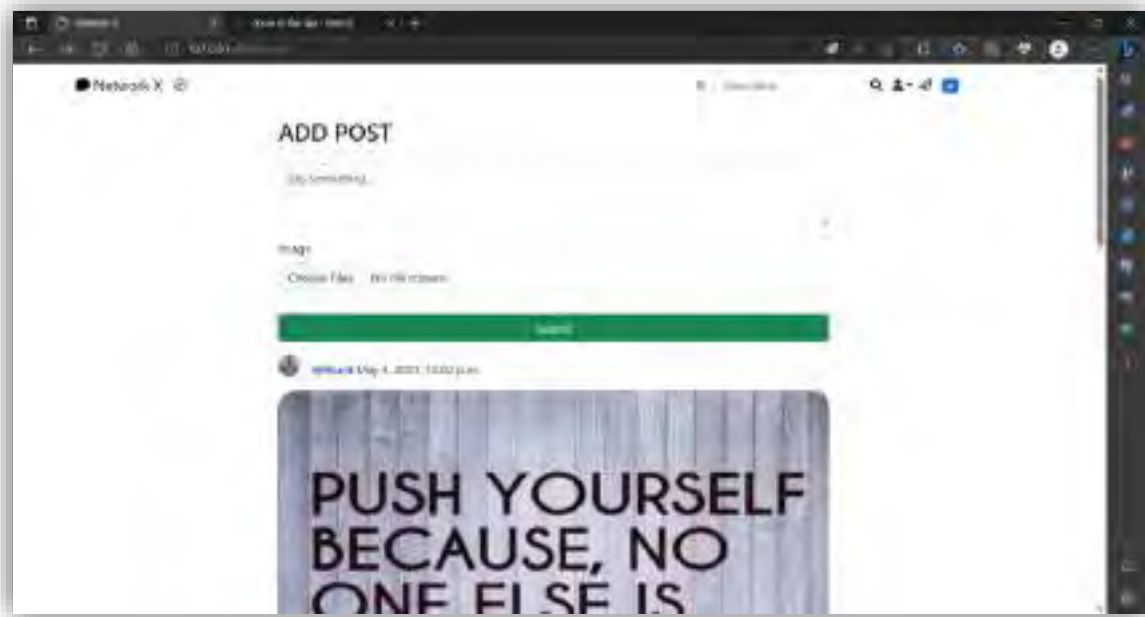


Fig 6. 5 Post Feed page of Network-X

## 6.3. GET A POST AND THE COMMENT MODEL:

The "get a post" and comment model feature allows users to view individual posts in more detail and leave comments on them. This feature is essential for creating engagement and discussion around the content on the platform. When a user clicks on a post in their social feed or profile page, they are taken to a dedicated page that displays the post in more detail. On this page, users can see the post's text, any images attached to the post, and the number of likes and comments the post has received.

The comment model is a data structure that allows users to leave comments on posts. When a user leaves a comment, it is associated with the post and displayed on the post's detail page. Comments provide a way for users to interact with each other and express their opinions about the content on the platform.



Fig 6. 6 Adding comment on the post

#### 6.4. EDIT POSTS, DELETE POSTS, ADD COMMENTS:

The ability to edit, delete, and add comments to posts is a crucial feature of any social networking application. In this project, we implemented these features to give users more control over their posts and comments. Users can edit their posts and update the text or images associated with them. They can also delete their posts if they no longer want them to be visible on the platform. The ability to edit and delete posts ensures that users can manage their content and keep their profile up to date.

Users can also add comments to posts to share their thoughts and opinions about the content. Comments provide a way for users to interact with each other and have discussions about the topics they care about.



Fig 6. 7 Post detail page of Network-X





Fig 6. 8 Post update page of Network-X



Fig 6. 9 Delete post page of Network-X

## 6.5. USER PROFILES:

Profiles are an important part of any social networking application as they provide users with a way to showcase their personality and interests to other users. For this project, I implemented a profile model using Django's built-in user model. The profile model included fields for the user's name, profile picture, bio, location, website, and more. To allow users to edit their profiles, I created a view and a template for the profile edit form. This form included fields for all the profile model attributes, allowing users to update their information as desired. To ensure that only authenticated users can edit their profile, I added authentication checks to the view.

In addition to editing their own profiles, users can also view other users' profiles. To enable this feature, I created a view that displays a user's profile information along with their posts. This view also includes a follow/unfollow button that allows users to follow or unfollow other users.



Fig 6. 10 User Profile page of Network-X

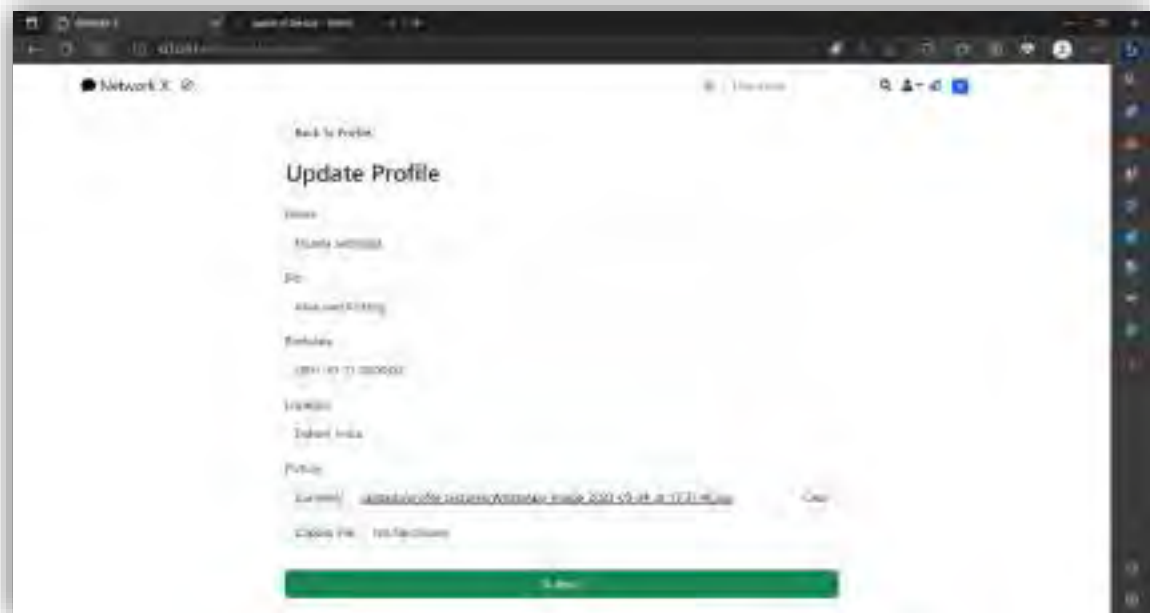


Fig 6. 11 User profile update page of Network-X

## 6.6. FOLLOWERS:

Followers are an important part of any social networking application as they allow users to connect with other

users and stay up-to-date with their activities. For this project, I implemented a follower system using Django's many-to-many relationship. The follower system allows users to follow other users and see their posts on their social feed. To enable this feature, I created a view that displays a list of all the users a particular user is following. This view includes a button that allows users to unfollow other users.

To ensure that only authenticated users can follow or unfollow other users, I added authentication checks to the view. I also added notification functionality to the follower system so that users can receive notifications when someone follows them.

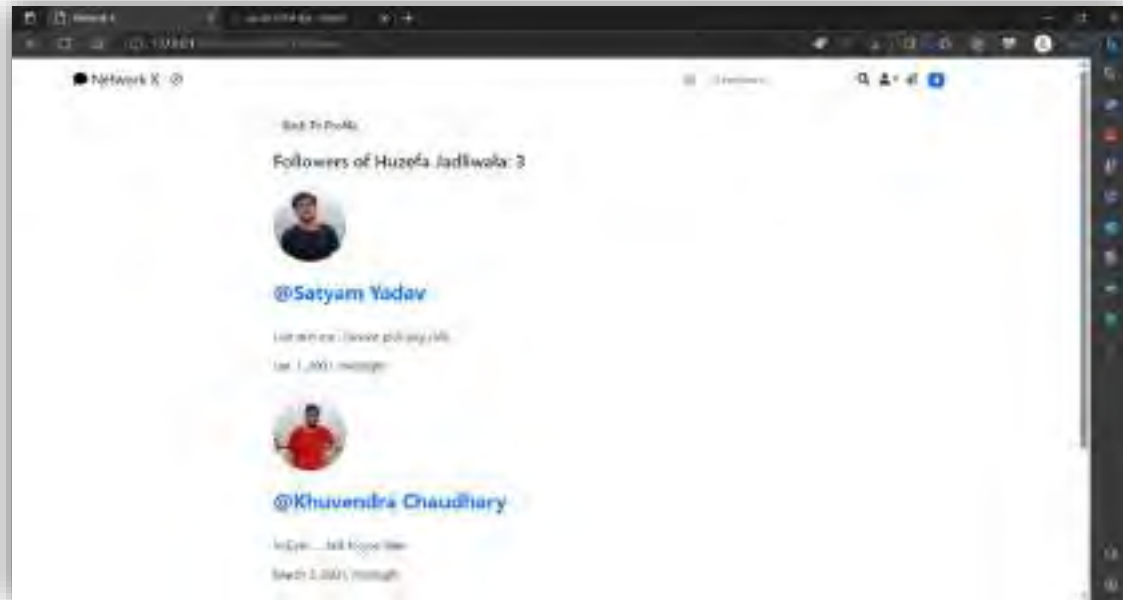


Fig 6. 12 Follower list page of Network-X

## 6.7. LIKES AND DISLIKES:

Likes and dislikes are an important part of any social networking application as they allow users to express their appreciation or disapproval of other users' posts. For this project, I implemented a like and dislike system using Django's many-to-many relationship. The like and dislike system allows users to like or dislike posts by clicking on buttons located on each post. To ensure that only authenticated users can like or dislike posts, I added authentication checks to the view.

To display the number of likes and dislikes on each post, I added a count to the post model that is updated every time a user likes or dislikes a post. I also added notification functionality to the like and dislike system so that users can receive notifications when someone likes or dislikes their posts.



Fig 6. 13 Feature of liking and disliking the post

## 6.8. USER SEARCH:

User search is an important feature of any social networking application as it allows users to find other users with similar interests or common connections. For this project, I implemented a user search feature using Django's search query capabilities. The user search feature allows users to search for other users by username or name. To enable this feature, I created a search view that takes a query parameter and returns a list of users that match the query.

To improve the search results, I added a weighting system that assigns a higher weight to users whose usernames or names match the query exactly. I also added pagination functionality to the search results so that only a limited number of results are displayed on each page.



Fig 6. 14 User Profile Search page of Network-X

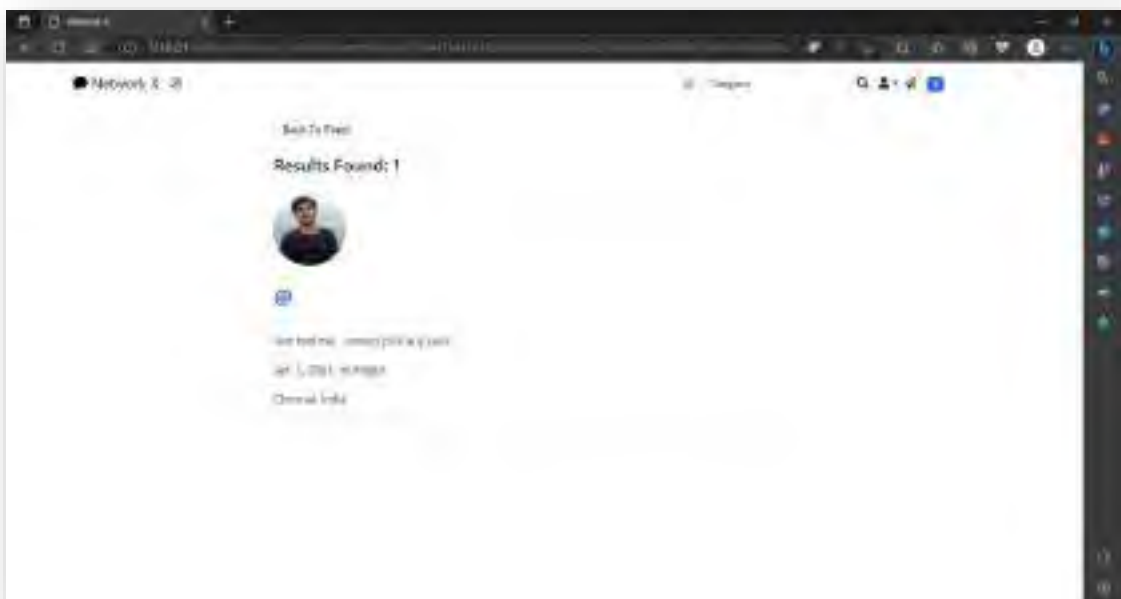


Fig 6. 15 User Profile search list page of Network-X

## 6.9. REPLYING TO COMMENTS:

In the social networking application, users can comment on posts and reply to comments. The replies are displayed in a threaded format, making it easy for users to follow the conversation. When a user clicks on the "Reply" button under a comment, a text box appears where they can type their reply. Once submitted, the reply is displayed below the comment it was in response to, with a clear visual indication that it is a reply. To implement this feature, a new model was created for comments, which includes a foreign key to the post it

belongs to, as well as a foreign key to the user who posted the comment. A reply field was also added to the comment model, which is used to store the ID of the comment that the reply is in response to. This allows for easy retrieval of all replies to a specific comment.

To display the replies, a recursive function was used to retrieve all replies to a specific comment and display them in a threaded format. The function starts by retrieving all replies to the initial comment and displaying them, and then recursively calls itself for each reply to display all replies to the replies.



Fig 6. 16 Feature of commenting on a comment

## 6.10. USER NOTIFICATIONS:

The social networking application includes a notification system to keep users informed of activity related to their account. Notifications are generated when a user receives a new follower, a new comment is posted on their post, or their post receives a new like. When a user logs into the application, they are directed to their notification page, where they can see a list of all notifications they have received. The notifications are displayed in reverse chronological order, with the most recent notification appearing at the top. Each notification includes a brief description of the activity that generated the notification, as well as a timestamp indicating when the activity occurred.

To implement this feature, a notification model was created, which includes a foreign key to the user who received the notification, as well as fields for the type of notification (follower, comment, or like), the ID of the object that generated the notification (e.g. the post ID for a comment or like), and a timestamp. When a new follower, comment, or like is added to the system, a new notification is created and stored in the database.



Fig 6. 17 Feature of sending user notifications

### 6.11. ADDING IMAGES TO POSTS:

Users of the social networking application can add images to their posts to make them more engaging and visually appealing. When a user creates a new post, they can upload an image from their device or choose an image from their existing media library. The image is then displayed alongside the post on the social feed.

To implement this feature, a new model was created for posts, which includes a field for the image URL. When a user creates a new post and uploads an image, the image is saved to a designated media folder and the URL of the image is stored in the post model. When the post is displayed on the social feed, the image is retrieved from the URL and displayed alongside the post.

### 6.12. DIRECT MESSAGING FEATURE (DMS):

The direct messaging feature allows users to communicate with each other privately through the application. This feature is important because it provides a more personal way for users to interact with each other and can facilitate stronger relationships between users. To implement this feature, a messaging model was created to store the messages exchanged between users. The model includes fields such as the sender, recipient, message content, and timestamp. The messaging model was then integrated with Django's built-in authentication system to ensure that only authenticated users can send and receive messages. To use the direct messaging feature, users can navigate to the messaging section of the application and select the user they wish to message. The messaging interface allows users to view their message history, compose new messages, and delete messages.

Overall, the direct messaging feature is an important component of any social networking application as it allows users to communicate more intimately and build stronger connections with each other.



Fig 6. 18 Creating a new conversion thread



Fig 6. 19 Inbox page of Network-X



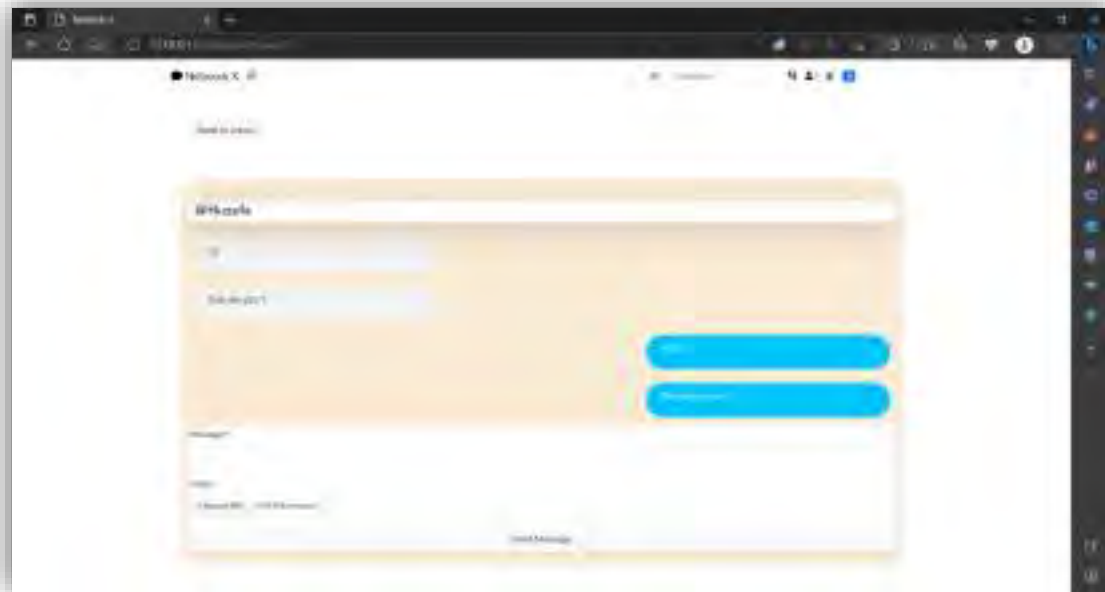


Fig 6. 20 Personal DM page of Network-X

### 6.13. UPLOADING MULTIPLE IMAGES:

The ability to upload multiple images to a post is an important feature of any social networking application as it allows users to share more diverse and engaging content with their followers. To implement this feature, a model for image uploads was created that allows users to upload multiple images to a single post. In addition to the image upload model, the application also includes a feature for displaying the uploaded images in a visually appealing way. The images are displayed in a grid layout, with the ability to click on individual images to view them in a larger format. The process for uploading multiple images is simple and intuitive. Users can select multiple images from their device and upload them to a post. Once uploaded, the images are displayed in the grid layout for all users to see.



Fig 6. 21 Feature of uploading multiple images in a single post

Overall, the ability to upload multiple images is an important feature of any social networking application as

it allows users to share more engaging and diverse content with their followers.

#### 6.14. TAGS:

The ability to upload multiple images to a post is an important feature of any social networking application as it allows users to share more diverse and engaging content with their followers. To implement this feature, a model for image uploads was created that allows users to upload multiple images to a single post.

In addition to the image upload model, the application also includes a feature for displaying the uploaded images in a visually appealing way. The images are displayed in a grid layout, with the ability to click on individual images to view them in a larger format. The process for uploading multiple images is simple and intuitive. Users can select multiple images from their device and upload them to a post. Once uploaded, the images are displayed in the grid layout for all users to see.

Overall, the ability to upload multiple images is an important feature of any social networking application as it allows users to share more engaging and diverse content with their followers.



Fig 6. 22 Feature of adding tags in post

#### 6.15. EXPLORE PAGE:

The explore page is a feature that allows users to discover new content and find new users to follow. It displays a collection of posts and profiles that are relevant to the user's interests and preferences. The explore page is designed to help users find new content that they may not have otherwise discovered, and it can be customized to suit each user's unique tastes.

To implement the explore page, we can use a recommendation algorithm that analyzes the user's activity on the platform, such as their likes, comments, and search queries. Based on this data, the algorithm can recommend posts and profiles that are similar to the user's interests. We can also use tags and categories to organize the content on the explore page and make it easier for users to find what they are looking for.



Fig 6. 23 Explore page of Network-X

### 6.16. FINAL COMMENDATION THROUGH THE PROJECT:

The final commendation is an important aspect of any project, as it provides an opportunity to summarize the key accomplishments and outcomes of the project. In the context of the social networking application, the final commendation can include a summary of the project's features and functionality, as well as any notable achievements or challenges that were overcome during the project.

To write a final commendation for the project, we can start by outlining the project's objectives and goals, and then highlight the key features and functionality that were implemented to meet those objectives. We can also include any notable achievements, such as completing the project within the allotted timeframe or overcoming any technical challenges that arose during development.



Fig 6. 24 Final commenting of the code

### 6.17. FINAL STYLING THROUGH THE PROJECT:

The final styling of the social networking application is an important aspect of the project, as it affects the overall user experience and perception of the platform. The final styling should be visually appealing, easy to use, and consistent throughout the platform.

To achieve a cohesive and visually appealing design, we can use a style guide that outlines the color scheme, typography, and layout of the platform. We can also use design tools such as Sketch or Adobe XD to create wireframes and mockups of the platform, and test them with users to ensure that the design is effective and user-friendly.



Fig 6. 25 Final styling of the project

### 6.18. DEPLOYED MY PROJECT ON HEROKU:

Deploying the social networking application on a cloud platform such as Heroku allows users to access the platform from anywhere with an internet connection. Heroku provides a simple and scalable platform for hosting web applications, and it includes a range of features such as automated scaling, continuous deployment, and easy integration with other services.

To deploy the application on Heroku, we can use a platform as a service (PaaS) provider such as Heroku, which allows us to easily deploy, manage, and scale the application in the cloud. We can also use tools such as Git and GitHub to version control the application code and deploy it to Heroku using a continuous integration/continuous deployment (CI/CD) pipeline. This ensures that any changes to the application code are automatically deployed to the production environment, without requiring manual intervention or downtime.

## CHAPTER 7: CONCLUSION

### 7.1. OVERALL ANALYSIS OF INTERNSHIP

My internship as a Python Django developer has been a valuable learning experience that has equipped me with practical skills and knowledge in web development. Throughout the internship, I was able to work on a social networking application project that helped me to apply the concepts and techniques that I learned in a real-world scenario. During the internship, I was able to develop my skills in Python, Django, and web development in general. I learned how to develop a scalable and secure web application that meets the needs and requirements of users. I also learned how to work in a team and collaborate effectively with other developers and stakeholders to achieve project goals.

One of the key takeaways from my internship was the importance of project management and planning. I learned how to break down a project into smaller tasks and create a roadmap for development that helps to keep the project on track and within the timeline. This was essential in ensuring that the social networking application project was completed within the stipulated timeframe. Another important lesson that I learned during the internship was the value of collaboration and communication. Working in a team requires effective communication to ensure that everyone is on the same page and that the project is moving forward as expected. This was important in ensuring that the different features and functionalities of the social networking application were integrated seamlessly and that the final product was of high quality.

Overall, my internship as a Python Django developer was a valuable learning experience that has equipped me with practical skills and knowledge in web development. I was able to apply the concepts and techniques that I learned in a real-world scenario and develop a social networking application that meets the needs and requirements of users. I also learned valuable lessons in project management, collaboration, and communication that will be useful in my future career as a web developer. Moving forward, I intend to continue building on the skills and knowledge that I gained during the internship and to further develop my expertise in Python, Django, and web development. I believe that this experience has prepared me well for future challenges and opportunities in the field of web development, and I am excited to continue growing and learning in this dynamic and exciting field.

### 7.2. PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS

During the development of the social networking application project, we encountered several problems that required innovative solutions to overcome. Some of the major problems and the possible solutions that we employed are discussed below:

#### 7.2.1. Scalability issues:

As the number of users and posts increased, we noticed that the application's performance was slowing down. This was a significant challenge as it could potentially lead to poor user experience and reduced engagement. To address this, we implemented caching mechanisms and optimized the database queries to improve the application's performance.

#### 7.2.2. Security vulnerabilities:

Web applications are susceptible to security threats, such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF). To mitigate these vulnerabilities, we implemented security measures such as input validation, user authentication, and password hashing.

### 7.2.3. User experience issues:

One of the key requirements of the social networking application was to provide a seamless and intuitive user experience. We noticed that some users were having difficulty navigating the application and performing certain tasks. To address this, we conducted user testing and incorporated feedback to improve the application's usability and user experience.

### 7.2.4. Integration issues:

As the application grew in complexity, we encountered integration issues with some of the third-party services and APIs that we were using. To resolve these issues, we reviewed the integration documentation and worked closely with the service providers to ensure that the application was functioning as expected.

### 7.2.5. Deployment issues:

Deploying web applications can be a challenging process, especially when dealing with dependencies and infrastructure configurations. To overcome these challenges, we utilized continuous integration and deployment (CI/CD) tools to automate the deployment process and ensure that the application was deployed consistently across all environments.

In summary, the development of the social networking application project was not without its challenges. However, through innovative solutions and collaboration, we were able to overcome these challenges and deliver a high-quality product that met the needs and requirements of our users.

## 7.3. SUMMARY OF INTERNSHIP

In summary, the internship as a Python Django developer was an enriching and valuable experience. During the three-month internship, I had the opportunity to work on a real-world project and apply the skills and knowledge that I had acquired in my coursework. Throughout the project, I was exposed to various aspects of web development, including front-end and back-end development, database management, and deployment. I also gained hands-on experience with popular tools and frameworks such as HTML, CSS, JavaScript, Django, and Git.

One of the highlights of the internship was the opportunity to work in a team setting, collaborate with other developers, and share knowledge and ideas. This experience was crucial in helping me develop effective communication, problem-solving, and project management skills.

Overall, the internship provided me with a deeper understanding of web development and its practical applications. It also helped me develop key technical and soft skills that will be invaluable in my future career as a software developer. I am grateful for the opportunity and look forward to applying the lessons and experiences from this internship in my future endeavours.

## 7.4. LIMITATIONS AND FUTURE ENHANCEMENTS

During the development of the social networking application, we encountered several limitations and areas that could be improved upon. Some of these limitations and possible future enhancements include:

1. **Scalability:** While we implemented caching mechanisms and optimized the database queries to improve the application's performance, there is still room for improvement in terms of scalability. One potential enhancement is to implement horizontal scaling by distributing the workload across multiple servers.
2. **User engagement:** While the application's features are designed to promote user engagement, there is still room for improvement in terms of user engagement. One possible enhancement is to incorporate gamification elements such as badges, points, and leader boards to incentivize users to engage with the application.

3. **User experience:** While we conducted user testing and incorporated feedback to improve the application's usability and user experience, there are still areas that can be improved. One possible enhancement is to conduct further user research and incorporate user feedback to further enhance the application's user experience.
4. **Accessibility:** While we aimed to design the application to be accessible to a wide range of users, there may still be areas that can be improved in terms of accessibility. One possible enhancement is to conduct an accessibility audit and make any necessary improvements to ensure that the application is accessible to all users.
5. **Mobile optimization:** While the application is responsive and can be accessed on mobile devices, there is still room for improvement in terms of mobile optimization. One possible enhancement is to design a dedicated mobile application that is optimized for mobile devices.

In summary, while the social networking application project was a success, there are still areas that can be improved upon to further enhance the application's functionality, user engagement, and accessibility. By implementing these enhancements, we can continue to provide users with a high-quality and engaging social networking experience.

# **BHARAT INTERN**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Jaimin Prakash Patel**

**200390107017**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



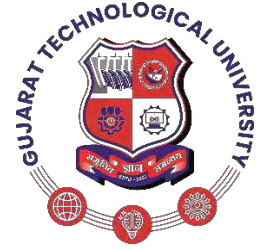
**Gujarat Technological University, Ahmedabad**

**May, 2023**





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at BHARAT INTERN** has been carried out by **Jaimin Prakash Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. First Name Last Name

Prof. Akshay Kansara

Internal Guide

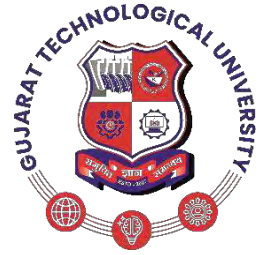
Head of Department

## Company Certificate





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **BHARAT INTERN** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. FirstName LastName & FirstName LastName (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**1. Jaimin Prakash Patel**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would like to take this opportunity to express my sincere gratitude and appreciation to all those who have supported and guided me throughout my enriching internship experience in Web Development at Bharat Intern. This internship has been an invaluable learning journey, and I extend my heartfelt thanks to the following entities for their contributions:

Bharat Intern:

I extend my gratitude to Bharat Intern for providing me with the opportunity to intern and gain hands-on experience in real-world Web Development projects. The exposure to diverse projects and challenges has significantly contributed to my growth as a Frontend developer.

Saffrony Institute of Technology:

I am grateful to Saffrony Institute of Technology for providing me with the foundational knowledge and skills that have enabled me to contribute effectively to the frontend development projects during my internship.

This internship experience has provided me with invaluable insights into frontend development, improved my coding skills, and ignited my passion for creating dynamic and user-friendly web interfaces. The collective support and guidance from all quarters have truly been the cornerstone of my success during this journey.

Jaimin Patel

Enrollment ID: 200390107017

## Abstract

This report contains the work done by the author during his internship at ***BHARAT INTERN***. It shows the work I did in the company during my internship period. In the report, the author discusses the process of developing the website. The author also discusses the language using for developing the website and the variables are include in languages. It also explains what the author learned during this internship period.

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## Abbreviations

HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
JS	Java Script
Const	Constant variable

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# Chapter 1. PORTFOLIO WEBSITE

## 1.1 INTRODUCTION OF TASK 1:

In the modern digital era, a portfolio website stands as a dynamic and powerful tool for individuals and professionals to present their skills, accomplishments, and personality to a global audience. This virtual platform serves as a captivating window into an individual's or a company's achievements, providing a comprehensive showcase of their work, expertise, and aspirations.

A portfolio website is a meticulously curated digital portfolio that combines the artistry of design and the technical prowess of web development. It is a digital canvas where creators can express their identity, values, and talents through an engaging fusion of visuals, content, and interactivity.

### 1.1.1 Objective:

The objective of a portfolio website is to showcase your skills, accomplishments, and personal brand in a compelling and accessible manner. It serves as a dynamic online representation of your professional identity, enabling you to achieve a range of goals:

- Display your work
- Networking,
- Learning and growth
- Adaptability.

## 1.2 HOW TO IMPLEMENT?

Creation of a portfolio website, designed using HTML and CSS, which offers an insightful and engaging narrative about the background, achievements, and aspirations. By harnessing the potential of HTML, CSS, a portfolio website transcends mere information dissemination, transforming into an immersive experience that captivates visitors and leaves a lasting impression.

### 1.2.1 HTML(Hyper Text Markup Language):

HTML is the fundamental language that empowers us to craft and shape the digital landscape, providing the structural foundation upon which the captivating visuals, interactive elements, and boundless information of the internet are built. HTML is a markup language, a system of tags and elements that bring structure and meaning to the content within a web page. It is often assisted by technologies such as Cascading Style Sheets.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics

for text such as headings, paragraphs, lists, links, quotes, and other items. HTML elements are delineated by tags, written using angle brackets(<html>).

HTML5 being the most recent and widely used iteration. HTML5 introduced many new features and capabilities, including support for multimedia elements without the need for plugins, improved forms, and the ability to create more interactive and dynamic web experiences through the use of JavaScript and CSS (Cascading Style Sheets).

In summary, HTML is the fundamental language that shapes the content and structure of web pages, providing the building blocks for creating visually appealing, interactive, and information-rich websites.

HTML tags are the fundamental building blocks of HTML documents. They are used to define the structure and elements within a web page. Each tag consists of an opening tag, content, and a closing tag, enclosed within angle brackets (<>). The opening tag indicates the beginning of an element, and the closing tag indicates its end. Some HTML tags, however, are self-closing and don't require a separate closing tag.

### **1.2.2 CSS(Cascading Style Sheet):**

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is designed to enable the separation of content and presentation, including layout, colors, and fonts.[3] This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file.

CSS allows web developers and designers to control various aspects of the visual design, such as:

- Styling
- Layout
- Responsive Design
- Animation and Transition
- Flexibility
- Separation and Concerns.

CSS operates through a set of rules, each consisting of a selector and a declaration block. The selector targets specific HTML elements, and the declaration block contains one or more property-value pairs that define how the targeted elements should be styled.

CSS can be included in an HTML document through internal <style> elements, inline styles directly within HTML tags, or external CSS files linked to the HTML document. The latter approach is the most common and allows for better organization and reusability of styles across multiple pages.

Overall, CSS is a powerful tool that plays a crucial role in creating visually appealing and user-friendly web experiences, allowing developers and designers to bring their creative visions to life on the web.



Fig 1.1

## 1.3 OUTPUT:

### 1.3.1 Home Page:

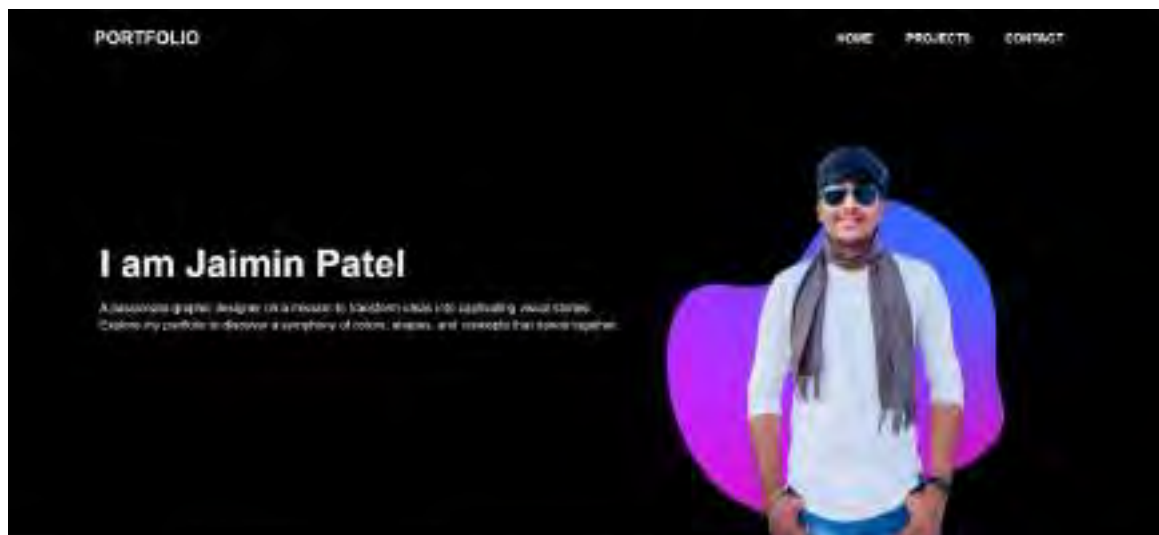


Fig 1.2

### 1.3.2 Project Page:



Fig 1.3

### 1.3.3 Contact Us Page:

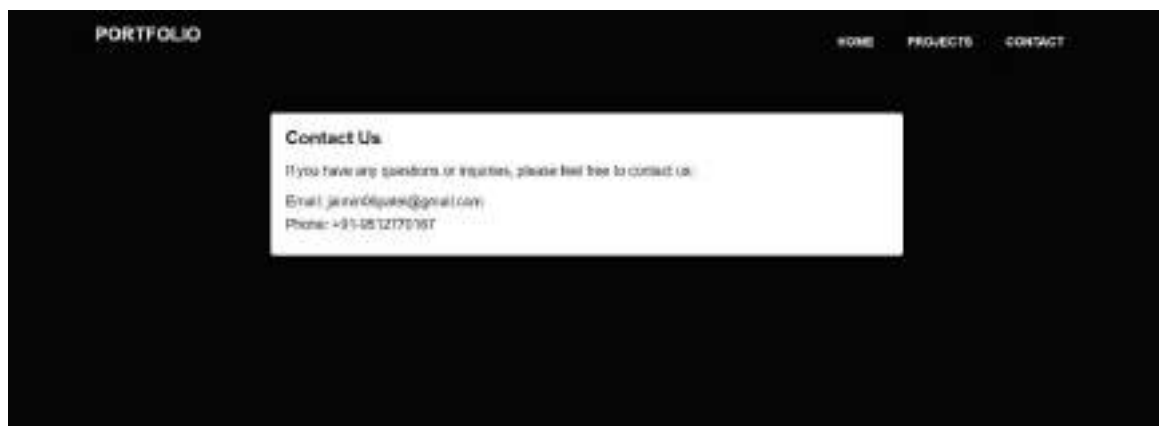


Fig 1.4

## **Chapter 2. TEMPERATURE CONVERTER(CEL-FAH, FAH-CEL)**

### **2.1 INTRODUCTION OF TASK 2:**

The Temperature Converter is a practical digital tool that simplifies the process of translating temperatures from one scale to another. This intuitive web-based application, crafted using HTML, CSS, and JavaScript, empowers users to effortlessly switch between Celsius and Fahrenheit scales with real-time calculations.

Harnessing the capabilities of modern web development, the Temperature Converter offers a user-friendly interface, enhancing convenience and accuracy for anyone seeking to bridge the gap between temperature metrics.

#### **2.1.1 Objective:**

The primary objective of the Temperature Converter project is to create a user-friendly and efficient web-based tool that enables seamless conversion between Celsius and Fahrenheit temperature scales. The key goals include:

- Accuracy and real time conversion
- User friendly interface
- Responsive Design
- Interactive Functionality
- Educational Value

### **2.2 HOW TO IMPLEMENT ?**

Built using HTML, CSS, and JavaScript, this tool provides an intuitive interface where users can input a temperature value in either scale and instantly receive the equivalent measurement in the other unit. The real-time conversion process enhances accuracy and convenience, making it an ideal solution for quick temperature translations without the need for manual calculations.

#### **2.2.1 HTML(Hyper Text Markup Language):**

In this we used the form tag of HTML. The <form> tag in HTML is a fundamental element used to create interactive and user-friendly web forms. It serves as a container for various input fields, buttons, checkboxes, radio buttons, and other form elements, allowing users to submit data to a server for processing. It is often assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript.

### 2.2.2 CSS(Cascading Style Sheet):

CSS Transitions are a powerful feature that allows you to smoothly animate changes in CSS properties over a specified duration. They enable you to create visually appealing and interactive effects on web elements, enhancing user experience and adding a sense of fluidity to your website. Flexbox is designed to provide an efficient way to arrange, distribute, and align elements within a container, especially when dealing with complex layout designs and responsive web development.

### 2.2.3 JS(Java Script):

JavaScript (JS) is widely-used programming language that plays a central role in web development. Initially created to enhance interactivity and dynamic behavior on web pages, JavaScript has evolved into a powerful, general-purpose programming language that can be used for a variety of applications beyond the web. It is an integral part of modern web development and is supported by all major web browsers, making it an essential tool for creating interactive and engaging user experiences.

‘const’ keyword is used to declare a constant variable. A constant is a variable whose value cannot be reassigned after it is initially assigned. It provides a way to create read-only variables, ensuring that their values remain unchanged throughout the program's execution.

Key points about JavaScript include:

- Client-Side Scripting
- Dynamic Manipulation
- Versatility
- Libraries and Frameworks
- Asynchronous Programming
- Security

JavaScript is a fundamental programming language for web development, enabling developers to create interactive and dynamic web applications that enhance user experience and provide a wide range of functionality.

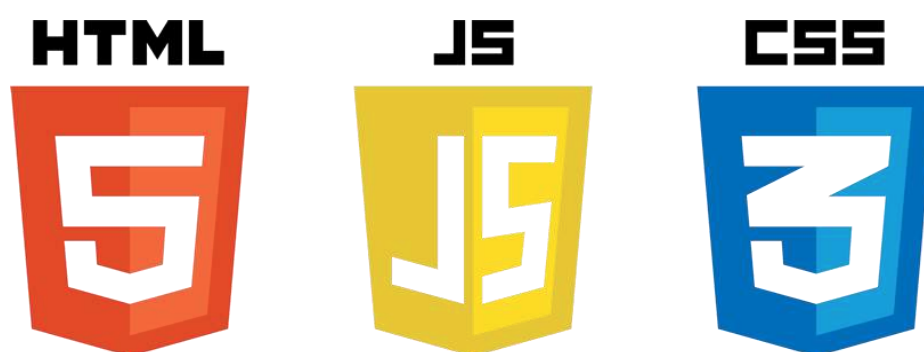


Fig 2.1

## 2.3 OUTPUT:

### 2.3.1 Home Page:



The image shows a web form for temperature conversion. The form is centered on a light blue background. It has a title "Enter the Temperature to convert". Below the title, there is a text input field containing the number "100" and a dropdown menu currently set to "°Celsius". Below these fields is a "Submit" button. Below the button, the output is displayed as "212.0° Fahrenheit".

Fig 2.2

## Chapter 3. COMPANY DETAILS

### 3.1 INTRODUCTION:

Bharat Intern is a tech company offering students internships in various domains. Domains Offered: Web development Basic. Android Apps development. Bharat Intern believe that starting strong is the key to success. Bharat Intern dedicated to providing college students with the skills, experience, and knowledge they need to launch their careers and achieve their goals. Internship programs are designed to help students start strong and finish even stronger, so students can stand out in the competitive job market and achieve their dreams.

Whether students are just starting their journey or looking to take the next step in your career, our internship programs can help students to get there.

Our goal is to empower the next generation of tech leaders. Our internship program offers hands-on experience in different fields such as Web Development, Android Development, Machine Learning, Full Stack Web Development, Data Science.

Connects students with internships: Bharat Intern connects students with internships in a variety of fields. This gives students the opportunity to gain experience, skills, and a network.

Gives students experience, skills, and a network: Internships can give students valuable experience in their field. They can also help students develop new skills and build a network.

Is a great way to start your career: Internships can be a great way to start your career. They can help you gain experience, skills, and a network that can help you land your first job.



Fig 3.1



# APPENDIX

## 1- OFFER LETTER



# **INTERNSHIP REPORT**

*Submitted by*

**Janu Patel**

**200390107058**

**Computer Engineering**

**Summer Internship at**

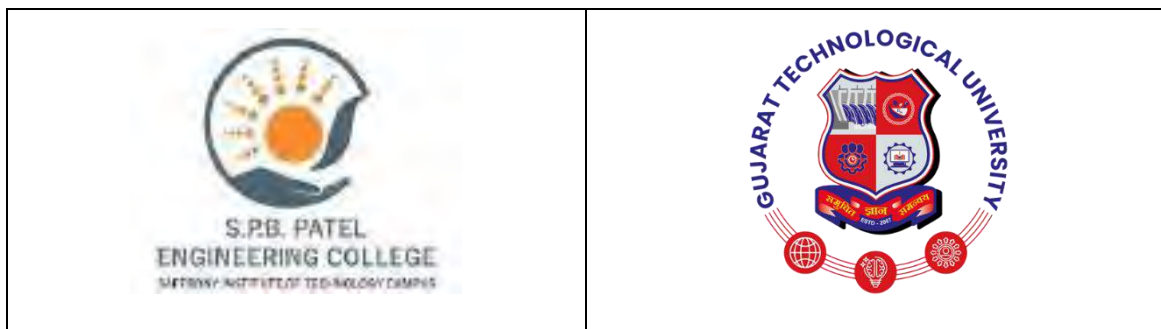
**CreArt Solutions PVT LTD.**

**during**

**27-07-2023 to 10-08-2023**

**S.P.B Patel Engineering College**

**Saffrony Institute of Technology, Mehsana**



**Gujarat Technological University, Ahmedabad**

**August 2023**

# INTERNSHIP CERTIFICATE



## INTERNSHIP COMPLETION LETTER

Date: 10<sup>th</sup> August 2023

This is to certify that

Mr/Ms. Jinu Patel  
Enrollment No : 200390107058  
College : Saffron Institute of Technology

has successfully completed the 15 days of summer internship (from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023) at  
| Codify Solution, Ahmedabad.

We wish him/her all the best for his future endeavours.



Jaydeep Chikhaliya  
Director

### **Codify Solution**

202, Heritage Horizon, Opp Hotel Dev Corporate, C. G. Road,  
Ahmedabad, Gujarat, India - 380009  
[www.codifysolutions.com](http://www.codifysolutions.com) | [hello@codifysolutions.com](mailto:hello@codifysolutions.com)

# **ACKNOWLEDGEMENT**

The internship opportunity I had with CreArt was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be a part of it. I am also grateful for having a chance to meet so many wonderful people and professionals who led me through this internship period.

Bearing in mind previous I am using this opportunity to express my deepest gratitude and special thanks to the Mentor of CreArt who in spite of being extraordinarily busy with his duties, took time out to hear, guide and keep me on the correct path and allowing me to carry out my project at their esteemed organization and extending during the training.

I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objectives. Hope to continue cooperation with all of you in the future.

# **ABSTRACT**

This report is describing the work I completed as a Computer Engineering intern at CreArt during July-August of 2023. It provides an overview of the company; an overview of my role and the projects I worked on at the company. The report presents the project completed during internship at CreArt Which is “Real time API integration in web pages using Django framework”. This project has been completed successfully and result was according to expectations. And all the Circuits are tested and working to our expectations.

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# **Chapter-1 About the company**

## **1.1 Introduction**

CreArt is a privately owned venture of IT Solutions, IT Consultants and Corporate Training formed in 2013. the strong collaboration between design, development, and delivering services on time, which benefits not only clients but also communities in which the projects are implemented.

We are involved in UI/IUX Design, Web/CMS/Shopify Development Mobile App Development, SEO & social media, AR/VR development, AI & Machine Learning. We strongly believe in delivering the best services to the clients till their satisfaction.

Our main objective is to provide professional, qualitative, innovative and accessible services in every possible form.

We always aspire to create resistant future. We believe in bringing Business, People and Technology together in the way forward. We are a professional and highly dedicated group of skilled experts. To provide quality to our clients, we work in active environment and follow best practices.

CreArt is focused on rigorous development and comprehensive quality.

## Chapter-2 Overview of the Python

### 2.1. Getting Started with Python

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.

It is used for:

- web development (server-side),
- software development,
- mathematics,
- system scripting.

#### What can Python do?

- Python can be used on a server to create web applications.
- Python can be used alongside software to create workflows.
- Python can connect to database systems. It can also read and modify files.
- Python can be used to handle big data and perform complex mathematics.
- Python can be used for rapid prototyping, or for production-ready software development.

#### Why Python?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.).
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way or a functional way.



## Chapter-3 Overview of the Django

### 3.1. Django Introduction

Python Django is a web framework that allows users to quickly create efficient web pages. Django is also called batteries included framework because it provides built-in features such as Django Admin Interface, default database – SQLite3, etc. When you're building a website, you always need a similar set of components: a way to handle user authentication (signing up, signing in, signing out), a management panel for your website, forms, a way to upload files, etc. Django gives you ready-made components to use.

#### Ridiculously fast

- Django was designed to help developers take applications from concept to completion as quickly as possible.

#### Reassuringly secure

- Django takes security seriously and helps developers avoid many common security mistakes. Its user authentication system provides a secure way to manage user accounts and passwords.

#### Exceedingly scalable

- Some of the busiest sites on the web leverage Django's ability to quickly and flexibly scale to meet the heaviest traffic demands.

#### How does Django Work?

Django follows the MVT design pattern (Model View Template).

- **Model** - The data you want to present, usually data from a database.
- **View** - A request handler that returns the relevant template and content - based on the request from the user.
- **Template** - A text file (like an HTML file) containing the layout of the web page, with logic on how to display the data.

### 3.2. Install Django

**Step 1:** Add web framework

**Step 2:** Properly install or not

**Step 3:** Create Django project

**Step 4:** Run Django project



### 3.3. Create Superuser

Django provides us Admin Panel for it's users. So, we need not worry about creating a separate Admin page or providing authentication feature as Django provides us that feature. Before using this feature, you must have migrated your project, otherwise the superuser database will not be created.

**Step 1:** For creating superuser, first reach the same directory as that of manage.py and run the following command:

**Step 2:** Now we can login into our Django Admin page by running the command `python manage.py runserver`.



**Step 3:** Now we can see our admin home page.



### 3.4. Create App

**Step 1:** I will name my app new.

Django creates a folder named new in my project, with this content:

**Step 2:** Specify the app in to the myproject → myadmin

**Step 3:** Specify the app in to the myproject → customer

### 3.5. Create Models

A Django model is the built-in feature that Django uses to create tables, their fields, and various constraints. In short, Django Models is the SQL of Database one uses with Django. SQL (Structured Query Language) is complex and involves a lot of different queries for creating, deleting, updating or any other stuff related to database. Django models simplify the tasks and organize tables into models. Generally, each model maps to a single database table. We can use the admin panel of Django to create, update, delete or retrieve field of a model and various similar operations. Django models provide simplicity, consistency, version control and advanced metadata handling.

**Step 1:** Create models in your app.

**Step 2:** Now write code in models.py file.

```
1 from django.db import models
2
3 class Notice(models.Model):
4     subject = models.CharField(max_length=155)
5     description = models.TextField()
6     created_at = models.DateTimeField(auto_now_add=True)
7     updated_at = models.DateTimeField(auto_now=True)
8
9
10
```

## Chapter-4 Working of the Project

### 4.1. Project Definition

This project is aimed at developing a website which integrates the data from the real time API, using Python, Django, Html, CSS, Bootstrap for displaying the news.

### 4.2. Create App

**Step 1:** I will name my app new.

Django creates a folder named new in my project, with this content:

**Step 2:** Specify the app in to the myproject → myadmin

**Step 3:** Specify the app in to the myproject → customer

```
34 INSTALLED_APPS = [  
35     'django.contrib.admin',  
36     'django.contrib.auth',  
37     'django.contrib.contenttypes',  
38     'django.contrib.sessions',  
39     'django.contrib.messages',  
40     'django.contrib.staticfiles',  
41     'myadmin',  
42     'user',  
43 ]  
44
```

### 4.3. Django Views

A view function is a Python function that takes a Web request and returns a Web response. This response can be the HTML contents of a Web page, or a redirect, or a 404 error, or an XML document, or an image, anything that a web browser can display. Django views are part of the user interface; they usually render the HTML/CSS/Javascript in your Template files into what you see in your browser when you render a web page.

## Step 1: Make a web page using HTML.

```
1 <!-- load static files -->
2 <link rel="stylesheet" href="{% static 'css/style.css' %}" -->
3 </link>
4 <title>All Notices</title>
5 <div class="container">
6   <div class="header">
7     <h2 style="text-align:center">Web App</h2>
8   </div>
9   <div class="content">
10    <div class="text">
11      <h3 style="text-align:center">All Notices</h3>
12    </div>
13    <div class="list">
14      <ul style="list-style-type:none">
15        <li>{{ notice.title }}</li>
16        <li>{{ notice.description }}</li>
17        <li>Created At : {{ notice.created_at }}</li>
18        <li>Updated At : {{ notice.updated_at }}</li>
19      </ul>
20    </div>
21  </div>
22 </div>
23 <div class="footer">
24   <div class="text">
25     <p style="text-align:center">© Copyright 2024</p>
26   </div>
27 </div>
28 </div>
```

## Step 2: Create the view in the app.

```
1 from django.shortcuts import render
2 from django.http import HttpResponse
3 from myadmin.models import Notice
4
5 def all_notices(request):
6     allnotices = Notice.objects.all()
7     context = {'result':allnotices}
8     return render(request, 'user/notice.html',context)
```

## Types of Views:

Django views are divided into two major categories:-

- Function-Based Views
- Class-Based Views

### Function-Based Views

Function-based views are written using a function in python which receives as an argument HttpRequest object and returns an HttpResponse Object. Function-based views are generally divided into 4 basic strategies, i.e., CRUD (Create, Retrieve, Update, Delete). CRUD is the base of any framework one is using for development.

### Class-Based Views

Class-based views provide an alternative way to implement views as Python objects instead of functions. They do not replace function-based views, but have certain differences and advantages when compared to function-based views:

- Organization of code related to specific HTTP methods (GET, POST, etc.) can be addressed by separate methods instead of conditional branching.
- Object-oriented techniques such as mixins (multiple inheritances) can be used to factor code into reusable components.

#### 4.4. Django URL Patterns

In Django, each view needs to be mapped to a corresponding URL pattern. This is done via a Python module called URLConf(URL configuration). Every URLConf module must contain a variable `urlpatterns` which is a set of URL patterns to be matched against the requested URL. These patterns will be checked in sequence until the first match is found. Then the view corresponding to the first match is invoked. If no URL pattern matches, Django invokes an appropriate error handling view.

**Step 1:** Add the path to the app `newapp\urls.py`.

```

1
2 URL configuration for newapp project.
3
4 Theurlpatterns list routes URLs to views. It's generally accepted to
5
6 urlpatterns
7 urlpatterns = [
8     1. Add an import: from django.urls import path
9     2. Add a URL to urlpatterns: path('', views.home, name='home')
10
11 urlpatterns
12     1. Add an import: from django.urls import path
13     2. Add a URL to urlpatterns: path('', views.home, name='home')
14
15 urlpatterns
16     1. Import the include() function: from django.urls import include, path
17     2. Add a URL to urlpatterns: path('', include('django.contrib.admin'))
18
19
20 urlpatterns = [
21     path('admin/', admin.site.urls),
22     path('user/', include('user.urls')),
23 ]
24

```

**Step 2:** Add the url to the project `CreArt\urls.py`.

```

1 from django.contrib import admin
2 from django.urls import path, include
3 from user import views
4
5 urlpatterns = [
6     path('notice', views.all_notices, name='notice')
7 ]

```

## 4.5. Build website

**Step 1:** Create model App and apply command.

```
(VE) C:\Users\DELL\Desktop\SI-DJ\myproject>python manage.py startapp myadmin
(VE) C:\Users\DELL\Desktop\SI-DJ\myproject>python manage.py startapp customer
```

**Step 2:** Make Migration command.

```
1 from django.db import migrations, models
2
3 class Migration(migrations.Migration):
4
5     initial = True
6
7     dependencies = [
8
9     ]
10
11     operations = [
12         migrations.CreateModel(
13             name='Notice',
14             fields=[
15                 ('id', models.BigAutoField(auto_created=True, primary_key=True, serialize=False, verbose_name='ID')),
16                 ('subject', models.CharField(max_length=255)),
17                 ('description', models.TextField()),
18                 ('created_at', models.DateTimeField(auto_now_add=True)),
19                 ('updated_at', models.DateTimeField(auto_now=True)),
20             ],
21         ),
22     ]
```

**Step 3:** Create admin panel.

```
1 from django.contrib import admin
2 from myadmin.models import Notice
3
4 admin.site.site_header = 'Notice Hub Web App'
5 admin.site.index_title = 'My Admin Panel'
6 class NoticeAdmin(admin.ModelAdmin):
7     list_display = ['id', 'subject', 'description', 'created_at', 'updated_at']
8
9 admin.site.register(Notice, NoticeAdmin)
```





## Output:



## CONCLUSION:

In a nutshell, this internship has been an excellent and rewarding experience. I can conclude that there has been a lot I've learned from my work at CreArt. The technical aspects of my work are not flawless and could be improved provided enough time. As someone with no prior experience with Node.js whatsoever, I believe my time spent in research and discovering it was well worth it and contributed to finding an acceptable solution to build a fully functional web service. Two main things that I've learned the importance of are time-management skills and self-motivation.

## APPENDIX

# INTERNSHIP JOINING LETTER



Date: 27<sup>th</sup> July 2023

*This is to certify that*

Mr/Ms. Janu. Patel  
Enrollment No.: 200360107058  
College : Saffron Institute of Technology

has been selected for the 15 days of summer Internship from **27<sup>th</sup> July 2023** to **10<sup>th</sup> August 2023** at **CreArt Solutions, Ahmedabad**.

We wish him/her all the best for his future endeavors.



---

**Krishnemohan Gupta**  
Director

**CreArt Solutions PVT LTD.**  
202, Heritage Horizon, Dpo. Hotel Dev Corporate, CG Road,  
Ahmedabad, Gujarat, India - 380009  
[www.creart.in](http://www.creart.in) | [hr@creart.in](mailto:hr@creart.in) | **Office Locations:** INDIA | USA | DM

# **INTERNSHIP AT BINARY REPUBLIK**

**AN INTERNSHIP REPORT**

*Submitted by*

**Thakar Janvi Dineshbhai**

**190390107058**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Binary Republik** has been carried out by **Janvi Dineshbhai Thakar** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



Date: 05.05.2023

## Internship Completion Certificate

This is to certify that **Ms. Janvi Thakar** (Enrollment No: 190390107056) a student of BE - CE, Saffrony Institute of Technology, Mehsana has completed her onsite full-time internship at **Binary Republik**, South Dopal, Ahmedabad from 23<sup>rd</sup> January 2023 to 5<sup>th</sup> May 2023.

Please find the following detail regarding the project completed:

1	Project Title	User Management System (UMS)
2	Technology/Tools/Software	FrontEnd - Angular BackEnd - DotNet Core Web API DataBase - SQL Server
3	Mode of Internship	Onsite
4	Project Guide/Mentor	Mr. Jay Pankhania Sr. Software Developer jay.pankhania@binaryrepublik.com

During her internship with us we found her to be hard working, diligent and honest in performing her duties.

We wish her all the best for her future assignments.

With best wishes,

**Piyush Patel**  
Project Manager

**Binary Republik**

302, Gada Niwas, South Dopal, Ahmedabad - 380058, India

SEZ Villages, Sector-1, 1<sup>st</sup> Floor, Incubation Centre, Calica - IT/ITES - SEZ, Village Ognaj, Ahmedabad 380060

Phone: +91 (77) 238100 | info@binaryrepublik.com | www.binaryrepublik.com



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Binary Republik** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Chirag Parmar (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Janvi Dineshbhai Thakar**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I wish to express my sincere gratitude to our External guide Chirag Parmar for continuously guiding me at the company and answering all my doubts with patience. I would also like to thank my internal Guide Prof. Akshay Kansara for helping me through my internship by giving me the necessary suggestions and advice along with their valuable coordination in completing this internship.

In addition to that, I would also like to mention the company personnel who gave me the permission to use and experience the valuable resources required for the internship.

Thus, in conclusion to the above said, I once again thank the staff members of Binary Republik for their valuable support in completion of the project.

## **Abstract**

*The Time Reporting system is a project that aims to create a software tool to help businesses manage their time and attendance tracking. One of the modules of this project is the User Management System, which is a tool desi*

*The user management system module in a time reporting system is responsible for managing user accounts, roles, and permissions within the system.*

*It allows administrators to create, modify, and delete user accounts, assign roles and permissions to users, and monitor user activity. The module provides an interface for users to log in, reset their passwords, and manage their personal information.*

*It provides a secure and centralized repository for storing user data and simplifies the process of user onboarding and offboarding.*

*Additionally, the module facilitates user self-service functionalities such as password resets and profile updates, reducing the workload of the system administrator. The User Management System module ensures that the Time Reporting System is secure, compliant, and easy to manage, enhancing the overall user experience and system efficiency.*



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## **List of Abbreviations**

- HTML: Hyper Text Markup Language
- CSS: Cascading Style Sheet
- TS: Typescript
- JS: JavaScript
- UI: User Interface
- OOPs Object Oriented Programming
- SQL: Structured Query Language
- SRS: Software Requirement Specification

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# **Details Of Chapters**

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- 1.1 Overview Of Company
- 1.2 History of Company
- 1.3 Different product / scope of work
- 1.3 Organization chart
- 1.4 Capacity of company

## **2.0 Overview of Different Departments**

- 2.1 Workflow of the Department.
- 2.2 List of Technical Specification of tools
- 2.3 Sequence of operation For Manufacturing
- 2.4 Details About Each Stage of Production

## **3.0 Introduction to Internship**

- 3.1 Internship Summary
- 3.2 Purpose
- 3.3 Objective
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- 4.1 Project Definition
- 4.2 Project abstract
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## **7.0 Conclusion**

7.1 Summary of Internship

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## **8.0 References**

# **Chapter 1. Company's Background**

## **1.1 Overview Of Company:**

Binary Republik is a SharePoint consulting company helping Clients Globally for their SharePoint and Office 365 requirements.

We have been working in close collaboration with our clients and IT consultancy firms for their content management requirements, however large or small. Beginning with the very first version of Microsoft SharePoint, we have so far covered the entire spectrum of services possible around it's ecosystem; and have gradually built our services around various Content Management systems built on the Microsoft platform, such as – SiteCore, DNN, Umbraco and Sitefinity.

Our services include Strategic Consulting, global implementations, farm configurations, Health Checks, Social Collaboration, UX & Branding, SharePoint development & customization, SharePoint Workflow implementations, SharePoint BI, Public Facing Sites, Intranet/ Extranet Portals, Enterprise Search, 3rd Party product Integration, SharePoint upgrades, Migration to SharePoint (earlier versions/ legacy application), SharePoint Maintenance & Support.

Binary Republik begun its operations as a SharePoint consulting company when SharePoint was still in its nascent stage. We have seen this platform emerge to the position it enjoys today and have flourished alongside. With our years of experience and having covered the ground for services possible around SharePoint and having developed unique methodologies along its services we are best suited in bringing the best out of your investments in SharePoint.

## **1.2 History of Company:**

Binary Republik has been into business for 10+ years. We specialize in Enterprise Content Management – Intranets / Extranets, BI, Business Process Management and Mobility solutions using SharePoint, Office 365 Solutions and other Microsoft Solutions in the Eco system.

Majority of our clients are based out of North America and includes large Fortune 500 Enterprises (including Microsoft!). We help them with their solutions - beginning with Strategic or Architecture Phase, right till the UAT and Roll Out!

### 1.3 Different product / scope of work:

Our Company provide different services on SharePoint Consulting and Power BI Consulting Services.

Our services include Strategic Consulting, global implementations, farm configurations, Health Checks, Social Collaboration, UX & Branding, SharePoint development & customization, SharePoint Workflow implementations, SharePoint BI, Public Facing Sites, Intranet/ Extranet Portals, Enterprise Search, 3rd Party product Integration, SharePoint upgrades, Migration to SharePoint (earlier versions/ legacy application), SharePoint Maintenance & Support.

### 1.4 Organization chart:



## **1.5 Capacity of company:**

Binary Republik has a strong leadership team that provides strategic direction, fosters innovation, and promotes a culture of excellence. Its management practices are designed to promote transparency, collaboration, and employee empowerment, which help to build a cohesive and high-performing team.

The capacity of the Binary Republik has around 50-60 employees.



## **Chapter 2. Overview of Different Departments**

Our Company believes in full technical growth of employees. So, we have only one department as a development. Our all employees are full stack developers.

### **2.1 Workflow of Department**

As our company has only one department every developer has every skill so in our company, so teams are made based on projects. So, the basic workflow is according to the project team is made and in that team everyone is working on given task. In our team, the way we work is like, the client lists his requirements of the project by creating a task for us so that we can start working on the new task, complete the task, test it internally. We then give the updated code to the client and then client tests that task and gives feedback of that task.

### **2.2 List of Technical Specification of tools:**

- Visual Studio Code
- Git Hub
- Microsoft 365
- SQL Server
- Visual Studio
- Postman
- SharePoint online

### **2.3 Sequence of operation For Manufacturing**

1. Client Requirement
2. List of Proper information of Proper Requirement
3. Analyse Requirement
4. Prepare plans to implement
5. Implementation

6. Code Review
7. Testing
8. Delivering meaningful content

## **2.4 Details About Each Stage of Production**

### **1. Client Requirement:**

Client gives their requirement as a story. They give information about what they want. Then the story is divided into smaller modules and the modules if needed are divided into tasks.

### **2. List the Proper Information of Requirements:**

When the client adds a new story, we discuss it at length regarding their needs related to UI as well as backend. We then have a discussion with our team and in case of any queries, we can ask the client.

### **3. Analyse requirements:**

We internally discuss about the story of use cases and analyse the requirements and discuss about the story.

### **4. Prepare plans to implement:**

The non-technical things related to the story have already been discussed so now we discuss the technical things about the functionalities needed, whether the same type of functionality exists somewhere else so we can reuse it, the flow of the code etc.

### **5. Implementation:**

We are given the story according to its priority, and project manager assign tasks to the team members according to the skill set. Team member should work on the task, in case of any doubts the team member can always ask the project manager.

#### **6. Code Review:**

After completing the implementation, we upload the code and someone else from our team will review the code and comment if something is wrong or it can be implemented in an efficient manner, so we have to complete that code review changes in the story.

#### **7. Testing:**

After our code review is done they test and evaluate the updated code and makes sure that in any of the test cases our code doesn't break or hinder the performance.

#### **8. Delivering meaningful content:**

After successfully completing the given story, we are update that story on client-side site so that client can see that story functionality and he checks working of the given story and approve the story if it is working fine.

## Chapter 3. Introduction to Internship

### 3.1 Internship Summary

I was an intern at Binary Republik now, this opportunity was presented by the placement cell of our college. We can differentiate our internship in 2 phases learning phase and working phase which include working on live project. In learning phase, we learnt different technologies which is used in the company and after this phase we assigned to the live project.

First two months was a common training on different technologies Like HTML, CSS, OOPS, JAVASCRIPT. Each day I have a session on different topics on these technologies and I have performed different task based on these sessions and topics.

### 3.2 Purpose

The purpose of this internship was to get an idea about the in's and outs of the real world working. The focus was definitely on enhancing my technical skills, but it was not just about. It was about communicating in an corporate environment, presentation of ideas etc as well as coding.

### 3.3 Objective

Objective of internship is to gain details how company works, culture of the company. How company build project, and how they manage the projects.

### 3.4 Technology and Literature Review

- 1 **Front End:** HTML, CSS, Bootstrap, JavaScript, React js , SharePoint Online
- 2 **Back End:** Node js , . Net
- 3 **Tool:** VS Code

**HTML:** - HTML, in a full hypertext markup language, a formatting system material retrieved over the Internet. Each retrieval unit is known as a Web page (from World Wide Web), and such pages frequently contain hypertext links that allow related pages to be retrieved.

**CSS:** - Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as

SVG, MathML or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media.

**Bootstrap:** - Bootstrap is a potent front-end framework used to create modern websites and web apps.

It's open-source and free to use, yet features numerous HTML and CSS templates for UI interface elements such as buttons and forms. Bootstrap also supports JavaScript extensions.

**React js:** The React js framework is an open-source JavaScript framework and library developed by Facebook. It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code than you would with vanilla JavaScript.

**Node js:** Node js is a cross platform, open source server environment that can run on all type of OS, Node js is a back-end JavaScript runtime environment, runs on the v8 JavaScript engine.

**.NET :** .NET is a free, open-source, cross-platform framework developed by Microsoft that allows developers to build applications for Windows, web, and mobile platforms. It provides a robust and secure environment for developing, deploying, and managing applications, and supports multiple programming languages, including C# and Visual Basic.

**SharePoint Online :** With SharePoint Online, users can create and manage team sites to collaborate on documents, calendars, and other content, and can also use it for document management, version control, and custom workflows. The platform provides robust security and compliance features, including role-based access controls, data encryption, and auditing.

### 3.5 Internship Planning (Overview)

Internship was divided into different segments as per the above plan to clear the basics and understanding of the Technology and Tools.

1. OOPs concept
2. HTML/CSS
3. Logical Programming on C#
4. JavaScript
5. jQuery
6. Ajax
7. React js
8. SharePoint Online
9. SPFx Web Part

This all Concepts clear in Week 1 to Week 12 ....

Sr. No.	Title	Starting Date	Ending Date	Hrs.
1	Week-1	23-01-2023	29-01-2023	40
2	Week-2	30-01-2023	05-02-2023	40
3	Week-3	06-02-2023	12-02-2023	40
4	Week-4	13-02-2023	19-02-2023	40
5	Week-5	20-02-2023	26-02-2023	40
6	Week-6	27-02-2023	05-03-2023	40
7	Week-7	06-03-2023	12-03-2023	40
8	Week-8	13-03-2023	19-03-2023	40
9	Week-9	20-03-2023	26-03-2023	40
10	Week-10	27-03-2023	02-04-2023	40
11	Week-11	03-04-2023	09-04-2023	40
12	Week-12	10-04-2023	16-04-2023	40

Table 1.1 Planning of Internship

### 3.6 Tasks:

Based on C#

TASK 1. Create a class called "BankAccount" with properties for the account holder's name and balance. Include methods for "Deposit()" and "Withdraw()".

TASK 2. Create a class called "Calculator" with methods for addition, subtraction and multiplication.

TASK 3. Create a class called "Person" with properties for name, age, and address. Include a method called "Introduce()" that returns a string introducing the person.

Introduce() => Hi, my name is {Name} and I am {Age} years old. I live at {Address}.

TASK 4. Create a class called "Employee" that inherits from the "Person" class and includes an additional property for the employee's job title. Override the "Introduce()" method to include job title.

Introduce() => Hi, my name is {Name} and I am {Age} years old. I am a {JobTitle} and I live at {Address}.

Based on JavaScript , jQuery , HTML , CSS , Bootstrap

1) Product Directory

Product Information: Each product record could include basic information such as name, brand, category, description, product Image, seller name.



Fig. 3.6.1 Product Directory page

Search and Filter: A search bar could be included to allow users to quickly find product by providing global search on every possible column. Additionally, filters could be added to allow users to sort products by brand, product name or category.



Fig. 3.6.2 Product Directory Dropdown



Fig. 3.6.3 Product Directory Checkbox

Pagination: To improve performance, the product directory could be paginated to display a limited number of products s per page. Users could navigate between pages using pagination links or arrows.



Fig. 3.6.4 Product Directory Pagination



Responsive Design: The product directory could be designed to be responsive, so that it looks and works well on a variety of devices, including desktops, laptops, tablets, and smartphones.

Edit and Delete: To allow administrators to manage the product directory, edit and delete functionality could be included to enable changes to product information.



Fig. 3.6.5 Add form



Fig. 3.6.6 Edit Form

```
1 // Node structure
2 struct Node {
3     int data;
4     Node* next;
5 };
6
7 // Function to insert a new node at the end of the list
8 Node* insertAtEnd(Node* head, int data) {
9     // Create a new node
10    Node* newNode = new Node;
11    newNode->data = data;
12    newNode->next = NULL;
13
14    // If the list is empty, the new node becomes the head
15    if (head == NULL) {
16        return newNode;
17    }
18
19    // Traverse to the end of the list
20    Node* temp = head;
21    while (temp->next != NULL) {
22        temp = temp->next;
23    }
24
25    // Attach the new node to the end
26    temp->next = newNode;
27
28    return head;
29 }
30
31 // Function to print the linked list
32 void printList(Node* head) {
33     if (head == NULL) {
34         return;
35     }
36     Node* temp = head;
37     while (temp != NULL) {
38         cout << temp->data << " ";
39         temp = temp->next;
40     }
41     cout << endl;
42 }
```

Fig. 3.6.7 Screenshot of Code

```
1 // Node structure
2 struct Node {
3     int data;
4     Node* next;
5 };
6
7 // Function to insert a new node at the end of the list
8 Node* insertAtEnd(Node* head, int data) {
9     // Create a new node
10    Node* newNode = new Node;
11    newNode->data = data;
12    newNode->next = NULL;
13
14    // If the list is empty, the new node becomes the head
15    if (head == NULL) {
16        return newNode;
17    }
18
19    // Traverse to the end of the list
20    Node* temp = head;
21    while (temp->next != NULL) {
22        temp = temp->next;
23    }
24
25    // Attach the new node to the end
26    temp->next = newNode;
27
28    return head;
29 }
30
31 // Function to print the linked list
32 void printList(Node* head) {
33     if (head == NULL) {
34         return;
35     }
36     Node* temp = head;
37     while (temp != NULL) {
38         cout << temp->data << " ";
39         temp = temp->next;
40     }
41     cout << endl;
42 }
```

Fig. 3.6.8 Screenshot of Code

## **Chapter 4. Project Details**

### **Project Title : Time Reporting System**

This project includes multiple modules but I have worked on module named UMS (User Management System)

#### **4.1 Project Definition**

A user Management system (UMS) is an internal application created for managing a user's profiles. Where new users can be created and all the user's profile-related operations can be performed like forgetting passwords, and activating or deactivating users.

#### **4.2 Project Abstract**

The User Management System module is an integral component of the Time Reporting System, designed to efficiently manage user accounts and access privileges. This module provides the necessary tools to create, update, and delete user accounts, as well as assign and revoke access rights for different functionalities of the system. It also includes features for authentication and password management, ensuring the security and integrity of the system. The User Management System module provides a user-friendly interface for administrators to manage user accounts and permissions, allowing for streamlined and efficient management of the Time Reporting System.

Front-End : Angular

Back-End : Dot Net core Web API

Database : SQL Server

#### **4.3 Project Overview**

**UMS** : The User Management System is a critical component of the Time Reporting System, designed to efficiently manage user accounts and access privileges. The main objective of the User Management System is to provide a secure and user-friendly interface for administrators to manage user accounts and permissions, ensuring that the Time Reporting System is accessed only by authorized personnel

Below are the Roles which have access to the Use Management System.

- Admin
- Super User

**Note:** TRS is a single sign on web application for Admin Role, Admin can access UMS, CMS & TRS. Single Sign-On – IF user logs into one system same browser, can login to all other system's automatically, if logged off – all other systems will be logged off as well.

## **4.4 Key Features**

User registration

Authentication and authorization

Password management

User profiles

User roles and permissions

Audit trail

Security

Accessibility

## Chapter 5. Working Prototype

### 5.1 Implementation

#### Login Screen for the Admin/Super User

In order to Access TRS, Admin/Super User create the User from the User Management System.

#### Login Screen for the Admin/Super User

URL: <https://newums.sixconsultingcorp.com/login>



Fig. 5.1.1 Log in page

#### Remember me Next Time

**Admin/Super User** Saves their user session using this functionality.



Fig. 5.1.2 Log in page

After the Login, User navigates to the Manage User (Listing Page).

### Forgot Password

Admin / Super User can get a new System generated Password; User can change it once they logged in using system generated password.

Only For the 1st time login of every User, after login 1st page shall be a Change password. User shall have to change their password (which will be provided by the system).

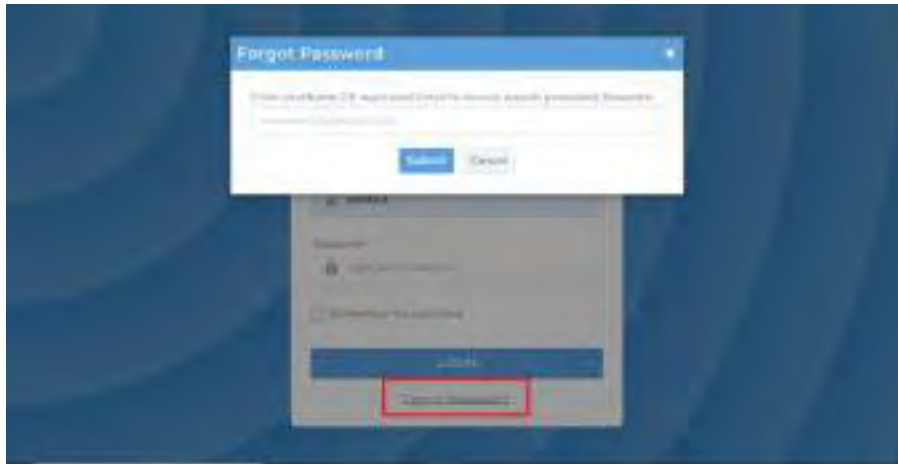


Fig. 5.1.3 Reset password

### Change Password

**Admin/Super** User shall be able to **Change Password** using the menu besides the **logout** button.



Fig. 5.1.4 Change password

## Change Email

**Admin/Super User** shall be able to **Change Email** using the menu besides the **logout** button.

An **email** has been sent to **both Email id** (Old Email/New Email) of the **Registered User**.

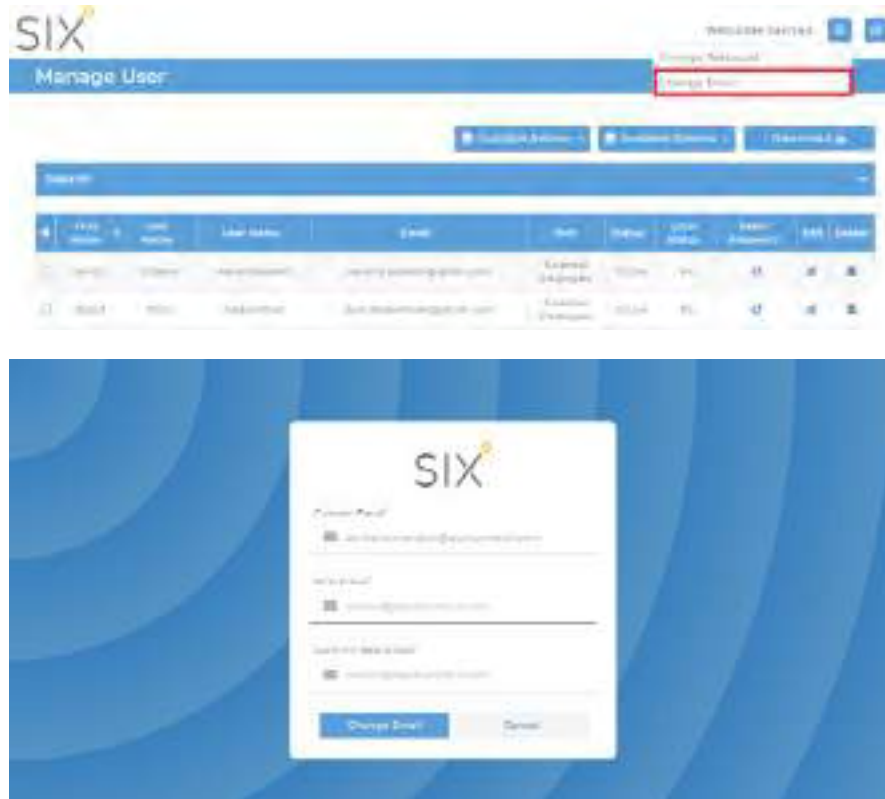


Fig. 5.1.5 Manage User

## Idle Screen

System is automatically logout if users screen remains idle for 15 minutes and notified the user for the same.

## Manage User Screen for Admin User/Super User

URL: <https://newums.sixconsultingcorp.com/ManageUser>

On Landing Page of Manage User, by default **all active employees** are shown.

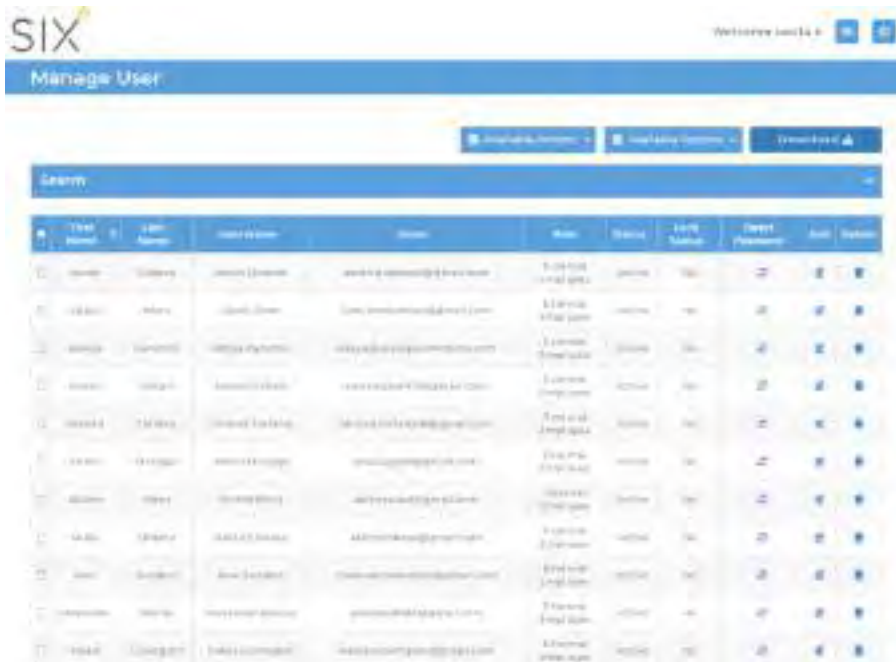


Fig. 5.1.6 Manage User

### Search User

On **Manage User Screen**, **Admin/Super User** shall be able to filters user's data using below mentioned filters.

- First Name
- Last Name
- User Name
- Email
- Select Role
- Status
- Lock Status



Fig. 5.1.7 Filter by search

On listing page, we have implemented Sorting functionality of the below mentioned column:

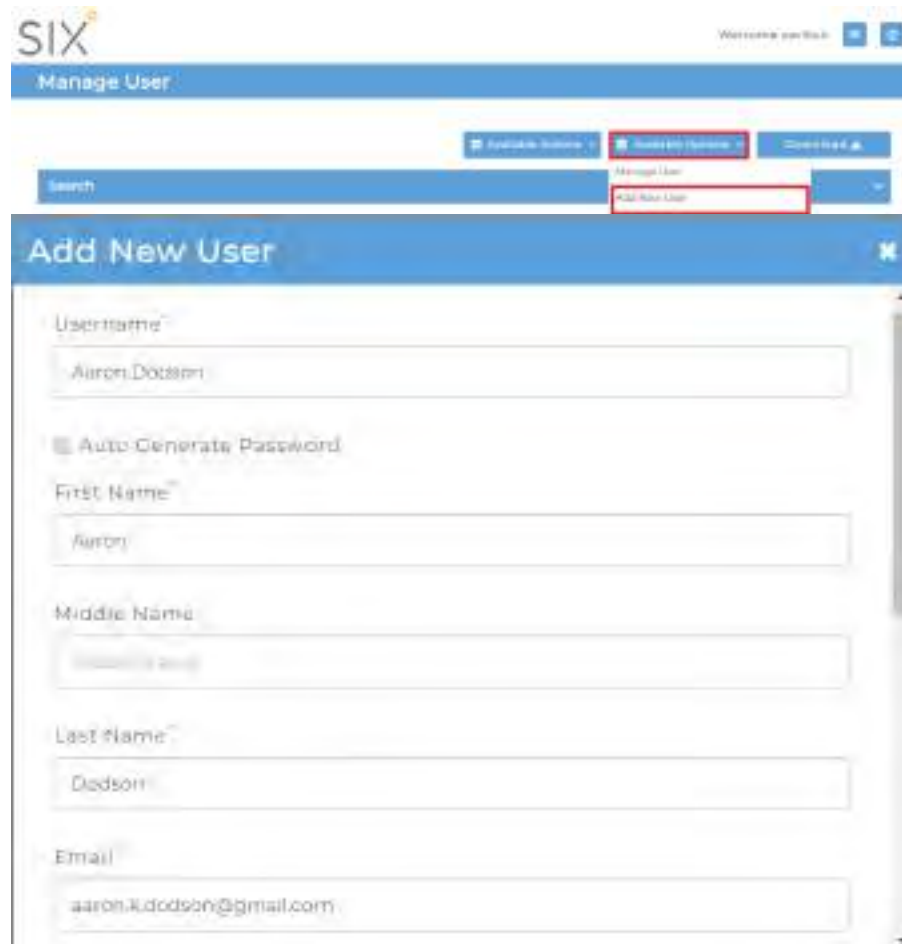
- First Name



## Add User Screen for Admin User/Super User

Admin/Super User can create User by clicking on **Add New User** option under the **Available Options** dropdown.

URL: <https://newums.sixconsultingcorp.com/ManageUser>



The screenshot shows a web application interface for managing users. At the top, there is a 'Manage User' header. Below it, there are navigation buttons for 'Available Options', 'Add New User', and 'Close'. A search bar is present, and a dropdown menu is open, showing 'Add New User' as the selected option. The main form is titled 'Add New User' and contains the following fields:

- Username: Aaron.Dodson
- Auto-Generate Password:
- First Name: Aaron
- Middle Name:
- Last Name: Dodson
- Email: aaron.k.dodson@gmail.com

Fig. 5.1.8 Add new user

## Edit User Screen

At the time of the New User creation, we have not provided the option for the **Role**. Admin/Super User can assign the **Role** by **Edit User** screen.

Below are the **roles** of the **Time Reporting System**.

- Admin
- External Employee
- Internal Employee
- Manager

- Super User
- Super User TRS

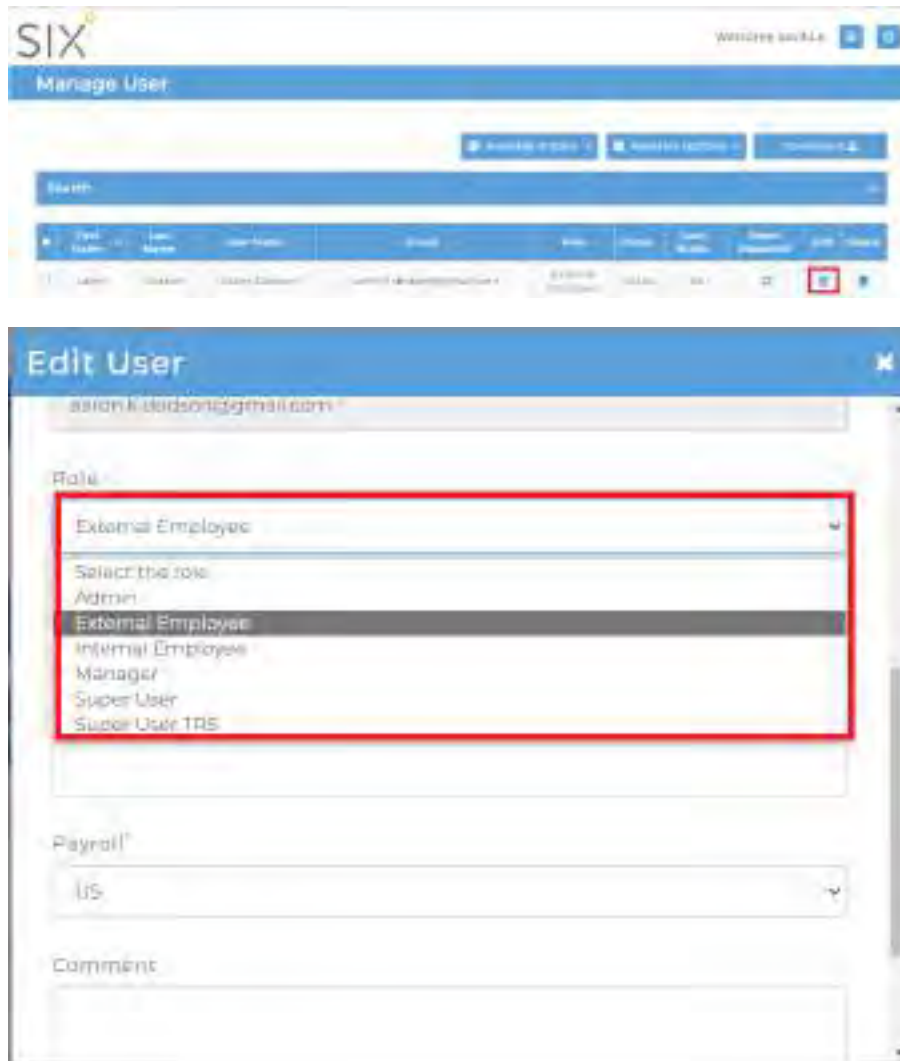


Fig. 5.1.9 Edit user

### Delete User

Admin/Super User can **Delete User** by clicking on **Delete** button in the **Delete Column** for the specified User.



Fig. 5.1.10 Delete user

### Reset Password

Admin/Super User shall be able to **Activate** the **Inactive/locked** account of the User.

Admin/Super User shall reset the password of a consultant and consultant can get an email on registered Email id with new password.



Fig. 5.1.11 Reset password

### Available Actions

Below are options of available screen:

- Activate
- Deactivate
- Lock
- Unlock

Here **Admin/Super User** Shall be able to Activate, Deactivate, Lock and Unlock by selecting multiple users.

For the Available Actions feature to work user must select at least one or multiple employees from the table. If a user tries to access the Available Actions list items without selecting any employee checkbox system must pop a warning message saying, “At least one employee must be selected.”



Fig. 5.1.12 Available actions

### Download/Export Users

Admin/Super User shall be able to Export and Download data of the Users based on selected filters.



Fig. 5.1.13 Download

### Pagination

Pagination section Shall be available in footer section with below fields: Page Drop down: Here User can set Page limit.

Records: Label Name-Records It shall display total no of search result in form of 1-100of 175 page1 of 2

Pagination with first and last option Pagination shall be a dynamic it shall appear based on records.

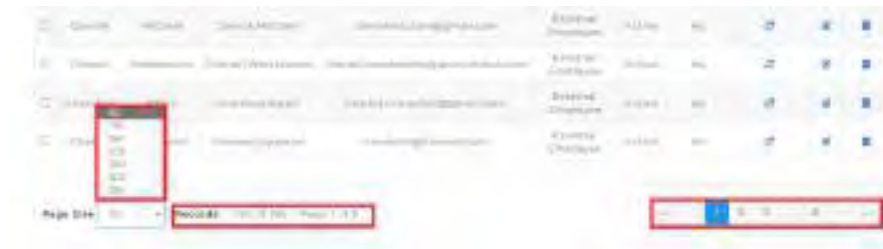


Fig. 5.1.14 Pagination

### Remember me Next Time

Admin/Super User Saves their user session using this functionality.

## Chapter 6. System Testing

Once a functionality is made it is very important to test it well because it might create the correct result in a particular scenario but might display wrong results in some other scenarios or even worse it might break or cause the whole project to stop working.

So, in this we test in two manners:

1. Unit Test
2. Integration Test

### **UNIT TESTING**

After a thorough code review is done, where we check whether the code has been written efficiently and in a correct manner that does not use a lot of time as well as memory, we move to unit testing which is the first part of testing. An appropriate environment is setup for its testing:

- The procedures belonging to other modules that the module under test calls.
- Nonlocal data structures that module accesses
- A procedure to call the functions of the module under test with appropriate parameters.
- We conducted unit testing while working on the units. Listed Unit tests while we are working on particular-section of the system.
- Test API call for null values in parameters to check API's working fine in those cases.
- On client-side State Management is also should handle the updates.
- Changes in report gives right output.
- Queries written in optimal and efficient manner to give correct outputs.

### **INTEGRATION TESTING**

In unit testing only a single module is tested but in integration testing the whole project containing various different modules are tested simultaneously. Firstly, there is a sanity check whether it is working properly or not and then it get tested extensively with various different test cases in order to check that, that part of the

module doesn't break as well as it doesn't create a hindrances to any other part of the module as well.

## **Chapter 7. Conclusion**

### **7.1 Summary of Internship**

During the internship, worked as a Python Developer and gained practical experience in developing a CMS. The internship provided me with a comprehensive understanding of software development, backend and frontend technologies, database management, and version control systems like Git. I also had exposure to a wide range of programming languages such as C#, Java, HTML, and Angular.

The completion of more than 10 different tasks helped me to develop a comprehensive understanding of these languages and technologies. While developing the CMS , I faced some challenges such as integrating all functions and customizing it to blend with the software and tracking the duration required by the developer to complete the given task.

However, with the help of the mentor and senior colleagues, the individual was able to complete the software within the given time frame. Moreover, different types of functionalities were added by me to make the CMS more enhanced.

### **7.2 Date of Continuous Evaluation**

Our college institution set up a continuous evaluation procedure in two parts, the first on 15th March, 2023, and the second on 9th May, 2023, where we had to present our work and submit weekly reports to an internal mentor in order to monitor the performance of students during the 12-week internship.

## References

- [1] <https://www.w3schools.com/jquery/>
- [2] [https://www.w3schools.com/js/js\\_ajax\\_intro.asp](https://www.w3schools.com/js/js_ajax_intro.asp)
- [3] [https://www.w3schools.com/js/js\\_json\\_intro.asp](https://www.w3schools.com/js/js_json_intro.asp)
- [4] <https://stackoverflow.com/>
- [5] <https://www.javatpoint.com/>
- [6] <https://chat.openai.com/>



# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Janvi Jayeshbhai Patel**

**200390107022**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**August, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at InfoLabz IT Services Pvt. Ltd.** has been carried out by **Janvi Jayeshbhai Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IoT

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Roll Number: 201090107022  
Semester: 7<sup>th</sup>, Computer Engineering  
Saffron Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Janvi Jayashbhai Patel.

In this internship tenure, we have covered the fundamentals of JS And ES6. We have also worked on the React framework along with API integration and developed an API-based React application.

We wish Janvi Jayashbhai Patel all the best for future endeavors.



Ma. Tonkile Shah  
Internship Coordinator  
Infolabz, Ahmedabad



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+91 8141201962



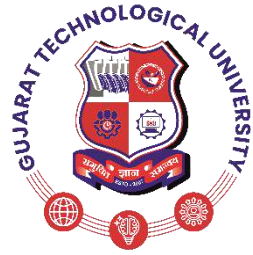
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**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Dynamic web page designing using React JS **Internship at InfoLabz IT Services Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Janvi Jayeshbhai Patel**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would like to extend my sincere appreciation to all those who have been instrumental in the successful completion of my dynamic web development project during my internship.

My gratitude goes to Mr. Chintan Nagrecha for their valuable guidance and mentorship throughout the project. Their insights and support were invaluable in shaping the project's direction.

I would also like to thank the InfoLabz IT Services Pvt. Ltd. team for their welcoming environment and the opportunity to work alongside professionals. Their collaboration and insights greatly enhanced my learning experience.

I am grateful to my fellow interns and colleagues for their camaraderie and knowledge-sharing, which contributed to the project's success.

Lastly, my heartfelt thanks to my family and friends for their unwavering support during this journey.

Thank you all for your contributions.

Sincerely,

Janvi Patel

## **Abstract**

This report contains the work done by the author during his internship at *INFOLABZ IT SERVICES PVT. LTD.* It shows the work I did in the company during my internship period. In the report, the author discusses the process of manufacturing and steps of assembly of the machines. The author also discusses the structure of the company, all the departments and their work . It also explains what the author learned during this internship period.

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# **Chapter 1. INTRODUCTION**

## **1.1 Company Profile:**

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make it's own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard working developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concept which could be used by millions of people.

## **1.2 Mission and Vision of the company:**

Mission:

Our mission is to deliver best-in-class services with top-notch quality.

Vision:

Our vision is to sustain the exponential growth of the IT industry.

## Chapter 2. Introduction

### 2.1 Introduction to JS:

JavaScript, introduced in 1995, is a dynamic programming language for web development. Originally for interactivity, it evolved into a key element of modern web apps. It manipulates web page elements through the DOM, enabling real-time user experiences. AJAX expanded its capabilities, allowing server communication without reloads. Node.js extended JavaScript to server-side development, fostering full-stack approaches. It's integral to interactive websites, web apps, and mobile apps via frameworks like React Native. JavaScript's dynamic ecosystem continually evolves with libraries and frameworks. Its versatility and widespread use make it a cornerstone of contemporary digital experiences.

### 2.2 Introduction to ES6:

- Introduction: ECMAScript 6 (ES6), also known as ECMAScript 2015, is a significant update to the JavaScript language introduced in 2015.
- Key Features:
  1. **Arrow Functions:** Shorter syntax for functions, improving code readability.
  2. **Template Literals:** Easier way to work with strings, including variables within text.
  3. **Destructuring Assignments:** Efficiently extract values from objects and arrays.
  4. **'let' and 'const' Keywords:** Enhanced variable management and scoping.
  5. **Classes:** Simplified object-oriented programming with class syntax.
  6. **Modules:** 'import' and 'export' statements for better code organization.
  7. **Promises:** Improved handling of asynchronous operations.
  8. **'=>' Operator:** Concise syntax for defining functions and callbacks.
  9. **Enhanced Iteration:** More powerful looping mechanisms.
  10. **New Data Structures:** Introduction of Sets and Maps for advanced data manipulation.
- Impact: ES6 modernizes JavaScript, making it more expressive, organized, and easier to work with for developers.

## 2.3 Objects:

- Introduction to Objects in JavaScript:

Objects are central entities in JavaScript, serving as dynamic containers for bundling together data and behaviors. They enable developers to create structured and organized code by grouping related information and actions within a single construct.

- Core Concepts:

1. **Properties:** Objects consist of properties, which are key-value pairs representing various attributes of the object. Values can be of any data type, including other objects.

2. **Methods:** Methods are functions that are associated with an object. They encapsulate behaviors that the object can perform, contributing to the object's functionality.

3. **Dot Notation:** Accessing properties and methods is achieved through dot notation, offering a straightforward way to interact with object elements.

4. **Bracket Notation:** This alternative notation allows property access using square brackets and dynamic property names, enhancing flexibility in handling objects.

5. **Creating Objects:** Objects can be created using the object literal syntax, where properties and methods are defined within curly braces.

6. **Constructor Functions:** Constructor functions provide a blueprint for creating objects with shared properties and methods, promoting code reusability.

- Utilization:

1. **Data Organization:** Objects serve as excellent containers for organizing related data, promoting clarity and reducing code clutter.

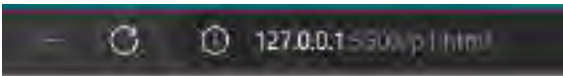
2. **Object-Oriented Programming (OOP):** JavaScript's object-centric nature supports OOP principles such as encapsulation, inheritance, and polymorphism, enabling modular and maintainable code.

3. **DOM Interaction:** In web development, objects are pivotal for manipulating the Document Object Model (DOM), allowing developers to dynamically alter webpage content and behavior.

- Impact and Significance:

Objects are a cornerstone of JavaScript's versatility and power, offering a structured approach to handling complexity. By combining data and behavior into cohesive units, objects enhance code readability, maintainability, and extensibility. Their integral role in various programming paradigms, including OOP, underscores their significance in the JavaScript ecosystem.

Classwork:



```
1 <html>
2
3 <head>
4
5 </head>
6
7 <body>
8
9   <script>
10     var objdata = {};
11     document.write(objdata);
12     document.write("<br/>");
13     var objdata1 = { "gujarat": "ahmedabad" };
14     document.write(objdata1["gujarat"]);
15     var objdata2 = { "ahmedabad": 100, "surat": 150, "vadodara": 75 };
16     document.write(objdata2["surat"]);
17   </script>
18 </body>
19 </html>
```



```
1 <DOCTYPE html>
2
3 <head>
4
5 </head>
6
7 <body>
8
9   <script>
10     var objdata = {};
11     document.write(objdata);
12     document.write("<br/>");
13     var objdata1 = { "gujarat": "ahmedabad" };
14     document.write(objdata1["gujarat"]);
15
16     var objdata2 = { "ahmedabad": 100, "surat": 150, "vadodara": 75 };
17     document.write(objdata2["vadodara"]);
18
19     var objdata3 = { "ahmedabad": 100, "surat": [150, 200, 1], "vadodara": 75 };
20     // print 200
21     document.write(objdata3["surat"][1]);
22
23     var objdata4 = { "ahmedabad": [{"date": "25 July 2023", "waves": 120},
24     [{"date": "26 July 2023", "waves": 120},
25     [{"date": "27 July 2023", "waves": 120}],
26     [{"surat": [150, 200, 1],
27     "vadodara": 75}];
28     // print 220
29     document.write(objdata4["ahmedabad"][0]["waves"]);
30   </script>
31 </body>
32 </html>
```

Figure 1: Example of Object Creation



```
1 <DOCTYPE html>
2
3 <head>
4
5 </head>
6
7 <body>
8
9   <script>
10     var objdata = {};
11     document.write(objdata);
12     document.write("<br/>");
13     var objdata1 = { "gujarat": "ahmedabad" };
14     document.write(objdata1["gujarat"]);
15
16     var objdata2 = { "ahmedabad": 100, "surat": 150, "vadodara": 75 };
17     document.write(objdata2["vadodara"]);
18
19     var objdata3 = { "ahmedabad": 100, "surat": [150, 200, 1], "vadodara": 75 };
20     // print 200
21     document.write(objdata3["surat"][1]);
22
23     var objdata4 = { "ahmedabad": [{"date": "25 July 2023", "waves": 120},
24     [{"date": "26 July 2023", "waves": 120},
25     [{"date": "27 July 2023", "waves": 120}],
26     [{"surat": [150, 200, 1],
27     "vadodara": 75}];
28     // print 220
29     document.write(objdata4["ahmedabad"][0]["waves"]);
30   </script>
31 </body>
32 </html>
```

Figure 2: Output of Object Creation

## 2.4 Task:

```

1 // JavaScript program to find the total number of confirmed cases from the provided API & show the details
2 // of the state
3 //
4 // The API endpoint is https://api.covid19india.org/total_data?state=
5 //
6 // Query string is
7 // state=
8 //
9 // The API endpoint is https://api.covid19india.org/total_data?state=
10 //
11 // The API endpoint is https://api.covid19india.org/total_data?state=
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70 //
71 //
72 //
73 //
74 //
75 //
76 //
77 //
78 //
79 //
80 //
81 //
82 //
83 //
84 //
85 //
86 //
87 //
88 //
89 //
90 //
91 //
92 //
93 //
94 //
95 //
96 //
97 //
98 //
99 //
100 //

```

Figure 3: Code for the task



Figure 4: Output of the task

# Chapter 3. Functions

## 3.1 JS Functions:

A JavaScript function is a block of code designed to perform specific tasks when invoked. It enhances code organization and reusability by breaking down complex operations into manageable units. Functions can accept input parameters and return output values, aiding in dynamic data processing. They are fundamental for event handling, asynchronous operations, and modular code design. ES6 introduced arrow functions, offering a concise syntax, and functions can be passed as arguments or returned, contributing to JavaScript's versatility and supporting various programming patterns.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4 </head>
5 <body>
6 <script>
7 // Function with no argument - no return value
8 function one(){
9   document.write("function one called<br>");
10 }
11 one();
12
13 // Function with argument - no return value
14 function two(a,b){
15   document.write("addition of "+a+" and "+b+" is "+(a+b)+"<br>");
16 }
17 two(100,100);
18
19 // Function with no argument but it return a value
20 function three(){
21   return "hello<br>";
22 }
23
24 var x = three();
25 document.write(x);
26
27 // Function with argument and return value both
28 function four(i,j){
29   return "subtraction of "+a+" and "+b+" is "+(i-j);
30 }
31
32 var y = four(100,100);
33 document.write(y);
34 </script>
35 </body>
36 </html>
```

Figure 5: Example of different functions

## 3.2 Arrow Function:

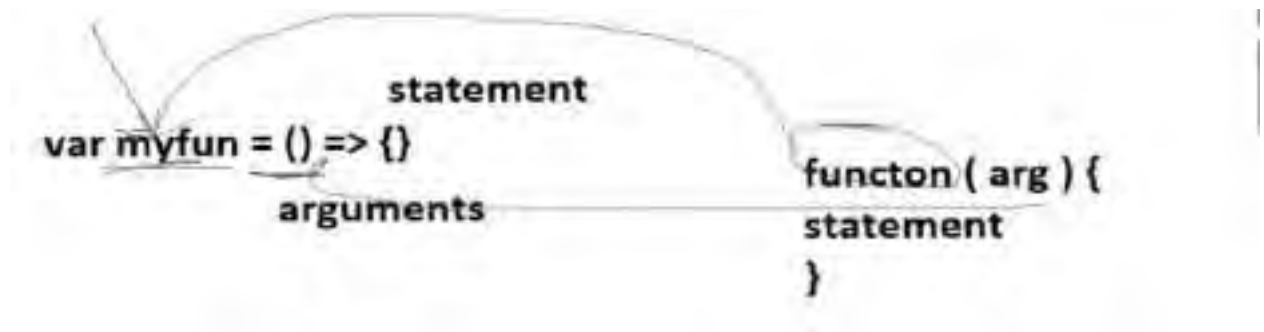


Figure 6: Explanation of Arrow Function

A screenshot of a code editor with four tabs: 'p1.html', 'p2.html', 'objectdataprinting.html', and 'arrowexample.html'. The 'arrowexample.html' tab is active, showing the following code:

```
1 <!DOCTYPE html>
2 <head>
3
4 </head>
5 <body>
6 <script>
7
8   var eo = (no) => {
9     if(no%2==0){
10      document.write("even");
11    }
12    else{
13      document.write("odd");
14    }
15  }
16  eo(17);
17 </script>
18 </body>
19 </html>
```

Figure 7: Example of Arrow Function

### **3.3 Async Function:**

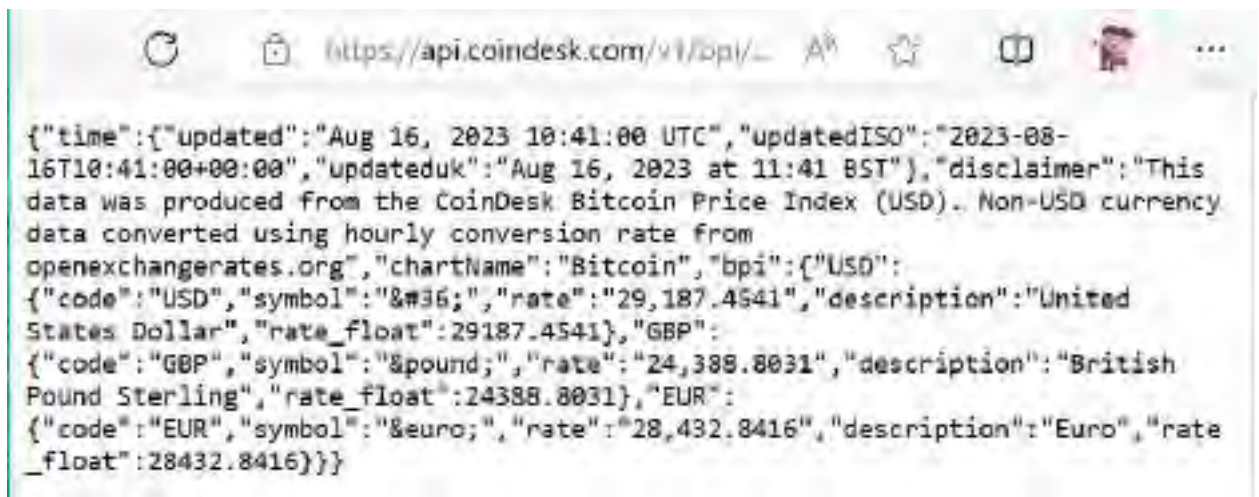
Async functions in JavaScript, introduced with ES2017 (ES8), provide a simplified and more intuitive way to work with asynchronous operations. They make writing and handling asynchronous code more readable and structured, especially when dealing with Promises and asynchronous events.

- **Key Points:**
  1. **Definition:** An async function is declared using the ``async`` keyword before the ``function`` keyword. It returns a Promise implicitly.
  2. **``await`` Keyword:** Inside an async function, the ``await`` keyword is used to pause execution until a Promise is resolved. This helps avoid nested callbacks and improves code flow.
  3. **Error Handling:** Errors within async functions can be caught using regular ``try...catch`` blocks, enhancing error management.
  4. **Sequential Asynchrony:** Async functions allow for sequential execution of asynchronous tasks, making complex asynchronous operations easier to handle.
  5. **Parallelism:** Multiple async functions can run concurrently, utilizing JavaScript's event loop efficiently.
  6. **Returning Values:** Async functions return a Promise, which resolves to the value returned by the function or rejects with an error.
- **Usage:**
  1. **Promises Enhancement:** Async functions simplify Promise-based code by providing a more linear and synchronous-like appearance.



2. API Calls: They are valuable for making API requests, database interactions, and any operation involving I/O, improving code readability.
  3. Error Handling: Async functions make error handling more straightforward, allowing errors to be caught in a central location.
- Impact:

Async functions have revolutionized JavaScript's approach to asynchronous programming. They streamline and clarify the handling of asynchronous tasks, reducing callback hell and improving code maintainability. Async functions play a significant role in modern web development, especially when building responsive and efficient applications that rely heavily on asynchronous operations.
  - Example: Bitcoin API



```
{
  "time": {
    "updated": "Aug 16, 2023 10:41:00 UTC",
    "updatedISO": "2023-08-16T10:41:00+00:00",
    "updateduk": "Aug 16, 2023 at 11:41 BST"
  },
  "disclaimer": "This data was produced from the CoinDesk Bitcoin Price Index (USD). Non-USD currency data converted using hourly conversion rate from openexchangerates.org",
  "chartName": "Bitcoin",
  "bpi": {
    "USD": {
      "code": "USD",
      "symbol": "$",
      "rate": "29,187.4541",
      "description": "United States Dollar",
      "rate_float": 29187.4541
    },
    "GBP": {
      "code": "GBP",
      "symbol": "\u00a3",
      "rate": "24,388.8031",
      "description": "British Pound Sterling",
      "rate_float": 24388.8031
    },
    "EUR": {
      "code": "EUR",
      "symbol": "\u20ac",
      "rate": "28,432.8416",
      "description": "Euro",
      "rate_float": 28432.8416
    }
  }
}
```

Figure 8: Bitcoin API



```
1 <!DOCTYPE html>
2   <head>
3
4   </head>
5   <body>
6     <script>
7       async function load(){
8         let url = "https://api.coindesk.com/v1/bpi/currentprice.json";
9         let myobject = await (await fetch(url)).json();
10        document.write(myobject["bpi"]["USD"]["rate"]);
11      }
12      load();
13    </script>
14  </body>
15 </html>
```

Figure 9: Bitcoin API code

## Chapter 4. Covid API – Data fetching and mapping

```
1 <!DOCTYPE html>
2 <head></head>
3 <body>
4 <script>
5     async function load() {
6         let url = "https://data.covid19india.org/data.json";
7         let myObject = await (await fetch(url)).json();
8         var days=0;
9         document.write(myObject["cases_time_series"][0][0]["date"]+"<br>");
10        document.write("Total Number of Days : "+myObject["cases_time_series"].length);
11        document.write("<br>");
12        for(var i=0;i<myObject["cases_time_series"].length;i++) {
13            if(myObject["cases_time_series"][i][1]["dailyconfirmed"]>=100000) {
14                document.write("<br> <span style='color:red'><span>"+myObject["cases_time_series"][i][0]["date"]+"<br>
15                "</td><td>"+myObject["cases_time_series"][i][1]["dailyconfirmed"]+
16                "</td><td>"+myObject["cases_time_series"][i][1]["dailydeceased"]+
17                "</td><td>"+myObject["cases_time_series"][i][1]["dailyrecovered"]+
18                "</td></tr>");
19                days = days+1;
20            }
21            else {
22                document.write("<br><td>"+myObject["cases_time_series"][i][0]["date"]+
23                "</td><td>"+myObject["cases_time_series"][i][1]["dailyconfirmed"]+
24                "</td><td>"+myObject["cases_time_series"][i][1]["dailydeceased"]+
25                "</td><td>"+myObject["cases_time_series"][i][1]["dailyrecovered"]+
26                "</td></tr>");
27            }
28        }
29        document.write("</table>");
30        document.write("<br>Total number of days with more than a lac cases : "+days);
31    }
32    load();
33 </script>
34 </body>
35 </html>
```

Figure 10: Covid API code

30 January 2020  
Total Number of Days : 365

30 January 2020	0	0	0
31 January 2020	0	0	0
1 February 2020	0	0	0
2 February 2020	0	0	0
3 February 2020	0	0	0
4 February 2020	0	0	0
5 February 2020	0	0	0
6 February 2020	0	0	0
7 February 2020	0	0	0
8 February 2020	0	0	0
9 February 2020	0	0	0
10 February 2020	0	0	0
11 February 2020	0	0	0
12 February 2020	0	0	0
13 February 2020	0	0	0
14 February 2020	0	0	0
15 February 2020	0	0	0
16 February 2020	0	0	0
17 February 2020	0	0	0
18 February 2020	0	0	0
19 February 2020	0	0	0
20 February 2020	0	0	0
21 February 2020	0	0	0
22 February 2020	0	0	0

Figure 11: Covid API output

## Chapter 5. JS Pop Up Boxes

### 5.1 Alert:

```
↔ p1.html ↔ p2.html ↔ objectdataprinting.html ↔ alert.html X
< alert.html > ...
1  <!DOCTYPE html>
2  <head>
3
4  </head>
5  <body>
6  <script>
7  | alert("Your message has been submitted successfully.");
8  </script>
9  </body>
10 </html>
```

Figure 12: Code for Alert Box



Figure 13: Output for Alert Box

### 5.2 Confirm:

```
↔ confirm.html X
< confirm.html > ...
1  <!DOCTYPE html>
2  <head>
3
4  </head>
5  <body>
6  <script>
7  | var a = confirm("Are you sure you want to book this tickets?");
8  | if(a==true){
9  | | alert("your ticket has been booked");
10 | }
11 | else if(a==false){
12 | | alert("Ticket booking cancelled");
13 | }
14 </script>
15 </body>
16 </html>
```

Figure 14: Code for Confirm Box

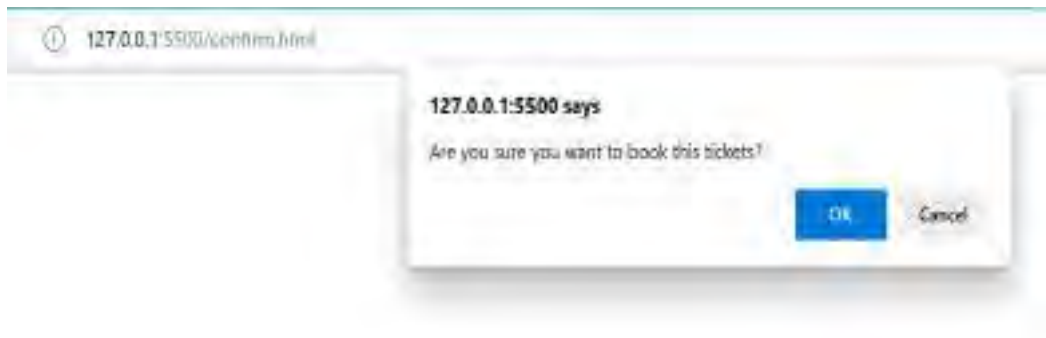


Figure 15: Output for Confirm Box

### 5.3 Prompt:

```

=> prompt.html x
5> prompt.html >...
1  <!DOCTYPE html>
2  <head>
3
4  </head>
5  <body>
6      <script>
7          var a = prompt("enter number of tickets : ");
8          if(a==null){
9              alert("Booking Cancelled");
10
11             }
12             else if(a==""){
13                 alert("you entered nothing");
14             }
15             else{
16                 alert("proceed for "+a+" tickets");
17             }
18         </script>
19     </body>
20 </html>

```

Figure 16:Code for Prompt Box

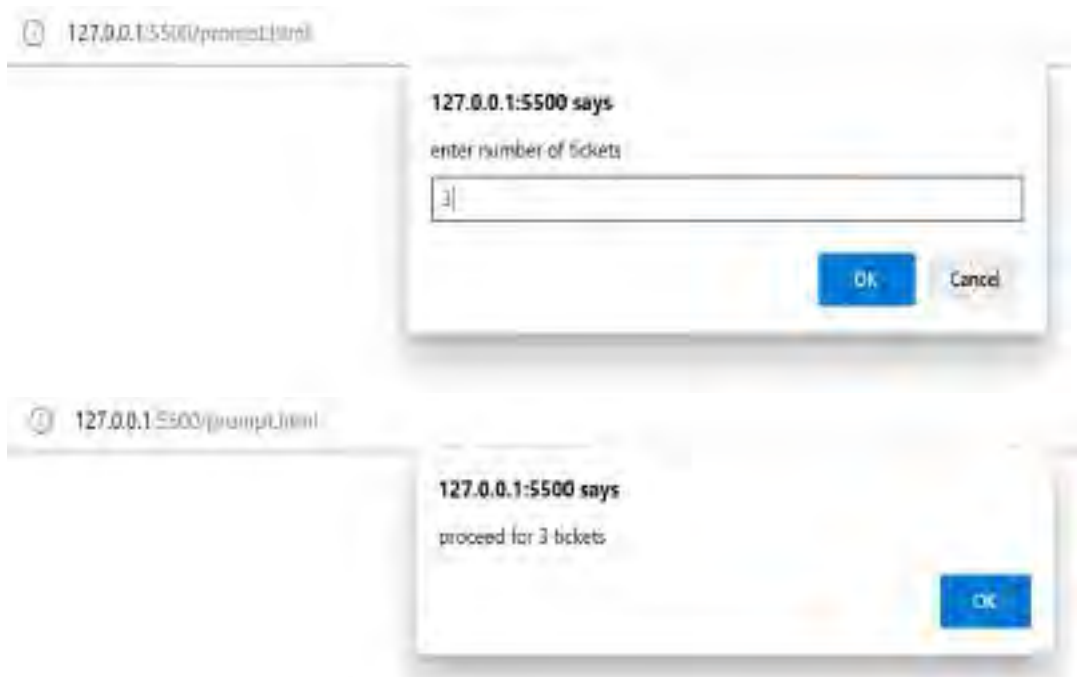


Figure 17: Output for Prompt Box

## Chapter 6. Form

### 6.1 Form to Variable:

```
formtovariable.html X
formtovariable.html
1 <!DOCTYPE html>
2 <head>
3
4 </head>
5 <body>
6
7 <script>
8     function check(form){
9         var name = form.uname.value;
10        var surname = form.usurname.value;
11        // alert("user name is "+name+" dear surname is "+surname);
12        document.getElementById("msg").innerHTML = "username is "+name+" surname is "+surname;
13    }
14 </script>
15 <form>
16     name : <input type="text" name="uname">
17     surname : <input type="text" name="usurname">
18     <input type="submit" value="Submit" onclick="check(this.form); return false;" />
19 </form>
20 <div id="msg"></div>
21 </body>
22 </html>
```

Figure 18: Code for Form to Variable

127.0.0.1:5500/formtovariable.html

Name :

surname :

username is Janvi surname is Patel

Figure 19: Output for Form to Variable

## 6.2 Form to table:

```
1 <DOCTYPE html>
2 <html>
3 <head>
4 </head>
5 <body>
6 <script>
7     function createTable(form){
8         var name = form.userName.value;
9         var password = form.password.value;
10        var city = form.city.value;
11
12        if(name==" " || password==" " || city==" "){
13            document.getElementById("msg").innerHTML = "Fields can not be blank";
14        }
15        else{
16            document.getElementById("msg").innerHTML = "table border='1' width='50%' height='50%'<br>";
17            +name+ "<br>";
18            +password+ "<br>";
19            +city+ "<br>";
20        }
21    }
22 </script>
23 <form>
24     name: <input type="text" name="userName" />
25     password: <input type="password" name="password" />
26     city : <select name="city">
27         <option value="SI">Surat</option>
28         <option value="RT">Rajkot</option>
29         <option value="A">Ahmedabad</option>
30     </select>
31     <input type="submit" value="Submit" />
32 </form>
33 <div id="msg"></div>
34 </body>
35 </html>
```

Figure 20: Code for Form to Table

The image shows two screenshots of a web browser. The top screenshot shows the form with the following fields: Name: Janvi, Password: 12345, City: Surat, and a Submit button. The bottom screenshot shows the same form after submission, with a table displayed below it containing the submitted data.

Name :	Janvi
Password :	12345
City :	SI

Figure 21: Output for Form to Table

## Chapter 7. JS Array

```

1 <script>
2 <DOCTYPE html>
3 <html>
4 <head>
5 <title>
6 <script>
7     //var arr = [1,2,3,4,5,6,7,8];
8     //document.write(arr);
9     //document.write(arr[0]);
10    //document.write(arr[1]);
11    //document.write(arr[2]);
12    //document.write(arr.length);
13    // Access all data in the rest of the array
14
15    //arr.push(9);
16    //document.write(arr);
17    var email = ["a@b.com", "c@d.com", "e@f.com"];
18    var password = ["12345", "123456", "1234567"];
19
20    function loginForm()
21    {
22        var email = form.elements[0].value;
23        var password = form.elements[1].value;
24
25        if(email=="") { document.write("Email field is required.");
26            document.getElementById("msg").innerHTML += "Email field is required.";
27        }
28        else if(password=="") { document.write("Password field is required.");
29            document.getElementById("msg").innerHTML += "Password field is required.";
30        }
31        else {
32            document.getElementById("msg").innerHTML += "Both fields are required.";
33        }
34    }
35
36    for(var i=0; i<email.length; i++)
37    {
38        if(email==email[i] && password==password[i])
39        {
40            document.getElementById("msg").innerHTML += "User: " + email[i] + " is logged in successfully";
41            break;
42        }
43    }
44
45    document.getElementById("msg").innerHTML += "User: " + email[0] + " is logged in successfully";
46
47    //form
48    <form>
49        <input type="text" name="email" value="<input type="text" name="password" value="
50        <input type="text" name="password" value="password" value="
51        <input type="text" name="email" value="login@this.com" value="login" value="
52    </form>
53    <input type="button" value="Submit" />
54    </script>
55 </html>

```

Figure 22: Code for JS Array



Figure 23: Output for JS Array

# Chapter 8. Task Assignment

## 8.1 Covid Data Search:

```
1 #include <string.h>
2 #include <stdio.h>
3 #include <stdlib.h>
4 #include <math.h>
5 #include <time.h>
6 #include <curl/curl.h>
7 #include <curl/easy.h>
8 #include <curl/multi.h>
9 #include <curl/types.h>
10 #include <curl/version.h>
11 #include <curl/system.h>
12 #include <curl/time.h>
13 #include <curl/mime.h>
14 #include <curl/http.h>
15 #include <curl/httpdata.h>
16 #include <curl/url.h>
17 #include <curl/escape.h>
18 #include <curl/ssl.h>
19 #include <curl/openssl.h>
20 #include <curl/ares.h>
21 #include <curl/ares_rules.h>
22 #include <curl/ares_rules.h>
23 #include <curl/ares_rules.h>
24 #include <curl/ares_rules.h>
25 #include <curl/ares_rules.h>
26 #include <curl/ares_rules.h>
27 #include <curl/ares_rules.h>
28 #include <curl/ares_rules.h>
29 #include <curl/ares_rules.h>
30 #include <curl/ares_rules.h>
31 #include <curl/ares_rules.h>
32 #include <curl/ares_rules.h>
33 #include <curl/ares_rules.h>
34 #include <curl/ares_rules.h>
35 #include <curl/ares_rules.h>
36 #include <curl/ares_rules.h>
37 #include <curl/ares_rules.h>
38 #include <curl/ares_rules.h>
39 #include <curl/ares_rules.h>
40 #include <curl/ares_rules.h>
41 #include <curl/ares_rules.h>
42 #include <curl/ares_rules.h>
43 #include <curl/ares_rules.h>
44 #include <curl/ares_rules.h>
45 #include <curl/ares_rules.h>
46 #include <curl/ares_rules.h>
47 #include <curl/ares_rules.h>
48 #include <curl/ares_rules.h>
49 #include <curl/ares_rules.h>
50 #include <curl/ares_rules.h>
51 #include <curl/ares_rules.h>
52 #include <curl/ares_rules.h>
53 #include <curl/ares_rules.h>
54 #include <curl/ares_rules.h>
55 #include <curl/ares_rules.h>
56 #include <curl/ares_rules.h>
57 #include <curl/ares_rules.h>
58 #include <curl/ares_rules.h>
59 #include <curl/ares_rules.h>
60 #include <curl/ares_rules.h>
61 #include <curl/ares_rules.h>
62 #include <curl/ares_rules.h>
63 #include <curl/ares_rules.h>
64 #include <curl/ares_rules.h>
65 #include <curl/ares_rules.h>
66 #include <curl/ares_rules.h>
67 #include <curl/ares_rules.h>
68 #include <curl/ares_rules.h>
69 #include <curl/ares_rules.h>
70 #include <curl/ares_rules.h>
71 #include <curl/ares_rules.h>
72 #include <curl/ares_rules.h>
73 #include <curl/ares_rules.h>
74 #include <curl/ares_rules.h>
75 #include <curl/ares_rules.h>
76 #include <curl/ares_rules.h>
77 #include <curl/ares_rules.h>
78 #include <curl/ares_rules.h>
79 #include <curl/ares_rules.h>
80 #include <curl/ares_rules.h>
81 #include <curl/ares_rules.h>
82 #include <curl/ares_rules.h>
83 #include <curl/ares_rules.h>
84 #include <curl/ares_rules.h>
85 #include <curl/ares_rules.h>
86 #include <curl/ares_rules.h>
87 #include <curl/ares_rules.h>
88 #include <curl/ares_rules.h>
89 #include <curl/ares_rules.h>
90 #include <curl/ares_rules.h>
91 #include <curl/ares_rules.h>
92 #include <curl/ares_rules.h>
93 #include <curl/ares_rules.h>
94 #include <curl/ares_rules.h>
95 #include <curl/ares_rules.h>
96 #include <curl/ares_rules.h>
97 #include <curl/ares_rules.h>
98 #include <curl/ares_rules.h>
99 #include <curl/ares_rules.h>
100 #include <curl/ares_rules.h>
```

Figure 24: Code for Covid Data Search



Figure 25: Output for Covid Data Search





## Chapter 9.

### 9.1 React Environment setup ( Node JS installation ):

```
install vs code ( project import)
install node js

command prompt: npm ( list / suggestions )

Create first project :
npm init react-app firstapp

init ->
react-app ->
```

Figure 28: React environment setup

Setting up a React environment involves several steps, including installing Node.js and using npm (Node Package Manager) to manage dependencies. Here's a step-by-step guide to setting up a React environment on your system:

#### 1. Install Node.js and npm:

- Visit the official Node.js website: <https://nodejs.org/>
- Download and install the LTS (Long Term Support) version of Node.js for your operating system.
- npm (Node Package Manager) comes bundled with Node.js, so you don't need to install it separately.

#### 2. Verify Installation:

- Open a terminal or command prompt.
- Run the following commands to verify that Node.js and npm are installed correctly:

```
node -v
npm -v
```

#### 3. Create a React App:

- Once Node.js and npm are installed, you can use **create-react-app** to set up a new React project. This is a tool that sets up a pre-configured React project structure for you.
- In your terminal, run the following command to install **create-react-app** globally:

```
npm install -g create-react-app
```

#### 4. Create a New React App:

- Navigate to the directory where you want to create your new React app.
- Run the following command to create a new React app named "my-react-app":

```
npx create-react-app react-app
```

#### 5. Navigate to the App Directory:

- Move into the newly created app directory:

```
cd react-app
```

#### 6. Start the Development Server:

- To start the development server and view your React app in the browser, run:

```
npm start
```

- This command will start the development server, and your app should automatically open in your default web browser at <http://localhost:3000/>.

#### 7. Explore and Modify:

- Now you can start building your React app by modifying the files in the **src** directory of your project. The app will hot-reload as you make changes, so you can see your updates in real-time.

#### 8. Additional Configuration:

- You can customize your React app's behavior and appearance by modifying the **src** files, including **App.js** for the main component and **index.html** for the HTML template.
- You can also install additional npm packages to add functionality to your app. Use the **npm install** command followed by the package name to install new dependencies.

### 9.2 First React App:

```
src > App.js > Add (100)
1  import logo from './logo.svg';
2  import './App.css';
3
4  function App() {
5    return (
6      <div>
7        <h1>Hello</h1>
8        <h2>INFO LAB 2123</h2>
9      </div>
10   );
11 }
12
13 function Msg(){
14   return(
15     <div>
16       <h2>New Message from MSG Component</h2>
17     </div>
18   );
19 }
20
21 function Add(){
22   var a = 100, b = 000;
23   return(
24     <div>
25       <h1>Addition of {a} and {b} is {a+b}</h1>
26     </div>
27   );
28 }
```

Figure 29: First React app

### 9.3 Functional Components:

```
function Mycomp(){
  return(
    <div>
      <h1>First custom component</h1>
    </div>
  );
}

function Compone(){
  return(
    <div>
      <h1>This is second comp one </h1>
    </div>
  );
}

export default Mycomp;
export {Compone};

import React from 'react';
import ReactDOM from 'react-dom/client';
import './index.css';
import App, {Msg, Add} from './App';
import reportWebVitals from './reportWebVitals';
import Mycomp, {Compone} from './customcomp';

const root = ReactDOM.createRoot(document.getElementById('root'));
root.render(
  <React.StrictMode>
    <App />
    <Msg />
    <Add />
  </React.StrictMode>
);

// If you want to start measuring performance in your app, pass a function
// to log results (for example: reportWebVitals(console.log))
// or send to an analytics endpoint. Learn more: https://bit.ly/CRA-vitals
reportWebVitals();
```

Figure 30: Functional Components

## 9.4 Class Components:

```
classcomponent.js X
classcomponent.js >...
1  import React, { Component } from 'react';
2
3  class Mycomp extends Component {
4    render() {
5      return (
6        <div>
7          <h1>First custom component</h1>
8        </div>
9      );
10   }
11 }
12
13 class Compone extends Component {
14   render() {
15     return (
16       <div>
17         <h1>This is second comp one</h1>
18       </div>
19     );
20   }
21 }
22
23 export default Mycomp;
24 export { Compone };
25
```

Figure 31: Class Components

# Chapter 10. Mapping

## 10.1 Variable data map:

```
1 import json from './log.js';
2 import './App.css';
3 function App() {
4   const newdata = "new are good!";
5   return (
6     <div>
7       <divVariable DataMap>
8         <div>{newdata}</div>
9         <div>{data}</div>
10      </div>
11    );
12  }
13  const data = "00000";
14  const newdata = [90, 100, 150, 200, 300];
15  function newcomp() {
16    return (
17      <div>
18        <divVariable DataMap>
19          <div>{data}</div>
20          <div>{newdata}</div>
21        </div>
22      );
23    }
24  function AppData() {
25    return (
26      <div>
27        <divVariable DataMap>
28          <div>{data}</div>
29          <div>{newdata}</div>
30        </div>
31      );
32    }
33  }
34  export default App;
35  export {DataMap, newcomp};
36  export {AppData};
37  export {DataMap};
38  export {DataMap};
39  export {DataMap};
40  export {DataMap};
41  export {DataMap};
42  export {DataMap};
43  export {DataMap};
44  export {DataMap};
45  export {DataMap};
46  export {DataMap};
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91  export {DataMap};
92  export {DataMap};
93  export {DataMap};
94  export {DataMap};
95  export {DataMap};
96  export {DataMap};
97  export {DataMap};
98  export {DataMap};
99  export {DataMap};
100 export {DataMap};
```

Figure 32: Variable data map

## 10.1 Object map:

```
1 import json from './log.js';
2 import './App.css';
3 function App() {
4   return (
5     <div>
6       <divObject Data Map>
7     </div>
8   );
9 }
10
11 const data = [{"id": "value1", "name": "value2"}];
12 function Details() {
13   return (
14     <div>
15       <divObject Data Map>
16       </div>
17       <div>{data}</div>
18       <div>{data}</div>
19     </div>
20   );
21 }
22
23 const firstdata = {
24   "spacecraft": {
25     "id": 1,
26     "name": "Spacecraft"
27   }
28 };
29
30 const seconddata = {
31   "id": 2,
32   "name": "Spacecraft"
33 };
34
35 const thirddata = {
36   "id": 3,
37   "name": "Spacecraft"
38 };
39
40 const fourthdata = {
41   "id": 4,
42   "name": "Spacecraft"
43 };
44
45 const fifthdata = {
46   "id": 5,
47   "name": "Spacecraft"
48 };
49
50 function DataMap() {
51   return (
52     <div>
53       <divObject Data Map>
54       </div>
55       <div>{data}</div>
56       <div>{data}</div>
57     </div>
58   );
59 }
60
61 export default App;
62 export {DataMap};
63 export {DataMap};
64 export {DataMap};
65 export {DataMap};
66 export {DataMap};
67 export {DataMap};
68 export {DataMap};
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94 export {DataMap};
95 export {DataMap};
96 export {DataMap};
97 export {DataMap};
98 export {DataMap};
99 export {DataMap};
100 export {DataMap};
```

Figure 33: Object data map

# Chapter 11. React Props and Bootstrap

## React Props:

```
1 import App from './App';
2 import './App.css';
3 import Details, {Multipladata} from './propcomponents';
4
5 function App() {
6   return (
7     <div className="App">
8       <h1>hello />
9     </div>
10  );
11 }
12
13 function New()
14   return(
15     <div>
16       <h1>New component added.</h1>
17       <Details name="info1abz" />
18       <Details name="GIT" />
19       <Details name="xyz" />
20       <Multipladata name="info1abz" email="info@info1abz.in" />
21       <Multipladata name="xyz" email="xyz@gmail.com" />
22     </div>
23   );
24 }
25
26 export default App;
27 export {New};
```

Figure 34: React Props

## React Bootstrap:

```
1 import React from 'react';
2 import './App.css';
3 import Button, Table from 'react-bootstrap';
4
5 function App() {
6   return (
7     <div>
8       <h1>hello />
9     </div>
10  );
11 }
12
13 function New()
14   return(
15     <div>
16       <Button href="#">Click here</Button>
17     </div>
18   );
19 }
20
21 function TableComp()
22   return(
23     <table border="1">
24       <thead>
25         <tr>
26           <th>ID</th>
27           <th>Name</th>
28           <th>Email</th>
29           <th>Phone</th>
30         </tr>
31       </thead>
32       <tbody>
33         <tr>
34           <td>1</td>
35           <td>John</td>
36           <td>john@example.com</td>
37           <td>1234567890</td>
38         </tr>
39         <tr>
40           <td>2</td>
41           <td>Jane</td>
42           <td>jane@example.com</td>
43           <td>9876543210</td>
44         </tr>
45       </tbody>
46     </table>
47   );
48 }
49
50 export default App;
51 export {New, TableComp};
```

Figure 35: React bootstrap

## Chapter 12. React Hooks: UseEffect and UseState

```
App.js
import Logo from './logo.png';
import './App.css';
import { Container, Row, Col, Card, Table } from 'react-bootstrap';
import 'bootstrap/dist/css/bootstrap.min.css';
import React, { useState, useEffect } from 'react';

function App() {

  return (
    <Container fluid>
      <Row xs={1} md={3} className="g-4">
        <Col className="container-fluid mt-4">
          <Card>
            <Card.Img variant="top" src="holder.js/100px160" />
            <Card.Body>
              <Card.Title>Card title</Card.Title>
              <Card.Text>
                This is a longer card with supporting text below as a natural
                lead-in to additional content. This content is a little bit
                longer.
              </Card.Text>
            </Card.Body>
          </Card>
        </Col>
      </Row>
    </Container>
  );
}
```

Figure 36: React Hooks: UseEffect and UseState



## Chapter 13. API data fetch with react

```
App.js > App > mydata.map() callback
import logo from './logo.svg';
import './App.css';
import { Container, Row, Col, Card, Table } from 'react-bootstrap';
import 'bootstrap/dist/css/bootstrap.min.css';
import React, { useState, useEffect } from 'react';

function App() {

  const [mydata, setData] = useState([]);

  const apiget = () => {
    fetch('https://inshortsapi.vercel.app/news?category=all')
      .then((response) => response.json())
      .then((json) => {
        console.log(json);
        setData(json.data);
      });
  };

  useEffect(() => {
    const interval = setInterval(() => {apiget();}, 500000);
    return () => clearInterval(interval);
  }, []);

  return (
    <Container fluid>
      <Row xs={1} md={3} className="g-4">
        {
          mydata.map(
            (value) => {
              return (
                <Col className="container-fluid mt-4">
                  <Card>
                    <Card.Img variants="top" src={value.imageurl} />
                    <Card.Body>
                      <Card.Title>{value.title}</Card.Title>
                      <Card.Text>
                        {value.content}
                      </Card.Text>
                      <Footer className="blockquote-footer">
                        published on : {value.date} , {value.time}
                      </Footer>
                    </Card.Body>
                  </Card>
                </Col>
              );
            }
          )
        }
      </Row>
    </Container>
  );
}

export default App;
```

Figure 37: API data fetch with react

## Chapter 14. Final Project (API based real-time news web application)

```

newweb > src > App.js > App > @spiget > @then@callback
1  import ReactDOM from 'react-dom'
2  import './App.css'
3  import { Container, Row, Col, Card, Title } from 'react-bootstrap'
4  import 'bootstrap/dist/css/bootstrap.min.css'
5  import { React, useState, useEffect } from 'react'
6
7  function App() {
8
9      const [mydata, setData] = useState([])
10
11      const spiget = () => {
12          fetch('https://inshorts.me/news/all?format=json&limit=21')
13              .then((response) => response.json())
14              .then((json) => {
15                  console.log(json)
16                  setData(json.data.articles)
17              })
18          }
19      }
20      useEffect(() => {
21          spiget()
22          const interval = setInterval(() => spiget(), 5000)
23          return () => clearInterval(interval)
24      }, [])
25
26      return (
27          <Container fluid>
28              <Row xs={1} md={3} className="g-4">
29                  {
30                      mydata.map(
31                          (value) => {
32                              return (
33                                  <Col className="container-fluid">
34                                      <Card>
35                                          <Card.Img variant="top" src={value.imageUrl} height="200px"/>
36                                          <Card.Body>
37                                              <Card.Title>{value.title}</Card.Title>
38                                              <Card.Text>
39                                                  {value.content}
40                                              </Card.Text>
41                                          </Card.Body>
42                                      </Card>
43                                  </Col>
44                              </>
45                          )
46                      }
47                  </Row>
48              </Container>
49          )
50      )
51  }
52  export default App

```

Figure 38: Code for API based real-time news web application



Figure 39: Output for API based real-time news web application

## References

<https://infolabz.in/about.php>

# INTERNSHIP AT AELLON TECHNOLOGY

## AN INTERNSHIP REPORT

*Submitted by*

**Patel Jay Ashwinbhai**

190390107037

*In partial fulfillment for the award of the degree of*

## BACHELOR OF ENGINEERING

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

May, 2023



S.P.B. PATEL  
ENGINEERING COLLEGE  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College**

Near Shunku's Water Park, Ahmedabad – Mehsana Highway, Lincb, Gujarat

## CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Internship at AELLON TECHNOLOGY** has been carried out by **Patel Jay Ashwinbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Prof. Chetan Chauhan

Internal Guide

Sign

Prof. AkshayKansara

Head of Department

## Company Certificate



Aellon Technology pvt ltd

- Bhal, Ahmedabad
- +91 81242 90333
- ✉ aellontech@gmail.com

DATE - 3<sup>rd</sup> May 2023

## COMPATION CERTIFICATE

This is to certify that Mr.Jay Patel has successfully completed an internship program with our company from 1 February 2023 to 30 April 2023, and is continuing to work with us as an intern. During the course of the internship, Mr.Jay Patel has shown exceptional aptitude in learning Magento,HTML & CSS technology and has demonstrated excellent problem-solving skills.

Please note that due to company policy, we are unable to provide the source code of the projects that Mr.Jay Patel has worked on during her internship. However, we can confirm that he has been involved in the development and implementation of several Magento,HTML & CSS projects, and has contributed to their successful completion.

We can confidently say that Mr.Jay Patel has been a quick learner and has shown a strong willingness to take on new challenges. He has been an enthusiastic and dedicated member of our team, and his work has been of a consistently high standard.

We are proud to issue this certificate to Mr.Jay Patel and acknowledge that he is still working with us as an intern, and will continue to do so as required.

Sincerely,  
AELLON TECHNOLOGY  
FOR AELLON TECHNOLOGY PRIVATE LIMITED  
Hardik Patel (CEO)



# PMMS Certificate



## GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 03 May 2023 (20:14:57)

This is to certify that, *Patel Jay Ashwinbhai* ( Enrolment Number - 190390107037 ) working on project entitled with *Intership At Aellon Technology* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : Patel Jay Ashwinbhai

Name of Guide : Mr. Chetan Ranchodhbhai Chauhan

Signature of Student :

\*Signature of Guide :

### Disclaimer :

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate. Only if all above activities has been Completed



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

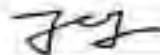
## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at AELLON TECHNOLOGY** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Zinal Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Patel Jay Ashwinbhai**

  
\_\_\_\_\_



## ACKNOWLEDGMENT

We would like to extend heartiest thanks to Mrs. Monali Vaghani (Project Manager, Aellon Technology), for supporting us during the internship period. He guided us all the time and motivated us within his busy schedule.

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Our sincere thanks to Prof. Chetan Chauhan (Computer Engineer Department) for the unconditional and overwhelming support during the entire session of study and development, also for guiding us throughout the internship period. All the faculties from our department provided us a favourable environment and necessary guidance, without them we would not have achieved our goal. They have always been available for us despite their busy schedule and were always a great source of inspiration for us.

A blend of gratitude, pleasure and great satisfaction is what we feel to convey our indebtedness to all those who have directly and indirectly contributed to the successful completion of the project.

## ABSTRACT

This report is a detailed overview of my internship journey at AELLON TECHNOLOGY. During my Internship I have learned a lot about how the industry of web development actually works, what are the parameters, how to work on an actual project, how to work in a flow of team work. I have known about the work flow of full stack developers roles and responsibilities. This project aims to develop an E-Commerce Website. Within this, the product is sold online and people's lives become easier. As there are different web browsers available to access websites whether it is on phone or laptop. It has been a challenging task for companies to make responsive and fast websites that can be accessed through different devices. Therefore, we used cutting edge technologies to deal with this problem like Magento 2. This project is basically an E-commerce consultancy website in which we have provided information regarding consultancy services to help sellers to sell their products on different e-commerce platforms like Amazon, Ebay, and Walmart, Ali Baba etc.

The internship with AELLON TECHNOLOGY provides an excellent opportunity to gain practical experience in developing a real-world E-Commerce Website Solution.

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## **Abbreviations**

**API** – Application Programming Interface

**B2B** – Business to Business

**B2C** – Business to Customer

**CLI** – Command – Line Interface

**CMS** – Content Management System

**CSV** – Comma-Separated Values

**DB** – Database

**SKU** – Stock Keeping Unit

**XHTML** – Extensible HyperText Markup Language

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# CHAPTER 1 :-OVERVIEW OF THE COMPANY

## 1.1 HISTORY

Aellon Technology is a team of software professionals experienced in delivering technology consulting and solutions related to website development, application development, artificial intelligence, API development, social media marketing, and graphic designing.

Aellon Technology has a proven track record of exceeding customer expectations through dedication and hard work. They understand the client's business needs and subsequently strive to provide continuous innovation through extensive experience in software development. They combine the cost advantages of an offshore only model with the uncompromising quality standards of a top-notch development team. Our team encourages flexible engagement that quickly aligns with the client's dynamic business models.

## 1.2 SCOPE OF WORK

They offer website development and maintenance, social media marketing, API development, and Artificial Intelligence solutions as well as provides cross-platform mobile application development solutions using Magento framework.



### 1.3 ORGANIZATION CHART

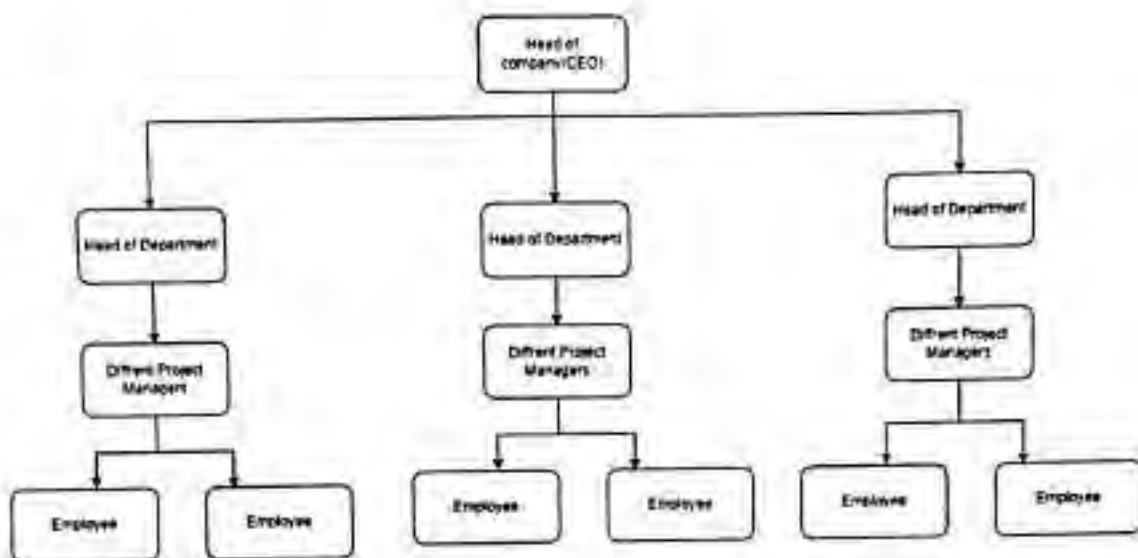


Fig 1.1 Organization Chart

### 1.4 CAPACITY OF COMPANY

More than 10 employees work in this company and about 20 interns work in the company .

## **CHAPTER 2:-OVERVIEW OF DIFFERENT DEPARTMENT OF THE ORGANIZATION**

### **2.1 WORK IN EACH DEPARTMENT**

#### **PHP Development Department**

PHP developer is responsible for writing server-side web application logic. PHP developers usually develop back-end components, connect the application with the other (often third-party) web services, and support the front-end developers by integrating their work with the application. They are also often required to develop and integrate plugins for certain popular frameworks.

#### **Website Development Department**

A web developer is a tech-savvy role that requires expertise in web design and involves translating customer needs into interactive web apps with visual elements that users see and interact with. A front-end developer is responsible for ensuring that the application is optimized both in technology and aesthetics while delivering the best user experience on desktop and mobile. Most frontend frameworks use JavaScript open-source programs. Two popular frameworks, Angular and React are examples. Front-end development might also use extension languages like SASS, which can extend the functionality of an existing CSS.

## Backend development Department

Backend development refers to the creation and maintenance of the back end of a website.

There are three components to the backend of a website

- 1) Servers share data and resources, distribute work and process computations in a variety of use cases.
- 2) An application is computer software designed to help the user perform specific tasks.
- 3) A database is used to store and organise data.

Backend development typically relies a little more heavily on frameworks and libraries because they help developers create web applications that can use a programming language to communicate with the database and generate the final content effectively. For backend work, many popular frameworks adopt a model view controller (MVC) pattern that separates application concerns into clearly defined layers. Popular examples of MVC frameworks for backend development are Django, ASP.NET, MVC, and Ruby on the Rails.

## 2.2 LIST OF EQUIPMENTS IN COMPANY

Conference rooms, large size computers used in our company and A.C, etc.

## 2.3 SCHEMATIC LAYOUT OF OPERATION FOR MANUFACTURING OF END PRODUCT



Fig 2.1 Phases of Software Development

### Analysis

Requirement analysis is the most important and fundamental stage in SDLC. It is performed by the senior members of the team with inputs from the customer, the sales department, market surveys and domain experts in the industry. This information is then used to plan the basic project approach and to conduct product feasibility study in the economical, operational and technical areas.

### Design

In this third phase, the system and software design documents are prepared as per the requirement specification document. This helps define overall system architecture. This design phase serves as input for the next phase of the model.

There are two kinds of design documents developed in this phase:

## High-Level Design (HLD)

- Brief description and name of each module
- An outline about the functionality of every module
- Interface relationship and dependencies between modules
- Database tables identified along with their key elements
- Complete architecture diagrams along with technology details

## Low-Level Design (LLD)

- Functional logic of the modules
- Database tables, which include type and size
- Complete detail of the interface
- Addresses all types of dependency issues
- Listing of error messages
- Complete input and outputs for every module

## Development

Once the system design phase is over, the next phase is coding. In this phase, developers start build the entire system by writing code using the chosen programming language. In the coding phase, tasks are divided into units or modules and assigned to the various developers. It is the longest phase of the Software Development Life Cycle process. In this phase, Developer needs to follow certain predefined coding guidelines. They also need to use programming tools like compiler, interpreters, debugger to generate and implement the code .

## **Testing**

Once the software is complete, and it is deployed in the testing environment. The testing team starts testing the functionality of the entire system. This is done to verify that the entire application works according to the customer requirement. During this phase, QA and testing team may find some bugs/defects which they communicate to developers. The development team fixes the bug and send back to QA for a re-test. This process continues until the software is bug-free, stable, and working according to the business needs of that system.

## **Deployment**

Once the software testing phase is over and no bugs or errors left in the system then the final deployment process starts. Based on the feedback given by the project manager, the final software is released and checked for deployment issues if any.

## **Maintenance**

Once the system is deployed, and customers start using the developed system, following

3 activities occur

- Bug fixing – bugs are reported because of some scenarios which are not tested at all
- Upgrade – Upgrading the application to the newer versions of the Software
- Enhancement – Adding some new features into the existing software

The main focus of this SDLC phase is to ensure that needs continue to be met and that the system continues to perform as per the specification mentioned in the first phase.

## **CHAPTER 3:-INTRODUCTION TO INTERNSHIP MANAGEMENT**

### **3.1 INTERNSHIP SUMMARY**

It was an incredible experience to learn a trending technology in today's era while studying. I learned about web development in Magento 2 framework which is used to make Website quick and robust so that user can interact smoothly.

Magento 2 offers a fast and hassle-free way to create and deploy web applications. This project deals with developing an informative website about seller account services for different platforms like Amazon. It provides the user with all the services available as well as different blogs and books on how to improve their sells as an seller.

### **3.2 PURPOSE**

The purpose of the internship was to learn web development process while learning state-of-the-art technology, therefore I choose Magento 2 framework. That eventually help me to become a React developer.

### **3.3 OBJECTIVE**

The primary objective of ecommerce site is to offer a great user experience for its customers. This means making sure that the site is easy to operate and that all features are accessible without difficulty. It also means ensuring that the website looks and feels good, both on desktop and mobile devices.

### **3.4 SCOPE**

The scope of ecommerce is expanding day by day due to the heavy number of internet users all over the world. People are spending more time in doing online shopping for various products available on the ecommerce platforms. According to Demand Sage, 2.14 billion people are shopping through e-commerce as of 2022. People spend more time online shopping for various products available on e-commerce platforms. Amazon offers items in almost every category to all the users. Additionally, It also provides the best promotion and discounts whenever seasonal sales come. The impact of e-commerce is really good in all the developing countries.

## **3.5 TECHNOLOGY AND LITERATURE REVIEW**

### **3.5.1 HTML**

HTML stands for HyperText Markup Language. It is used to design web pages using a markup language. HTML is the combination of Hypertext and Markup language. Hypertext defines the link between web pages. A markup language is used to define the text document within the tag which defines the structure of web pages. This language is used to annotate (make notes for the computer) text so that a machine can understand it and manipulate text accordingly. Most markup languages (e.g. HTML) are human-readable. The language uses tags to define what manipulation has to be done on the text.

### **3.5.2 CSS**

Cascading Style Sheets, fondly referred to as CSS, is a simply designed language intended to simplify the process of making web pages presentable. CSS allows you to apply styles to web pages. More importantly, CSS enables you to do this independent of the HTML that makes up each web page. It describes how a webpage should look: it prescribes colors, fonts, spacing,



and much more. In short, you can make your website look however you want. CSS lets developers and designers define how it behaves, including how elements are positioned in the browser.

### 3.5.3 PHP

The term PHP is an acronym for PHP: Hypertext Preprocessor. PHP is a server-side scripting language designed specifically for web development. It is open-source which means it is free to download and use. It is very simple to learn and use. The files have the extension “.php”. Rasmus Lerdorf inspired the first version of PHP and participated in the later versions. It is an interpreted language and it does not require a compiler.

- PHP code is executed in the server.
- It can be integrated with many databases such as Oracle, Microsoft SQL Server, MySQL, PostgreSQL, Sybase, and Informix.
- It is powerful to hold a content management system like WordPress and can be used to control user access.
- It supports main protocols like HTTP Basic, HTTP Digest, IMAP, FTP, and others.
- Websites like [www.facebook.com](http://www.facebook.com) and [www.yahoo.com](http://www.yahoo.com) are also built on PHP.
- One of the main reasons behind this is that PHP can be easily embedded in HTML files and HTML codes can also be written in a PHP file.
- The thing that differentiates PHP from the client-side language like HTML is, that PHP codes are executed on the server whereas HTML codes are directly rendered on the browser. PHP codes are first executed on the server and then the result is returned to the browser.
- The only information that the client or browser knows is the result returned after executing the PHP script on the server and not the actual PHP codes

present in the PHP file. Also, PHP files can support other client-side scripting languages like CSS and JavaScript.

### **3.5.4 Java Script**

JavaScript is a lightweight, cross platform single-threaded, and interpreted compiled programming language which is also known as the scripting language for webpages. It is well-known for the development of web pages, and many non-browser environments also use it. JavaScript is a weakly typed language(dynamically typed). JavaScript can be used for Client-side developments as well as Server-side developments. JavaScript is both an imperative and declarative type of language. JavaScript contains a standard library of objects, like Array, Date, and Math, and a core set of language elements like operators, control structures, and statements.

### **3.5.5 SQL**

SQL stands for Structured Query Language.

SQL lets you access and manipulate databases.

SQL became a standard of the American National Standards Institute (ANSI) in 1986, and of the International Organization for Standardization (ISO) in 1987.

### **3.5.6 Magento 2**

The Magento 2 tutorial provides an introduction of Magento 2 software. Magento 2 is a CMS (Content Management System), developed by Varien Inc.

It is an open-source software which is a very useful software for online business. Magento 2 is developed in PHP and Zend framework. Magento 2 is currently the largest E-commerce platform in the world. Magento 2 is known for easy customization and extension of its functionalities.

In this Magento 2 tutorial, we will learn the Magento coding practices and also discuss the various topics such as the installation of Magento 2 software, History of Magento 2, Features of Magento 2, Advantages and disadvantages, and Architecture, etc. This tutorial will contain the various sections, and each section will contain the related topics with it, explaining with proper screenshots.

You will learn how to download and how to set a customize Magento 2 on local XAMPP webserver correctly. The main installation error will also be considered in this tutorial. We will find out how to create, set, and activate the user theme based on Luma theme.

### **3.5.7 GitHub**

GitHub is the world's largest open-source developer community platform where users upload their projects and code for others to view, edit, and tweak. The idea of GitHub is this: any developer can upload whatever software code or app code or software idea they have on the platform, and have others collaborate with them to help improve it, find errors, and fix problems.

Any public project can be viewed by others on the platform. Most of the features of the platform are free for users. Organisations can use paid accounts to upload their software and projects for collaboration.

The platform uses the software Git, which was created in 2005 by Linus Trovalds, the developer of the open-source operating system Linux, to track changes in a set of files and for coordination in software development.

### **3.6 INTERNSHIP PLANNING**

In managing any project, the whole plan of the project is made before its actual implementation. The plan of the project helps the team to work as per the schedule and helps to successfully complete the project. To plan a project the main requirements that are

calculated are cost, duration, effort, scheduling, manpower, resource allocation, risk management etc. We planned on taking a time-based approach to deliver this product on time. To begin with, we create a set of internal deadlines to complete certain tasks. This will give us a general idea on how to meet the final deadline on time.

#### **3.6.1 Internship Effort and Time, Cost Estimation**

Project cost estimating is the process of predicting the total cost of the tasks, time and resources required to deliver a project's scope of work. Project cost estimation predicts the overall cost of a project by accurately outlining its scope of work. It requires looking at the tasks, duration, and resources required to forecast a project's total cost to deliver. The closer the estimate is to the actual cost of a project, the more likely spending will stay in the green once the project starts. Parameter Estimation is used for Project Cost Estimation. Parameter estimation is a data driven approach to project cost estimating. It uses past data to give us a more reliable estimate of a project's overall cost. First, we need to calculate how much time will be spent on each task on your

list. Next, add a cost figure by multiplying the hours of each task with each team member's hourly rate.

$$\text{Task Duration} \times \text{Employee's Hourly Rate} = \text{Task Cost}$$

Once I have calculated the cost for every task, will add them all up to reach an estimated total. An hourly rate is the amount of money that I receive for each hour I spend working

### 3.6.2 Roles and Responsibilities

Name	Roles				
	Analysis	Designing	Coding	Testing	Documentation
Jay	✓	✓	✓		

Table 3.1 Roles and Responsibilities Table

My role in team was to analysis, design and code its functionality.

## **CHAPTER 4:-SYSTEM ANALYSIS**

### **4.1 STUDY OF CURRENT SYSTEM**

The Internet related data and communication advancements offer extraordinary open doors for business development. The internet and related advancements Organizations can utilize a global innovation program for e-commerce. Online-stores systems are developed as distributed applications. The architecture of an e-commerce system conceived as a distributed application. The Internet associated information and communication technologies offer unprecedented opportunities for business innovation. Companies can use the Internet and associated technologies extensively as a global and cost effective program for e-commerce. This paper suggests that processes such as project design are personalized, and profiling, control, and security should be implemented in an e-commerce application. Also, search management, content management, payment systems, catalog management, workflow management, event notification, and collaboration and trading. This paper suggests that processes such as project design or content management, payment systems, and search management coordinated effort and exchanging.

### **4.2 TECHNICAL FEASIBILITY**

#### **Functional Requirements**

- User-friendliness.
- Whatsapp
- Live Chat

- Responsive (Mobile & Desktop)
- Unique, recognizable design,

### **Non-functional Requirements**

- Usability: Regardless of the size of your business, the application should be easy to use

for even a non-technical user.

- Performance
- Maintainability
- Scalability

## **4.3 ECONOMIC FEASIBILITY**

### **Costs for technology**

To produce an ecommerce application requires a high-speed connection to the Internet, a web server, and software.

### **Costs for technological development**

This will involve a number of programmers who are able to interpret your functional requirements and program/create your application.

### **Costs for the consultancy support (design and implementation)**

You would require the services of specialists in e-commerce design and implementation to guide you through this process.

### **Running costs**

These are an upkeep of the backend servers and maintenance costs for UI upgradation or any function changes.

### **Function of the System**

A seller of an e-commerce website who wants to improve his business can come to our website and see all the services available and decide what he wants.

Moreover, if there are any questions or he need more information he can fill an inquiry form.

Also, this website provide latest blogs on seller account and links to the books for the same.

## **4.4 CHARACTERISTICS**

**Well Planned Information Architecture** How information is organized and presented on your application is vital for user-friendly. However, it is often neglected. It has become even more important today as application offer a wide range of information and resources to attract their target market. Plan your application sections and categories carefully and present information in a way that it is easy for users to find. Always think from the perspective of your users. This is particularly important if you offer a lot of content on your company's application.

**Quick Loading Time** - Nothing is more annoying for user than an application that takes long to load. In fact, slow speed is one of the main reasons why visitors leave an application.



Making sure your website loads within 4 to 6 seconds is important for good usability. It also affects your search engine ranking.

Effective Navigation - Good navigation is one of the most important aspects of application usability.

## **4.5 HARDWARE AND SOFTWARE CHARACTERISTICS**

Hardware Requirement for a web application development - Robust server running Linux can serve hundreds of unique customers each day or alternative can use cloud services.

Low traffic app can be easily served from a single machine depending on the needs of the business. High traffic sites require a backup of servers which automatically takes over operations in case of failure of primary ones.

Software Requirements for Web application – Several software are available free on the internet that can be used to build web application. Ex: - Vs Code Notepad++, Magento 2 framework.

## **CHAPTER 5:-SYSTEM DESIGN**

### **5.1 DATABASE STRUCTURE DESIGN**

Structure of database should have high availability, fault-tolerant, and highly responsive to provide user with a smooth user experience. When designing a structure of database, it can be divided into three main components for better categorization and understanding of the underlying data structure.

## 5.2 USE-CASE DIAGRAM

USER

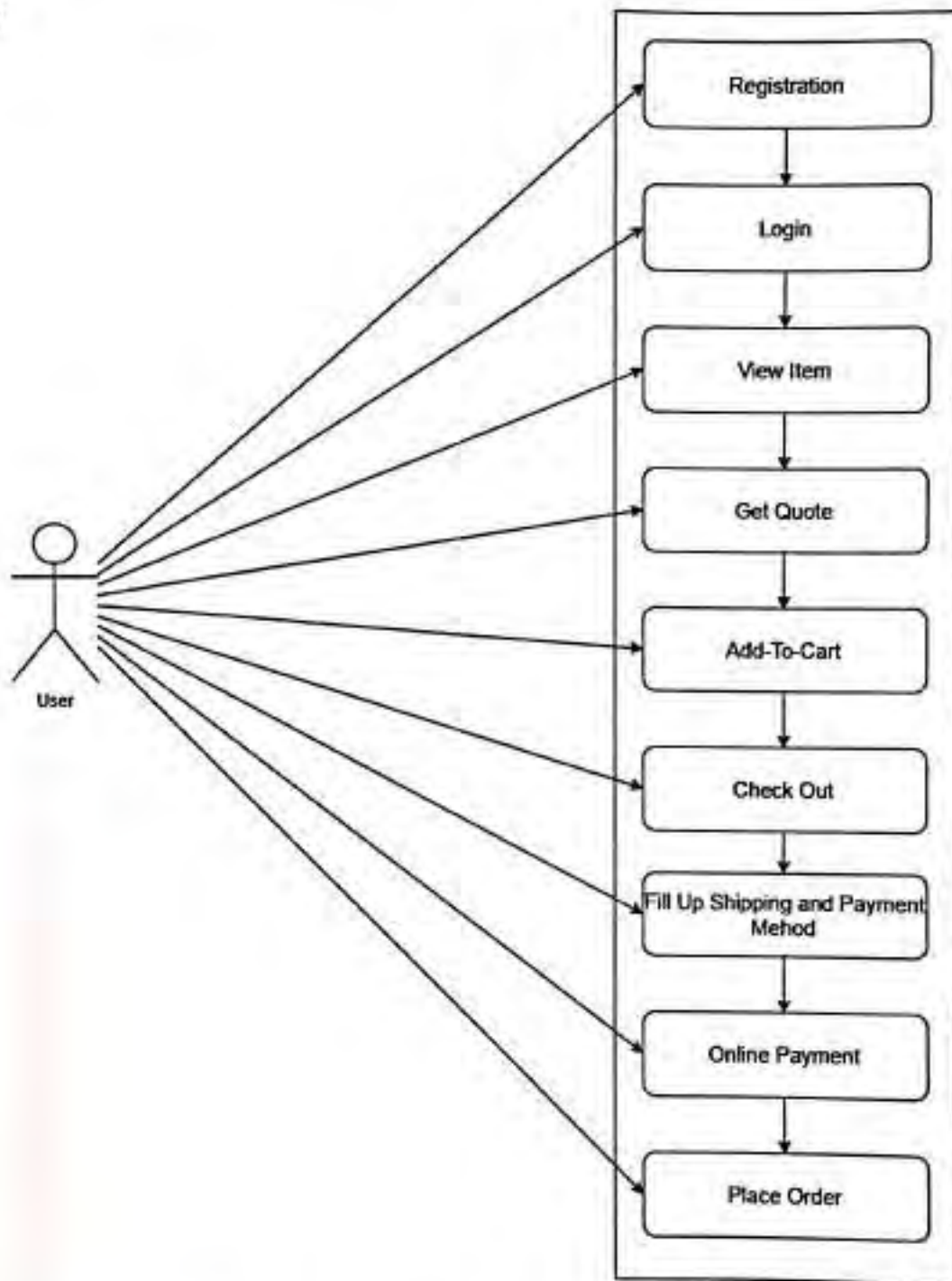


Fig 5.1 User Use-Case Diagram

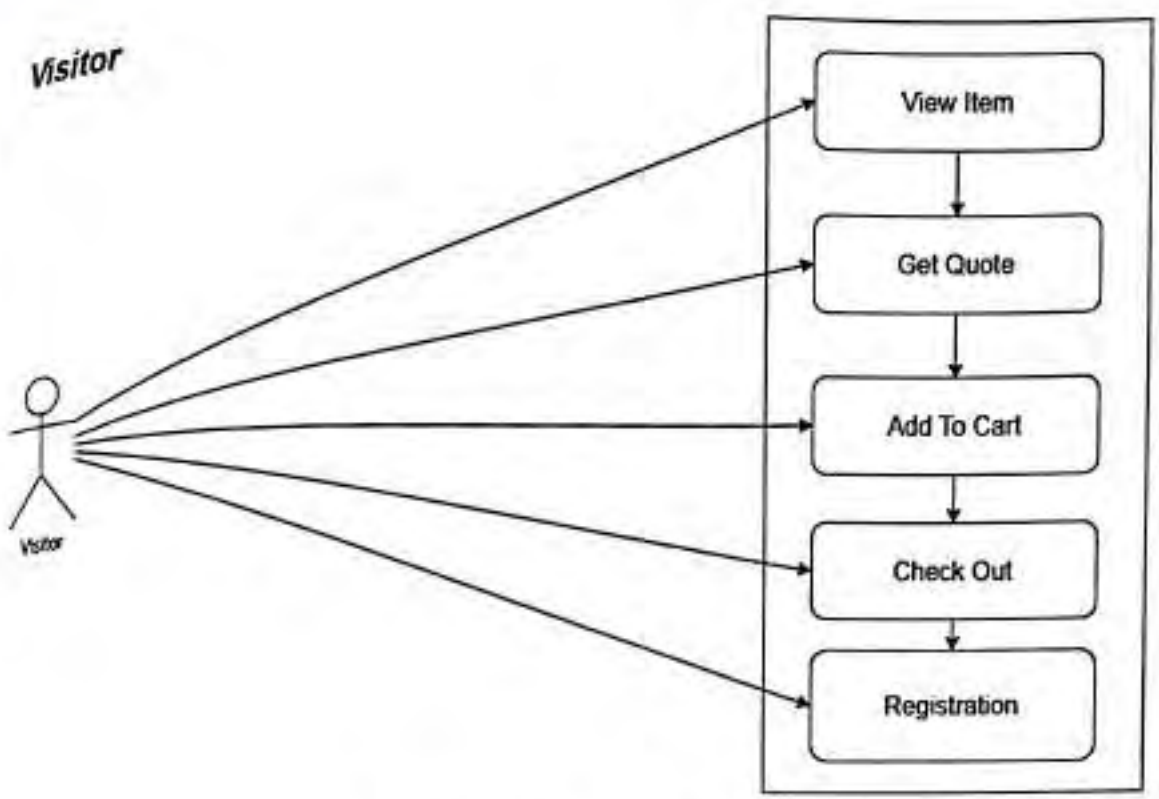


Fig 5.2 Visitor Use-Case Diagram

## CHAPTER 6:- IMPLEMENTATION

### 6.1 IMPLEMENTATION ENVIRONMENT

#### Backend Server

A backend server is used to host a functional backend of e-commerce website. All the files related to backend of application such as PHP files, databases, media files that handle the entire application data are stored on this server.

#### Application development Kits

Magento 2 are used for web app development. Besides, It's are used to create Website. Here, we have used Vs Code as the primary for development and with the Magento 2 extensions.

#### Admin Panel

The main administration of the whole E-commerce Website project is can be done through the Admin Panel which is made using Magento 2 and is used as CMS (Content Management System).

### 6.2 MODULE SPECIFICATION

- Magplaza Blog
- Magplaza Core
- Dangs Whatsappchat
- Tawk Widget

## 6.3 RESULTS / OUTCOMES



Fig 6.1 Home Page(1)



Fig 6.1 Home Page(2)



Fig 6.1 Home Page(3)

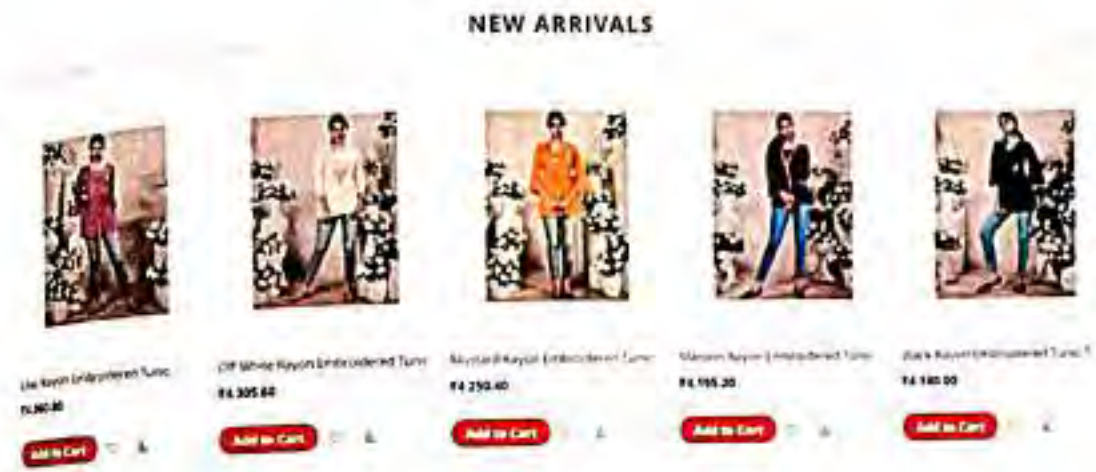


Fig 6.1 Home Page(4)

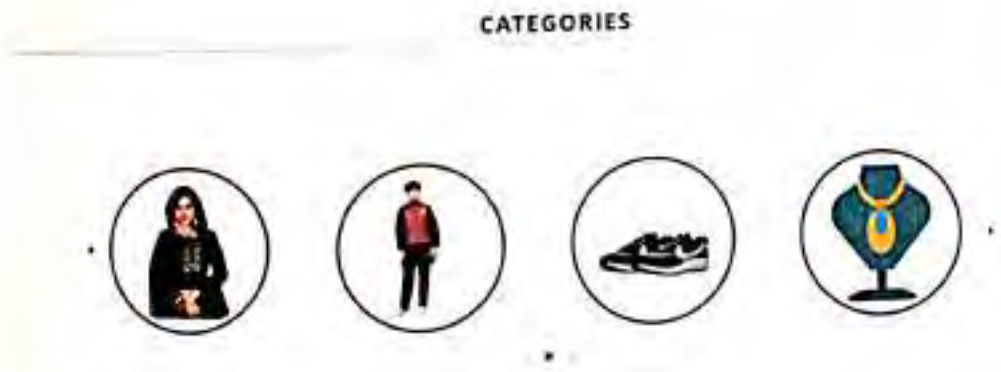


Fig 6.1 Home Page(5)

## Create New Customer Account

### Personal Information

First Name \*

Last Name \*

Sign us to remember

### Sign Information

Email \*

Password \*

Repeat Email to Password \*

Confirm Password \*

I accept terms

Create an Account

Fig 6.2 Registration Page



## Customer Login

### Registered Customers

If you have an account, sign in with your email address.

Email \*

Password \*

Show Password



Sign In Your Password

[Forgot Password](#)

### New Customers

Creating an account has many benefits. Check out Super Deals more than one million. Don't miss out on these.

[Create an Account](#)

Fig 6.3 Login Page

# MEN

Discover the new styles for men from our men's collection. From casual to formal, from sporty to elegant, we have everything you need for every occasion. Browse our men's collection and find the perfect outfit for you. We have a wide range of styles to choose from, including shirts, t-shirts, jackets, and more. Shop now and get the latest trends in men's fashion.

### Shopping Options

- 1275.00
- 1100.00
- 1050.00
- 1000.00
- 950.00
- 900.00
- 850.00
- 800.00
- 750.00
- 700.00
- 650.00
- 600.00
- 550.00
- 500.00
- 450.00
- 400.00
- 350.00
- 300.00
- 250.00
- 200.00
- 150.00
- 100.00
- 50.00
- 0.00

### Compare Products

You have 0 items to compare

### My Wish List

You have 0 items in your wish list

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



Men's Striped Button Down Shirt  
Price: ₹ 1,499.00



Men's Patterned Button Down Shirt  
Price: ₹ 1,399.00



Men's White Button Down Shirt  
Price: ₹ 1,499.00



Men's Blue Button Down Shirt  
Price: ₹ 1,399.00



Men's Red Button Down Shirt  
Price: ₹ 1,499.00



Men's Black Button Down Shirt  
Price: ₹ 1,399.00



Men's Light Blue Button Down Shirt  
Price: ₹ 1,499.00



Men's Patterned Button Down Shirt  
Price: ₹ 1,499.00



Men's Plaid Button Down Shirt  
Price: ₹ 1,499.00



Men's Yellow Button Down Shirt  
Price: ₹ 1,499.00



Men's Light Blue Button Down Shirt  
Price: ₹ 1,499.00



Men's Red Button Down Shirt  
Price: ₹ 1,499.00

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

Fig 6.4 Categories Page



Fig 6.5 Product Page

# My Account

## My Account

- My Orders
- My Administrative Profile
- My Wish List
- Address Book
- Account Information
- Account Payment Methods
- My Product Reviews
- Newsletter Subscription

## Compare Products

You have no items to compare

## Recently Ordered

1 checked items Regular 14. More Colors  
View

**Add to Cart** view all

## My Wish List

You have no items in your wish list.

## Account Information

### Contact Information

jay 2 976  
3000gatejay@gmail.com  
891 - Change Password

### Address Book [Manage Addresses](#)

### Default Billing Address

jay 2 976  
101  
401  
Mumbai  
Ahmednagar, Gujarat, 382530  
India  
T: 9104518143  
E: Address

### Newsletters

How often I subscribe to our newsletter  
Yes

### Default Shipping Address

jay 2 976  
101  
401  
Mumbai  
Ahmednagar, Gujarat, 382530  
India  
T: 9104518143  
E: Address

## Recent Orders [View All](#)

Order #	Date	Ship To	Order Total	Status	Action
00000015	4/18/11	jay 2 976	100.00	Complete	<a href="#">View Order</a>   <a href="#">Reorder</a>
00000014	3/28/11	jay 2 976	50.00	Complete	<a href="#">View Order</a>   <a href="#">Reorder</a>
00000013	11/25/10	jay 2 976	97.78	Complete	<a href="#">View Order</a>   <a href="#">Reorder</a>
00000009	8/24/10		37.25	Complete	<a href="#">View Order</a>
00000008	8/24/11	jay 2 976	244.00	Complete	<a href="#">View Order</a>   <a href="#">Reorder</a>

Fig 6.6 Account Page

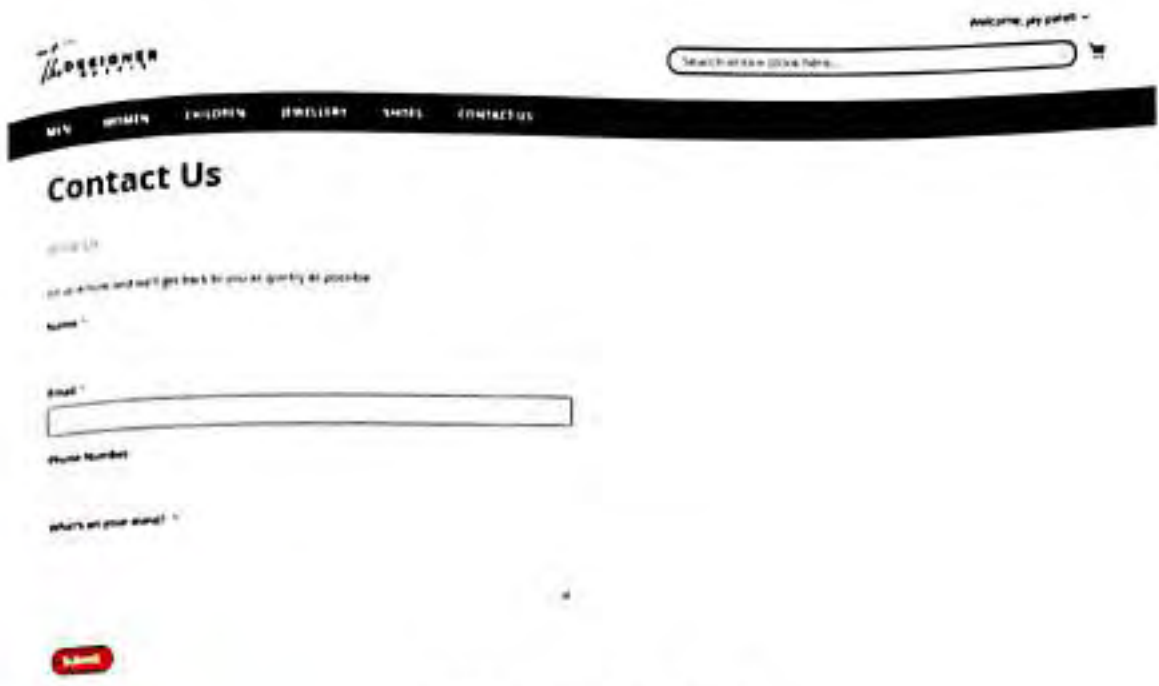


Fig 6.7 Contact us Page



Fig 6.8 Cart Page

Payment Method

- Credit / Debit Card
- Cash on Delivery
- Bank Transfer
- Net Banking

Order Summary

Cart Subtotal	₹1,842.00
Shipping	₹50.00
<b>Order Total</b>	<b>₹1,892.00</b>
How will be charged?	₹1,892.00
Gift Card / Cash	-

Ship To:

Save this address  
 Add to my address book  
 Add to my address book

**Proceed to checkout**

Fig 6.9 CheckOut Page

## **CHAPTER 7:-CONCLUSION AND FUTURE WORK**

### **7.1 OVERALL ANALYSIS OF INTERNSHIP**

- The main goal or purpose of this internship was to have industrial experience and grow as a tech professional.
- At time of start this internship I had no knowledge about software development methodologies and project management skills.
- I learned E-commerce Website development throughout my internship tenure, even I learnt to manage project and to interact with client.
- After learning basic of Magento 2 concepts, I started working on live project.
- Overall, it was nice experience working at company, with supportive seniors and management.

### **7.2 SUMMARY OF INTERNSHIP:**

- At start of the internship, day 1, I was very excited to start a journey as web developer.
- I have zero React development experience before, and hence to some time to get into the work environment.
- I have learnt many web development practices which are used to develop project with planned and easy manageable manner.

- In the first month I had a good revision on HTML, CSS and JavaScript.
- During the second month I got my hands on Magento 2 as well as learnt about Git.
- In last month I got in touch with Strapi JS and also completed my project work.
- During this internship I got continues support from my company guide, senior and institute mentor.
- Overall, it was an amazing experience working in corporate environment during this period internship, while learning a lot of things.



## REFERENCES

1. <https://www.w3schools.com/>
2. <https://www.javatpoint.com/>
3. <https://www.javatpoint.com/magento-2>
4. <https://business.adobe.com/products/magento/magento-commerce.html>
5. <https://stackoverflow.com/>
6. <https://community.magento.com/>
7. <https://dashboard.tawk.to/#/das>

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

190370107037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jvi Ashwinbhai

PERIOD OF THE WEEK: Dt: 20/03/2023 to 24/03/2023

DEPARTMENT: Computer Engineering SEM: 8th

NAME OF THE ORGANISATION: Aellon Technology

NAME OF THE PLANT/SECTION/DEPARTMENT: Web-Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zindal Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

Starting from the project and designing.  
start to the project.

The project footer page created same  
as the web-pages uses cms block.

The Home page Add content two-pictures.  
remove and one more Add. and some  
text upper side.

Project overview designing with CSS and  
responsive.

Learn Particle Rules, catalog Rules learn.  
in magento.

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 40 hours

Taj  
SIGNATURE OF STUDENT

☐ The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date: 24/03/2023

★ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

190370107037

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Patel Jay Ashwinbhai

PERIOD OF THE WEEK: 27/03/2023 to 31/03/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Ailion Technology

NAME OF THE PLANT/SECTION/DEPARTMENT: Web-Development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zindal Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

New module set-up and create  
and module create with form.

Contact-us page sum.  
Best-seller function add home-page.

Simple banner (text-image) add  
homePage.

Contact-us page Google map Add.  
Product Add All categories.

Testimonial module Installation done.

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AL HOURS: 40 hours

Jay  
SIGNATURE OF STUDENT

○ The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Chanku

Signature of officer-in-charge  
of Dept. / Section / Plant

G. P. Patel

Date: 31/03/2023

⊛ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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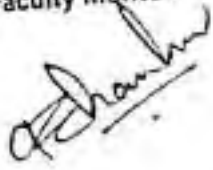
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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

HOURS: 40 hours

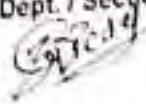
Joy  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor



Signature of officer-in-charge  
of Dept. / Section / Plant



Date: 07/04/2023

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

190390107037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jay Ashwinbhai

DIARY OF THE WEEK: Dt: 10/4/2023 to 14/4/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Aellon Technology

NAME OF THE PLANT/SECTION/DEPARTMENT: Web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zinva Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

Aellon & call for price module create and Installation

armstrong shipping table rate module install.

multiple store and multiple website feed and APPS

Google map module Install and error find and Try to solve

meetanshi smtp module. Install and configure.



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TOTAL HOURS: 40 hours -----

Jey  
-----  
SIGNATURE OF STUDENT

- The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date:

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date: 14/04/2023

- Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:  
190390107037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jay Ashwinbhai  
DURATION OF THE WEEK: DI: 17/4/2023 TO 21/4/2023  
DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Aelion Technology  
NAME OF THE PLANT/SECTION/DEPARTMENT: Web Development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Rinku Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

Custom theme create and custom  
module create. Error find

Custom module block create best  
seller. create and apply.

Lead module create and some  
Project work these day.

Lead module form validation and  
name changes to the module.

Custom grid ui file error. Extra two  
form field and lead module.

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Annexure I

Enrollment no:

190390107037

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Patel Jay Ashwinbhai

PERIOD OF THE WEEK: Dt: 03/04/2023 TO 07/04/2023

DEPARTMENT: Computer Engineering SEM: 8th

NAME OF THE ORGANISATION: Aevon Technology

NAME OF THE PLANT/SECTION/DEPARTMENT: Web-development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zinal Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

Project designing and Product add all categories set.

Project footer all page created and content Add.

Google Recaptcha, delete orders module. Installation done.

log module Installation done.

Posto theme Installation done.

whatsapp module Install and Run.

bid module name change.

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TOTAL HOURS: 110 hours

Jey  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

*[Handwritten Signature]*

Date:

Signature of officer-in-charge  
of Dept. / Section / Plant

*[Handwritten Signature]*

Date: 21/04/2023

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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Annexure I

Enrollment no:

190390107037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jay Ashwinbhai

PERIOD OF THE WEEK: DO: 24/4/2023 to 28/4/2023

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Apion Technology

NAME OF THE PLANT/SECTION/DEPARTMENT: Web-development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zindal Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

Project Product Add and owiside-  
module create setup script error

Project Product Add and some Project-work  
to the ml site

Project home Page issues find and  
Product Add All categories.

Project Image Url issue find and  
image issue find RH owiside-  
module-add Home-page.

Project categories slider error finncaly  
categories. image set home page.

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TOTAL HOURS: 40-hours

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date:

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

Date: 28/4/2023

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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Annexure 1

Enrollment no:

190390107037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel જય Ashwinbhai

DIARY OF THE WEEK: Dt: 02/02/2023 TO 03/02/2023

DEPARTMENT: Computer engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Aellon Technology

NAME OF THE PLANT/SECTION/DEPARTMENT: Web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zinvi Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

\*= During this week I start the Internship Period. to 1<sup>st</sup> day. my observation to my idea about basic.

\*= The first of me HTML basic structure create.

\*= The HTML basic form and HTML Basic table detail entered demo.

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TOTAL HOURS: 24

*Jey*  
SIGNATURE OF STUDENT

- The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

*A. Chandra*

Date:

18/3/23

Signature of officer-in-charge  
of Dept. / Section / Plant

*A. K. Patel*

Date: 03/02/2023

- Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

190390107037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jyoti Ashwinbhai  
DURATION OF THE WEEK: Dt: 06/02/2023 TO 10/02/2023  
DEPARTMENT: Computer engineering SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Aelon Technology  
NAME OF THE PLANT/SECTION/DEPARTMENT: Web-Development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zindal Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

\*-The HTML basic knowledge done to the level from the deep learning in HTML

\*-The HTML deep learning knowledge by the w3-schools.

\*-The HTML logical deep learning clear to the some file create a design

\*-HTML form learn by w3-schools

\*-The HTML form create basic structure



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TOTAL HOURS: 40

Jay  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

*[Handwritten Signature]*

Date: 18/3/23

Signature of officer-in-charge  
of Dept. / Section / Plant

*[Handwritten Signature]*

Date: 10/02/2023

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:

190390107037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jay Ashwinbhai  
DIARY OF THE WEEK: Dt: 13/02/2023 to 17/02/2023  
DEPARTMENT: Computer engineering SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Aellon Technology  
NAME OF THE PLANT/SECTION/DEPARTMENT: web-development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zinca Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

- \* = The HTML form All elements. Add to see...  
Text area, Radio button, dropdown, etc.
- \* = After complete to the form part form added to media tag element.
- \* = The media tag from the. Add the Image and video link add to the HTML source code.
- \* = The HTML most of All tutorial done by. to the HTML source code one file. all div add and done.
- \* = The file remind some error solve and. after done work.



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TOTAL HOURS: 40

Jay  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

P. Chandra

Date:

18/3/23

Signature of officer-in-charge  
of Dept. / Section / Plant

S. K. Patel

Date: 17/02/2023

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



Annexure 1  
 Enrollment no:  
 190370101037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jay Ashwinbhai  
 DURATION OF THE WEEK: Dt: 20/02/2023 TO 24/02/2023  
 DEPARTMENT: Computer Engineering SEM: \_\_\_\_\_  
 NAME OF THE ORGANISATION: Aelon Technology  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Web-Development  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zinell Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

- = After complete HTML All elements to the starts CSS and bootstrap from w3-schools.
- = The first of the start bootstrap in w3-schools. The main topic is the grid system.
- = The learn from the CSS in w3-schools.
- = The learn from the CSS after to create the previous HTML file.
- \*= The CSS done after than Just one day topic Responsive site create.



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ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ બરા સ્થાપિત)

TOTAL HOURS: 40

Jey  
SIGNATURE OF STUDENT

☉ The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Prashant

Date:

18/3/23

Signature of officer in-charge  
of Dept. / Section / Plant

Prashant

Date:

24/02/2023

★ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 1

Enrollment no:

190390107037

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Patel Jay Ashwinbhai  
DURATION OF THE WEEK: DI: 27/02/2023 TO 03/03/2023  
DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>  
NAME OF THE ORGANISATION: Apion Technology  
NAME OF THE PLANT/SECTION/DEPARTMENT: Web development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zindu Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

\* = Company provided one web-page image  
To the same output send for the  
coding file.

\* = The web-page All content HTML and  
CSS file both create.

\* = web-page create HTML and CSS  
Header part.

\* = web-page create HTML and CSS  
footer part.

\* = This web-page responsive code to the  
bootstrap.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 40.

Jay  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR



Signature of Faculty Mentor

Shankar

Date: 18/3/23

Signature of officer-in-charge  
of Dept. / Section / Plant

Shankar

Date: 03/03/2023

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 1

Enrollment no:

190390107037

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Patel Jay Ashwinbhai  
DIARY OF THE WEEK: DI: 06/03/2023 TO 10/03/2023  
DEPARTMENT: Computer Engineering SEM: 8th  
NAME OF THE ORGANISATION: Aellon Technologies  
NAME OF THE PLANT/SECTION/DEPARTMENT: Web development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zinva Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

- \*= Learn PHP to the W3-schools and the All tutorial done step by step learn and practise.
- \*= The PHP my Admin create the database and table Add. to the PHP created form validation.
- \*= The PHP base CRUD function form created.
- \*= The MVC base one form created before MVC learn.
- \*= one form created done MVC Projects.



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TOTAL HOURS 40

[Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 28/3/23

10/03/2023  
Date:

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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Annexure 1

Enrollment no:

190390107037

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Patel Jay Ashwinbhai  
DIARY OF THE WEEK: Dt: 13/03/2023 TO 17/03/2023  
DEPARTMENT: Computer Engineering SEM: 8th  
NAME OF THE ORGANISATION: Aellon Technologies  
NAME OF THE PLANT/SECTION/DEPARTMENT: Web development  
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Zindu Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

\* = learn about the magento tutorial for youtube lecture.

\* = learn about the magento 2.4.5 downloading and installing

\* = magento Installation. after done that the some practical.

\* = The create account by the magento use the Project Product categories. Added.

\* = some configuration function use. added In the magento.

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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 40

Jay  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Chander  
Date: 18/3/23

Chander  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 17/03/2023

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 2

Feedback Form by Industry expert

Student Name: Patel Jyoti Ashwinbhai Date:

Work Supervisor: Zinca Patel Title:

Company/Organization: Aellon Technology

Enrollment No: 190390107037

Internship Address: 208- Platinum Plaza, OPP RAJ-HANSH (INEM  
Mikol

Dates of Internship: From 1<sup>st</sup> February to 30<sup>th</sup> April

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives			✓	
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise			✓	
Analyzes problems effectively			✓	
Communicates well and writes effectively				✓

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):

Additional comments, if any:

Signature of Industry person with name and Stamp:

FOR, AELLON TECHNOLOGY  
PRIVATE LIMITED  
  
DIRECTOR

Signature of the Faculty Mentor

Team ID: 299099

# INTERNSHIP AT FLUSOCIAL MARKETING

AN INTERNSHIP REPORT

*Submitted by*

**Jaykumar Dineshbhai Patel**

**190390107038**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**

Team ID: 299099



## S.P.B. Patel Engineering College

Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat

### CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Internship at Flusocial Marketing** has been carried out by **Jaykumar Dineshbhai Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Shubhangi Chaturvedi

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## Company Certificate



### GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII ACADEMIC YEAR 2022-2023

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This is to certify that, *Patel Jaykumar Dineshbhai* ( Enrolment Number - 190390107038 ) working on project entitled with *Internship at flusocial marketing* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

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Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

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**Certificate of Completion**

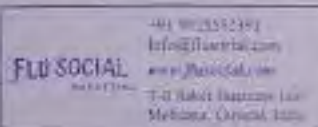
This certificate is awarded to **Mr. Patel Jaykumar Dineshbhai** (Enrollment No: **190390107038**) a student from **S.P.B.Patel Engineering College (Saffrony Institute of Technology)**. In appreciation of a successful Internship from 23rd January 2023 to 16th April 2023 (**12 Weeks**).

We appreciate his efforts towards Website Designing and Development. The detailed report of an internship is also submitted by him and hence we are pleased to confirm the completion of his Internship.

We found his efforts sincere, meticulous, enthusiastic and result oriented. We wish all the best in his future endeavors.

A handwritten signature in blue ink, appearing to read "Dron Joshi".

**Dron Joshi**  
CEO, Flu Social







**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

**DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Flusocial Marketing** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a Bonafide record of original project work carried out by me under the supervision of **Prof. Shubhangi Chaturvedi & Yash Patel (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Jaykumar Dineshbhai Patel**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I am quite pleased and satisfied with the outcome of my **Flusocial Marketing** project. My dissertation would not have been finished if it hadn't been for the help and support we received along the route.

I thank our distinguished internal guide **Prof. Shubhangi Chaturvedi** and industrial mentor **Mr. Yash Patel** from the bottom of my heart for always directing me in the right direction and for her priceless support. Not only am I grateful to our guide for deftly strategizing and guiding us through every phase of my project, but I am also grateful for her patience.

Finally, I'd like to express my gratitude to everyone who has helped me with my project at any level but whose name does not appear in this acknowledgement.

Yours sincerely

Jaykumar Patel

190390107038

## **Abstract**

*“Social Media” is a web-based application that will help people to made their own community and share their thought and post.*

*This website will allow users to view their friend thought and post as well as hit like to respective post, user can register themselves and by logging in, they can access their own profile as well as see their friend profile and also follow new friend.*

*It is developed to make community system reliable and easier. It is developed intending to make the interaction between known people to unknown people.*

*The tools and technology which I used these are shown below*

- *JavaScript ECMAScript 2023*
- *ReactJS Library 18.2.0*
- *HTML, CSS, JavaScript, node Js*
- *VScode editor, postman, mongo DB*

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## **Abbreviations**

HTML	Hypertext Markup Language
CSS	Cascading Style Sheets
JS	JavaScript

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## CHAPTERS 1. OVERVIEW OF COMPANY

### 1.1 COMPANY PROFILE:

- Flu Social Marketing Company provide a variety of services to assist our customers in achieving success on social media. We help with content creation, community management, advertising, social media strategy, and analytics.
- We keep up with the most recent trends and industry best practices, and our team of experts has years of experience in social media marketing. We collaborate closely with our clients to comprehend their individual requirements and create individualized solutions that assist them in achieving their marketing objectives.
- We always aspire to create resistant future. We believe in bringing Business, People and Technology together in the way forward. We have professional and highly dedicated group of skilled experts.
- Our main objective is to provide professional, qualitative, innovative and accessible services in every possible form.

### 1.2 SERVICES PROVIDES BY THE COMPANY:

- Web Development
- Digital Marketing
- Branding
- SEOs
- Social Media engaging

#### 1.2.1 Website Design and development

- IT services encompass a wide range of technical expertise, including web design and development. A well-designed and functional website is a crucial component of any modern business, as it serves as the primary point of contact with potential customers and clients.
- Web designers and developers work together to create websites that are not only visually appealing but also user-friendly and optimized for search engines.

- They use various tools and programming languages to create a website that meets the specific needs of the business, such as e-commerce functionality or mobile responsiveness.
- Additionally, they ensure that the website is secure and can handle high levels of traffic without crashing or slowing down.



Fig 1.1 Web design and development

- Involves coding the website using programming languages such as HTML, CSS, and JavaScript. Finally, the website is thoroughly tested to ensure that it functions correctly and is ready for deployment.
- Overall, web design and development play a critical role in creating a strong online presence for businesses and organizations of all sizes.

### 1.2.2 Digital Marketing

- IT service providers can greatly benefit from digital marketing strategies to attract and retain clients in the highly competitive market.
- Digital marketing allows IT service providers to reach a wider audience and showcase their expertise in various areas such as cloud computing, cybersecurity, software development, and more.
- By creating engaging and informative content such as blogs, infographics, and social media posts, IT service providers can establish themselves as thought leaders in the industry and build trust with potential clients.
- In addition, digital marketing can help IT service providers generate leads and conversions by utilizing targeted advertising campaigns, search engine optimization (SEO), and email marketing.



Fig 1.2 Digital Marketing

- In the digital age, customers expect to find businesses online and have a seamless experience from start to finish. By having a strong digital presence, IT service providers can demonstrate their capabilities, showcase their successes, and provide a user-friendly experience for potential clients.
- Digital marketing also allows IT service providers to track and analyze the performance of their campaigns, allowing for continuous improvement and optimization.
- Overall, digital marketing is a valuable tool for IT service providers to establish their brand, increase their reach, and ultimately grow their business.

### 1.2.3 Social Media Marketing

- Social Media Marketing is the use of social media platforms to promote a product or service.
- It is a form of digital marketing that uses social media channels such as Facebook, Twitter, LinkedIn, Instagram, and others to connect with potential customers and promote a business.
- The primary goal of social media marketing is to increase brand awareness, engage with customers, and ultimately drive sales.
- It involves creating and sharing content, running advertisements, and building a community of followers who can become loyal customers.



Fig 1.3 Social Media Marketing

- One of the benefits of social media marketing is that it can be highly targeted, allowing businesses to reach specific demographics and interest groups.
- For example, a company selling athletic wear can target their advertising to people who are interested in fitness and sports.
- This kind of targeted advertising can be much more effective than traditional advertising methods because it allows businesses to reach people who are already interested in their products or services.
- Additionally, social media marketing can be more cost-effective than traditional advertising methods, making it an attractive option for businesses of all sizes. With the right strategy and execution, social media marketing can be a powerful tool for building brand awareness, driving sales, and growing a business.

#### 1.2.4 Search Engine Optimization

- Search Engine Optimization, commonly referred to as SEO, is the process of optimizing a website or web page to improve its visibility and ranking on search engine results pages.
- SEO is crucial for any online business as it helps to attract more organic traffic, which in turn leads to increased visibility, higher conversions, and ultimately more revenue.



Fig 1.4 Search Engine Optimization

- There are several components of SEO, including keyword research, on-page optimization, link building, and content creation.
- Keyword research involves identifying the most relevant and popular keywords that users are searching for in relation to a particular topic or industry. On-page optimization includes optimizing the website's content and structure to ensure that it is search engine friendly.
- Link building involves acquiring links from other reputable websites to improve the website's authority and relevance. Content creation involves creating high-quality, engaging, and informative content that is optimized for both search engines and users.
- Overall, SEO is an essential component of any successful online business strategy. By implementing SEO best practices, businesses can improve their online visibility, attract more organic traffic, and ultimately drive more sales and revenue.

### 1.3 SCOPE OF WORK:

- An IT company's scope of work typically includes designing, developing, and implementing software applications, managing and maintaining computer networks, providing technical support, and offering consulting services related to information technology. These companies may also specialize in a specific area, such as cybersecurity, cloud computing, mobile app development, or data analytics.
- In addition to these core services, an IT company may also provide training and education services to help clients develop their own IT skills or stay up-to-date with the latest technologies. Some IT companies also offer hardware and infrastructure solutions, including servers, storage devices, and other IT equipment. Overall, the scope

of work for an IT company can vary widely depending on the company's size, expertise, and focus, but it generally revolves around using technology to help businesses achieve their goals more efficiently and effectively.

- **Website:** <https://flusocial.co>

## CHAPTERS 2. INTERNSHIP OVERVIEW

### 2.1 PROJECT SUMMARY:

- This project deals with developing an community Website.
- It provides user with a list of the opportunity to make bonding with other people. User can register themselves and login to their respective account and user can follow other user which can be their friend and create post about event and also user can like their friend post.
- Register user's data are stored in mongo database.
- The system is implemented using JavaScript's library ReactJS, Node JS, and mongo DB.

### 2.2 OBJECTIVE:

- By this project people who are introvert can share their thought also add their description and spread awareness about anything.
- As a result people can also find their job in future.
- The only authorized person who has the register themselves can only access the software.

### 2.3 PURPOSE:

- Purpose of this project is to people can make community all over the world also people get easily reference for their respective job.
- People can also ad their product and ultimately local market get boosted.

### 2.4 SCOPE:

- The scope of the project will be limited to some functions of social media website.
- Social media websites will offer more accurate analytics tools for users and businesses to track their engagement and reach.
- Business and entertainment media will combine.

## 2.5 TECHNOLOGY AND LITERATURE REVIEW:

- HTML, CSS, JavaScript is used to make frontend and node js, postman rest api and mongo database is used for backend of website.
- **HTML**
  - Hypertext Markup Language (HTML) is the standard markup language for documents designed to be viewed in a web browser.
- **CSS**
  - CSS is the programming language used to style an HTML document. CSS specifies how HTML elements should be rendered.
- **JavaScript**
  - JavaScript is a programming language that is used by coders to develop dynamic and interactive web content such as apps and browsers.
- **Postman**
  - Postman is a computer application used for API testing. Postman sends an API request to the web server and receives the response, whatever it is. No extra work or setting up of a framework is required while sending and receiving requests in Postman.
- **Mongo database**
  - Mongo db is providing database online as well as offline in which user can store their data.

## 2.6 How does ReactJS works?

- While building client-side apps, a team of Facebook developers realized that the DOM is slow (The Document Object Model (DOM) is an application programming interface (API) for HTML and XML documents.
- It defines the logical structure of documents and the way a document is accessed and manipulated.). So, to make it faster, React implements a virtual DOM that is basically a DOM tree representation in JavaScript.
- So when it needs to read or write to the DOM, it will use the virtual representation of it. Then the virtual DOM will try to find the most efficient way to update the browser's DOM.



- Unlike browser DOM elements, React elements are plain objects and are cheap to create. React DOM takes care of updating the DOM to match the React elements.
- The reason for this is that JavaScript is very fast and it's worth keeping a DOM tree in it to speed up its manipulation.
- Although React was developed to be used in the browser, because of its design it can also be used in the server with Node.js

## CHAPTER 3. INTERNSHIP PLANNING

### 3.1 Development approach and justification

- Activities we followed for this project is listed below:
  - Planning the work objectives
  - Analysis & design of objectives
  - Assessing and controlling risk
  - Allocation of resources
  - Organizing the works

#### Waterfall Model

- The Waterfall Model was the first Process Model to be introduced. It is also referred to as a linear-sequential life cycle model.
- It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases.

The Waterfall model is the earliest SDLC approach that was used for software development.

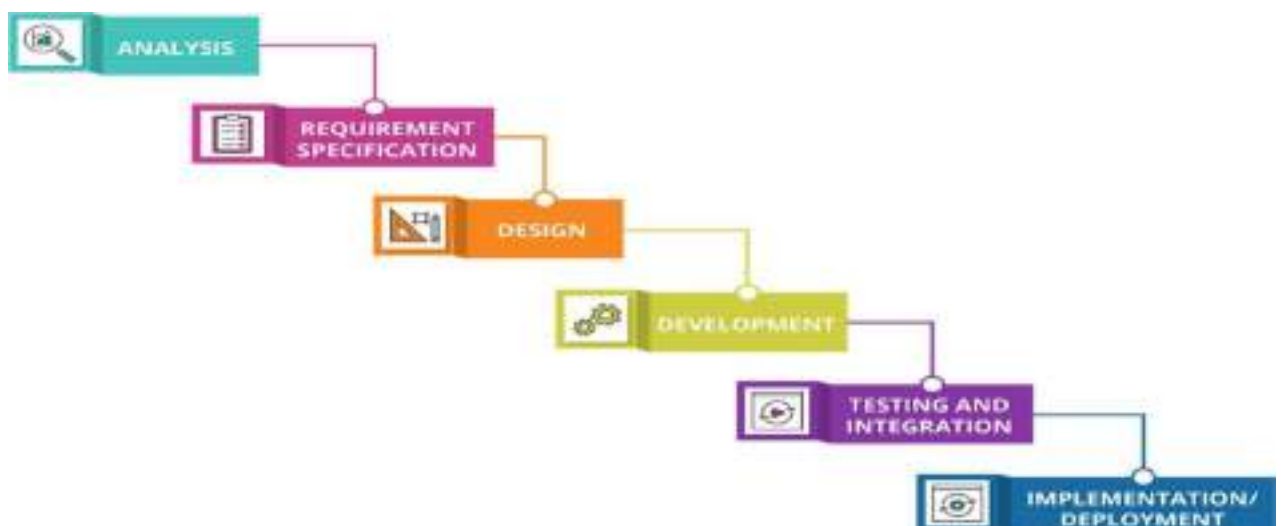


Fig 3.1 Water Model

### 3.2 Role and responsibilities

- Investigation
- Requirement Analysis
- Design
- Coding
- Testing

### 3.3 Group Dependencies

- I will be complete all the module by myself as it is individual project

- **GANTT CHART**

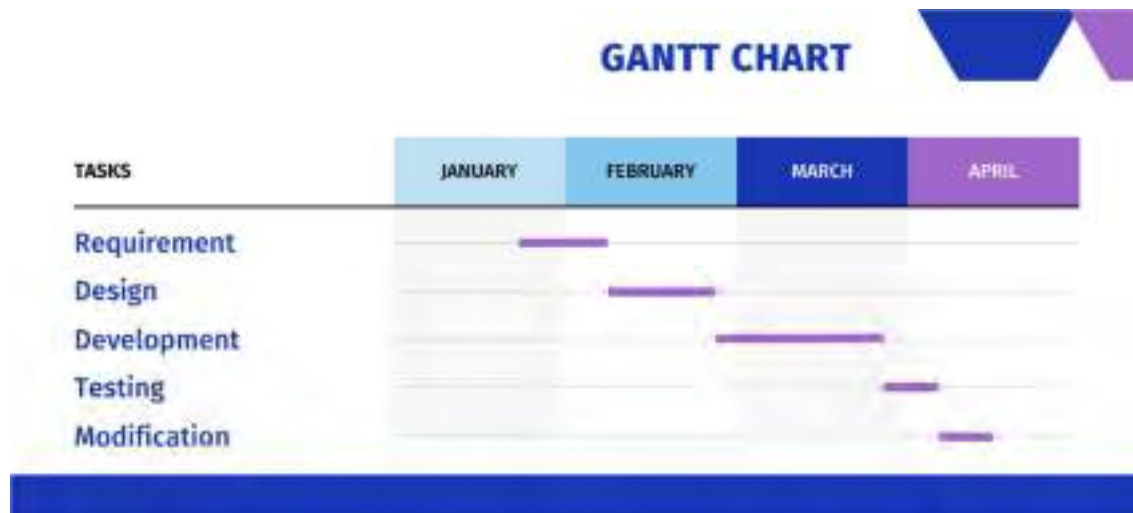


Fig 3.2 Gantt Chart

### 3.4 Job Description:

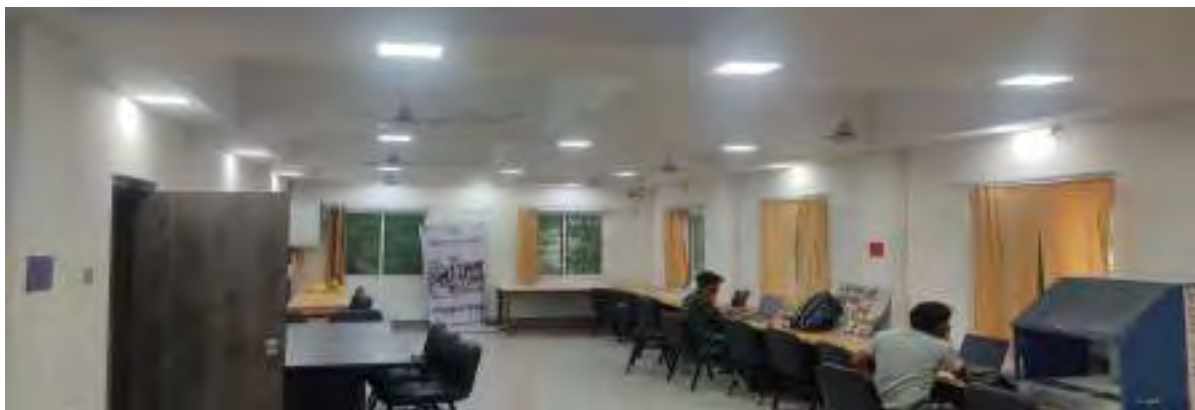
- **The role**
  - Website Developer [Flu-social Marketing]:
  - Salesforce Admin: Manages and maintains Salesforce platform, configures user accounts and permissions, creates and customizes reports and dashboards.
  - Salesforce Developer: Designs and develops custom solutions on Salesforce platform, customizes existing functionality using Apex code, Visualforce pages and Lightning Web Components, integrates with other apps, optimizes performance and scalability
- **Job details**

Website developer	5 days working, Yearlyvacation, Games, etc..	8 hours/day
Full-time   <del>Part-time</del>	T-08 Saket Business Hub, Opp Domino's Pizza, Radhanpur Road, Mahesana, Gujarat	Fresher




Table 3.1 Job Profile Matrix

- **Work Environment:**

- Flu-social has an open floor plan with furniture and plenty of natural light.
- Its very important for students to work with Startup for understanding ground reality of research and project work.



**3.5 Software tool's table:**

Index	Tool Name	Logo/Image	Use Case
1.	Visual Studio Code		Visual Studio Code is a free coding editor that helps you start coding quickly. Use it to code in any programming language, without switching editors. Visual Studio Code has support for many languages, including Python, Java, C++, JavaScript, and more.
2.	Vercel		Vercel is a cloud platform for serverless deployment of web applications. It allows developers to quickly and easily deploy websites and applications to the cloud, with automatic scaling and high availability. Vercel supports a variety of programming languages and frameworks, including React, Vue.js, and Next.js.
3.	Netlify		Netlify is a cloud-based platform for deploying static websites and web applications. It provides continuous deployment, automatic SSL, and CDN distribution. Netlify also offers serverless functions for backend functionality.

4.	GitHub		GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere.
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Table 3.2 Software &amp; Tools Table

## CHAPTER 4. SYSTEM ANALYSIS

### 4.1 STUDY OF CURRENT SYSTEM

- **User Management System:** A social media website requires a robust user management system that can handle large numbers of users, user registration, login, and account settings. The user management system must ensure user data privacy and security.
- **Content Management System:** A social media website must have an efficient content management system to handle user-generated content, such as posts, images, and videos. The system should allow users to upload, edit, and delete their content easily.
- **Social Graph System:** A social media website must have a social graph system to manage user connections, followers, and friends. The system should allow users to search and discover new connections.
- **Feed System:** A social media website must have a feed system to show users' latest posts, their friends' posts, and other relevant content. The feed system must be able to handle a large number of posts and ensure that users see the most relevant content.

### 4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

- Currently there are several social media websites and application but there is one issue that I found they are not able to boost as much as social media can rock on business.
- Product buy and sell is possible with full trust.

### 4.3 REQUIREMENTS OF NEW SYSTEM

- **User Requirement:**
  - It should be a very easy and interactive website for users and it has the simple UI and features.
  - It should also be responsive website for every device
- **Documentation of functional requirement:**
  - For documenting the functional requirement, we need to specify the set of functionalities supported by the system.

- A function can be identified the state at which the data to input to the system, its input data domain, the output data domain, and the type of processing to be carried out on the input data to obtain the output data.

#### 4.4 SYSTEM FEASIBILITY

- Does The System Contribute To Overall Objectives Of Organization?
  - Yes
- Can The System Be Implemented Using The Current Technology Within The Given Cost?
  - Yes
- Can The System Be Integrated With Other Systems Which Are Already In Place?
  - No

#### 4.5 ACTIVITY

1. User (customer)

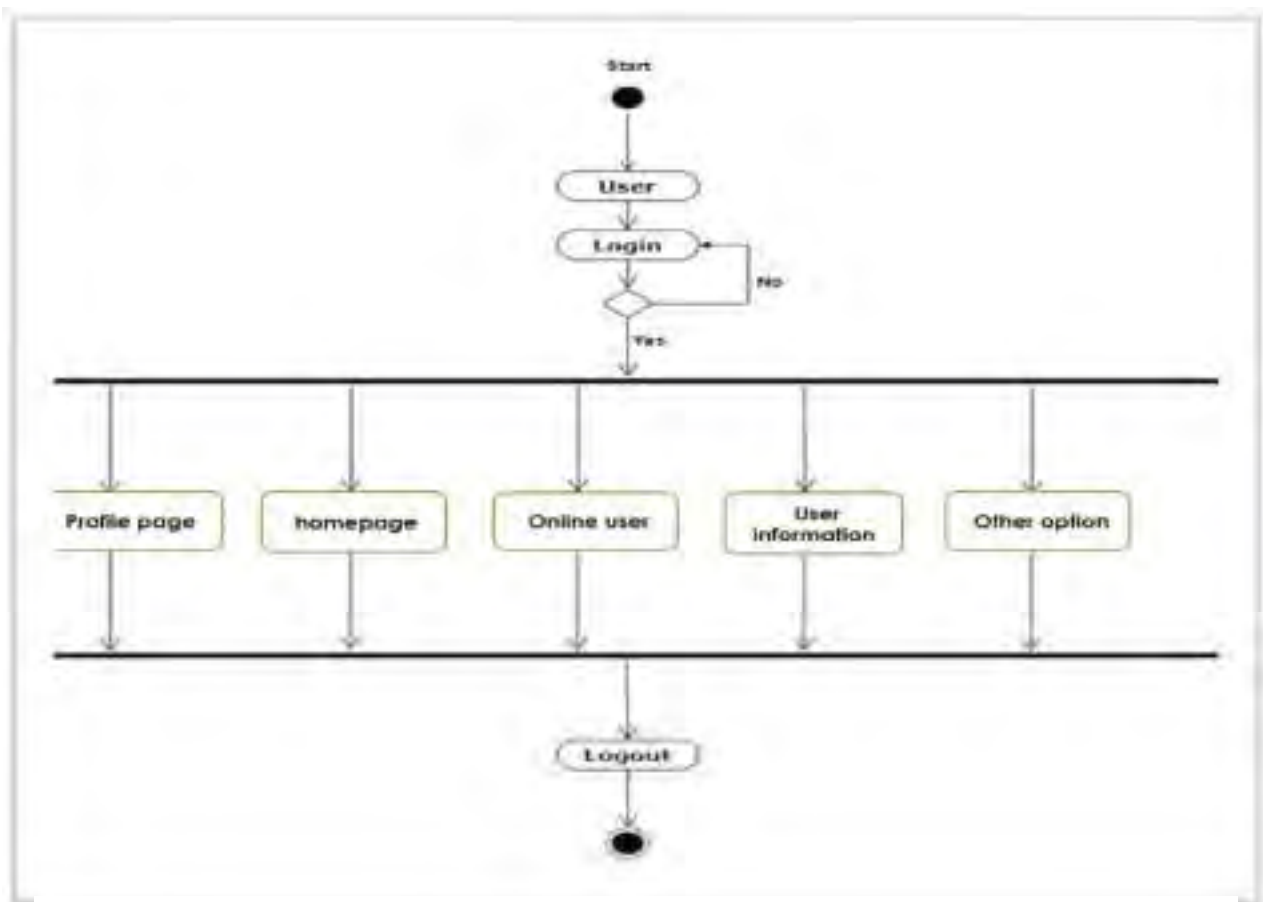


Fig 4.1 User activity diagram



## 4.6 FEATURE OF NEW SYSTEM

- It is a very easy and interactive website for users.
- It has the simple UI and features like easy signup and login, user profile, In homepage user can see friends post and also like the post.
- User can also search for new friend and can do follow their friend.
- It is also responsive website for every device like mobile, tablet, laptop.

## 4.7 LIST MAIN MODULES

- The online registration can be used to buy product in future.
- The main modules involved in this system are:
  1. Signup/Login
  2. Admin access
  3. User interaction

## 4.8 SPECIFICATION OF HARDWARE AND SOFTWARE

- Hardware Requirements:
  - Laptop / Desktop / Smartphone
  - RAM: 4GB minimum
  - CPU: Intel Core i3
- Software requirement: -
  - VS code
  - Mongo Database
  - JavaScript ECMA Script 2023
  - ReactJS 18.2.0
  - Node js 16.20.0

## 5. WEB DEVELOPMENT

### 5.1 WEBSITE DESIGNING

#### 5.1.1 Html and Css tasks

- Html and css concept are helpful for improve web designing skill
- Designing and developing a simple product landing page by using the HTML5 and CSS3.

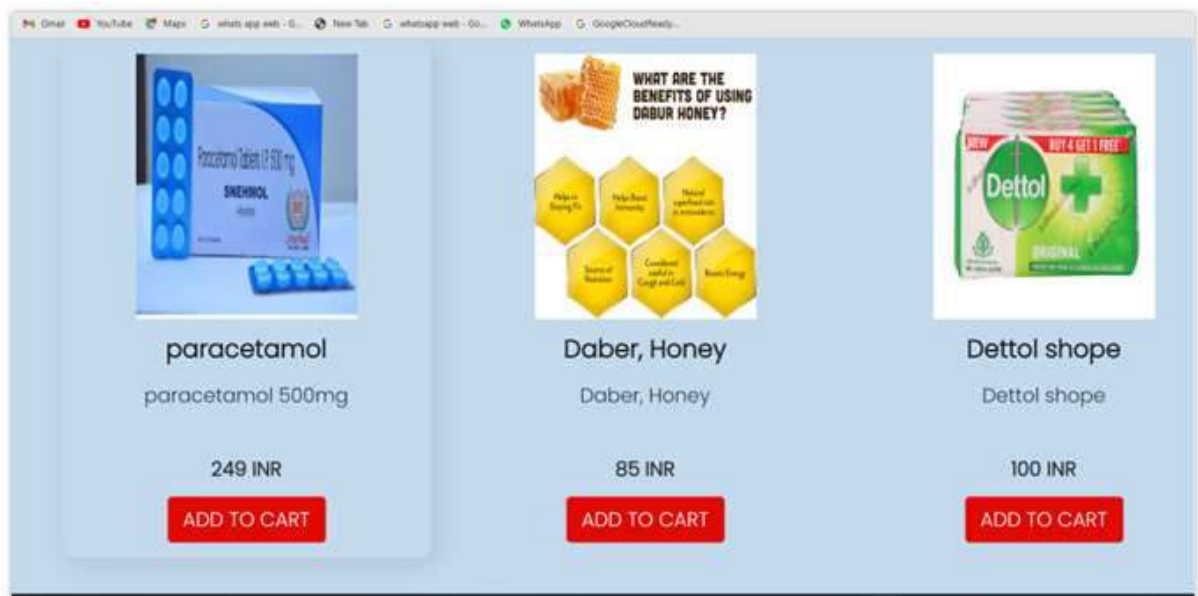


Fig 5.1 Product Landing Page

#### 5.1.2 Javascript tasks

- Javascript are main part while developing dynamic website.
- Design a webpage in which we click on button background colour will change and this colour hexacode show on display.



Fig 5.2 Random Color Generator

- Design a Calculator webpage in which we can perform operation and output show on display.



Fig 5.3 Calculator Interface

- Design a Countdown clock in which its shows event will start on particular time.



Fig 5.4 Countdown clock

## 5.2 DATABASE AND BACKEND DESIGNING

- Cloud Mongo database: list of posts which are created by user



- Cloud Mongo database: list of user who created account on social media



➤ Postman rest api backend all outputs are shown below:

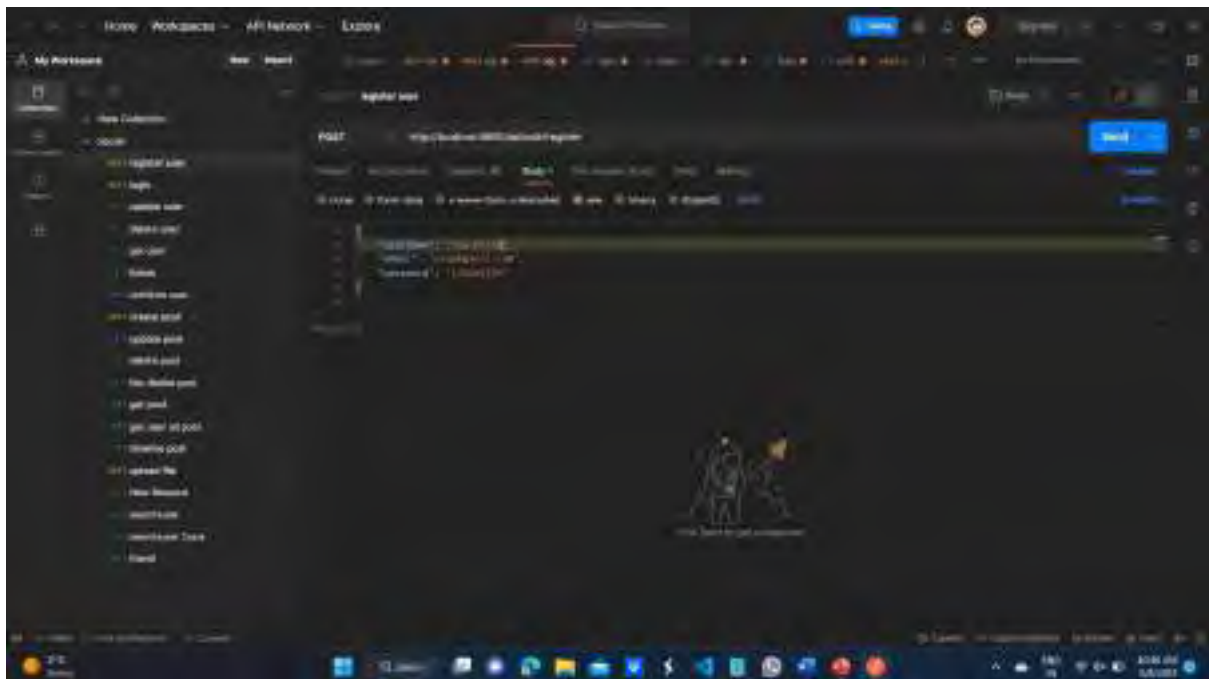


Fig 5.5 List of output screen short of backend

### 5.3 OUTPUT OF DESIGN SYSTEM

Output screenshots:

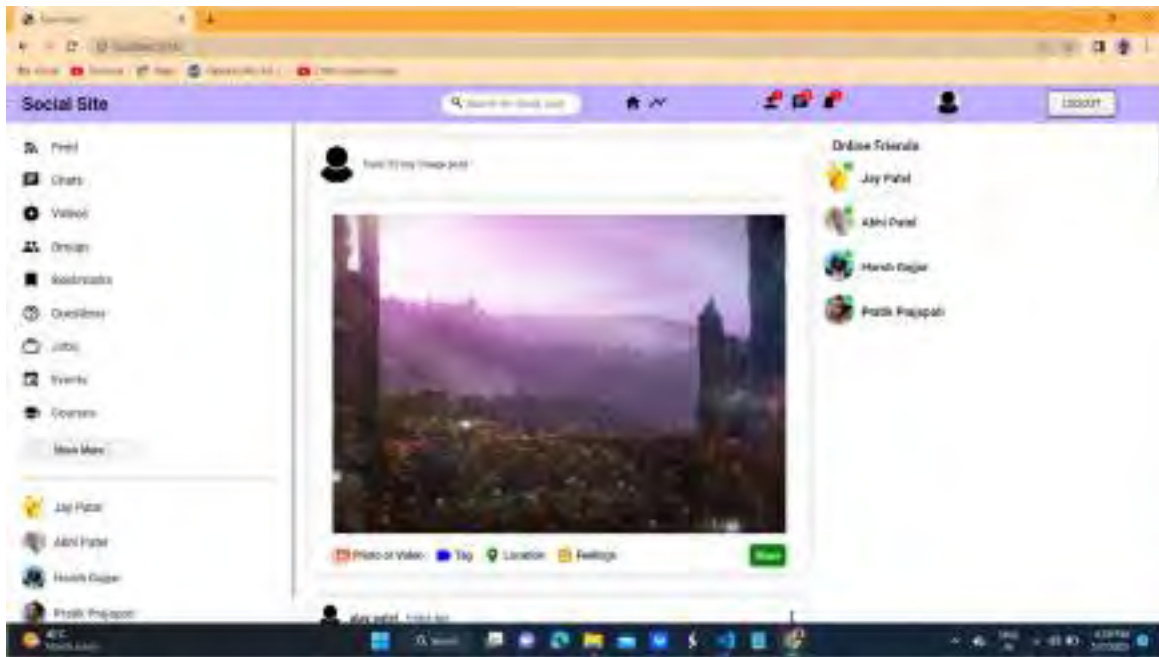
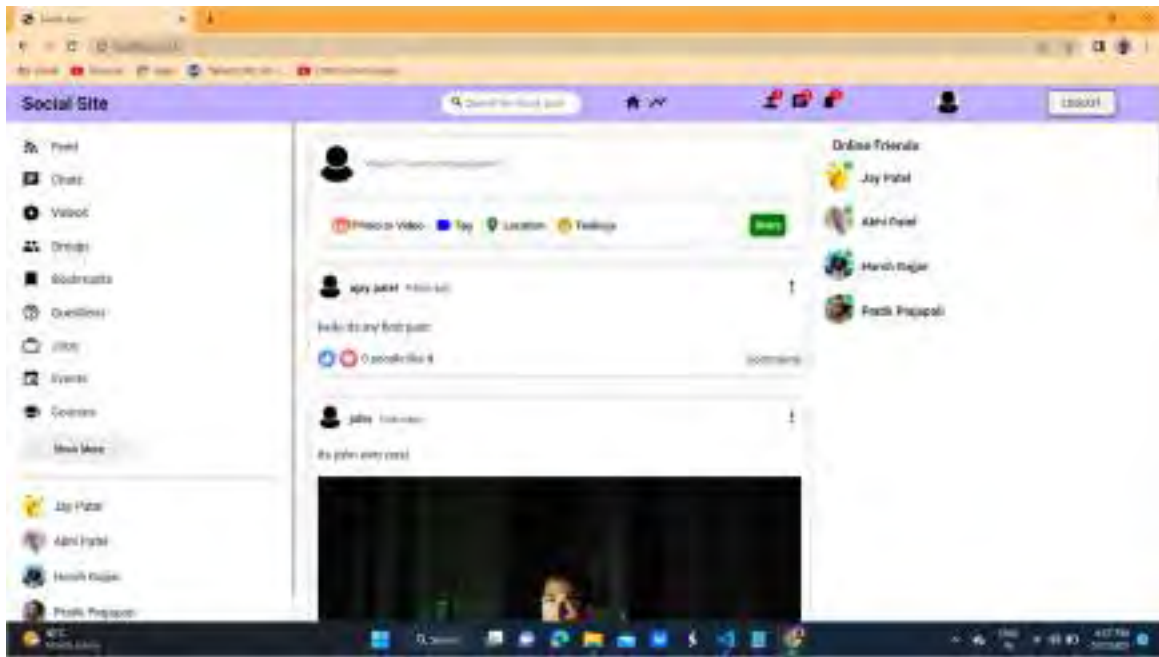
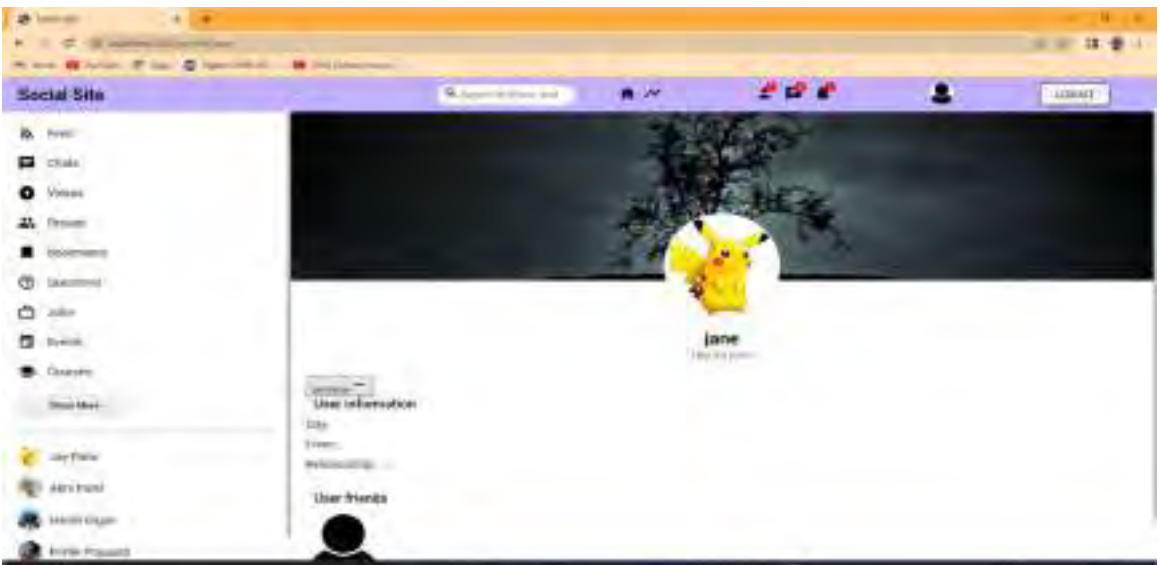
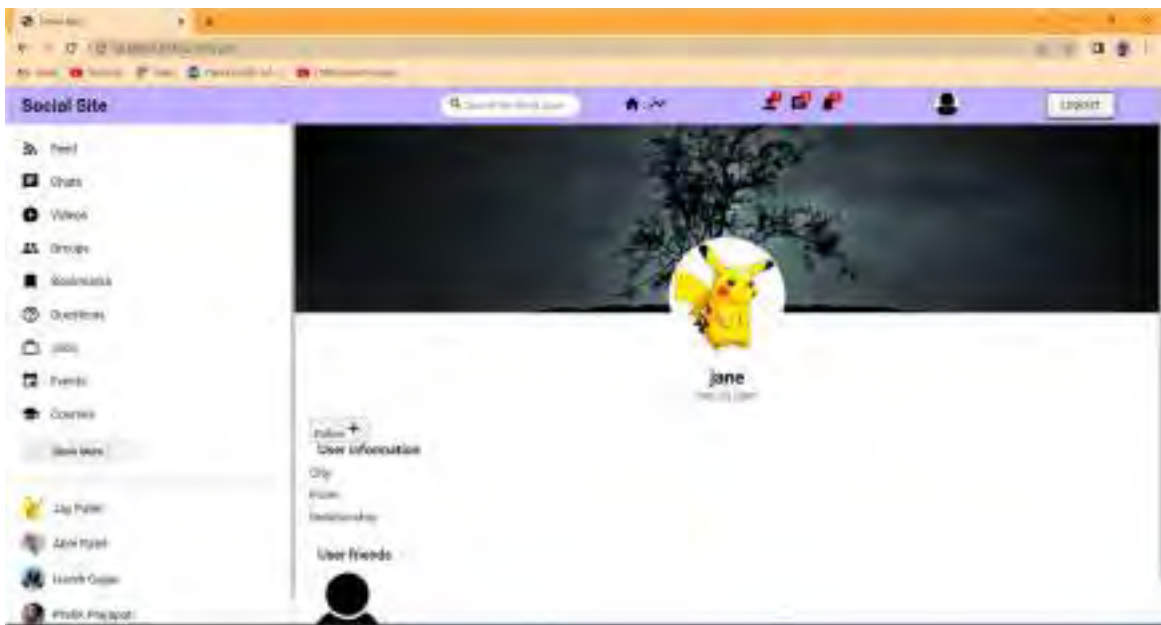
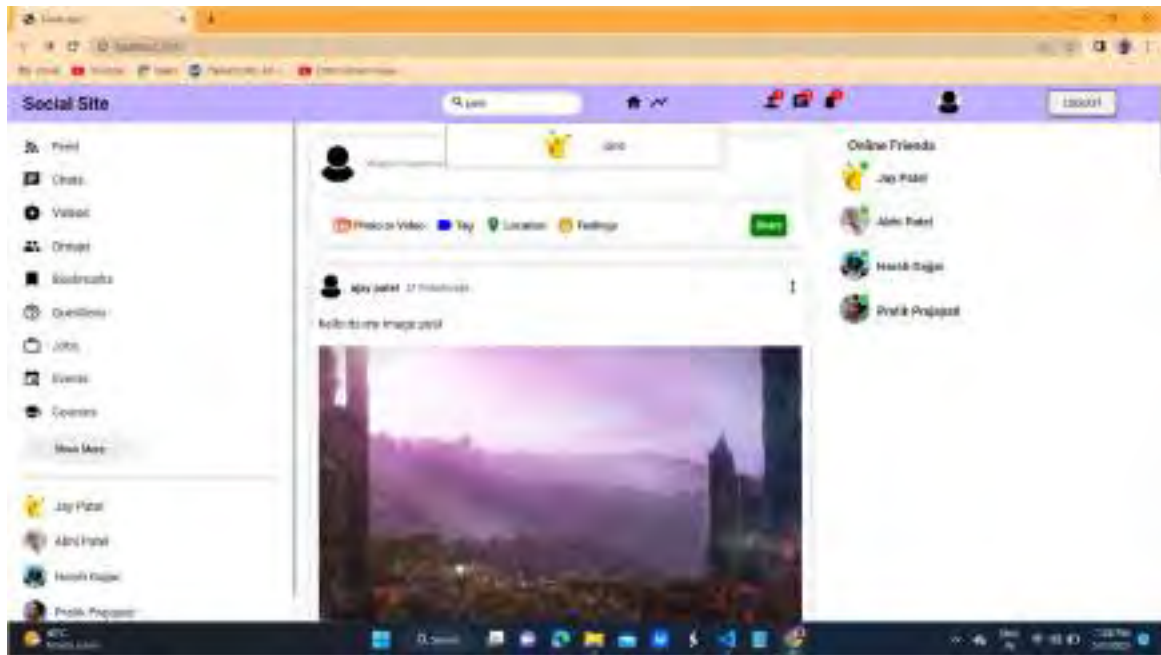
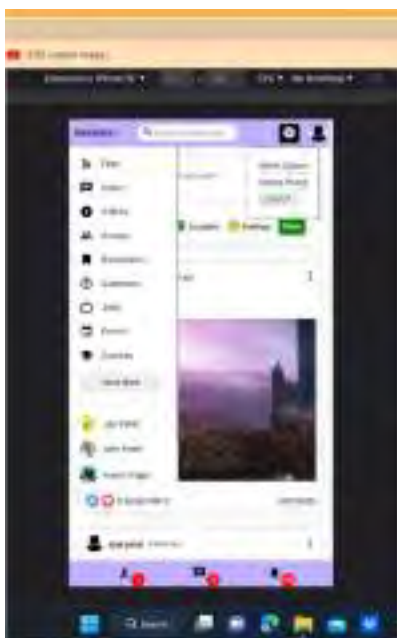
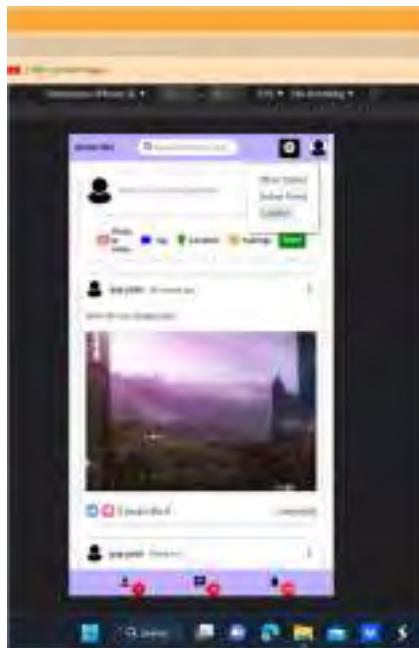
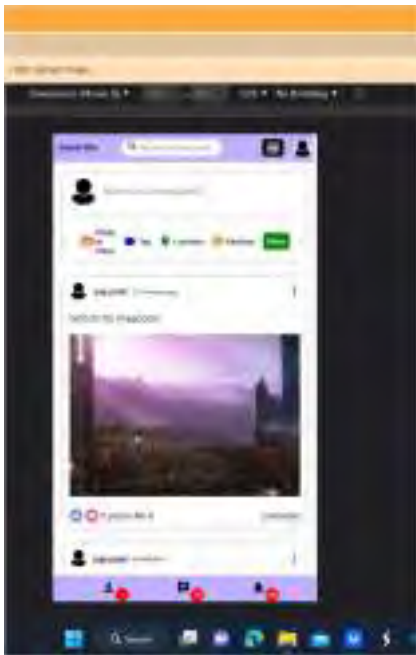


Fig 5.6 List of output screen short of frontend







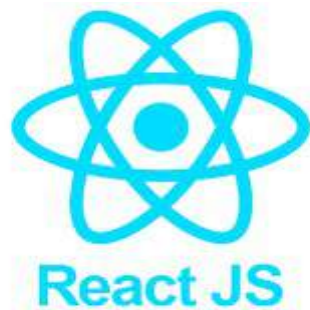
## 6. IMPLEMENTATION

### 6.1 IMPLEMENTATION PLATFORM:

- Visual studio code
- Android studio
- GITHUB for version control
- Mongo database or cloud mongo db
- Postman for managing API
- Vercal for API deployment
- Figma and canava software for designing

### 6.2 PROCESS / PROGRAM / TECHNOLOGY / MODULES / SPECIFICATION IN DETAIL :

- **ReactJS :**



- ReactJS is a **declarative, efficient,** and flexible **JavaScript library** for building reusable UI components.
- It is an open-source, component-based front end library which is responsible only for the view layer of the application.
- It was initially developed and maintained by Facebook and later used in its products like WhatsApp & Instagram.
- Our ReactJS tutorial includes all the topics which help to learn ReactJS. These are ReactJS Introduction, ReactJS Features, ReactJS Installation, Pros and Cons of ReactJS, ReactJS

JSX, ReactJS Components, ReactJS State, ReactJS Props, ReactJS Forms, ReactJS Events, ReactJS Animation and many more.

- The main objective of ReactJS is to develop User Interfaces (UI) that improves the speed of the apps. It uses virtual DOM (JavaScript object), which improves the performance of the app. The JavaScript virtual DOM is faster than the regular DOM. We can use ReactJS on the client and server-side as well as with other frameworks. It uses component and data patterns that improve readability and helps to maintain larger apps.

- **JavaScript :**



- JavaScript is *an object-based scripting language* which is lightweight and cross-platform.
- JavaScript is not a compiled language, but it is a translated language. The JavaScript Translator (embedded in the browser) is responsible for translating the JavaScript code for the web browser.
- JavaScript (js) is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document.
- It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditional website uses js to provide several forms of interactivity and simplicity.

- **Mongo database :**



- MongoDB is a popular NoSQL database management system that stores data in a document-oriented format, rather than the traditional table-based relational databases. It is an open-source database and offers scalability, flexibility, and high performance. MongoDB is designed to handle large amounts of unstructured data and is used by many organizations to power their web applications, mobile apps, and IoT devices.
- MongoDB provides a rich set of features, including horizontal scaling, automatic sharding, and replication. It also supports a flexible data model, allowing developers to easily modify their schema as their application evolves. MongoDB uses a JSON-like document structure that enables users to store data in a way that is easy to read and manipulate.
- Another advantage of MongoDB is that it has a powerful query language, allowing users to perform complex queries on their data. Additionally, MongoDB offers a robust set of tools and integrations with popular programming languages and frameworks, making it easy to integrate with existing systems and build new applications.
- Overall, MongoDB is a versatile and powerful database system that is well-suited for a wide range of use cases, from small-scale applications to large-scale enterprise systems.

- **Postman :**



- Postman is a popular REST API client that simplifies the process of building, testing, and documenting APIs. It allows developers to easily create requests to APIs, view responses, and debug any issues that may arise. Postman provides a user-friendly interface that makes it easy to navigate and manage multiple APIs, and it offers a wide range of features that are designed to streamline the API development process.
- With Postman, developers can create and save collections of requests that can be easily shared with others on their team. These collections can include scripts and tests that allow developers to automate testing and ensure that their APIs are working correctly. Additionally, Postman offers a range of collaboration features that make it easy for team members to work together on API development projects.
- Postman also includes a robust set of features for API documentation, making it easy to create and share documentation for APIs. This documentation can include information about the endpoints, parameters, and responses for each API call, as well as examples and code snippets that make it easy for developers to integrate with the API.
- Overall, Postman is a powerful and versatile tool that simplifies the process of building and testing REST APIs. It provides a range of features that are designed to streamline API development and documentation, and it is widely used by developers and organizations around the world.

- **Node.js:**



- Node.js is a powerful and popular open-source runtime environment for executing JavaScript code outside of a web browser. It's built on the V8 engine from Google Chrome and allows developers to write server-side applications using JavaScript. Node.js provides a rich set of APIs and modules for building scalable, efficient, and fast network applications. It's used by companies like Netflix, PayPal, and LinkedIn to handle their server-side needs. Node.js is also easy to learn, making it a popular choice for developers who want to build backend systems with JavaScript.

### 6.3 MODULE SPECIFICATION

- Module Wise description

1. Login:

- Module is used to check whether the user id authorized person or not.
- For this user should give correct email id and password. The different types of user can login

2. User interaction:

- User can see the list of online user, other option, user can follow other user and also share their post with description.
- They can also like and comment each other

### 6.4 OUTCOME

- After completing the project, I discovered a lot of stuff that I had not learned in college.
- I also got a first-hand look at what it's like to work as a software engineer in a company.
- Requirements vary after project phase 1 is completed, thus this project is also completed in a real-world, where clients' demands alter and developers must be able to make those

adjustments in completed projects.

- The project's major goal was to create a platform for dynamically adding items from the admin side, which is currently unavailable in most systems.
- The website's second purpose is to make it more user-friendly, so that individuals without much technical expertise may use it, and it will also assist me in the near future in the workplace.

## **6.5 RESULT ANALYSIS**

- The results of this project were as expected after it was completed.
- There were a few revisions to the project requirements, which were completed effectively and on time.

## CHAPTERS 7. TESTING

### 7.1 TESTING STRATEGY

- **Unit Testing**

- Software testing methods are traditionally divided into white and black-box testing.

1. Black Box Testing - Whether or not a specific class satisfies the specification's requirements.

2. White Box Testing - While testing the class as a black box, the tester looks inside that class and checks for errors in the code that aren't discovered.

- **Integration Testing**

1. User Interface Testing - Moving through each and every menu item in the interface in a topdown or bottomup manner is used to test it.

2. Interaction Testing - Whenever the framework performs information handling, Interaction between different classes is tried.

- **Validation Testing**

- We performed functional test cases for the Validation Testing stage, and the findings were compared in the form of actual and predicted outcomes.

- The testing confirmed that the Validation met the requirements outlined in the Use Case and SRS (Software Requirement Specification).

- The integration of form design, login, admin management and rights, and salary management was successfully tested.

- **System Testing**

- It's checked to make sure that functionality-related sets of units that are employed together work as intended.

- According to the system test specifications, improper system operation is limited down to incorrect unit(s) operation, which is handled by filing the units.

## 7.2 TEST RESULTS AND ANALYSIS

### 7.2.1 Test Cases

#### Test ID: LRP01

- Test Condition: Verify if the Login page allows the user to enter valid credentials and login and verify if the Register page allows the user to enter valid details and register.
- Expected Output: Login page should allow the user to enter valid credentials and login and register page should allow the user to enter valid details and register.
- Actual Output: Login page allows the user to enter valid credentials and login and register page allows the user to enter valid details and register.
- Remark: Pass

#### Test ID: AP01

- Test Condition: Verify if the About Us section contains the company's history.
- Expected Output: About Us section should contain the company's history.
- Actual Output: About Us section contains the company's history.
- Remark: Pass

#### Test ID: SP01

- Test Condition: Verify if the Services section contains all the services provided by the company.
- Expected Output: Services section should contain all the services provided by the company.
- Actual Output: Services section contains all the services provided by the company.
- Remark: Pass

#### Test ID: PLP01

- Test Condition: Verify if the Property Listing page displays all the available properties with their details.
- Expected Output: Property Listing page should display all the available properties with their details.
- Actual Output: Property Listing page displays all the available properties with their details.
- Remark: Pass

#### Test ID: PP01



- Test Condition: Verify if the Pricing page displays all the pricing plans offered by the company.
- Expected Output: Pricing page should display all the pricing plans offered by the company.
- Actual Output: Pricing page displays all the pricing plans offered by the company.
- Remark: Pass

Action	Expected output	Actual output
Click on login page	Login page will be displayed	Login page displayed
Click on course	course Page will be opened	Course Page is opened
Click on register for course	Registration should be done	Registration should be done
Click on a particular event	a particular event should be displayed	Event is displayed
Submit the query on contact us	Query should be submitted to the admin	Query is submitted to the admin
Navigate to different pages using sidebar	Navigation should be done smoothly	Navigation is done smoothly
Access the online material in the courses and internship	Materials should be accessible	Materials are accessible
Able to upload assignments	Students should be able to upload assignments	Students are able to upload assignments
Click on Buy Now button	Payment Page will be opened	Payment Page is opened

Table 7.1 Testid-1 (Testing of Userside)

## CHAPTERS 8. CONCLUSION AND DISCUSSION

### 8.1 OVERALL ANALYSIS OF INTERNSHIP

- The major goal of this internship was to learn new things and gain technical professional experience.
- When I start this internship I had not much knowledge about JavaScript and ReactJS.
- I learnt JavaScript and ReactJS from the ground up and expanded my understanding of CSS, HTML, and Bootstrap.
- I began working on the project after understanding the fundamentals of JavaScript.
- Overall, it was an amazing experience, and the senior staff was quite helpful during my internship.

### 8.2 DATES OF CONTINUOUS EVALUATION

- CE-I : 4th March, 2023
- CE-II : 1st April, 2023

### 8.3 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTION

- In this project, there is a problem that students are facing difficulty about their purchased online contents because they have no idea about delivery status as after payment of the content. Students can see status of paid when admin change that status.
- To overcome this hurdles, in upcoming days there would be live tracking feature in student's dashboard from which they can see current status of purchased contents.

### 8.4 SUMMARY OF INTERNSHIP

- First few days of internship I learnt about basics HTML and CSS. Then I started learning JavaScript and ReactJS from basic.
- I completed numerous task based on web development
- After learning all of this, I started to make website(frontend).
- My company guide, senior, and institute mentor provided me with continue support throughout this internship.

- After completing the website, the company mentor changed some of the requirements and code, giving me a better understanding of the real-world scenario of professional work in the IT industry, where clients' needs change.
- Overall, it was an incredible event from which I learned a great deal.

## 8.5 LIMITATION AND FUTURE ENHANCEMENT

- Live tracking of content is not possible for user.
- If there are a large number of students then it may become overburdened.
- Admin will be able to generate and print receipt.

## 8.6 OVER ALL ANALYSIS OF INTERNSHIP

- This internship has brought me a lot of insights into Android Development in dart language especially into the Backend.
- It has taught me how to work with a team.

## 8.7 CONCLUSION

- During this internship, the concentration was on helping me understand logical concepts with their practicality and implications to help me connect my classroom knowledge to industry standards. my internship included orientation and focus primarily on learning and developing new skills and gaining a deeper understanding of concepts through hands-on application of the knowledge.
- I didn't learn everything in Flutter but was able to gain as much as I can & as required. The few main things that I learned after my experience in this internship are the importance of time management, being self-motivated, being ready to learn new things

## References

- [1] Structuring the web with HTML:-  
<https://developer.mozilla.org/enUS/docs/Learn/HTML>
- [2] Learn to style HTML using CSS:- <https://developer.mozilla.org/en-US/docs/Learn/CSS>
- [3] JavaScript:- <https://developer.mozilla.org/en-US/docs/Learn/JavaScript>.
- [4] Introduction of ReactJS:- <https://legacy.reactjs.org/>
- [5] How to create website with ReactJS:- <https://www.geeksforgeeks.org/how-to-create-a-website-in-react-js/>
- [6] <https://www.github.com>
- [7] <https://www.stackoverflow.com>
- [8] <https://www.tutorialspoint.com>
- [9] <https://www.w3schools.com>

Appendix

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ અન્વયે સ્થાપિત)

Annexure I  
Enrollment no: 190190102028

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jaykumar Dineshbhai

DIARY OF THE WEEK: DE: 23/01/2023 TO 29/01/2023

DEPARTMENT: Computer Engineering sem 8th f/y social

NAME OF THE ORGANISATION: Interact at technology month time 0

NAME OF THE PLANT/SECTION/DEPARTMENT: web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vash Patel

DESCRIPTION OF THE WORK DONE IN BRIEF	
<p><u>23/01/2023</u></p> <ul style="list-style-type: none"> <li>→ Introduction of the organization</li> <li>→ Introduction of web developers and languages used in web development</li> <li>→ framework used in web development</li> </ul> <p><u>24/01/2023</u></p> <ul style="list-style-type: none"> <li>→ what is used at website</li> <li>→ different tool which are used to develop website</li> <li>→ Installation of Visual studio and set up for web development</li> <li>→ then starting learn about html tags in which contain color, heading, paragraph, image, checkbox, etc.</li> </ul>	<p><u>25/01/2023</u></p> <ul style="list-style-type: none"> <li>→ link tag, color tag, label tag and input tag</li> <li>→ also we have learned what is container how we can use different div tag</li> <li>→ then we tried different boxes in web page apply different colors</li> </ul> <p><u>26/01/2023</u></p> <ul style="list-style-type: none"> <li>→ company Holiday</li> </ul> <p><u>27/01/2023</u></p> <ul style="list-style-type: none"> <li>→ HTML input types such as button, checkbox, color, search, submit etc.</li> <li>→ then learned about attributes</li> </ul> <p><u>28/01/2023 and 29/01/2023</u></p> <ul style="list-style-type: none"> <li>→ company work off day</li> </ul>

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(ગુજરાત અધિનિયમ ક્રમાંક-૨૦૧૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS: <u>30 Hours</u>	<u>S.P.B. Patel</u> SIGNATURE OF STUDENT
<input type="checkbox"/> The above entries are correct and the grading of work done by Trainee is EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR	
Signature of Faculty Mentor	Signature of officer-in-charge of Dept. / Section / Plant
Date:	Date: <u>02/02/2023</u>
<input checked="" type="checkbox"/> Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.	

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ જાણીતો)

Attachment I  
Registration No. 130310102038

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jaykumar Vinshbhai  
 DIARY OF THE WEEK: DC: 30/01/2023 to 05/02/2023  
 DEPARTMENT: Computer Engineering SEM: 8th  
 NAME OF THE ORGANISATION: FLY social marketing  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Web development  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Jash Patel

DESCRIPTION OF THE WORK DONE IN BRIEF	
<p><u>30/01/2023</u></p> <ul style="list-style-type: none"> <li>→ we started learning CSS</li> <li>→ it defines how html element are displayed</li> <li>→ CSS syntax contain property and value.</li> <li>→ how comment are apply to the CSS.</li> <li>→ id and 'class' selector in the CSS</li> <li>→ there are three way we can write CSS :- 1. inline CSS 2. Internal CSS 3. external CSS</li> </ul> <p><u>31/01/2023</u></p> <ul style="list-style-type: none"> <li>→ CSS border properties</li> <li>→ CSS box model property</li> <li>→ CSS positioning property</li> <li>→ CSS display property</li> </ul> <p><u>01/02/2023</u></p> <ul style="list-style-type: none"> <li>→ CSS grid property with its attributes</li> </ul>	<ul style="list-style-type: none"> <li>→ display: grid, grid-template-columns, grid-template-rows</li> <li>→ CSS grid function - repeat()</li> <li>→ CSS flexbox and the z-index property</li> </ul> <p><u>02/02/2023</u></p> <ul style="list-style-type: none"> <li>→ style the link like the other hover, active</li> <li>→ Introduction of responsive web</li> <li>→ CSS media query development</li> <li>- media types all, print, screen</li> <li>- media features → min-height, min-weight</li> <li>- CSS object-fit property</li> <li>- CSS Animation</li> </ul> <p><u>03/02/2023</u></p> <ul style="list-style-type: none"> <li>→ practices the different CSS property</li> <li>→ Landing page of product portfolio</li> </ul> <p><u>04/02/2023 and 05/02/2023</u></p> <p style="text-align: center;">company off duty</p>



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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦-૨૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS: 30


J. D. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Date: 18/02/23

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]  
Date: 03/02/2023

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 (ગુજરાત અધિનિયમ ક્રમ ૨૦:૨૦૦૭ ના રા. સ્થાપિત)

Annexure I  
 Enrollment no. 190320102035

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jyotima Dineshbhai

DIARY OF THE WEEK: DE 06/02/2023 TO 17/02/2023

DEPARTMENT: Computer Engineering sem 5th


NAME OF THE ORGANISATION: FLY Social marketing

NAME OF THE PLANT/SECTION/DEPARTMENT: web development

NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Jyoti Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

<p><u>06/02/2023</u></p> <ul style="list-style-type: none"> <li>- We have learned simple program which is used to display date and time</li> <li>- basic javascript and basic method which is used listed below.                             <ul style="list-style-type: none"> <li>- getElementById()</li> </ul> </li> <li>- then learned onclick function</li> <li>- also we can apply style on javascript getElementById(). style: key = value</li> </ul> <p><u>07/02/2023</u></p> <ul style="list-style-type: none"> <li>- We have learned javascript operators</li> <li>- We have learned javascript operators                             <ul style="list-style-type: none"> <li>- Arithmetic operator, Bitwise operator</li> <li>- Logical operator etc</li> </ul> </li> <li>- then learned JS control flow                             <ul style="list-style-type: none"> <li>- if else condition</li> <li>- for and while loop</li> </ul> </li> <li>- comparing with C.E.O</li> </ul> <p><u>08/02/2023</u></p> <ul style="list-style-type: none"> <li>- then learned JS break statement, continue statement and switch statement</li> <li>- then we learned JS pop-up box                             <ul style="list-style-type: none"> <li>- alert box, confirm box, prompt box</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- then learned examples of JS pop-up boxes.</li> <li>- then learned JS function</li> <li>- here we can use using multiple. then learned different objects.</li> </ul> <p><u>09/02/2023</u></p> <ul style="list-style-type: none"> <li>- explained different JS objects.</li> <li>- math, number, date, etc obj.</li> <li>- then learned about JS arrays.</li> <li>- push() etc</li> <li>- pop() etc</li> <li>- then learned different method which are used to manipulate string.</li> </ul> <p><u>10/02/2023</u></p> <ul style="list-style-type: none"> <li>- Explaining Books about mark</li> <li>- then location, navigator etc obj.</li> <li>- then started learning DOM</li> </ul> <p><u>11/02/2023 and 12/02/2023</u></p> <ul style="list-style-type: none"> <li>- explained all DOM method.</li> <li>- "company off days"</li> </ul>
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TOTAL HOURS 50 hours S.P. Patel  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 14/02/23 Date: 10/02/2023

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Annexure I  
 Enrollment no: 190290107038

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jaykumar Dineshbhai

DIARY OF THE WEEK: 01/02/2023 to 19/02/2023

DEPARTMENT: Computer Engineering SEM: 5<sup>th</sup>


NAME OF THE ORGANISATION: fly Social marketing

NAME OF THE PLANT/SECTION/DEPARTMENT: web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: jash Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

<p><u>13/02/2023</u></p> <ul style="list-style-type: none"> <li>- working with the javascript form and the Event handling in the JS.</li> <li>- work with below js event.</li> <li>- mouse click, hover, scroll, touch, onmouseover, onmouseout, onfocus, onblur, onchange, onkeydown, onkeyup, onsubmit, oninput and onreset.</li> <li>- working with different layout and</li> </ul> <p><u>14/02/2023</u></p> <ul style="list-style-type: none"> <li>- we create color generator small project using the HTML, CSS and javascript.</li> </ul> <p><u>15/02/2023</u></p> <ul style="list-style-type: none"> <li>- learned about javascript function definition.</li> <li>- learned about namespaces in JS.</li> <li>- learned more about functions like - self calling, self invoking, javascript callback function.</li> <li>- also learned about async and await.</li> </ul>	<p><u>16/02/2023</u></p> <ul style="list-style-type: none"> <li>- <b>Task 1</b> -</li> <li>- made simple calculator using HTML, CSS and javascript with responsive.</li> <li>- learned about javascript role while all validate the form with user what has filled.</li> <li>- introduction of Ajax concepts.</li> </ul> <p><u>17/02/2023</u></p> <ul style="list-style-type: none"> <li>- working with the javascript ES6</li> <li>- working with variable type <sup>const</sup> let, const, var</li> <li>- learned about arrow function</li> <li>- learned about template litrag</li> <li>- learned about JS destructuring</li> <li>- array destructuring, object destructuring</li> </ul> <p><u>18/02/2023, &amp; 19/02/2023</u></p> <ul style="list-style-type: none"> <li>- completing all days</li> </ul>
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TOTAL HOURS: 30 hours J. J. Patel  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor Signature of officer-in-charge  
of Dept. / Section / Plant

Date: 18/3/23 Date: 17/02/23

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Annexure 1  
 Enrollment no. 190290107038

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jaykumar Dineshbhai

DIARY OF THE WEEK: DE 20/02/2023 TO 26/02/2023


DEPARTMENT: Computer Engineering SEM: 8th

NAME OF THE ORGANISATION: FM Social Marketing

NAME OF THE PLANT/SECTION/DEPARTMENT: Web development

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Jash Patel

DESCRIPTION OF THE WORK DONE IN BRIEF	
<p><u>20/02/2023</u></p> <ul style="list-style-type: none"> <li>→ work with the modules in the ESG</li> <li>→ work with fetch symbol in F</li> <li>→ (in F) visual has been learned in ESG</li> <li>→ TASK has been given by mentor</li> <li>→ TASK - create the countdown timer using the HTML, CSS and JS.</li> </ul> <p><u>21/02/2023</u></p> <ul style="list-style-type: none"> <li>→ next day task is make countdown more attractive and responsive.</li> <li>→ then we held meeting with our mentor.</li> </ul> <p><u>22/02/2023</u></p> <ul style="list-style-type: none"> <li>→ create image slider of custom image slider of your domain (social media)</li> </ul>	<ul style="list-style-type: none"> <li>→ collect the real domain image for social media.</li> <li>→ creating HTML structure for this project.</li> <li>→ Adding the style to this HTML file.</li> <li>→ understanding the javascript different library and framework.</li> </ul> <p><u>23/02/2023</u></p> <ul style="list-style-type: none"> <li>→ Introduction of ReactJS</li> <li>→ difference between the ReactJS and AngularJS</li> <li>→ difference between the React and VueJS</li> <li>→ requirement for the ReactJS file structure of ReactJS</li> </ul> <p><u>24/02/2023</u></p> <ul style="list-style-type: none"> <li>→ understood file structure</li> </ul> <p><u>25/02-02-2023</u> :- Weekend</p>



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---

TOTAL HOURS: 30


J.P. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Date: 18/3/23

Signature of officer-in-charge  
of Dept. / Section / Plant: [Signature]  
Date: 24/02/2023

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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---

TOTAL HOURS: 20 hours

SIGNATURE OF STUDENT: [Signature]

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: 18/3/23

Date: 03/03/2023

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure 1


Enrollment No. 190290107038

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: Patel Jaykrishna Dineshbhai  
 DIARY OF THE WEEK: IN 06/03/2023 TO 17/03/2023  
 DEPARTMENT: Computer Engineering SEM: 8th  
 NAME OF THE ORGANISATION: AI-Social Interdisciplinary  
 NAME OF THE PLANT/SECTION/DEPARTMENT: Web Development  
 NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Vash Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

<p><u>06/03/2023</u>                  - learned about APIs                  - work with apps to do get data from apis</p>	<p><u>10/03/2023</u>                  - made improvement using React useState and useEffect hook.</p>
<p><u>07/03/2023 &amp; 08/03/2023</u>                  - "hall festival"</p>	<p>- then use created API and also use connect to handle the API.</p>
<p><u>09/03/2023</u>                  - work with call API using get method also learned post methods.</p>	<p>- get the form the API and display it to web page</p>
<p>- learned about Rest API and DELETE methods                  - work with objects data with API.</p>	<p>- worked working on my own project @ social media</p>
<p><u>Tue</u> - design a weather app with API by using API</p>	<p>- learned about social media and did the brainstorming that what I should develop                  - Also set-up firebase for my app - weekdays</p>



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---

TOTAL HOURS: \_\_\_\_\_


S.P.B. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Date: 10/03/2023

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]  
Date: 10/03/2023

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1  
Enrollment no: 190903107038

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jyotirama Dineshbhai

DIARY OF THE WEEK: DE: 13/03/2023 TO 19/03/2023


DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Fit-social marketing

NAME OF THE PLANT/SECTION/DEPARTMENT: web developing

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Yash Patel

DESCRIPTION OF THE WORK DONE IN BRIEF	
<p><u>13/03/2023</u></p> <ul style="list-style-type: none"> <li>-&gt; start making header of my "social media"</li> <li>-&gt; made improvement in links and try to make good headers</li> </ul> <p><u>14/03/2023</u></p> <ul style="list-style-type: none"> <li>-&gt; made hamburger button on mobile view</li> <li>-&gt; made footer on mobile view</li> <li>-&gt; make responsive header and footer</li> </ul> <p><u>15/03/2023</u></p> <ul style="list-style-type: none"> <li>-&gt; made sidebar on left side</li> <li>-&gt; finds photos for next post</li> <li>-&gt; made profile picture of user</li> </ul>	<p><u>16/03/2023</u></p> <ul style="list-style-type: none"> <li>-&gt; made improvement in user profile and also Add user name and its description</li> <li>-&gt; start working on feeds and posts of other user</li> </ul> <p><u>17/03/2023</u></p> <ul style="list-style-type: none"> <li>-&gt; made improvement on post feeds and try to make little bit responsive</li> <li>-&gt; post included account of user and description of that user and picture of its user also add like and heart Buttons</li> <li>-&gt; also made list of friends in left side in sidebar</li> </ul> <p><u>18&amp;19/03/2023</u></p> <ul style="list-style-type: none"> <li>-&gt; company weekends</li> </ul>


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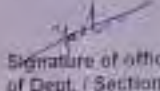
---

TOTAL HOURS: -----

5-2-9478L  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: 

Signature of officer-in-charge of Dept. / Section / Plant: 

Date: -----

Date: 17/03/2023

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TOTAL HOURS: 38 hours


S.P. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Date: 24/03/2023

Signature of officer-in-charge of Dept. / Section / Plant: [Signature]  
Date: 24/03/2023

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Associate I  
 Enrollment no.  
190300107028

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel, Jagkrupa Dineshbhai

DIARY OF THE WEEK: In: 27/08/2022 to 02/09/2022

DEPARTMENT: Computer Engineering SEM: 8th


NAME OF THE ORGANISATION: Fit Social Marketing

NAME OF THE PLANT/SECTION/DEPARTMENT: Web developing

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Nash Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

- \* create folder called 'users' in which users.js is created.
- \* write default code and also export this folder
- \* Also create 'auth' folder in 'users'
- \* In models, write user schema in User.js (which ultimately contain information about username, email, password, profile picture, confirmPassword, following and also add form in admin user (is admin))
- \* use bcrypt method for securing password, a module 'bcrypt' and create 'register user', login user, update user and delete user
- \* In order to use post method, we required to use postman software for sending request
- \* write code for Register user and also add new request in postman
- \* Also write code for login user and also add new request in postman.



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TOTAL HOURS: \_\_\_\_\_

Signature of Student: J.P. Patel  
SIGNATURE OF STUDENT


The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date: \_\_\_\_\_ Date: 31/03/2023

Grading of Work, for trainee may be given depending upon your judgement about  
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Signature: \_\_\_\_\_  
Enrollment no: 190790107938

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: Patel Jagkumar Dineshbhai  
DIARY OF THE WEEK: 02/04/2023 to 09/04/2023  
DEPARTMENT: Computer Engineering SEM: 8th  
NAME OF THE ORGANISATION: Fit-Social Marketing  
NAME OF THE PLANT/SECTION/DEPARTMENT: web developing  
NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: Yash Patel

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- \* for user operations such as delete, delete get, follow, unfollow user made folder in which output will be send
- \* write code for delete user and send data successfully to database
- \* some process done for delete user, get user, follow user and unfollow user
- \* solve the error while doing this task.



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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

---

TOTAL HOURS: \_\_\_\_\_

*S.P. Patel*  
SIGNATURE OF STUDENT


The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: *Shalini Patel*  
Date: *07/09/2023*

Signature of officer-in-charge: \_\_\_\_\_  
of Dept. / Section / Plant

Date: *07/09/2023*

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1  
 Enrollment No: 190390107035

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Patel Jyotkumar Dineshbhai

DIARY OF THE WEEK: DE 10/04/2023 TO 16/04/2023

DEPARTMENT: Computer Engineering SEM: 8th


NAME OF THE ORGANISATION: fly social marketing

NAME OF THE PLANT/SECTION/DEPARTMENT: web developing

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Vish Patel

DESCRIPTION OF THE WORK DONE IN BRIEF

- \* JS like user schema write array for post through which user can share the post as well as like the post and write date and name the post.
- \* In posts include word desc image and links.
- \* And for post manipulation I will write code in posts.js which is located in routes.
- \* write code for create post and send request through postman
- \* write code for update post and send request.
- \* solve the error and also write code for delete and get post.
- \* make login page and register page
- \* learn how to link frontend and backend
- \* solve image issue in frontend after applying Router (React-Router-dom)
- \* improve Backend.

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TOTAL HOURS: -----


*J. R. Patel*  
-----  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: *[Signature]*  
Date: *9/5/23*

Signature of officer-in-charge  
of Dept. / Section / Plant: *[Signature]*  
Date: *7/5/2023*

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 2

**Feedback Form by Industry expert**

Student Name: Jagdishwar Vinaykibhai Patel Date: \_\_\_\_\_

Work Supervisor: Yash Patel Title: web development

Company/Organization: FLU social marketing

Enrollment No: 190390107038

Internship Address: T-8 Saket Business Hub, Mohana, Gujarat, India

Dates of Internship: From 23/01/2023 to 16/04/2023

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility			✓	
Uses technical knowledge and expertise				✓
Analyzes problems effectively				✓
Communicates well and writes effectively			✓	

Overall performance of student intern: (Needs improvement/Satisfactory/Good/Excellent)  
Excellent

Additional comments, if any: He Think out of the Box

Signature of Industry person with name and Stamp: YASH PATEL

FLU SOCIAL  
 +91 9923301191  
 info@flusocial.com  
 www.flusocial.com  
 T-8 Saket Business Hub  
 Mohana, Gujarat, India

Signature of the Faculty Mentor:  
Pratibha  
9/4/23

# **INTERNSHIP AT CRYPTO THUNDER EV**

**AN INTERNSHIP REPORT**

*Submitted by*

**Jesal Devrajsingh Thakur**

**190390107062**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Crypto Thunder EV** has been carried out by **Jesal Devrajsingh Thakur** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department



# GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 14 May 2023 (23:11:30)

This is to certify that, *Thakur Jesal Devrajsingh* ( Enrolment Number - 190390107062 ) working on project entitled with *Internship At Crypto Thunder EV* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : **Thakur Jesal Devrajsingh**

Name of Guide : **Mr. Akshay Rameshchandra Kansara**

Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

**Disclaimer :**

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.



## Company Certificate



### CRYPTO THUNDEREV PVT. LTD.

---

TO WHOMSOEVER IT MAY CONCERN

Date: 05/05/2023

This is to certify that Jesal Thakur, a student of Saffrony Institute of Technology, has successfully completed a Blockchain developer internship program from February 9th, 2023 to May 6th, 2023. The internship was carried out under the supervision of Aishwaraya Dhavse, and Jesal's activities included the development of smart contracts and their integration with frontend applications. Throughout the program, Jesal demonstrated diligence, hard work, and a keen desire to learn, while being exposed to various processes. We extend our best wishes to Jesal for success in his future endeavors.

For Crypto Thunder EV

Maulik Patel



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CRYPTO THUNDER EV** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Mr. Ashwariya Dhavse (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. Jesal Devrajsingh Thakur

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I would like to express my sincere gratitude to all those who have contributed to the successful completion of my internship and the subsequent writing of this report. First and foremost, I would like to thank the team at Crypto Thunder EV for providing me with the opportunity to gain valuable knowledge and hands-on experience in the field of Blockchain Development. Special thanks to my supervisor who patiently guided me throughout the internship and provided valuable feedback on my work. I would also like to thank my colleagues who were always available to offer assistance and share their insights, which greatly contributed to my learning experience.

## **Abstract**

*This report details the author's internship experience at Crypto Thunder EV, focusing on their exploration of Blockchain Development fundamentals. The author delves into the stages involved in creating a Smart Contract, including Design, Coding, Testing, and Validation. They also examine various techniques and tools for constructing a Smart Contract, selecting tools based on consumer requirements and complexity levels.*

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## **Abbreviations**

ABI	Application Binary Interface
EVM	Ethereum Virtual Machine
IDEs	Integrated Development Environments
DEXs	Decentralized Exchanges
AMMs	Automated Market Makers

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# **CHAPTER 1. OVERVIEW OF THE COMPANY**

## **1.1 COMPANY PROFILE**

The Thunder EV (THEV) Token is the principal digital money in the electric vehicle and systems administration industry, sent off by the substance named Thunder EV. This decentralized token sent off into the market as digital money will provide serious areas of strength for natural reserve funds. Thunder EV is carrying out the greatest electric vehicle creation industrial facility to drive more electric vehicles into the economy to save nature from contamination.

Our major focus is on convincing individuals all around the world to create some distance from petroleum-derivatives-vehicles by offering them a top-notch insight through our electric vehicles.

THEV Token is often the first cryptocurrency in the electric vehicle & networking industry launched by the entity named Thunder EV. This decentralized token launched in the market cryptocurrency will exert a strong influence on environmental savings. Thunder EV is implementing the Electric vehicle production factory with higher capacity for pushing more electric vehicles into the economy to save nature from pollution.



**1.1.1 THEV COIN IMAGE**



**1.1.2 COMPANY LOGO**

## **1.2 MISSION OF THE COMPANY**

The uniqueness of thunder EV is that it will be produce electric mopeds and bikes with Sodium Ion battery that increases the efficiency of the product and satisfies the market need.

Thunder EV has vision of moving in both way in terms of electric vehicle production industry as well as moving forward with the digital currencies and their utilisation.

Thunder EV plans to create the wallet as well as its ATM card by collaborating with the most trusted Card service providers and with that focusing on creating the token more and more utilizable across the world and to provide the prestige to the THEV token holders.

## **CHAPTER 2. INTRODUCTION TO WEB DEVELOPMENT**

### **2.1 WHAT IS BLOCKCHAIN DEVELOPMENT?**

Blockchain development is the process of building decentralized applications (dApps) on a blockchain platform, which is a distributed ledger technology that enables secure and transparent transactions without the need for a trusted intermediary.

To develop blockchain applications, developers create smart contracts, which are self-executing contracts that enforce the terms of an agreement and are stored on the blockchain. Smart contracts can be used for various purposes, such as creating digital currencies, managing supply chains, and verifying identities.

Developers need to have expertise in programming languages such as Solidity, which is used to write smart contracts for the Ethereum blockchain, and tools like Remix, an integrated development environment (IDE) for writing, testing, and deploying smart contracts. They must also possess knowledge of blockchain protocols, cryptography, and decentralized consensus mechanisms like proof-of-work or proof-of-stake.

Unlike typical databases that store records in a centralized fashion (i.e., records are stored at a single location), a blockchain is essentially a decentralized database that multiple participants manage; its DLT provides each node in the network with its own copy of the ledger. (And anyone can volunteer their server to be a node in the network.) If there's inconsistency in any record, the technology can identify it by verifying it against the other participants' copies of the record. This capability makes records in a blockchain virtually tamperproof.

### **2.2 BLOCKCHAIN DESIGN AND OVERVIEW**

Blockchain is a distributed and decentralized ledger technology that facilitates secure and transparent transactions without the involvement of a central authority. A blockchain comprises a chain of blocks containing transaction data, where each block is linked to the previous one via a cryptographic hash, creating a tamper-resistant and unalterable ledger.

In a blockchain network, multiple participants or nodes maintain a copy of the ledger and validate transactions. To add a transaction to the blockchain, it must undergo a consensus

mechanism, such as proof-of-work or proof-of-stake, where it needs to be verified by the network.

Once a transaction is confirmed and added to the blockchain, it becomes a permanent part of the ledger and cannot be modified or deleted. Blockchain technology finds numerous applications, such as creating digital currencies, managing supply chains, verifying identities, and more.

Smart contracts are self-executing contracts stored on the blockchain that automatically enforce the agreement's terms. This enables the creation of decentralized applications (dApps) that operate without the need for a central authority.

### **2.3 WORKING OF BLOCKCHAIN**

- 1) Create a block. A transaction occurs and is transmitted to the distributed network of nodes. Each of the nodes in the network must verify the transaction, and if there's a consensus, they approve the transaction and all of its corresponding data gets recorded in a block. (You can choose the information for your block to record—names, places, times, cost, or any other type of data.)
- 2) Link blocks. Each block in the database only stores a certain amount of data. Once it's full, a new block is generated. To link back to the previous block, that newly generated block uses a unique code called a hash. If the transaction is changed in any way, the hash also changes—which makes it easy to spot tampering. This linkage forms a data chain, which shows how the asset moves (either in terms of literal location or ownership).
- 3) Add to the chain. All transactions are blocked together in a completely fixed fashion to form a blockchain. Every time a block is added to the chain, the network uses the same consensus approach to further confirm the previous block(s) and thus adds validity to the overall blockchain.

## **2.4 APPLICATION OF BLOCKCHAIN**

Blockchain technology has many potential applications across various industries:

- 1) **Cryptocurrencies:** The most well-known application of blockchain technology is cryptocurrencies such as Bitcoin and Ethereum. Cryptocurrencies use blockchain to create decentralized, digital currencies that are secure, transparent, and tamper-resistant.



**Financial Services**

Faster and cheaper payment settlements could save billions of dollars and allow cross-border payments without transaction costs, while enhancing transparency.



**Healthcare**

Patient's encrypted health records could be shared with multiple stakeholders like doctors, insurance companies, clinical researchers and financial institutions without the risk of data breaches.



**Real Estate**

Individuals could use the blockchain to manage fractional ownership of large properties with more security and efficiency.



**Supply Chain**

Consumers could trust the product manufacturers with a complete traceability through blockchain.

### **2.4.1 APPLICATION OF BLOCKCHAIN**

- 2) Supply Chain Management: Blockchain technology can be used to track the movement of goods and products in supply chains. This can help increase transparency and efficiency, reduce fraud, and improve traceability.
- 3) Identity Verification: Blockchain technology can be used to create decentralized digital identities that are secure, transparent, and tamper-resistant. This can help improve identity verification processes and prevent fraud.
- 4) Smart Contracts: Blockchain technology can be used to create self-executing contracts that are stored on the blockchain. These smart contracts can be used for a variety of purposes, such as automating payment processes, creating digital assets, and managing supply chains.
- 5) Healthcare: Blockchain technology can be used to securely store and share medical records and personal health data. This can help improve patient privacy and data security.
- 6) Real Estate: Blockchain technology can be used to securely and transparently track the ownership and transfer of real estate properties. This can help reduce fraud and improve the efficiency of real estate transactions.
- 7) Gaming: Blockchain technology can be used to create decentralized gaming platforms that are secure and transparent. This can help reduce fraud and improve the fairness of online gaming.

## **2.5 CHALLENGES IN BLOCKCHAIN DEVELOPMENT**

While blockchain technology offers many benefits, there are also several challenges that developers face when building decentralized applications on blockchain platforms. Here are some of the key challenges in blockchain development:

- 1) **Scalability:** Blockchain networks can face performance issues due to the large amount of data they store. This can result in slow transaction processing times and high transaction fees. Scalability solutions, such as sharding and sidechains, are being developed to address this issue.
- 2) **Interoperability:** Blockchain networks must be able to communicate with other systems and networks to achieve widespread adoption. Interoperability standards, such as the Interledger Protocol (ILP), are being developed to enable seamless integration between different blockchain networks and systems.
- 3) **Security:** Security is crucial in blockchain design, and the network must be designed with security in mind to prevent hacks and attacks. Smart contract vulnerabilities, such as the DAO hack, have shown that security can be a major challenge in blockchain development.
- 4) **Regulatory Environment:** The regulatory environment around blockchain and cryptocurrency is still developing, and there are often unclear or conflicting regulations that can create challenges for blockchain developers.
- 5) **Usability:** Blockchain applications can be complex and difficult to use for the average user. Improving the usability and user experience of blockchain applications is crucial for achieving widespread adoption.
- 6) **Governance:** Decentralized networks require effective governance mechanisms to ensure that the network operates in a fair and transparent manner. Governance models, such as on-chain and off-chain governance, are being developed to address this challenge.

## **2.6 BEST PRACTICE IN BLOCKCHAIN DEVELOPMENT**

Best practices in blockchain development refer to the set of guidelines, principles, and methodologies that are widely recognized as effective and efficient for building secure, scalable, and reliable blockchain applications. These practices are designed to ensure that blockchain developers adhere to the industry standards and create applications that are optimized for performance, security, and usability.

- 1) Designing a robust architecture that takes into account scalability, performance, and security requirements.
- 2) Writing efficient and well-structured code that is easy to maintain and debug.
- 3) Implementing strong security measures, such as encryption, multi-factor authentication, and access controls.
- 4) Ensuring that the blockchain application is compliant with relevant regulations and standards.
- 5) Conducting thorough testing and debugging to identify and fix potential issues before deployment.
- 6) Documenting the code and processes to make it easier for other developers to understand and contribute to the project.
- 7) Continuously monitoring the blockchain application to detect and respond to any security or performance issues.
- 8) Participating in the blockchain community to stay up-to-date with the latest trends and technologies.



## **CHAPTER 3. BLOCKCHAIN DEVELOPMENT PROCESS**

### **3.1 Appropriate Workflow Design for Blockchain Integration**

One of the foremost concerns associated with blockchain development refers to the selection of niche. The niche must offer a credible platform for the creative and relevant application of blockchain technology to derive value.

In addition, an overview of the different use cases of blockchain indicates that distributed ledger technology is applicable for all industries such as insurance, banking, intellectual property rights, and others. On the other hand, enterprises and developers should conduct a comprehensive analysis of the existing projects before they begin building blockchain solutions.

It is important to know that if blockchain solves problems in the supply chain, then you don't have to design a project that solves blockchain problems. When you are about to embark on a blockchain development process, make sure that you have a good idea to work with. Think twice about the possibilities of bringing your idea to life and then start on your blockchain development project.

### **3.2 PROOF OF CONCEPT**

The proof-of-concept is basically the method of showcasing practical potential associated with a blockchain project. The proof-of-concept could be a theoretical blueprint or a prototype, and there are different stages for creating a POC, which showcase the feasibility of the project.

The theoretical buildup is one of the critical blockchain development steps as it communicates the productivity and viability of the product for end-users. So, developers should fabricate proposals for explaining different parameters associated with the project.

Another important requirement, in this case, would refer to the prototype, which follows the theoretical buildup and the feedback from stakeholders. The prototype should showcase sketches outlining the information architecture, designs, tested products, and mockups. The approval of the prototype is essential for starting work on visual and technical aspects of the application.

### **3.3 NEW OR EXISTING BLOCKCHAIN**

When you are ready to start the blockchain development process, it is important to ask whether you need an existing blockchain or you need to develop a new one. If you want to opt for building your own blockchain, then you have to prepare for months of the development process.

Developers have to go through complicated processes of designing nodes and blockchain instances. At the same time, they have to ensure the planning of the configuration for different elements, including the reissuance and asset issuance, along with block signatures and many other factors.

Furthermore, developers have to create the APIs alongside the design interfaces for admins and users. In addition, users have to focus on the selection of programming languages as well as servers and external databases for the project.

### **3.4 SELECTING A CONSENSUS MECHANISM**

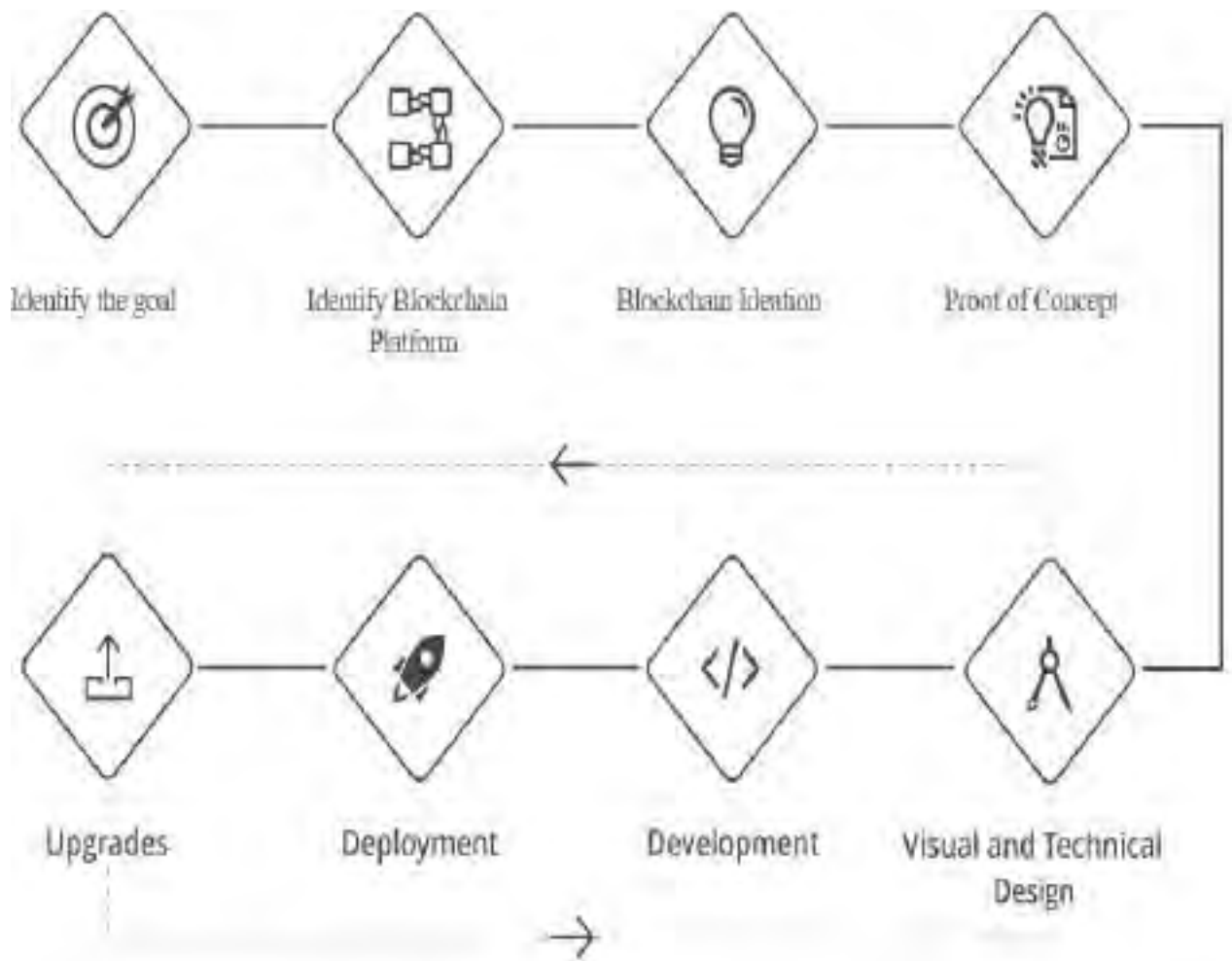
Any new product development process with example, would showcase the importance of consensus mechanisms in developing blockchain solutions. The consensus mechanism is important, especially in the case of public networks. It is basically an algorithm that enables trust among independent participants.

Proof-of-Work is the most commonly followed consensus protocol. Some of the other examples of consensus mechanisms utilized commonly include Proof-of-Stake, Delegated Proof-of-Stake, and Proof-of-Authority.

The other prominent consensus mechanisms include Proof of Elapsed Time, deposit-based consensus, and Byzantine Fault Tolerant consensus mechanisms. Each consensus mechanism has unique exceptions that dictate the flow of transactions in your blockchain solution. Experts recommend the selection of a suitable consensus mechanism on the grounds of needs in your individual use case.

### **3.5 STEPS OF DEVELOPING BLOCKCHAIN SOLUTION**

- 1) Define the problem: The first step in Blockchain Development is to identify the problem that the Smart Contract is intended to solve. This involves understanding the needs of the target audience and defining the problem statement and requirements.



#### **3.5.1 STEPS OF BLOCKCHAIN SOLUTION**

- 2) Design the Smart Contract: The next step is to design the Smart Contract architecture. This involves defining the various functions, data structures, and workflows of the Smart Contract to meet the requirements of the target audience.
- 3) Choose a Blockchain Platform: The next step is to choose a blockchain platform that supports the desired features of the Smart Contract. Popular blockchain platforms include Ethereum, Hyperledger Fabric, and Corda.

- 4) Write the Smart Contract: The next step is to write the Smart Contract code using a programming language, such as Solidity for Ethereum or Chaincode for Hyperledger Fabric.
- 5) Test the Smart Contract: The next step is to test the Smart Contract for various scenarios, such as edge cases and error conditions, to ensure that it functions as expected. This involves using automated tests, manual tests, and fuzz testing to identify and fix bugs.
- 6) Deploy the Smart Contract: The next step is to deploy the Smart Contract to the chosen blockchain network. This involves configuring the network and deploying the Smart Contract code to the network.
- 7) Monitor and Maintain the Smart Contract: The final step is to monitor and maintain the Smart Contract to ensure that it continues to function as expected. This involves monitoring the network for security threats and updating the Smart Contract code as needed to fix bugs and add new features

## **CHAPTER 4. BLOCKCHAIN DEVELOPMENT TOOLS**

### **4.1 REMIX IDE**

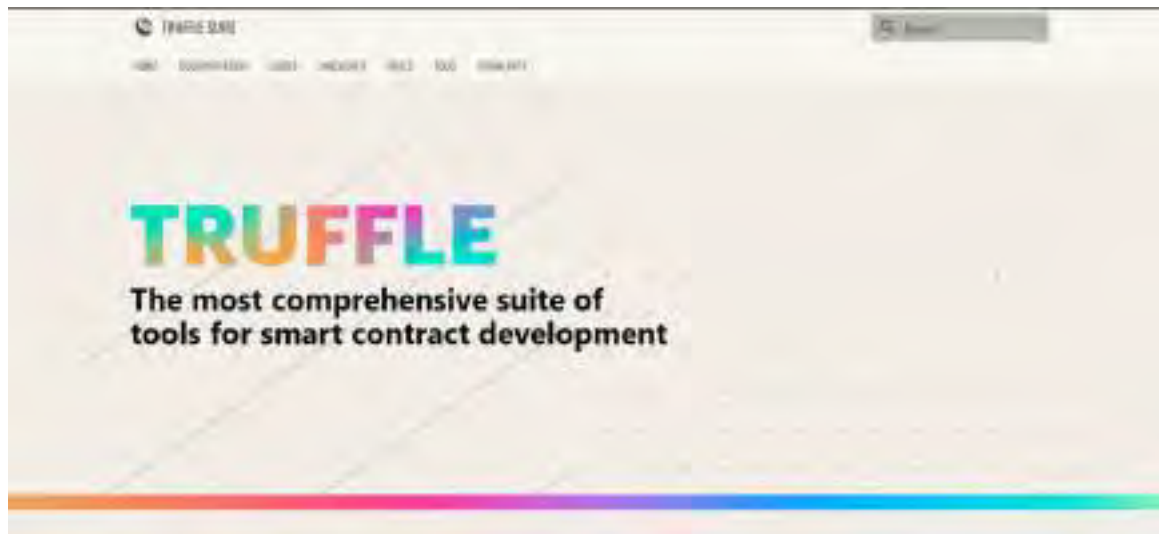
Remix IDE is an open source application with flexible access to multiple productive plugins, with the facility of intuitive GUIs. It can serve as the ideal companion for developers throughout the smart contract development lifecycle by using a Solidity programming language. Most important of all, Remix can also serve as a promising playground for developing expertise in Ethereum. In addition, Solidity beginners must also note that Remix IDE is available as web or desktop applications as well as a VSCode extension.

The detailed information about Remix IDE basics and its components helps in establishing the perfect foundation to start using Remix. Let us take a look at the Remix IDE smart contract development and deployment process with a simple example. You can go with the example of a basic smart contract to understand the process of creating and interacting with smart contracts through Remix IDE easily. Here are the important steps you need for using the Remix IDE.



#### **4.4.1 REMIX IDE**

## 4.2 TRUFFLE



### 4.4.2 Truffle

The foremost highlight in the Truffle Suite would refer to Truffle, the most comprehensive tool for smart contract development. Truffle is a top-in-the-class development environment alongside an asset pipeline and testing framework for developing blockchain applications.

It is a popular choice for dApp development on Ethereum, thereby resulting in a massive community supporting the tool. Developers should also note that the Truffle framework uses Ethereum Virtual Machine, thereby enabling flexible and straightforward smart contract development. Now, one of the prominent highlights in a Truffle tutorial would refer to its features, such as the following.

In-built capabilities for compilation, integration, and deployment of smart contracts along with binary management features. Facility for automated contract testing to facilitate faster development. Truffle smart contract development is easier with support for writing deployment scripts, which can change over the course of time.

The extensible deployment and migrations framework helps you create adaptable applications. The network management features in the Truffle development framework can help you deploy applications to any number of private and public networks. As a

result, you can focus on your application development project rather than managing networks.

### **4.3 GANACHE**



#### **4.4.3 Ganache**

The first thing you need to learn about Ganache is the Ganache Truffles interplay. Ganache is actually a component of the Truffle Suite framework along with the other components, Truffle and Drizzle. Truffle serves as the development environment, testing framework and asset pipeline based on the Ethereum Virtual Machine.

On the other hand, Drizzle offers a collection of different front-end libraries. What is Ganache in blockchain? The answer points out to the functionality of Ganache as a high-end development tool, used for running your personal local blockchain network for developing decentralized applications on Ethereum as well as Corda. Ganache serves a vital role in all stages of the development process with many plausible advantages.

The second important component in the Truffle blockchain development suite is Ganache. It is a crucial tool that helps in crafting your personal local Ethereum blockchain network. Developers can use the blockchain across different phases of the development process, thereby improving the usability of the tool. With the assurance of a local blockchain, Ganache provides the flexibility for developing, deploying, and testing your dApps in completely deterministic and safe environments.

## **4.4 METAMASK WALLET**



### **4.4.4 Metamask Wallet**

The Metamask wallet is basically a crypto wallet that provides support for ETH-based tokens such as ERC-721 and ERC-20 tokens. It is available as a browser plugin that you can install easily, just like any other browser extension. Interestingly, you can enjoy a seamless connection to any Ethereum-based decentralized app after installing the Metamask Chrome extension or Firefox extension.

You could easily access any decentralized application like yield farming protocols and NFT marketplaces with the wallet. With the facility of web browser integration in the form of plugins, you can have convenient experiences in the use of MetaMask.

This is probably one of the foremost reasons for its rapidly increasing rates of adoption. As the demand for a decentralized web starts to gain momentum, MetaMask can serve as a gateway for you into a new world of exciting opportunities with dApps, web browsing, and DeFi, and blockchain technology.



## 4.5 WEB3JS



### 4.4.5 Web3JS

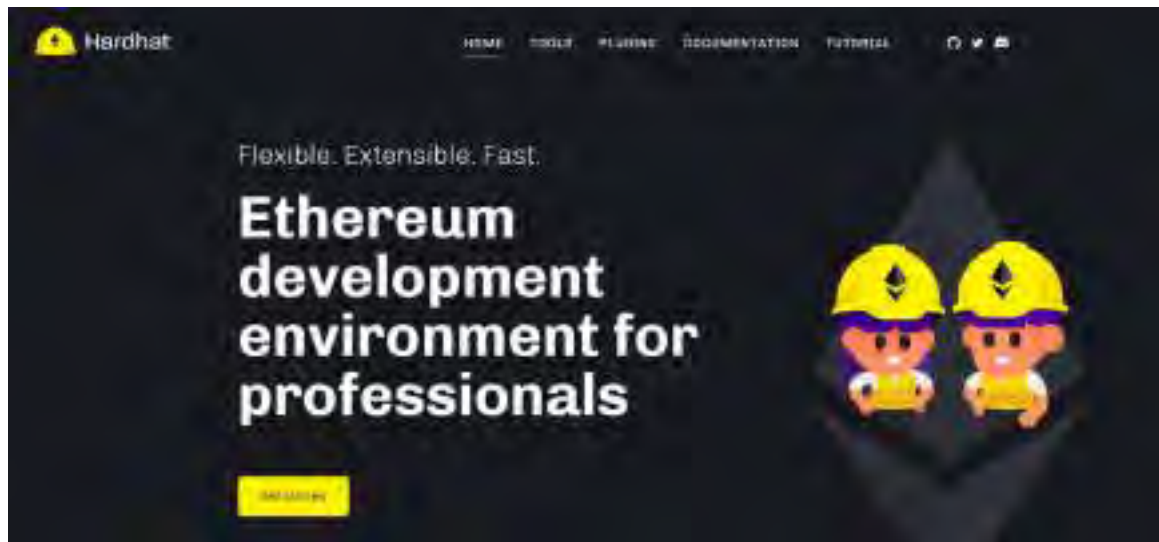
Web3.js can help you address the second important function in developing Ethereum-based blockchain applications. The answers to “What is Web3 used for?” would draw attention toward the development of clients or websites for interacting with the Ethereum blockchain. Web3.js is practically a collection of libraries that can help in performing different actions on Ethereum applications. Examples of actions could include sending Ether between accounts, creating smart contracts and reading and writing data from smart contracts.

The obvious thing on your mind right now must be pointed at the Web3 JS Github entries for some practical knowledge. However, you need to learn how web3.js works before you start working on dApps or smart contracts. Any web development expert would choose jQuery for making Ajax calls to a web server. However, you can choose web3.js as an alternative for reading and writing to the Ethereum blockchain.

The explanations for “What is Web3 JavaScript?” would draw attention toward the working of web3.js in enabling communication between clients and the Ethereum blockchain. Web3.js communicates with the Ethereum blockchain by using the JSON-RPC method or a Remote Procedure Call protocol.

Ethereum is a decentralized peer-to-peer network of nodes storing a copy of all the data and smart contract code on the blockchain itself. Now, web3.js could help in making requests to individual Ethereum nodes by leveraging JSON-RPC for reading and writing data to the blockchain network. You can think of it as implementing jQuery in JSON API for reading and writing data on a web server.

## **4.6 HARDHAT ENVIRONMENT**



### **4.4.6 Hardhat**

The complications in web3 and blockchain development could be quite challenging for beginners. Therefore, the right tools for making the process easier and more efficient can be the best course of action for every programmer. In such cases, the right blockchain development framework could work wonders for ensuring the easier execution of different steps in the development workflow. The answer to “What is Hardhat blockchain?” can explain what it actually is.

Hardhat is a development environment that helps developers in testing, compiling, deploying, and debugging dApps on the Ethereum blockchain. It serves a crucial role in supporting coders and developers with the management of tasks, which are important for smart contract and dApp development. Hardhat smart contract development environment offers suitable tools to developers for managing the development workflow. In addition,

Hardhat also ensures efficiency by introducing automation in specific steps alongside the facility of new and productive functions. Hardhat features a pre-built local Ethereum network tailored for the core objective of development. The Hardhat Solidity equation is clearly evident in the framework's focus on Solidity debugging. At the same time,

Hardhat also features the facility of stack traces and messages for dApp failure. As a result, developers can have the necessary tools at hand to identify the instance and cause for the failure of applications. It can also offer the necessary answer to solve the problems underlying the application failure.

# **CHAPTER 5. PROJECT OF DEVELOPING SWAP SMART CONTRACT FOR TOKEN EXCHANGE**

## **5.1 PROJECT OVERVIEW**

The objective of this project is to design, code, test, and deploy a Swap Smart Contract on the Ethereum blockchain platform. The Swap Smart Contract will allow users to swap one ERC-20 token for THEV token. The project will be developed using the Solidity programming language and the Truffle development framework.

The Swap Smart Contract will have the following features:

- 1) **Token Swap:** The Smart Contract will allow users to swap one ERC-20 token for another ERC-20 token at a fixed exchange rate.
- 2) **Fixed Exchange Rate:** The Smart Contract will enforce a fixed exchange rate between the two tokens. The exchange rate will be determined by the Smart Contract owner and cannot be changed without owner approval.
- 3) **User Authentication:** The Smart Contract will authenticate users and ensure that only authorized users can execute swaps.
- 4) **Transaction Fees:** The Smart Contract will charge a transaction fee for each swap. The transaction fee will be deducted from the amount of tokens being swapped and will be sent to the Smart Contract owner.
- 5) **Withdrawal:** The Smart Contract will allow the Smart Contract owner to withdraw the transaction fees collected.

The development process will involve the following steps:

- 1) **Design the Smart Contract:** This will involve defining the problem statement, identifying the requirements, and designing the Smart Contract architecture.
- 2) **Write the Smart Contract Code:** This will involve coding the Smart Contract using the Solidity programming language and the Truffle development framework.
- 3) **Test the Smart Contract:** This will involve testing the Smart Contract for various scenarios, such as edge cases and error conditions, to ensure that it functions as expected.

- 4) Deploy the Smart Contract: This will involve deploying the Smart Contract to the Ethereum blockchain platform.
- 5) Monitor and Maintain the Smart Contract: This will involve monitoring the Smart Contract for security threats and updating the Smart Contract code as needed to fix bugs and add new features.

## **5.2 PROJECT PROCEDURE**

### **Registration Page:**



### **5.5.1 REGISTRATION PAGE**

This registration page made using PHP typically consists of a form where users can enter their personal details, such as name, email address, and password, to create an account on a website or web application. The registration form can include various validation checks to ensure that the user inputs valid and secure information.

To enhance the security of the registration page, PHP can implement various security measures, such as password hashing, input sanitization, and user authentication.

These measures can help protect user data and prevent malicious attacks such as SQL injection and cross-site scripting (XSS). Overall, a registration page made using PHP is a critical component of many web applications and can play a crucial role in user acquisition and retention.

## Login Page:



### 5.5.2 LOGIN PAGE

This login page made using PHP typically consists of a form where users can enter their login credentials, such as email or username and password, to access their account on a website or web application. The login form can include various validation checks to ensure that the user inputs valid and secure information. PHP can also be used to generate dynamic content on the page, such as error messages or confirmation messages, based on the success or failure of the login process. To enhance the security of the login page, PHP can implement various security measures, such as password hashing, input sanitization, and user authentication.

## Web3js Connection:

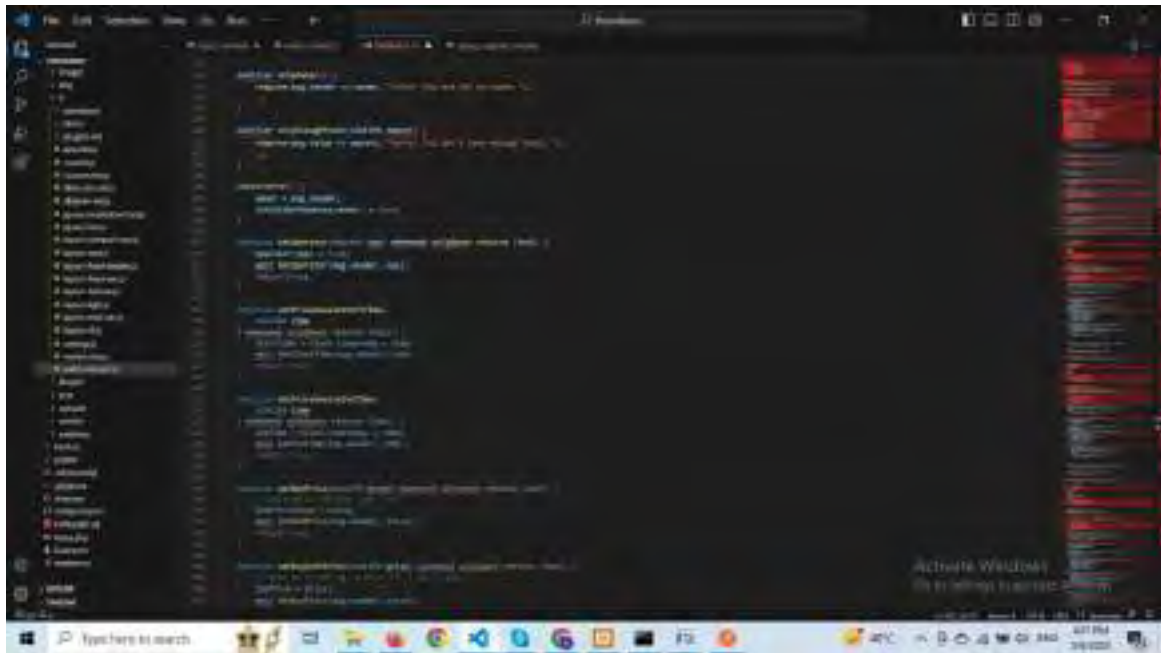


### 5.5.3 WEB3JS CONNECTION PAGE

Web3.js is a JavaScript library that enables developers to interact with the Ethereum blockchain and build decentralized applications (dApps). It provides a set of functions that allow developers to interact with the Ethereum network through various protocols, including HTTP, WebSockets, and IPC.

Some of the key features of Web3.js include its support for the latest Ethereum standards and protocols, its ease of use, and its comprehensive documentation and community support. These features make it a popular choice for developers looking to build decentralized applications and interact with the Ethereum blockchain.

## Sale Smart Contract:



### 5.5.4 SALES SMART CONTRACT

This swap smart contract made using Solidity is a decentralized application that enables two parties to exchange assets, such as cryptocurrencies, without the need for a centralized exchange or intermediary.

Solidity is a programming language specifically designed for creating smart contracts on the Ethereum blockchain. To create a swap smart contract, a developer would typically define the rules and conditions for the exchange, such as the type of asset being exchanged, the exchange rate, and any fees or commissions.

We would then write Solidity code to implement these rules and create a smart contract that can be deployed on the Ethereum blockchain. Once deployed, the swap smart contract can execute automatically when the predetermined conditions are met, such as when the parties agree on the exchange rate and submit their assets to the contract.



## **CHAPTER 6. CONCLUSION**

### **REFERENCES**

- <https://docs.soliditylang.org/en/v0.8.20/>
- <https://hardhat.org/docs>
- <https://trufflesuite.com/docs/>
- [https://docs.web3js.org/docs/guides/web3\\_migration\\_guide](https://docs.web3js.org/docs/guides/web3_migration_guide)
- <https://www.youtube.com/watch?v=gyMwXujrJQ>

## **APPENDIX**



GUJARAT TECHNOLOGICAL UNIVERSITY  
(Established under Gujarat Act No. 20 of 2007)

ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:

190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Devrajisinh Thakur

DIARY OF THE WEEK: Dt: 06/03/23 TO 10/03/23

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: Blockchain

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwasriya

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- i) Developing smart contracts
- ii) Smart contract for the exchange of the crypto token
- iii) completing projects

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
(Established under Gujarat Act No. 20 of 2007)

ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: ----- 25 -----

----- *Jasal* -----  
SIGNATURE OF STUDENT

☐ The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor

*[Signature]*

Date: 18-3-2023

*[Signature]*

Signature of officer-in-charge  
of Dept. / Section / Plant

THUNDEREV INDIA PRIVATE LIMITED

Date: 13/03/23 DIRECTOR

★ Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure I

Enrollment no:  
190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Devraj Singh Thakur

DIARY OF THE WEEK: Dt: 27/02/23 TO 03/03/23

DEPARTMENT: Computer Engineering SEM: 6<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: Blockchain

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- i) Introduction to Dapps
- ii) Introduction to private blockchain
- iii) Introduction to Hyperledger
- iv) Learning about NFTs
- v) Learning smart contracts
- vi) preparing for projects.



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TOTAL HOURS: - 25 -----

Asal  
-----  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor

Date: 18-3-2023

Signature of officer-in-charge  
of Dept. / Section / Plant

**THUNDEREV INDIA PRIVATE LIMITED**

Date: 06/03/23  
DIRECTOR

Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure I

Enrollment no:

190390107062

## STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Jesal Devrajisingh Thakur

DIARY OF THE WEEK: Dt: 20/02/23 TO 24/02/23

DEPARTMENT: Computer Engineering SEM: 6<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: Blockchain

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

### DESCRIPTION OF THE WORK DONE IN BRIEF

- i) Learning about the Blockchain
- ii) Orientation
- iii) Introduction to company
- iv) Learning about the tools
- v) Introduction to blockchain concepts



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TOTAL HOURS: 25

સજાલ  
SIGNATURE OF STUDENT

☛ The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

AS  
Signature of officer-in-charge  
of Dept. / Section / Plant

18-3-2023  
Date: 18-3-2023

THUNDEREV INDIA PRIVATE LIMITED

Date: 27/02/23

☛ Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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Annexure 1

Enrollment no:

190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Devraj Singh Thakur

DIARY OF THE WEEK: Dt: 13/02/23 TO 17/02/23

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: Blockchain

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- i) Roadmap of Internship
- ii) IT session
- iii) Asset allocation
- iv) Desktop configuration setup
- v) Training on scopes
- vi) Training program overview
- vii) Meeting with developers

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TOTAL HOURS: 25

Jasal  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

[Signature]

Date: 18-3-2023

Signature of officer-in-charge  
of Dept. / Section / Plant

[Signature]

THUNDEREY INDIA PRIVATE LIMITED

Date: 20/02/23  
DIRECTOR

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Annexure I

Enrollment no:

190390107062

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Jesal Thakur

DIARY OF THE WEEK: Dt: 13/03/23 TO 17/03/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

DESCRIPTION OF THE WORK DONE IN BRIEF

- i) Advantages and disadvantages of public blockchain
- ii) Example of public blockchain
- iii) Public blockchain use cases



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TOTAL HOURS: ----- ૧૬ -----

*(Signature)*  
-----  
SIGNATURE OF STUDENT

☉ The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor

*(Signature)*

Date:

*(Signature)*

Signature of officer-in-charge  
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Date:

DIRECTOR

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Annexure 1

Enrollment no:

190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Thakur

DIARY OF THE WEEK: Dt: 20/03/23 TO 24/03/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- i) Advantages and disadvantages of private blockchain
- ii) Example of private blockchain
- iii) How private blockchain achieve consensus
- iv) Private blockchain use cases



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TOTAL HOURS: ----- 25 -----

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SIGNATURE OF STUDENT

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Signature of Faculty Mentor

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Date:

Date:

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Annexure I

Enrollment no:

190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Thakur

DIARY OF THE WEEK: Dt: 27/03/23 TO 31/03/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

**DESCRIPTION OF THE WORK DONE IN BRIEF**


- i) Definition of interoperability
- ii) Challenges in achieving blockchain interoperability
- iii) interoperability protocols
- iv) cross-chain communication mechanisms




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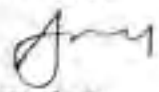
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TOTAL HOURS: 25

  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

  
Signature of Faculty Mentor

  
Signature of officer-in-charge  
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Annexure I

Enrollment no:

190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Thakur

DIARY OF THE WEEK: Dt: 03/04/23 TO 07/04/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- i) security threats to blockchains
- ii) How to secure blockchain networks
- iii) cryptography techniques used in blockchain security
- iv) Blockchain security best practices



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TOTAL HOURS: 25

SIGNATURE OF STUDENT

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Signature of Faculty Mentor

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THUNDEREV INDIA PRIVATE LIMITED

Date:

Date:

DIRECTOR

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Annexure I

Enrollment no:

190390107062

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Jesal Thakur

DIARY OF THE WEEK: Dt: 10/04/23 TO 14/04/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

DESCRIPTION OF THE WORK DONE IN BRIEF

- i) scalability challenges in blockchain networks
- ii) scalability solutions
- iii) Example of blockchain scaling projects



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TOTAL HOURS: 25

[Signature]  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

[Signature]  
Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

THUNDEREV INDIA PRIVATE LIMITED

Date:

Date: DIRECT

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Annexure I

Enrollment no:

190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Thakur

DIARY OF THE WEEK: Dt: 17/04/23 TO 21/04/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- i) Definition of blockchain governance
- ii) Types of blockchain governance models
- iii) Example of blockchain governance models
- iv) How to participate in blockchain governance



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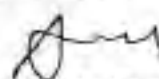
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TOTAL HOURS: 25

  
SIGNATURE OF STUDENT

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Signature of Faculty Mentor

  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

**THUNDEREV INDIA PRIVATE LIMITED**

Date:

DIRECTOR

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Annexure I

Enrollment no:

190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Thakur

DIARY OF THE WEEK: Dt: 24/04/23 TO 28/04/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- i) Overview of blockchain regulations around the world.
- ii) Challenges in regulating blockchain technology
- iii) How blockchain technology is being used to comply with regulations



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TOTAL HOURS: 25

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SIGNATURE OF STUDENT

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[Signature]  
Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
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THUNDEREM INDIA PRIVATE LIMITED

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Date:

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Annexure I

Enrollment no:

190390107062

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Jesal Thakur

DIARY OF THE WEEK: Di: 01/05/23 TO 05/05/23

DEPARTMENT: CE SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: Crypto Thunder EV

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ashwariya

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- i) Real-world example of blockchain
- ii) sales smart contract



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TOTAL HOURS: 25

[Signature]  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

[Signature]  
Signature of Faculty Mentor

[Signature]  
Signature of officer-in-charge  
of Dept. / Section / Plant

THUNDEREV INDIA PRIVATE LIMITED

Date:

Date: DIRECTOR

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Annexure 2

**Feedback Form by Industry expert**

Student Name: Jesal Thakur

Date: 05/05/2023

Work Supervisor: Ashwariya Dhavse

Title: Intern at Crypto  
Thunder EV

Company/Organization: Crypto Thunder EV

Enrollment No: 190390107062

Internship Address: Sindhuhavan

Dates of Internship: From 13/02/23 - to 05/05/2023

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise			✓	
Analyzes problems effectively				✓
Communicates well and writes effectively				✓

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):

Additional comments, if any: Performance of Jesal is good.

**THUNDEREVAN PRIVATE LIMITED**

Signature of Industry person with name and Stamp:  
DIRECTOR

Signature of the Faculty Mentor

# **Internship at Space Application Center, ISRO**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Jimmy Nimeshbhai Limbachia**

**190390107017**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



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## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Space Application Center, ISRO** has been carried out by **Jimmy Nimeshbhai Limbachia** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Upashana Goswami

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate

**Scientific Research and Training Division (SRTD)  
Research, Outreach and Training Coordination Group (RTCG)  
Management and Information Systems Area (MISA)**

## PROVISIONAL CERTIFICATE

To whomsoever it may concern,

This is to certify that **Mr. Jimmy Nimeshbhai Limbachia**, a student of B. E. (Computer) of S.P.B. Patel Engineering College, Mehsana, Gujarat has significantly completed project on "**Threat Detection Using Network Security Monitoring Tool**" for three months (23 January-2023 to 30 April-2023) under the supervision of **Sri. Rohit Tyagi**, Sci/Engr-SE, MISA-CSIG-ITND, Space Applications Centre (ISRO), Ahmedabad. Further study on the project is being conducted. The research/internship work was carried out through Scientific Research and Training Division (SRTD) of Space Applications Centre, Ahmedabad.

  
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भारत सरकार / Government of India  
अहमदाबाद / Ahmedabad - 380015

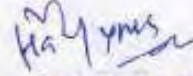
## Attendance Certificate

### Attendance Certificate

To whomsoever it may concern,

This is to certify that **Mr. Jimmy Nimeshbhai Limbachia**, B.E. Project Trainee (Full-Time), from Computer Engineering, S.P.B. Patel Engineering College, Mehsana – Gujarat is participating in Research/Internship initiation programme at SRTD/RTCG/MISA, SAC-ISRO. He is regular in his attendance and has shown his presence for all the working days from 23-01-2023 to 30-04-2023 here and he has not availed any kind of leave during this period. This is for attendance purpose only.

Regards,



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Internship Project Report	Completed
---------------------------	-----------

Name of Student : *Limbachia Jimmy Nimeshbhai*

Name of Guide : *Miss Upasana Gohari*

Signature of Student \_\_\_\_\_

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## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship report submitted along with the Internship entitled **Internship at Space Application Center, ISRO** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Sri Rohit Tyagi (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Jimmy Nimeshbhai Limbachia**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I wish to express my appreciation to Prof. Akshay Kansara, Prof. Upashana Goswami, Prof. Chetan Chauhan, Prof. Avani Dedhia, Prof. Pooja Mehta and Prof. Vaidant Dixit for knowledge imparted during my academic tenure at Saffrony Institute of Technology. I would like to express the deepest gratitude to Dr. Sumit Shah and my mentor Apt Chiragbhai Koticha for their unperturbed strategic instructions and encouragement to push myself.

I am grateful to Space Application Centre, Indian Space Research Organisation for this internship opportunity. My sincere thanks to Sri Rohit Tyagi for providing me with such an excellent project. I extend my utmost gratitude to Sri D. K. Patel and Smt Parul Patel for their enthusiastic approach and judicious guidance that I followed to make this internship a success. I also want to express my thanks to Smt Devangi Vyas and Sri Omprakash Soni for being a support and sharing their valuable ideas in the project and making me and this internship worthwhile.

Finally, I must express my very profound gratitude to my mother and tribute to my late father for providing me with unfailing support unconditionally and continuous encouragement throughout my years of study learning since playgroup to this very moment.

I perceive this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, to attain desire career objectives.

## **Abstract**

*This report contains the work done by the author during his internship at **Space Application Center, ISRO, Ahmedabad**. It shows the development of a malware analysis tool, the entire process workflow and final results. In the report, the author discusses the processes of how to secure the data using malware analysis which uplifts the privacy of the Organisation. The author also discusses the structure of the company, all the departments and their work. It also explains what the author learned during this internship period.*

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## **Abbreviations**

ISRO: Indian Space Research Organisation

DOS: Department of Space

HTTP: Hypertext Transfer Protocol

DNS: Domain Name System

SMTP: Simple Mail Transfer Protocol

URL: Uniform Resource Locator

IDS: Intrusion Detection System

MIME: Multipurpose Internet Mail Extension

SSH: Secure Socket Shell

Computer Emergency response Team (CERT)

Vulnerability Assessment and Penetration Testing (VAPT)

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## Chapter 1. Overview of the Company

### 1.1 History



**Fig 1.1 ISRO**

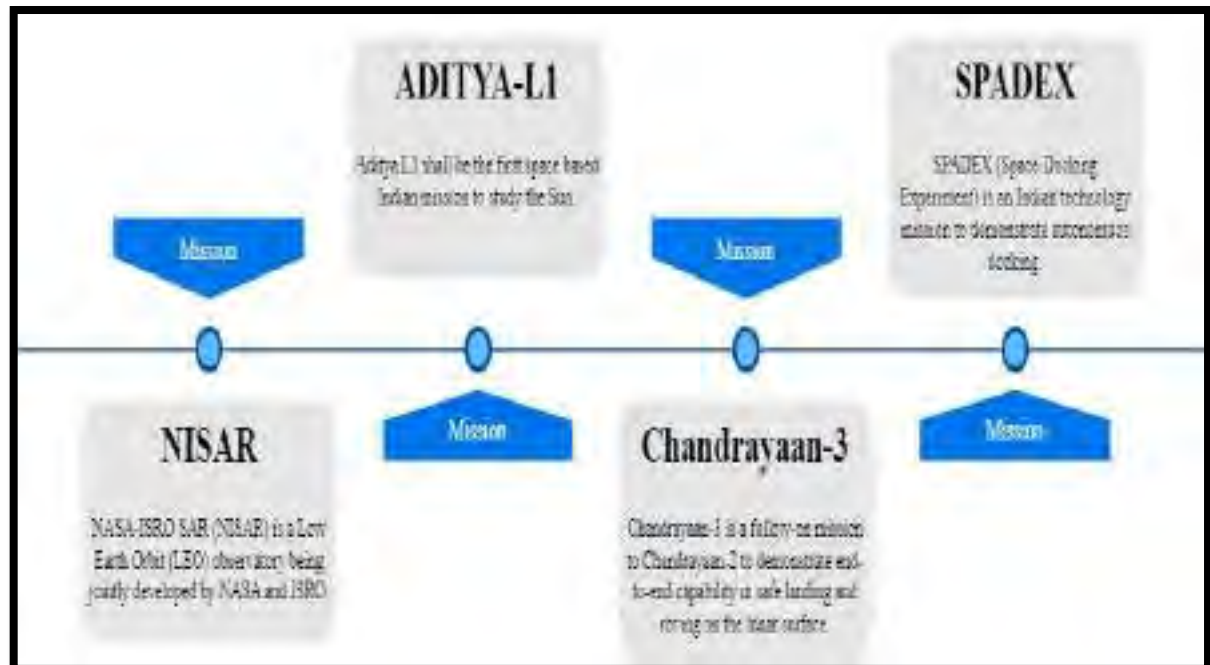
The Indian Space Research Organisation (ISRO) is the national space agency of India, headquartered in Bengaluru. It operates under the Department of Space (DOS) which is directly overseen by the Prime Minister of India, while Chairman of ISRO acts as executive of DOS as well. ISRO is the primary agency in India to perform tasks related to space based applications, space exploration and development of related technologies. It is one of six government space agencies in the world which possess full launch capabilities, deploy cryogenic engines, launch extraterrestrial missions and operate large fleets of artificial satellites.

ISRO develops and delivers applications specific satellite products and tools to the Nations: Broadcasts, communications, weather forecasts, disaster management tools, Geographic Information Systems, navigation, telemedicine, dedicated distance education satellites being some of them.



## 1.2 Scope of work

The following are the approved missions ISRO is going to accomplish:

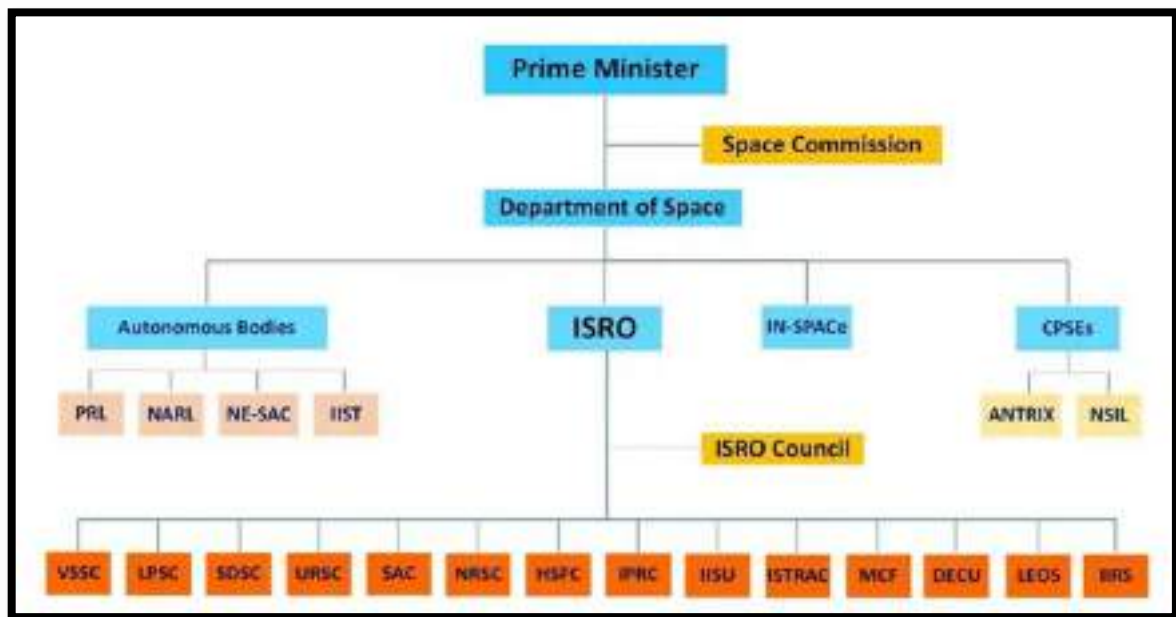


**Fig 1.2 ISRO Mission**

There are four upcoming missions:

- **NISAR**: NISAR is a Low Earth Orbit (LEO) observatory being jointly developed by NASA and ISRO.
- **ADITYA-L1**: Aditya L1 shall be the first space based Indian mission to study the sun.
- **Chandrayaan-3**: Chandrayaan-3 is a follow-on mission to Chandrayaan-2 to demonstrate end-to-end capability in safe landing and roving on the lunar surface.
- **SPADEX**: SPADEX (Space Docking Experiment) is an Indian technology mission to demonstrate autonomous docking

### 1.3 Organisation chart



**Fig 1.3 Organisation chart**

**Courtesy:** <https://www.isro.gov.in/organisation.html>

**ISRO:** Indian Space Research Organisation, **IN-SPACE:** Indian National Space Promotion and Authorization Center, **CPSEs:** Central Public Sector Enterprises **PRL:** Physical Research Laboratory, **NARL:** National Atmospheric Research Laboratory, **NE-SAC:** North Eastern Space Application Centre, **IIST:** Indian Institute of Space Science and Technology, **ANTRIX:** Antrix Corporation Limited, **NSIL:** NewSpace India Limited, **VSSC:** Vikram Sarabhai Space Centre, **LPSC:** Liquid Propulsions System Center, **SDSC:** Satish Dhawan Space Centre, **URSC:** U R Rao Satellite Centre, **SAC:** Space Application Centre, **NRSC:** National Remote Sensing Centre, **HSFC:** Human Space Flight Centre, **IPRC:** ISRO Propulsion Complex, **IISU:** ISRO inertial Systems Unit, **ISTRAC:** ISRO Telemetry, Tracking and Command Network, **MCF:** Master Control Facility, **DECU:** Development and Educational Communication Unit, **LEOS:** Laboratory for Electro-Optics Systems, **IIRS:** Indian Institute of Remote Sensing.

## 1.4 ISRO centers across India

Following map locates the ISRO centers across India:



**Fig 1.4 ISRO Centres across India**

1. Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram
2. Satish Dhawan Space Centre (SDSC) SHAR
3. U R Rao Satellite Centre (URSC), Bangalore
4. ISRO Propulsion Complex (IPRC), Mahendragiri
5. Liquid Propulsion Systems Centre (LPSC), Thiruvananthapuram, Bangalore
6. Space Applications Centre (SAC), Ahmedabad
7. National Remote Sensing Centre (NRSC), Hyderabad
8. ISRO Telemetry Tracking and Command Network (ISTRAC), Bangalore
9. Master Control Facility (MCF), Hassan & Bhopal
10. ISRO Inertial Systems Unit (IISU), Thiruvananthapuram
11. Laboratory for Electro-Optics Systems (LEOS), Bangalore
12. Development and Educational Communication Unit (DECU), Ahmedabad
13. Regional Remote Sensing Centres (RRSCs)
14. Indian Institute of Space Science & Technology (IIST), Thiruvananthapuram
15. Indian Institute of Remote Sensing (IIRS), Dehradun
16. Physical Research Laboratory (PRL), Ahmedabad
17. National Atmospheric Research Laboratory (NARL), Gadanki
18. North Eastern-Space Applications Centre (NE-SAC), Shillong
19. Semi-Conductor Laboratory (SCL), Chandigarh

## Chapter 2. Project Introduction

### 2.1 Summary

The aim is to create a platform that analyze threats using Platform which was designed with the intent to help the organisation, in particular those researchers that cannot afford commercial solutions, in the generation of threat intelligence data, in a simple, scalable and reliable way. Moreover, threats have been detected using security monitoring tool.

### 2.2 Purpose

The purpose of the project is to be able to monitor the malware using zeek logs and vivid threat intelligences from the source.

### 2.3 Objectives

To achieve the purpose, we have the following objectives to fulfill:

- To build a platform in Linux for malware analysis that is simple and more accurate for the user.
- The GUI and the using Linux command line is in executable format.
- To have separate configuration setup for searching IP Address, Domain, URL, Hash and files using different analyzers.

### 2.4 Scope

The platform has medium for the user that can be used by command line and on GUI bases options also which is more flexible to find the threats in the environment.

### 2.5 Technology

#### 2.5.1 Platform:

How to get threat intelligence data about a malware, an IP or a domain? How to to get this kind of data from multiple sources at the same time using a single API request?

Platform is a Space Application Center Intelligence, or OSINT solution to get threat intelligence data about a specific file, an IP or a domain from a single API at scale. It integrates a number of analyzers available online and a lot of cutting-edge malware analysis

tools. It is for everyone who needs a single point to query for info about a specific file or observable.

Platform was designed with the intent to help the community, in particular those researchers that cannot afford commercial solutions, in the generation of threat intelligence data, in a simple, scalable and reliable way.

### **2.5.2 Zeek:**

What is Zeek?

Zeek is a passive, open-source network traffic analyzer. It is primarily a security monitor that inspects all traffic on a link in depth for signs of suspicious activity. More generally, however, Zeek supports a wide range of traffic analysis tasks even outside of the security domain, including performance measurements and helping with trouble-shooting.

The most immediate benefit that a site gains from deploying Zeek is an extensive set of *log* files that record a network's activity in high-level terms. These logs include not only a comprehensive record of every connection seen on the wire, but also application-layer transcripts such as, e.g., all HTTP sessions with their requested URIs, key headers, MIME types, and server responses; DNS requests with replies; SSL certificates; key content of SMTP sessions; and much more. By default, Zeek writes all this information into well-structured tab-separated log files suitable for post-processing with external software. Users can however also choose from a set of alternative output formats and backends to interface directly with, e.g., external databases.

In addition to the logs, Zeek comes with built-in functionality for a range of analysis and detection tasks, including extracting files from HTTP sessions, detecting malware by interfacing to external registries, reporting vulnerable versions of software seen on the network, identifying popular web applications, detecting SSH brute-forcing, validating SSL certificate chains, and much more.

However, the key to understanding Zeek lies in realizing that even though the system comes with such powerful functionality out of the box, fundamentally it represents a platform for traffic analyses that's fully customizable and extensible: Zeek provides users with a domain-specific, Turing-complete scripting language for expressing arbitrary analysis

tasks. Conceptually, you can think of Zeek as a “domain-specific Python” (or Perl): just like Python, the system comes with a large set of pre-built functionality (the “standard library”), yet you are not limited to what the system ships with but can put Zeek to use in novel ways by writing your own code. Indeed, all of Zeek’s default analyses, including all the logging, is the result of such scripts; there’s no specific analysis hard-coded into the core of system.

Zeek runs on commodity hardware and hence provides a low-cost alternative to expensive proprietary solutions. Despite the price tag, however, Zeek actually goes far beyond the capabilities of other network monitoring tools, which typically remain limited to a small set of hard-coded analysis tasks. We emphasize in particular that Zeek is *not* a classic signature-based intrusion detection system (IDS). While it supports such standard functionality as well, Zeek’s scripting language indeed facilitates a much broader spectrum of very different approaches to finding malicious activity, including semantic misuse detection, anomaly detection, and behavioural analysis.

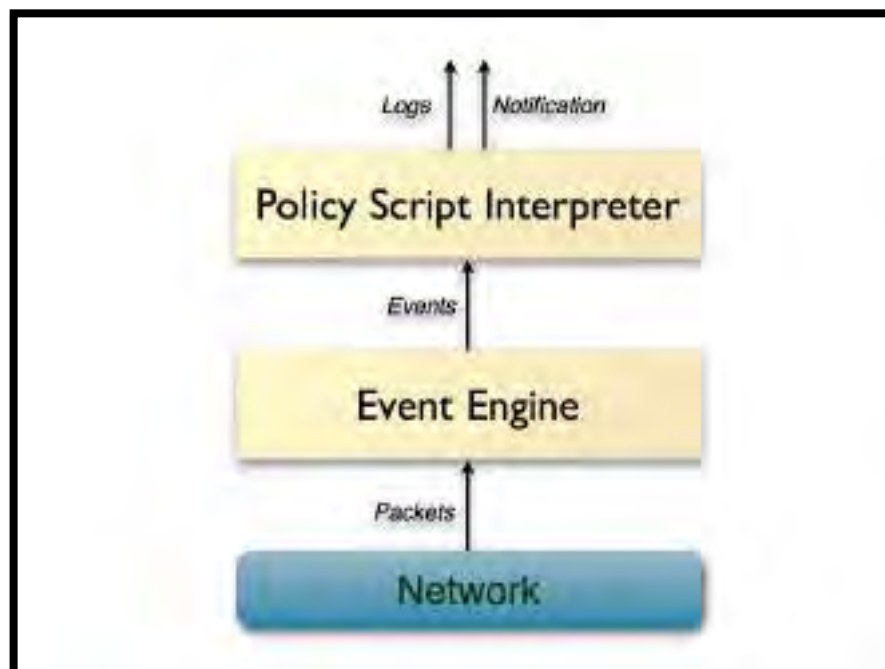


Fig 2.1 Zeek Architecture

## 2.6 Planning

### 2.6.1 Project Development Approach:

First of all, I established the connection and between Zeek and the network, moreover on the other side I have also build setup of Platform for malware analysis. However, I did some post configuration in VM to generate Output properly. After the setup I have to make the jobs runs in Platform.

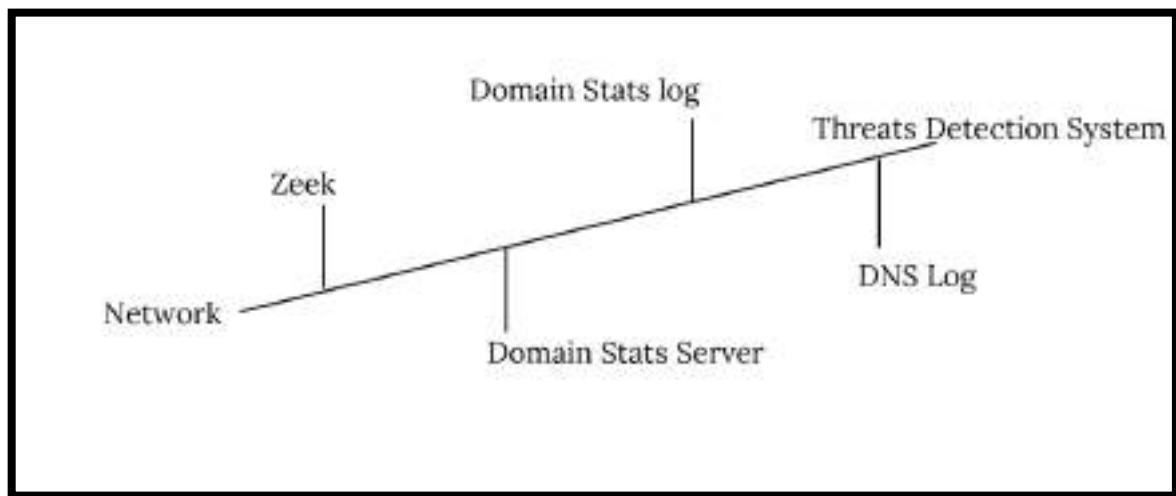


Fig 2.2 Planning

### 2.6.2 Effort and Time, Cost Estimation:

It has taken roughly four months till now. No cost included as everything that's used is freeware.

### 2.6.3 Roles and Responsibilities:

The roles and responsibilities include timely fulfillment all the objectives stated above in a concise and efficient manner.

### 2.6.4 Group Dependencies:

In this project, the task is interleaved in succession and each task depends on completion of previous one.

There are not much external dependencies involved.

## **Chapter 3. System Analysis**

### **3.1 Requirement of the System**

The Zeek log is required to visualize and monitor the network traffic to do malware analysis and find threats in the environment over the server. Later on it will going to helpful while doing malware analysis.

### **3.2 System Feasibility**

#### **3.2.1 Does the system contribute to overall objectives of the organisation?**

The system is made in service of the organization to make monitoring and analysis using Zeek data.

#### **3.2.2 Can the system be implemented using the current technology and within the given cost and schedule constraints?**

The system is still under development and it is feasible to implement using current technologies with minimal cost and within schedule constraints.

#### **3.2.3 Can the system be integrated with other systems which are already in place?**

The end system is going to be executable fine, so yes, it can integrate with other systems as well which are in place already.

#### **3.2.3 Can the system be integrated with other systems which are already in place?**

Comprehensive Platform and Zeek runs on commodity hardware and hence provides a low-cost alternative to expensive proprietary solutions, so It can easily set with other systems.

### **3.3 Features of the System**

System can be used easily using socket programming using python which will be more productive in case.

### **3.4 Selection of Hardware/Software**

Here it requires separated virtual machine with high speed configuration resources. Moreover, language used is Python and IDE is Visual Studio Code. Python and its libraries are taken from anaconda distributed.



## Chapter 4. System Design and Implementation

### 4.1 Design and Methodology

#### 4.1.1 Project Deployment Requirement:

Threat detection platform is composed of various different technologies, namely:

- React: Frontend, using CRA and certego-ui
- Django: Backend
- PostgreSQL: Database
- Rabbit-MQ: Message Broker
- Celery: Task Queue
- Nginx: Reverse proxy for the Django API and web assets
- Uwsgi: Application Server

All these components are managed via docker-compose.

Threat detection develops the ability to suspects the malware in the organization by using security monitoring tool. However Zeek have been used to monitor regular generated traffic over the network, which are liable to show active and passive traffic and generates daily logs on the basis of hourly date wise batches.

#### 4.1.2 Utility Segregation:

Analyzers are created where all the utility that analyzer encompasses is contained inside. Furthermore, each of the analyzer are dependent of their own plugin configurations.

The segregation is also done during security traffic monitoring.

#### 4.1.3 System Development:

The System is divided into three parts:

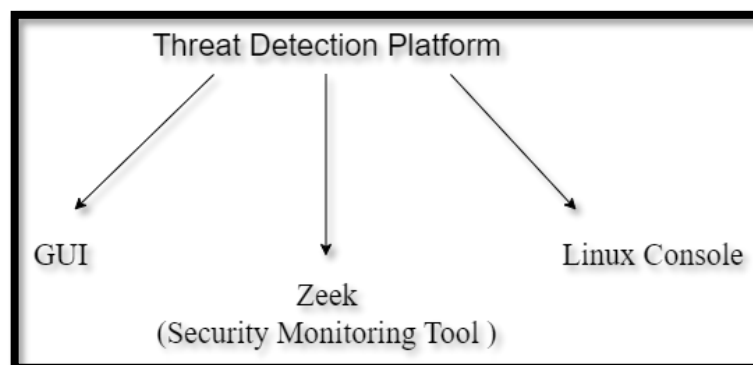


Fig 4.1 Platform Structure

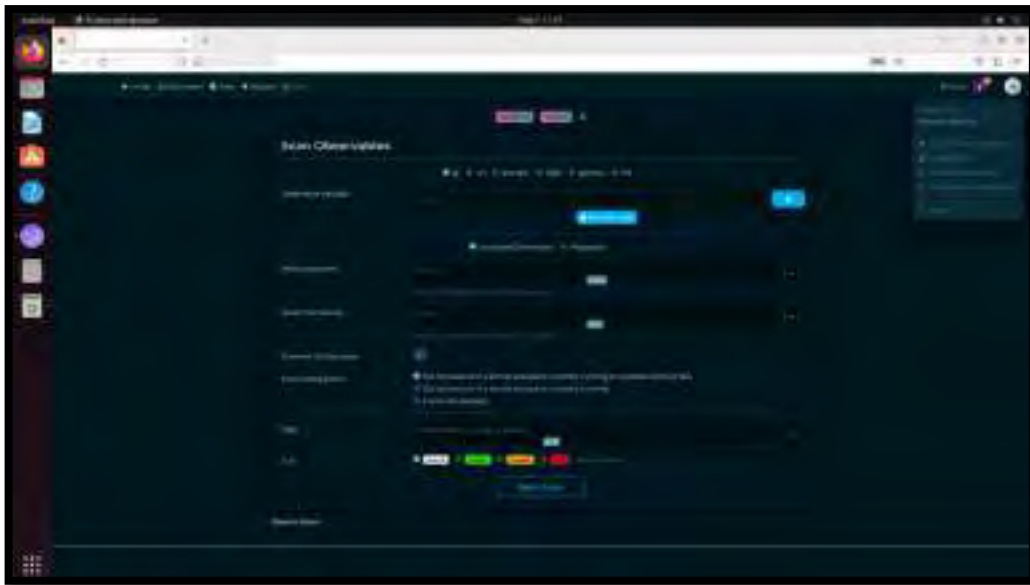
**GUI Platform:**

Fig 4.2 Scan Observables

- User can give input in the form observables like Ip, domain, hash, generic and file.
- By selecting required option, user have to select analyzers for detection.
- User can demolish the input behavior and with the entire approach user can able to scan by selecting start scan.

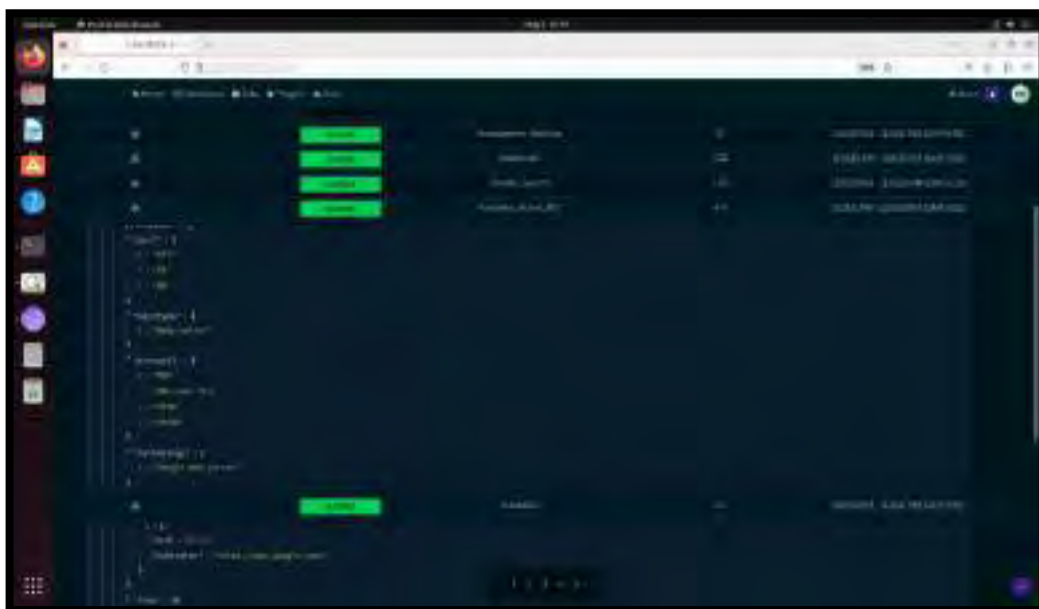


Fig 4.3 Jobs

- Above image shows the confidential information in JSON format.
- The credential was discriminated by the analyzers, immediately.

### Registrant Window:



Fig 4.4 Registrant Window

- As shown in the figure, registrant window presents the relevant information related to selective observables
- However, types of registrants are city, state, country, rawtext, street, postal code and organisation related details in JSON format.



Fig 4.5 Scanning Report

- Here it provides the malicious level of the user input.

### Linux Console Platform:

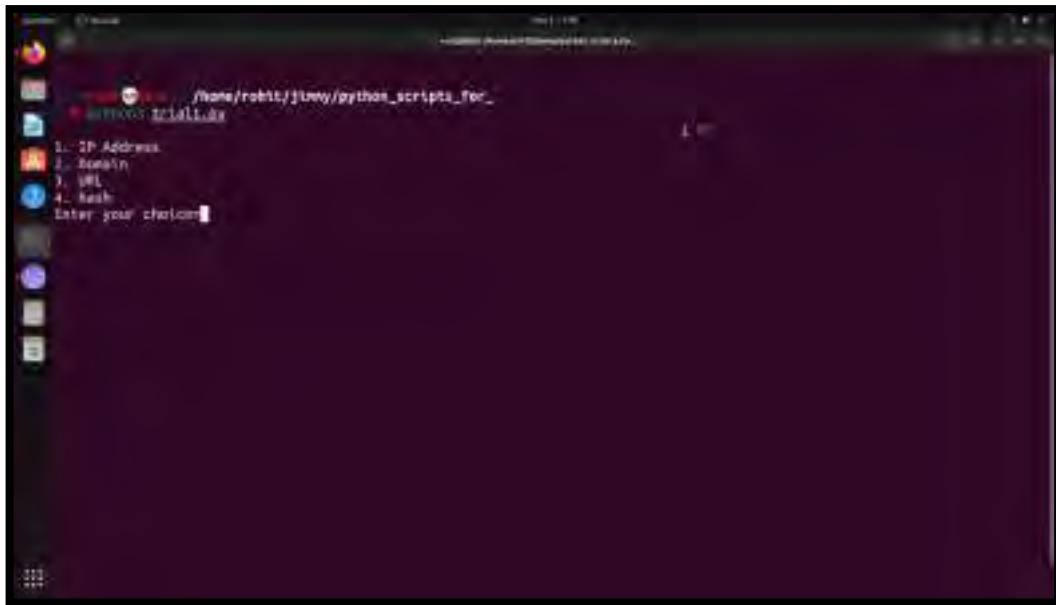


Fig 4.6 Linux Console

- As shown in the figure, Linux console has been such a way that will fulfill the user requirement on the network.



Fig 4.7 Linux Console Interpretation

- The above fig represents the feasibility test. It also shows the GUI integration with linux console and shows the epic result as never before.



Fig 4.8 Security Information

- Here security information is depending on the input of Linux console, because they are highly configured. Please check fig 4.8 for validation.

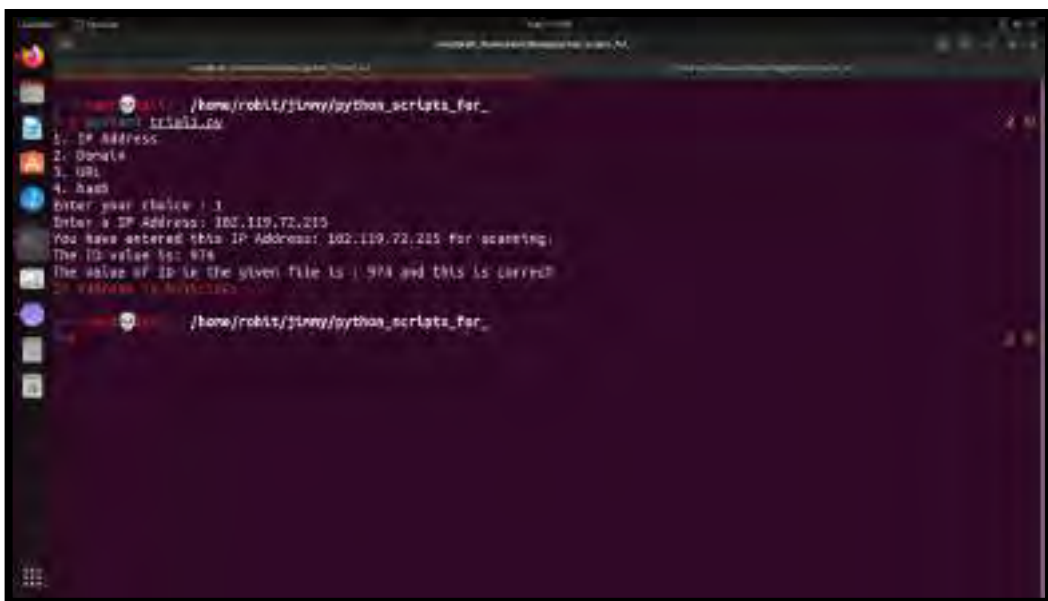


Fig. 4.9 Validation

- The above pictorial shows the validity approach through Linux console.

## Socket Malware Analysis:

Client-side:

```

Welcome to the server.
Enter 1 for IP Address :
Enter 2 for Domain:
Enter 3 for URL :
Enter 4 for Hash :
Enter your choice : 1
Enter IP Address: 69.63.176.13
Please Wait while we Scan IP Address!!
IP Address is not Malicious

Welcome to the server.
Enter 1 for IP Address :
Enter 2 for Domain:
Enter 3 for URL :
Enter 4 for Hash :
Enter your choice : 1
Enter IP Address: 102.119.72.215
Please Wait while we Scan IP Address!!
The address is Malicious
  
```

Fig 4.10 Client-side for Ip Address

Server-side:

```

~/socket_programming_scripts
Client connected from ("172.16.26.148", 40012)
1
Waiting for a client connection...
Exception in thread Thread-1 (handle_client_connection):
Traceback (most recent call last):
  File "/usr/lib/python3.11/threading.py", line 1008, in _bootstrap_inner
    self.run()
  File "/usr/lib/python3.11/threading.py", line 975, in run
    self._target(*self._args, **self._kwargs)
  File "/home/rohit/31mg/socket_programming_scripts/server.py", line 15, in handle_client_connection
    client_socket.send("Enter 3 for URL :")
BrokenPipeError: [Errno 32] Broken pipe
Client connected from ("172.16.24.188", 43262)
Waiting for a client connection...
You have entered this IP Address: 69.63.176.13 for scanning.
The ID value is: 1000
The value of ID in the given file is : 1000 and this is correct
You have entered this IP Address: 102.119.72.215 for scanning.
The ID value is: 1021
~/socket_programming_scripts
~/socket_programming_scripts
  
```

Fig 4.11 Server-side for Ip Address s

- The above picture represents the client-server handshaking for malware analysis under the same network for Ip address.

Client-Side:

```

Welcome to the server.
Enter 1 for IP Address :
Enter 2 for Domain:
Enter 3 for URL :
Enter 4 for Hash :
Enter your choice : 2
Enter Domain Name or Subdomain: saffrony.ac.in
Please Wait while we Scan Domain Name or Subdomain!!
Domain Name or Subdomain is not Malicious

Welcome to the server.
Enter 1 for IP Address :
Enter 2 for Domain:
Enter 3 for URL :
Enter 4 for Hash :
Enter your choice : 2
Enter Domain Name or Subdomain: digitally.yariba.ru
Please Wait while we Scan Domain Name or Subdomain!!
Domain Name or Subdomain is Malicious
  
```

Fig 4.12 Client-side for Domain

Server Side:

```

/home/rohit/jlms/socket_programing_scripts
Client connected from ('172.24.24.180', 4452)
1
Waiting for a client connection...
Exception in thread Thread-1 (handle_client_connection):
Traceback (most recent call last):
  File "/usr/lib/python3.11/threading.py", line 1038, in _bootstrap_inner
    self.run()
  File "/usr/lib/python3.11/threading.py", line 975, in run
    self._target(*self._args, **self._kwargs)
  File "/home/rohit/jlms/socket_programing_scripts/server9.py", line 15, in handle_client_connection
    client_socket.sendto('Enter 3 for URL : ')
BrokenPipeError: [Errno 32] Broken pipe
Client connected from ('172.16.24.146', 5224)
Waiting for a client connection...
You have entered this IP Address: 89.63.174.11 for scanning.
The ID value is: 1020
The value of ID in the given file is : 1025 and this is correct
You have entered this IP Address: 102.119.72.215 for scanning.
The ID value is: 1021

/home/rohit/jlms/socket_programing_scripts
/home/rohit/jlms/socket_programing_scripts
/home/rohit/jlms/socket_programing_scripts
You have entered this Domain Name or Subdomain: saffrony.ac.in for scanning.
The ID value is: 1020
The value of ID in the given file is : 1021 and this is correct
You have entered this Domain Name or Subdomain: digitally.yariba.ru for scanning.
The ID value is: 1023
The value of ID in the given file is : 1021 and this is correct
  
```

Fig 4.13 Server-side for Domain

- The above picture represents the client-server handshaking for malware analysis under the same network for domain name or subdomain name.

Client-Side:

```

Welcome to the server.
Enter 1 for IP Address :
Enter 2 for Domain:
Enter 3 for URL :
Enter 4 for Hash :
Enter your choice : 3
Enter URL: https://www.saffrony.ac.in/
Please Wait while we Scan URL!!
URL or Link is not Malicious

Welcome to the server.
Enter 1 for IP Address :
Enter 2 for Domain:
Enter 3 for URL :
Enter 4 for Hash :
Enter your choice : 3
Enter URL: http://ec311447.cyou/index.php
Please Wait while we Scan URL!!

URL or Link is not Malicious
  
```

Fig 4.14 Client-side for URL

Server Side:

```

client_socket_send('Enter 3 for URL : ')
BrokenPipeError: [Errno 32] Broken pipe
Client connected from ('172.16.24.148', 50242)
Waiting for a client connection..
You have entered this IP Address: 89.01.170.15 for scanning.
The ID value is: 1020
The value of ID in the given file is : 1020 and this is correct
You have entered this IP Address: 102.219.72.215 for scanning.
The ID value is: 1021
/home/rabbit/jirny/socket_programming_scripts
/home/rabbit/jirny/socket_programming_scripts
/home/rabbit/jirny/socket_programming_scripts
You have entered this Domain name or Subdomain: saffrony.ac.in for scanning.
The ID value is: 1022
The value of ID in the given file is : 1022 and this is correct
You have entered this Domain name or Subdomain: digitelly.parlour.in for scanning.
The ID value is: 1023
/home/rabbit/jirny/socket_programming_scripts
/home/rabbit/jirny/socket_programming_scripts
You have entered this URL: https://www.saffrony.ac.in/ for scanning.
The ID value is: 1024
/home/rabbit/jirny/socket_programming_scripts
/home/rabbit/jirny/socket_programming_scripts
You have entered this URL: https://www.saffrony.ac.in/ for scanning.
The ID value is: 1025
The value of ID in the given file is : 1025 and this is correct
You have entered this URL: http://ec311447.cyou/index.php for scanning.
The ID value is: 1026
/home/rabbit/jirny/socket_programming_scripts
/home/rabbit/jirny/socket_programming_scripts
  
```

Fig 4.15 Server-side for URL

- The above picture represents the client-server handshaking for malware analysis under the same network for URL.





## Chapter 5. Testing

### 5.1 Testing Strategy

The Threat detection derived from the system is verified Computer Emergency response Team (CERT).

**Future work:** Vulnerability Assessment and Penetration Testing (VAPT) will be going to take place for those observables which are not detected as threats.

## **Chapter 6. Conclusion and Discussion**

### **6.1 Overall Analysis and summary of internship (Learning)**

During this internship, I learned about how Malware Analysis with different perspectives. I got hold on Linux Administrative skills and developed an ability to thing in the direction of insights from offensive cybersecurity. I created the system. Therefore, I could also understand how the application at front-end and back-end works.

With this internship coming to an end, I seek my vision to explore more as this is internship has made me learn a lot many things along with work ethics and dynamics taking place at research as well as development level.

### **6.2 Problems Encountered and Possible solution**

During this internship, I encountered to a few problems wherein we solved all of them with appropriate strategy and teamwork. The major problem we observed was in the section where we need to prevent network from unknown traffic generation, but we observed and fetch that firewall was off and we made it active and secure our SAC network from any upcoming threats.

### **6.3 Future Enhancement**


This project in future will be used to make threat detection anytime through the SAC network and with respect to that we can prevent the security risk for organisation.

## Bibliography

### Website References:

1. <https://docs.zeek.org/en/v3.0.14/intro/index.html>
2. <https://intelowl.readthedocs.io/en/latest/Installation.html>
3. <https://www.kali.org/get-kali/#kali-installer-images>
4. <https://intelowl.readthedocs.io/en/latest/Installation.html>
5. <https://www.docker.com/>
6. <https://github.com/zeek/zeek>
7. <https://github.com/intelowlproject/IntelOwl>
8. <https://www.google.com/>

## Appendix A. Annexure-I



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(ગુજરાત અધિનિયમ ક્રમાંક ૨૦-૨૦૦૭ નામ સ્થાપિત)

---

Annexure I  
Enrollment no:  
19037e/07017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESHBHAI LIMBACHIA

DIARY OF THE WEEK: IN 23/01/23 TO 27/01/23

DEPARTMENT: SATA COMPUTER ENGINEERING SEM: 08


NAME OF THE ORGANISATION: SAC, ISRO, AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: SRTD / CTCG / NISA / ITND

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRI ROHIT TYAGI

DESCRIPTION OF THE WORK DONE IN BRIEF

- Learn basic of Computer network
- Learn basic of Cyber Security
- Learn User Entity and Behavioural Analytics (UEBA)
- Understood how does ITND department works.



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---


TOTAL HOURS: 7.5 hrs x 5 days = 37.5 hrs [Signature]  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of officer-in-charge  
of Dept. / Section / Plant: [Signature]

Date: 10/3/23 Date: 27/01/23

Grading of Work for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I  
 Enrollment no:  
1703190107017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESHBHAI LIMBACHIA

DIARY OF THE WEEK: Dt: 30/01/23 TO 02/02/23

DEPARTMENT: COMPUTER ENGINEERING SEM: 08


NAME OF THE ORGANISATION: SAC JSRD AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: SRTD/RTCG/MISA/ITND

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRI ROHIT THAGT

DESCRIPTION OF THE WORK DONE IN BRIEF

- Read White paper. of Ouba.
- Understand SQL for implementation.
- Examine. the most Important SQL command
- Understand Domain stats.



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---

TOTAL HOURS: 7-Thu + 5 days off + 1 hr Ashishchha  
SIGNATURE OF STUDENT

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 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of Officer-in-charge  
of Dept. / Section / Plant: [Signature]

Date: 18/3/23 Date: 02/02/23

Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure I

Enrollment no:

190390107017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESHBHAI LEMBACHIA

DIARY OF THE WEEK: IN: 06/02/23 TO: 10/02/23

DEPARTMENT: CE SEM: 08

NAME OF THE ORGANISATION: SAC, ISRO AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: ITND/CSIG/MISA/ITND

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRI. ROHIT TRAGI


**DESCRIPTION OF THE WORK DONE IN BRIEF**

→ Apply domain setup

→ Establish zeek configuration

→ Building up the set up

→ Learn Basic Linux command



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TOTAL HOURS:  $7.5 \text{ hrs} \times 5 \text{ days} = 37.5 \text{ hrs}$


*Abhishek*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: *U. S. D. S.*      Signature of officer-in-charge of Dept. / Section / Plant: *Prati*

Date: 15/02/23      Date: 10/02/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I  
 Enrollment no: 190370109017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESHRAJ LIMBACHIA

DIARY OF THE WEEK: 13/02/23 TO 17/02/23

DEPARTMENT: CE SEM: 08


NAME OF THE ORGANISATION: SAC, ISRO, AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: ITND /CSIG /HISA/SRTD

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRI ROHIT PATEL

DESCRIPTION OF THE WORK DONE IN BRIEF

- Developed the steps to configured the custom script.
- Zeek has been deploy
- Explore the kibana Tool
- Learn Respond fields.



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---

TOTAL HOURS: 7.5 hrs x 5 days = 37.5 hrs


[Signature]  
SIGNATURE OF STUDENT


The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor: [Signature]      Signature of officer-in-charge of Dept. / Section / Plant: [Signature]

Date: 15/5/23      Date: 17/02/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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	Annexure I Enrollment no: <u>190390107017</u>
<b>STUDENT'S WEEKLY RECORD OF INTERNSHIP</b>	
NAME OF STUDENT: <u>JIMMY NIMESHBHAI LIMBACHIA</u>	
DIARY OF THE WEEK: IN: <u>20/02/23</u> TO <u>24/02/23</u>	
DEPARTMENT: <u>CE</u> SEM: <u>08</u>	
NAME OF THE ORGANISATION: <u>SAC, ISRO, AHMEDABAD</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>ITND / CSEG / MISA / SRTD</u>	
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>SRI ROHIT TYAGI</u>	
<b>DESCRIPTION OF THE WORK DONE IN BRIEF</b>	
<p>→ Learn different attacks .</p> <p>→ Defense attacks</p> <p>→ Such as Key Logger, Brute force attack and SQL injection</p>	



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---

TOTAL HOURS: 7.5 hrs + 4 days = 30 hrs


*[Signature]*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor: *[Signature]*  
 Date: 18/3/23

Signature of officer-in-charge of Dept. / Section / Plant: *[Signature]*  
 Date: 24/02/23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I  
 Enrollment no:  
190390107017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESHBHAI LIMBACHIA

DIARY OF THE WEEK: IN: 27/02/23 TO 03/03/23

DEPARTMENT: CE SEM: 08


NAME OF THE ORGANISATION: SAC, JSRO, AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: ITND / CSIG / MISA / SRID

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SPZ ROHIT TYAGI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Domain Stats Configuration
- Examine the Linux directory structure
- Build Custom Scripting for Domain stats and zeek



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TOTAL HOURS: 7.5 hrs & 5 days = 37.5 hrs

*[Signature]*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: *[Signature]*


Date: 19/3/23

Signature of officer-in-charge of Dept. / Section / Plant: *[Signature]*

Date: 03/03/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.





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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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Attachment 1  
 Enrollment no:  
190390107017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESHBHAI LIMBACHIA

DIARY OF THE WEEK: DI: 06/03/23 TO 10/03/23

DEPARTMENT: CE SEM: 08


NAME OF THE ORGANISATION: SAC, ISRO AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: ITND/CSTG/MISA/SRTD

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRS ROHIT TMAI

DESCRIPTION OF THE WORK DONE IN BRIEF

- Log enhancement
- Utility Observation
- Generate Domain starts log
- Decompress the Logs



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 (ગુજરાત અધિનિયમ ૨૦/૨૦૦૭ ની રીતે સ્થાપિત)

---

TOTAL HOURS: 7.5 hrs x 5 = 37.5 hrs


P. H. Lecha  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Member: [Signature]  
 Date: 18/3/23

Signature of officer-in-charge  
 of Dept. / Section / Plant: [Signature]  
 Date: 10/03/23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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Annexure I  
 Enrollment no:  
190370107017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESRBHAI LIMBACHIA

DATE OF THE WEEK: DR: 13/03/23 TO 17/03/23

DEPARTMENT: CE SEM: 08


NAME OF THE ORGANISATION: SAC, ISRO AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: ITND / CSE.G / MISA / SRTD

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRI ROHIT PRAJI

DESCRIPTION OF THE WORK DONE IN BRIEF

- Extract the data by out sourcing
- Web scraped the data into text file
- Then after cleaning the data such as domain name and ip's
- Convert text data into json.



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 (ગુજરાત અધિનિયમ ૨૫૧૬ ૨૦/૨૦૦૭ હેઠળ સ્થાપિત)

---

TOTAL HOURS: 7.5 hr × 5 = 37.5 hr

*[Signature]*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**

Signature of Faculty Mentor \_\_\_\_\_

*[Signature]*  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date: \_\_\_\_\_

Date: 17/03/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I

Enrollment no:

190190107017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESHBHAI LIMBACHIA

DIARY OF THE WEEK: Dt: 20/03/23 TO 24/03/23

DEPARTMENT: CE SEM: 08


NAME OF THE ORGANISATION: SAC, ISRO AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: ITND/CSTG/MISA/SRTO

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRI ROHIT TYAGI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Understand the OSI Layer
- Understand the Intelowl Project
- Knowing its allocation
- Understand How Intelowl works



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---

TOTAL HOURS: 75hr x 5 = 375hr

*[Signature]*  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
**EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR**


Signature of Faculty Mentor

*[Signature]*  
Signature of officer-in-charge  
of Dept. / Section / Plant

Date:

Date: 24/03/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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---

Annexure 1  
 Enrollment no:  
190390157017

**STUDENT'S WEEKLY RECORD OF INTERSHIP**

NAME OF STUDENT: JIMMY NIMESHBHAI LIMBACHIA

DIARY OF THE WEEK: Dt: 27/03/23 TO 31/03/23

DEPARTMENT: CE SEM: 08


NAME OF THE ORGANISATION: SAC, ISRO AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: ITND/CSIG/MISA/SETD

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SPT ROHIT TYAGI

DESCRIPTION OF THE WORK DONE IN BRIEF

- Understanding The Internal Configuration
- Gathering All the Analyser
- Explore Internal and External Analyser both
- Configure API Integration to the System.



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 (ગુજરાત અધિનિયમ ક્રમાંક ૨૦/૨૦૦૭ વડા સ્થાપિત)

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TOTAL HOURS: 7.5hr x 5 = 37.5hr

*[Signature]*  
SIGNATURE OF STUDENT

☐ The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: *[Signature]*      Signature of officer-in-charge  
 of Dept. / Section / Plant: *[Signature]*

Date: 25/03/23      Date: 31/03/23

☑ Grading of Work, for trainee may be given depending upon your judgement about  
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Assesare 1

Enrollment no:  
190390102012

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMEHBHAI LIMBACHIA

DIARY OF THE WEEK: DI: 03/04/23 TO 07/04/23

DEPARTMENT: CE SEM: 08


NAME OF THE ORGANISATION: SAC, JSRO AHMEDABAD

NAME OF THE PLANT/SECTION/DEPARTMENT: ITND/CSIG/HTSA/SRTD

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRI ROHIT TYAGI

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- Understand and learn Socket programming
- Understand and develop server side
- Understand and develop Client side
- Implement Both server and Client side over the Network for Communication



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---

TOTAL HOURS: 7.5hr x 5 = 37.5hr

Atlinchhi  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor \_\_\_\_\_

Signature of officer-in-charge  
of Dept. / Section / Plant

Date: \_\_\_\_\_

Date: 07/04/23

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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---


Annexure I  
 Enrollment no:  
190370107017

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: JIMMY NIMESHBHAI LIMBACHYA  
 DIARY OF THE WEEK: Du 10/04/22 TO 14/04/22  
 DEPARTMENT: CE SEM: 08  
 NAME OF THE ORGANISATION: SAC ISRO AHMEDABAD  
 NAME OF THE PLANT/SECTION/DEPARTMENT: ITND/CSIG/MISA/SRTD  
 NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: SRI ROHIT TYAGI

DESCRIPTION OF THE WORK DONE IN BRIEF

- Working on advance configuration of Intelowl
- Debugging the configuration error
- Working on integration of json file with a python script.



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---

TOTAL HOURS: 7.5hr x 5 = 37.5hrs

*Atli Lachin*  
 -----  
 SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor \_\_\_\_\_


*Bayu*  
 Signature of Officer-in-charge  
 of Dept. / Section / Plant

Date: \_\_\_\_\_

Date: 27/04/23 (Friday)

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

## Appendix B. Annexure-II



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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---

Annexure I

Feedback Form by Industry expert

Student Name: **JIMMY NIMESHMI LIMBACHIA** Date: **26/04/2023**

Work Supervisor: **SM: ROHIT TYAGI** Title: \_\_\_\_\_

Company/Organization: **SPACE APPLICATION CENTRE, ISRO, AHMEDABAD**

Enrollment No: \_\_\_\_\_

Internship Address: **SPACE APPLICATION CENTRE JODHPUR TEXRA, AMBAYALI VISTAR  
PO AHMEDABAD - 380051**

Dates of Internship From **23/01/2023** to **01/06/2023**

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs Improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility			✓	
Uses technical knowledge and expertise			✓	
Analyzes problems effectively			✓	
Communicates well and writes effectively				✓

Overall performance of student/ intern: (Needs-Improvement/ Satisfactory/ Good/ Excellent): **Good**

Additional comments, if any: **Hard working & Excellent Contribution in implementing Threat Hunting Solution**

Signature of Industry person with name and Stamp: \_\_\_\_\_  
*(Handwritten: Excellent work done.)*

Signature of the Faculty Mentor: \_\_\_\_\_  
*(Handwritten: 26/04/2023)*

डॉ. कृष्ण क. पटेल | Dr. Kishan K. Patel  
 गुरुवार / Group Head, से क्वॉलिटी / CSIG  
 सेक्टर / MISA, सेक्टर-१/ SAC-ISRO

## Appendix C. Offer Letter



# **INTERNSHIP AT INFOLABZ PVT. LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Joshi Kartavy Jagdishbhai**

**200390107064**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

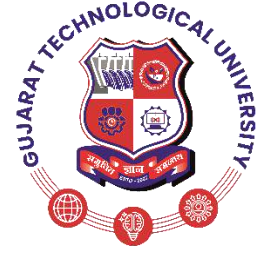


**Gujarat Technological University, Ahmedabad**

**July, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ PVT. LTD.** has been carried out by **Joshi Kartavy Jagdishbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Shubhangi Chaturvedi

Prof. Akshay Kansara

Internal Guide

Head of Department



# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390107064

Semester: 7<sup>th</sup>, Computer Engineering

Saffrony Institute Of Technology

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Joshi Kartavy Jagdishbhai .

In this internship tenure, we have covered the fundamentals of the Django framework along with an understanding of MVC architecture. We have also worked on JSON structures as well as different API(s) and API fetching in web pages using the Django framework.

We wish Joshi Kartavy Jagdishbhai all the best for future endeavors.



Ms. Twinkle Shah  
Internship Coordinator  
InfoLabz, Ahmedabad



+91 8886662662  
+91 8141236662



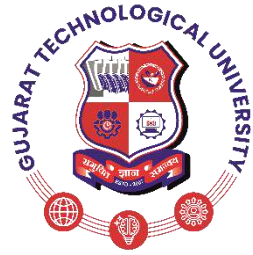
info@infolabz.in  
www.infolabz.in



405 Vraj Avenue, Above SAM'S PIZZA  
Nr. Commerce Six Rd, Navrangpura,  
Ahmedabad, Gujarat 380009



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Infolabz Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chirag Nagrecha** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Joshi Kartavy Jagdishbhai**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

The successful completion of any project depends upon the co-operation of many individuals. Through this brief note I would like to acknowledge the help of individuals who have directly and indirectly contributed towards the completion of project. First of all, I would like to express my deepest gratitude to the leading team of Infolabz IT Services Pvt Ltd. for providing me an opportunity to carry on my project in organization.

I also express my gratitude to Mr. Chirag and Miss. Riddhi Halani team member of Elsner Technology for their co-operation, valuable suggestion, guidance. I also would like to thank, internship coordinator Department of IT for their support to get complete internship.

## **Abstract**

This report contains the work done by the author during the internship at INFOLABZ IT SERVICES PVT. LTD. It shows the work I did in the company during my internship period. In this report, the author discusses the concepts of Web development using Python ( Django framework ). The report also includes the tools and libraries used for Python ( Django framework ). In the Django framework part, the Frontend as well as Backend(Database) part is mentioned by the author. Overall the report signifies the learning of the author during this internship period.

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## Abbreviations

OOP	Object Oriented programming
DRY	Don't Repeat Yourself
PIP	Package Installer For Python
ORM	Object Relational Mapping
MVT	Model-view-Template
URL	Uniform Resource Locator

# Chapter -1: INTRODUCTION

## 1.1 COMPANY PROFILE:

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. Has managed to make it's own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard working developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

## 1.2 MISSION AND VISION OF THE COMPANY:

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concept which could be used by millions of people.



### Our Mission

Our mission is to deliver best-in-class services with top-notch quality



### Our Vision

Our vision is to sustain the exponential growth of the IT industry.



## Chapter- 2: Introduction to Django Framework

### 2.1 Basic Python:

In starting of the internship our co-ordinator Mr. Chirag sir gave us basic knowledge of python which we will going to use during the period of 15 days and this is the most basic knowledge we require to get the internship done. In basic python sir focused on the basic python like statements if – else and how to use function in python.

### 2.2 Django framework:

Django is a high-level Python web framework that simplifies the process of building web applications by providing a clean and pragmatic way to handle various aspects of web development. It follows the “batteries-included” philosophy, offering a wide range of tools and features to help developers quickly create robust and maintainable web applications.

Here’s some key information about the Django framework:

**MVT Architecture:** Django follows the Model-View-Template (MVT) architectural pattern, but with slightly different terminology:

**Model:** Represents the data structure and database schema.

**View:** Handles the presentation logic and rendering of data.

**Template:** Contains HTML files with embedded Python code to dynamically generate the HTML output.

**Controller:** Handled by Django itself, managing the request-response cycle.

#### **Features:**

**URL routing:** Mapping URLs to views and functions.

**Object-Relational Mapping (ORM):** Provides a high-level API for interacting with databases using Python classes.

**Form handling:** Simplifies form validation and handling user input.

**Authentication and authorization:** Built-in user authentication system and permission management.

**Admin interface:** A powerful, auto-generated admin panel for managing application data.

**Template engine:** Django’s template language allows dynamic content rendering.

**Security features:** Includes protection against common web vulnerabilities.

## Chapter- 3: Project creation in Django

### 3.1 Creating project in Django

- 1) Django set up :  
Install pycharm and install Django using following code
  - pip install Django
  
- 2) Create project:  
Create project in a project file
  - 3jango-admin startproject projectname
  
- 3) Run project:  
Run project in the server
  - python manage.py runserver

### 3.2 Django apps

In Django, an “app” refers to a self-contained module that encapsulates a specific functionality or a set of related functionalities within a larger Django project.

Each Django app can include models, views, templates, and other components necessary to build a specific feature or aspect of a website. Apps are intended to be reusable and can be plugged into different projects, making it easier to organize and manage complex web applications.

Here’s a brief overview of the components typically found within a Django app:

**Models:** Models define the structure of your data and how it is stored in the database. Each app can have its own models, representing the data specific to that app’s functionality.

**Views:** Views handle the logic of processing user requests and returning appropriate responses. They interact with models to retrieve or modify data and then render templates to generate HTML for the user.

**Templates:** Templates are used to generate HTML dynamically. They allow you to present data fetched from the views in a user-friendly manner.

**URLs:** URLs map incoming HTTP requests to the appropriate view functions. Each app can define its own set of URLs, making it easy to organize your project’s URL structure.

**Forms:** Forms are used for handling user input, such as user registration, login, and data submission. Django provides tools to generate and process forms efficiently.

**Static Files:** Static files like images, stylesheets, and JavaScript files are stored within app-specific directories and can be served to users without being processed.

**Admin:** Django's built-in admin interface allows you to manage your app's data through a user-friendly interface. You can define custom admin views to control how your app's data is presented and manipulated.

**Test:** Django apps often come with their own unit tests to ensure that the functionality is working as expected. Testing is an integral part of Django development.

Code for create apps:

- Python manage.py startapp appname

django

View release notes for Django 2.1

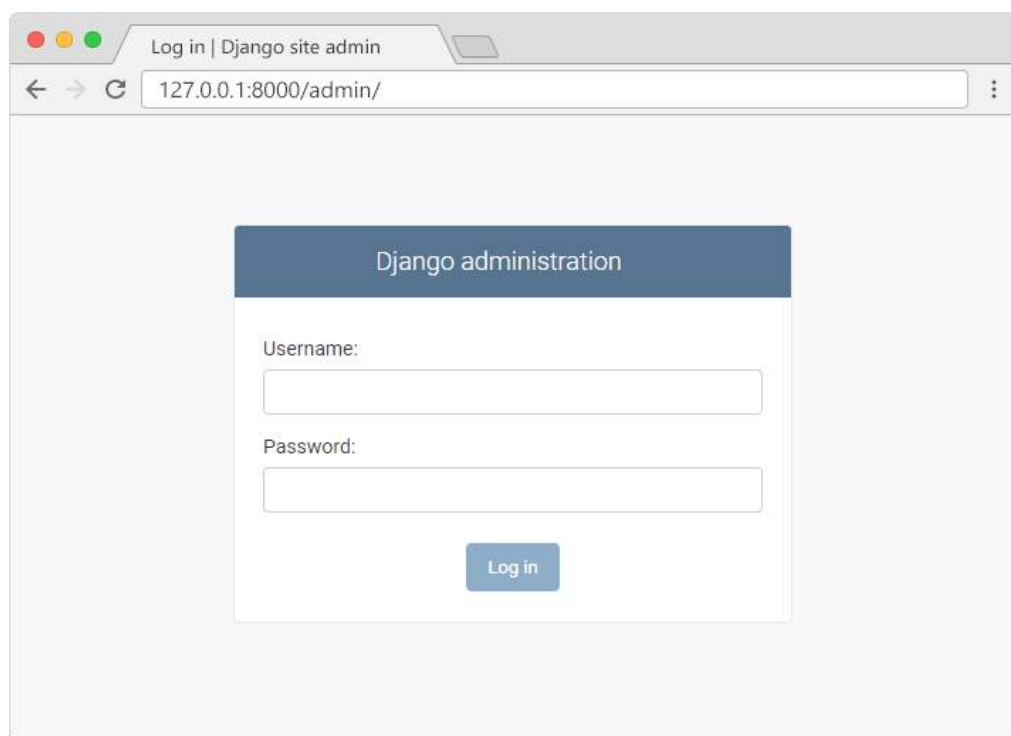


### 3.1 Django project running on server

### 3.3 Super user and permissions in Django

In Django, a superuser is a user with administrative privileges. Superusers have access to the Django admin interface, which allows them to manage and manipulate data within the application's database. They can perform actions like creating, editing, and deleting records, managing users, and more. Superusers have full control over the application and can perform tasks that regular users typically cannot.

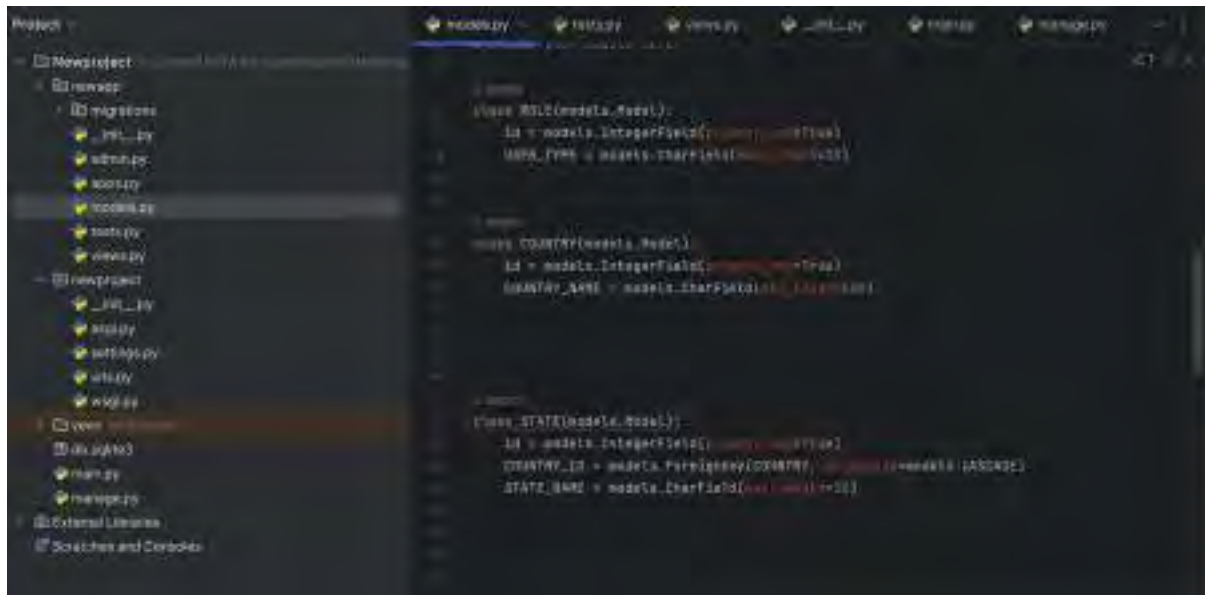
- Python manage.py createsuperuser



3.2 Admin Pannel for backend

## Chapter-4: Concept of Models in Django

### 4.1 Creating multiple models



```
class STATE(models.Model):
    id = models.IntegerField(primary_key=True)
    STATE_NAME = models.CharField(max_length=100)

class COUNTRY(models.Model):
    id = models.IntegerField(primary_key=True)
    COUNTRY_NAME = models.CharField(max_length=100)

class BANK_DETAILS(models.Model):
    id = models.IntegerField(primary_key=True)
    COUNTRY_ID = models.ForeignKey(COUNTRY, on_delete=models.CASCADE)
    STATE_NAME = models.CharField(max_length=100)
```

Fig 4.1 Code for different model



Fig 4.2 Output at administration panel

## 4.2 Concept of foreign key

In Django, a popular web framework for Python, the concept of foreign keys is used to define relationships between models (database tables) within the Object-Relational Mapping (ORM) system. The Django ORM abstracts the complexities of working with databases, allowing you to define relationships between your models using Python classes and attributes.

## 4.3 Assignment of backend Panel

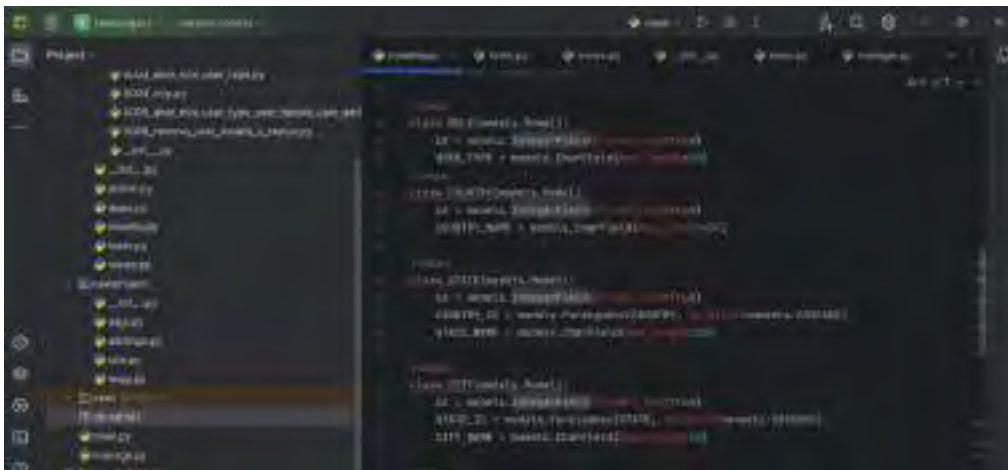


Fig 4.3 Models for backend

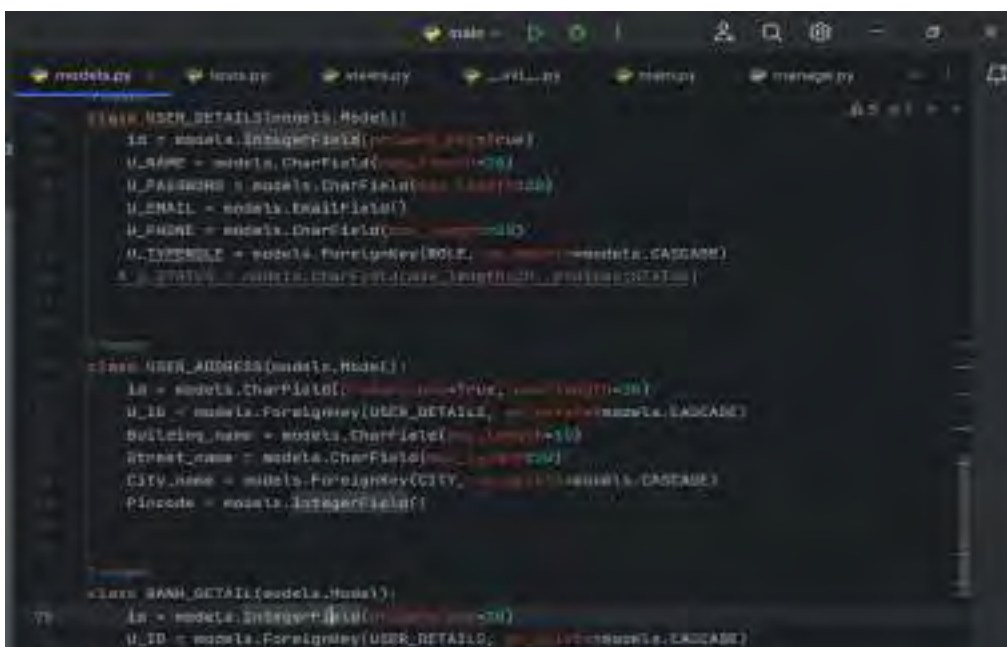


Fig 4.4 models for backend

Site administration

ADMINISTRATIVE ACTIONS

Groups	+ Add	Change
Users	+ Add	Change

CONTENT

Item k_details	+ Add	Change
Cities	+ Add	Change
Countrys	+ Add	Change
Roles	+ Add	Change
States	+ Add	Change
User_addresses	+ Add	Change
User_details	+ Add	Change

Recent actions

My actions

- + USER\_ADDRESS object (1)  
User address
- + USER\_DETAILS object (1)  
User details
- + CITY object (1)  
City
- + STATE object (1)  
State
- + COUNTRY object (1)  
Country
- + COUNTRY object (2)  
Country
- + COUNTRY object (2)  
Country
- + COUNTRY object (1)  
Country

Fig 4.5 Backend Administration Panel

# Chapter- 5 :Loading static file

## 5.1 loading html and other static file

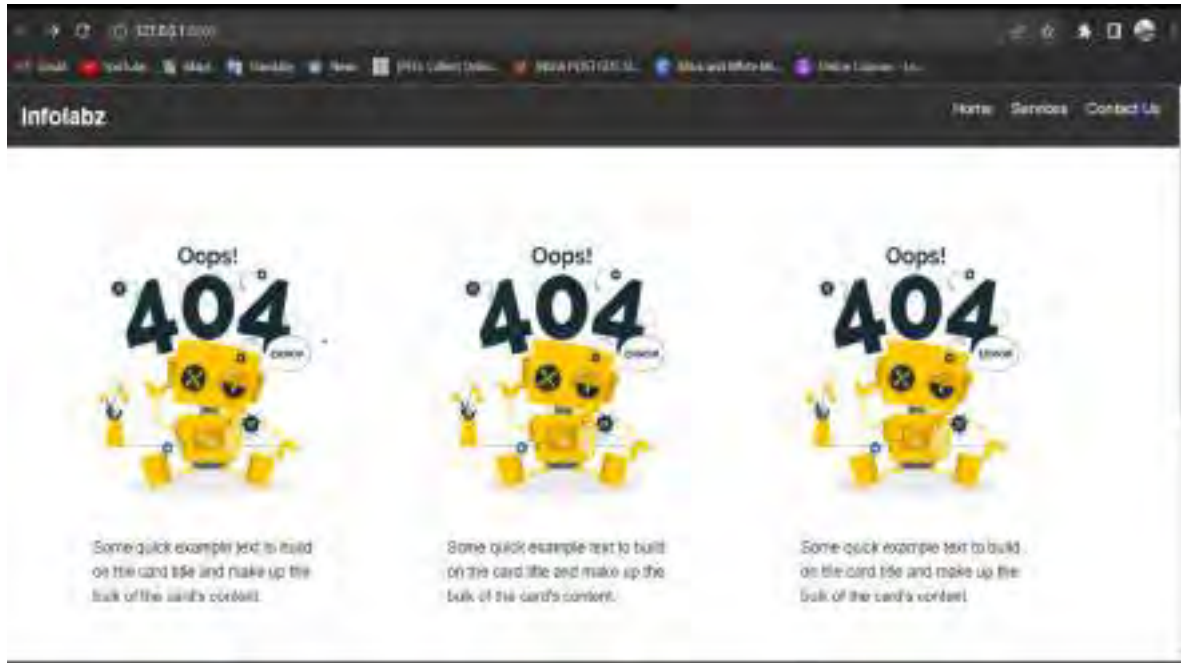


Fig 5.1 Loading of Basic Html page

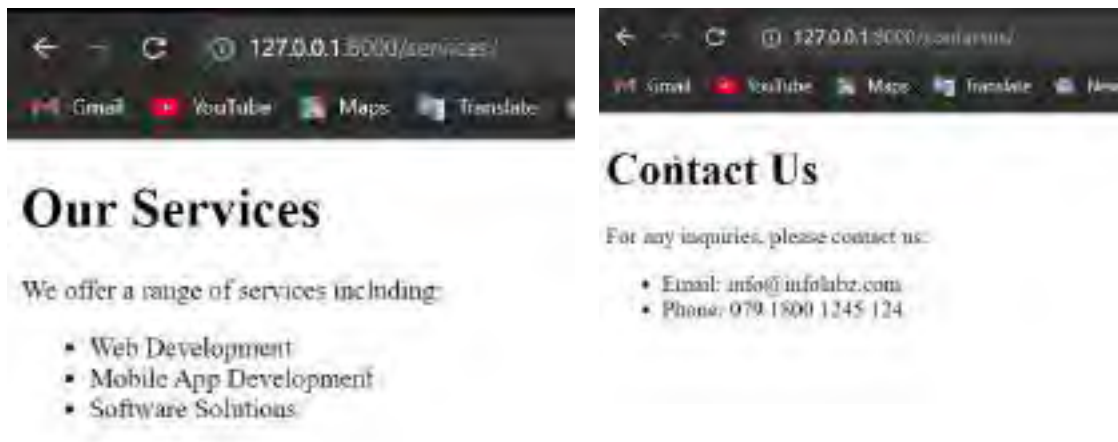


Fig 5.2 Routing of HTML pages



## 5.2 Bootstrap

Bootstrap is a popular open-source front-end framework that provides a set of tools, components, and styles for building responsive and visually appealing websites and web applications. It simplifies the process of designing and developing user interfaces by offering a standardized way to create layouts, forms, navigation bars, modals, and more.

### Bootstrap cdn link

```
<link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@3.3.7/dist/css/bootstrap.min.css"
integrity="sha384BVYiSIFeK1dGmJRAkycuHAHRg32OmUcww7on3RYdg4Va+PmS
Tsz/K68vbdEjh4u" crossorigin="anonymous">
```

## Chapter- 6: Api

### 6.1 Dictionary in python

In Python, a dictionary is a built-in data type that allows you to store and manage data in key-value pairs. Each key in a dictionary maps to a corresponding value, and you can use keys to access the associated values quickly. Dictionaries are also known as associative arrays or hash maps in other programming languages.

You can create a dictionary by enclosing key-value pairs in curly braces { }. Keys and values are separated by colons, and pairs are separated by commas.

Example :

```
person = {  
    "name": "John",  
    "age": 30,  
    "city": "New York"  
}
```

### 6.2 Working on API

An API, or Application Programming Interface, is a set of rules and protocols that allows different software applications to communicate and interact with each other. APIs define the methods and data structures that developers can use to integrate their applications with external services, libraries, or platforms. APIs enable software components to work together and exchange information seamlessly.

Worked on two different API'S

Covid api : <https://data.covid19india.org/data.json>

Bitcoin : <https://api.coindesk.com/v1/bpi/currentprice.json>

```

# curly bracket
# key : [left] - value [right]
# to access value key is required
mydata = {"Ahmedabad":100,"Surat":200,"Rajkot":300}
print(mydata["Rajkot"])
mydata1 = {"Ahmedabad":100,"Surat":{200,250,3}, "Rajkot":300}
print(mydata1["Surat"][1])

mydata2 = {"Ahmedabad": [{"date": "10 Aug 2023", "cases": 15},
                        {"date": "16 Aug 2023", "cases": 25},
                        {"date": "17 Aug 2023", "cases": 30}],
          "Surat": [200, 250, 3],
          "Rajkot": 300}
print(mydata2["Ahmedabad"][1][0]["date"])
print(mydata.keys())

```

Fig 6.1 Dictionary for Api

```

import requests
url = requests.get('https://data.covid19india.org/data.json')
mydata = url.json()

print(mydata.keys())
print(mydata["cases_time_series"][0][0]["date"])
print(len(mydata["cases_time_series"]))

```

Fig 6.2 Api calling using Json

### 6.3 Assignment 2 (Final project)



Fig 6.3 News Website's home page



Fig 6.4 View Full News

## References

- [1] Infolabz.in , “Codes and theory from the website”.
- [2] W3school website, “Reference of html and Django”.
- [3] getbootstrap.in , “Reference of bootstrap from the website”.
- [4] Youtube , “Channel: Great adib”.

# **INTERNSHIP AT NEXALUS SOFT**

## **AN INTERNSHIP REPORT**

*Submitted by*

**KACHHADIYA GAUTAMKUMAR DINESHBHAI**

**200390107004**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

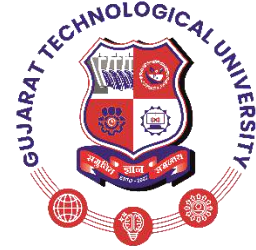


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at NEXALUS SOFT** has been carried out by **KACHHADIYA GAUTAM DINESHBHAI** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department

## Company Certificate



DATE

10/ 08/ 2023

### TO WHOMSOEVER IT MAY CONCERN

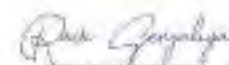
**Mr. KACHHADIYA GAUTAMKUMAR DINESHBHAI**

As This is to appreciate **Kachhadiya Gautamkumar Dineshbhai** who has completed internship with our organization from **26 July 2023** to **10 August 2023** as **PYTHON DEVELOPER**. During his service with us, we found his very hard working, knowledgeable, effective and sincere.

He has excellent track record and caring out all duties entrusted to his willingly effectively and to our entire satisfaction.

Sincerely,

**Nexalus Soft**

  
**Head Of Department**

☎ +91 93 27 42 96 53

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**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Nexalus Soft** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Bhargav Desai** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Kachhadiya Gautam Dineshbhai**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

The internship opportunity I had with Nexalus Soft was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be a part of it. I am also grateful for having a chance to meet so many wonderful people and professionals who led me through this internship period.

I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objectives. Hope to continue cooperation with all of you in the future.

Sincerely,

MR. RAVI SENJALIYA

(DIRECTOR, Nexalus Soft)

## **Abstract**

This report contains the work done by the author during his internship at *Nexalus Soft*. It shows the work I did in the company during my internship period. In the report, the author discusses the process of developing the website. The author also discusses the language using for developing the website and the variables are include in languages. It also explains what the author learned during this internship period.

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# Chapter 1. Introduction

## 1.1 COMPANY PROFILE:

Nexalus soft is an award-winning Web & Mobile App Development Company with decades of experience in steering clients through digital transformation. It offer deep industry expertise and follow a collaborative approach to deliver high-performance technology solutions. It drive continuous improvement for clients through knowledge transfer from our innovation ecosystem.

Nexalus Soft is not only a globally recognized IT company but also a family filled with talented experts that help global brands, enterprises, mid-size businesses or even startups with innovative solutions.

They are a top-notch company of CANADA. INDIA, US in the field of app and software development providing solutions across the globe. Their team of dedicated developers are always eager to innovate customized solutions based on your company needs.

## 1.2 MISSION AND VISION OF THE COMPANY:

**Vision of company:** “VISION is to be a global leader in IT solutions and services with impetus on innovation, excellence, and implementation of ethical Business Strategies - with the ultimate aim of giving back to the society.”

**Mission of company:** “MISSION is to CREATE innovative products and DELIVER excellence in services with constant emphasis on engineering, process quality and customer satisfaction – Nexalus ADD value to our business.”

## **Chapter 2: PYTHON PROGRAMMING LANGUAGE**

### **2.1 Introduction:**

Python is a widely used general-purpose, high level programming language. It was created by Guido van Rossum in 1991 and further developed by the Python Software Foundation. It was designed with an emphasis on code readability, and its syntax allows programmers to express their concepts in fewer lines of code. Python is a programming language that lets you work quickly and integrate systems more efficiently.

### **2.2 Objectives**

- Master the fundamentals of writing Python scripts
- Learn core Python scripting elements such as variables and flow control structures
- Discover how to work with lists and sequence data
- Write Python functions to facilitate code reuse
- Use Python to read and write files
- Make their code robust by handling errors and exceptions properly
- Work with the Python standard library
- Explore Python's object-oriented features
- Search text using regular expressions

### **2.3 Libraries in Python**

Normally, a library is a collection of books or is a room or place where many books are stored to be used later. Similarly, in the programming world, a library is a collection of precompiled codes that can be used later on in a program for some specific well-defined operations. Other than pre-compiled codes, a library may contain documentation, configuration data, message templates, classes, and values, etc.

A Python library is a collection of related modules. It contains bundles of code that can be used repeatedly in different programs. It makes Python Programming simpler and convenient for the programmer. As we do not need to write the same code again and again for different programs. Python libraries play a very vital role in fields of Machine Learning, Data Science, Data Visualization, etc.

### **2.3.1 Python standard library list**

- TensorFlow
- Matplotlib
- Pandas
- Numpy
- SciPy
- Scrapy
- Scikit-learn
- PyGame
- PyTorch
- PyBrain

## **2.4 Introduction of Matplotlib**

Matplotlib is an amazing visualization library in Python for 2D plots of arrays. Matplotlib is a multi-platform data visualization library built on NumPy arrays and designed to work with the broader SciPy stack. It was introduced by John Hunter in the year 2002. One of the greatest benefits of visualization is that it allows us visual access to huge amounts of data in easily digestible visuals. Matplotlib consists of several plots like line, bar, scatter, histogram etc.

### **Program1:**

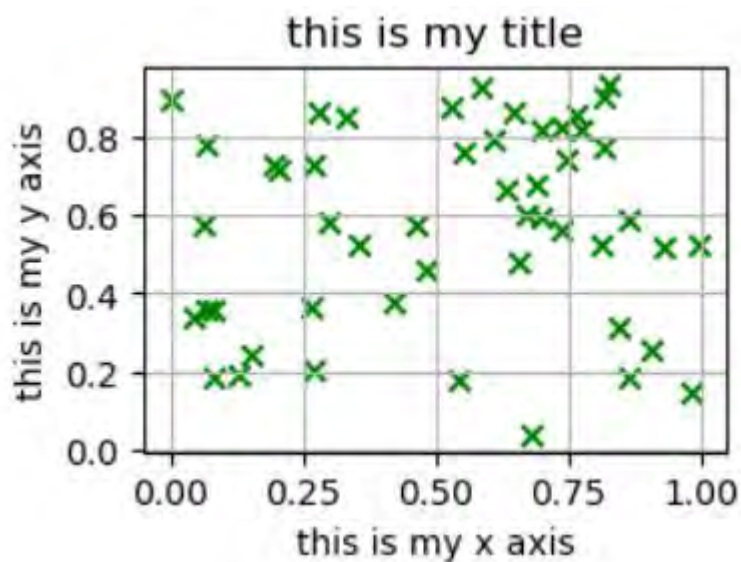
```
import matplotlib.pyplot as plt

import numpy as np

x = np.random.rand(50)
```

```
y = np.random.rand(50)
plt.figure(figsize=(3,2))
plt.scatter(x,y, c = 'g', alpha = 1, marker = "x")
plt.xlabel("this is my x axis")
plt.ylabel("this is my y axis")
plt.title("this is my title")
plt.grid()
```

### Output:

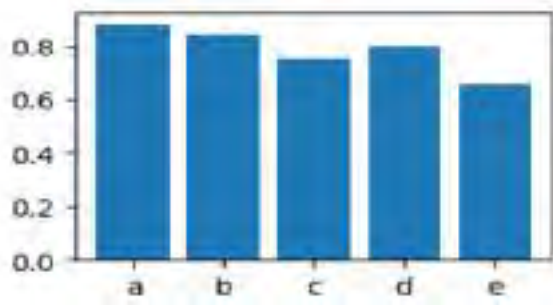


### Program2:

```
x = ["a", "b", "c", "d", "e"]
y = np.random.rand(5)
plt.figure(figsize=(3,2))
plt.bar(x,y)
```



**Output:**



## Chapter 3: Flask

### 3.1 Introduction of Flask

This Flask Tutorial is the latest and comprehensive guide designed for beginners and professionals to learn Python Flask framework, which is one of the most popular Python-based web frameworks. Whether you are a beginner or an experienced developer, this tutorial is specially designed to help you learn and master Flask and build your own real-world web applications. This Flask Tutorial covers a wide range of topics from basic concepts such as setup and installation to advanced concepts like user authentication, database integration, and deployment.

#### 3.1.1 What is Flask?

Flask is a web framework that allows developers to build lightweight web applications quickly and easily with Flask Libraries. It was developed by Armin Ronacher, leader of the International Group of Python Enthusiasts.

### 3.2 Flask Program of calculator:

#### 3.2.1 App.Py File:

```
from flask import Flask,request ,render_template , jsonify

app = Flask(__name__)

@app.route('/')

def home_page():

    return render_template('index.html')

@app.route('/math',methods=['POST'])

def math_ops():
```

```

if(request.method == 'POST'):
    ops = request.form['operation']
    num1 = int(request.form['num1'])
    num2 = int(request.form['num2'])
    if ops == 'add':
        r = num1+num2
        result = "The sum of " + str(num1) + 'and ' + str(num2) + "is " + str(r)
    if ops == 'subtract':
        r = num1-num2
        result = "The subtract of " + str(num1) + 'and ' + str(num2) + "is " + str(r)
    if ops == 'multiply':
        r = num1*num2
        result = "The multiply of " + str(num1) + 'and ' + str(num2) + "is " + str(r)
    if ops == 'divide':
        r = num1/num2
        result = "The divide of " + str(num1) + 'and ' + str(num2) + "is " + str(r)

    return render_template('results.html' , result = result)

if __name__=="__main__":
    app.run(host="0.0.0.0")

```

### 3.2.2 results.html File:

```

<!DOCTYPE html>

<html lang="en" >

<head>

<meta charset="UTF-8">

<title>Review Page</title>

```

```

    <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/normalize/5.0.0/normalize.min.css">
    <link rel="stylesheet" href="/style.css">
    <link rel="stylesheet" href="{{ url_for('static', filename='css/style.css') }}">
</head>
<body>
    <div class="table-users">
        <div class="header">Calculation Result</div>
            {{ result }}
        </div>
    </body>
</html>

```

### 3.2.3 index.html File:

```

{% block head %}
<title>Calculator</title>
<link rel="stylesheet" href="{{ url_for('static', filename='css/style.css') }}">
{% endblock %}
{% block body %}
<div class="content">
    <h1 style="text-align: center">Calculator</h1>
        <div class="form">
            <form action="/math" method="POST">
                <label for="operation">Choose a Mathematical Operation</label>
                <select id="operation" name="operation">
                    <option value="add">add</option>
                    <option value="subtract">subtract</option>

```

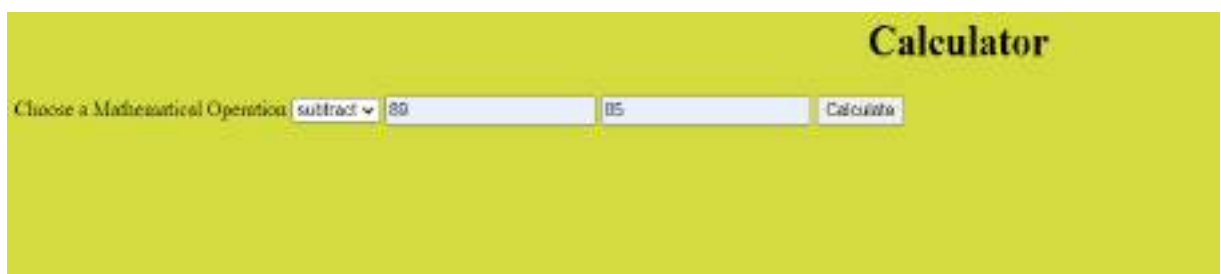
```
<option value="multiply">multiply</option>
<option value="divide">divide</option>
<option value="log">log</option>
</select>
    <input type="text" name="num1" id="num1">
    <input type="text" name="num2" id="num2">
    <input type="submit" value="Calculate">
</form>
</div>
</div>
{% endblock %}
```

## Output:



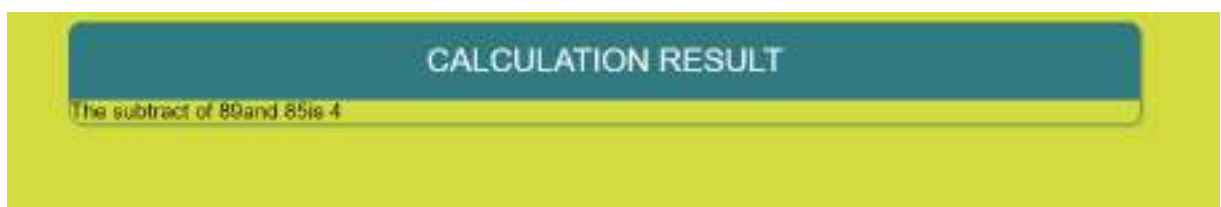
Calculator

Choose a Mathematical Operation:



Calculator

Choose a Mathematical Operation:



CALCULATION RESULT

The subtract of 80 and 85 is 4

### 3.3 Postman method for API testing

Postman is an Application Programming Interface (API) testing tool. API acts like an interface between a couple of applications and establishes a connection between them.

Thus, an API is a collection of agreements, functions, and tools that an application can provide to its users for successful communication with another application. We require an API whenever we access an application like checking news over the phone, Facebook, and so on.

Postman was designed in the year 2012 by software developer and entrepreneur Abhinav Asthana to make API development and testing straightforward. It is a tool for testing the software of an API. It can be used to design, document, verify, create, and change APIs.

Postman has the feature of sending and observing the Hypertext Transfer Protocol (HTTP) requests and responses. It has a graphical user interface (GUI) and can be used in platforms like Linux, Windows and Mac. It can build multiple HTTP requests – POST, PUT, GET, PATCH and translate them to code.

#### **App.py File for Postman API testing:**

```
@app.route('/postman_action',methods=['POST'])  
  
def math_ops1():  
  
    if(request.method == 'POST'):  
  
        ops = request.json['operation']  
  
        num1 = int(request.json['num1'])  
  
        num2 = int(request.json['num2'])  
  
        if ops == 'add':  
  
            r = num1+num2  
  
            result = "The sum of " + str(num1) + 'and ' + str(num2) + "is " + str(r)  
  
        if ops == 'subtract':
```

```
r = num1-num2

result = "The subtract of " + str(num1) + 'and ' + str(num2) + "is " + str(r)

if ops == 'multiply':

    r = num1*num2

    result = "The multiply of " + str(num1) + 'and ' + str(num2) + "is " + str(r)

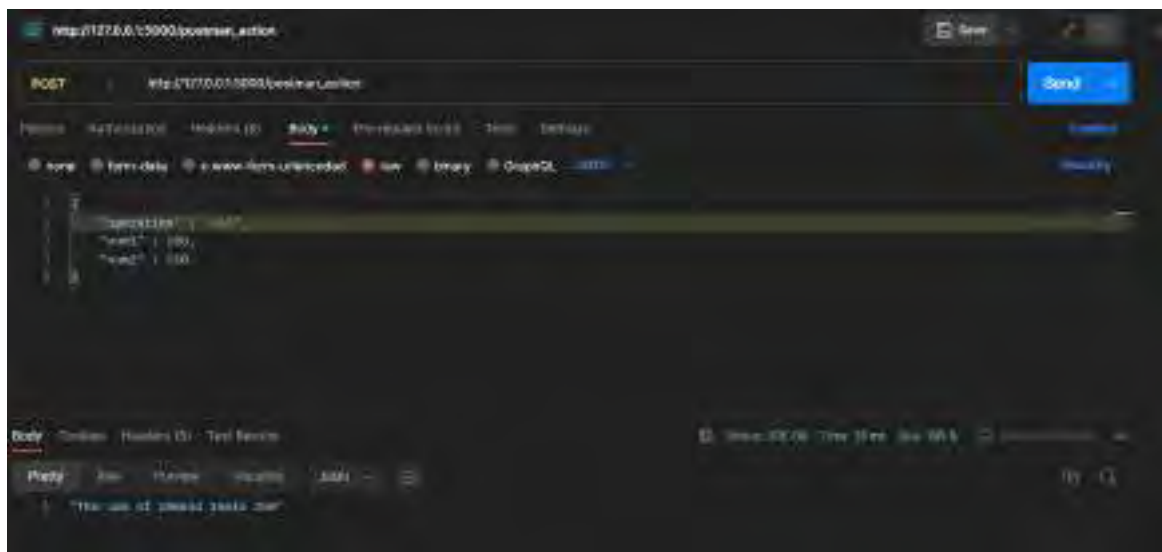
if ops == 'divide':

    r = num1/num2

    result = "The divide of " + str(num1) + 'and ' + str(num2) + "is " + str(r)

return jsonify(result)
```

## Output:



## **Chapter 4. Django Introduction**

### **4.1 Introduction:**

Django is a web application framework written in Python programming language. It is based on MVT (Model View Template) design pattern. The Django is very demanding due to its rapid development feature. It takes less time to build application after collecting client requirement.

This framework uses a famous tag line: The web framework for perfectionists with deadlines.

By using Django, we can build web applications in very less time. Django is designed in such a manner that it handles much of configure things automatically, so we can focus on application development only.

### **4.2 History**

Django was design and developed by Lawrence journal world in 2003 and publicly released under BSD license in July 2005. Currently, DSF (Django Software Foundation) maintains its development and release cycle.

Django was released on 21, July 2005.

### **4.3 Popularity**

Django is widely accepted and used by various well-known sites such as:

- Instagram
- Mozilla
- Disqus
- Pinterest
- Bitbucket
- The Washington Times



## **4.4 Features of Django**

- Rapid Development
- Secure
- Scalable
- Fully loaded
- Versatile
- Open Source
- Vast and Supported Community

# Appendix



To,

**Mr. KACHHADIYA GAUTAMKUMAR DINESHBHAI**

DATE  
30 / 06 / 2023

Following our recent discussions, we are delighted to offer you the position of Python Developer Intern with Our Organization. If you join Our Organization, you will become part of a fast-paced and dedicated team that works together to provide our clients with the highest possible level of service and quality.

As a member of Our Organization team, we provide Training on python Development In addition, we expect your personal accountability in all the products, actions, advice and results that you provide as a representative of Our organization. In return, we are committed to providing you with every opportunity to learn grow and stretch to the highest level of your ability and potential.

We are confident you will find this new opportunity both challenging and rewarding. The following points outline the terms and conditions we are proposing.

- ❖ **DESIGNATION:** Python Developer Intern
- ❖ **DURATION:** 15 Days(26 JULY 2023 to 10 August 2023 )
- ❖ **EMPLOYMENT TYPE:** Full time
- ❖ **LOCATION:** Nikol, Ahmedabad, Gujarat

On the day of your joining, you are required to submit the following documents copy:

- ❖ Collage ID Card.
- ❖ Residence ID Proof.
- ❖ Passport size photographs.
- ❖ Ref ID (Parental Preferable.) Pan Card.
- ❖ Educational Certificates-Last Passing year &Mark sheet.

We look forward to the opportunity to work with you in an atmosphere that is successful and mutually challenging and rewarding.

Regards,

**Nexalus Soft**

With the signature below, I accept this offer for employment.

Signature: - \_\_\_\_\_ Date: - \_\_\_\_\_

  
**Head Of Department**

---

(☎) +91 93 27 42 96 53 (📍) 203 - Kashi pride, S.P. Ring Road- Nikol - 382350  
(✉) info@nexalussoft.com (🌐) https://www.nexalussoft.com

# **INTERNSHIP AT BINARY REPUBLIK**

**AN INTERNSHIP REPORT**

*Submitted by*

**Jain Kajal Manojkumar**

**190390107012**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at BINARY REPUBLIK** has been carried out by **KAJAL MANOJKUMAR JAIN** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Mechanical Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Upashana Goswami

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



Date: 05.05.2023

## Internship Completion Certificate

This is to certify that **Ms. Kajal Jain** (Enrollment No: 1902901070121) a student of BE, CE, Saffrony Institute of Technology, Mehsana has completed her onsite full-time internship at **Binary Republik**, South Dopal, Ahmedabad from 23<sup>rd</sup> January 2023 to 5<sup>th</sup> May 2023.

Please find the following detail regarding the project completed:

1	Project Title	Time Reporting System (TRS)
2	Technology/Tools/Software	FrontEnd : Angular BackEnd : Dot Net Core Web API DataBase : SQL Server
3	Mode of Internship	Onsite
4	Project Guide/Mentor	Mr. Jay Parkhaniya Sr. Software Developer jay.parkhaniya@binaryrepublik.com

During her internship with us we found her to be hard working, diligent and honest in performing her duties.

We wish her all the best for her future assignments.

With best wishes.

**Piyush Patel**  
Project Manager  
Binary Republik



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Binary Republik** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Chirag Parmar (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Full name of Student**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

I wish to express my sincere gratitude to our External guide Chirag Parmar for continuously guiding me at the company and answering all my doubts with patience. I would also like to thank my internal Guide Prof. Upashana Goswami for helping me through my internship by giving me the necessary suggestions and advice along with their valuable coordination in completing this internship.

In addition to that, I would also like to mention the company personnel who gave me the permission to use and experience the valuable resources required for the internship.

Thus, in conclusion to the above said, I once again thank the staff members of Binary Republik for their valuable support in completion of the project.

## Abstract

The Time Reporting System, also known as TRS, is a computer program designed to help people manage their timesheets and contracts. It is an internal application that is only available to authorized users.

When a user logs into TRS, they will be able to access different modules based on the role assigned to them. For example, a consultant will have access to a module that allows them to upload their timesheets.

To upload a timesheet, the consultant will need to provide relevant information, such as the date and number of hours worked. Once the timesheet has been uploaded, it will be sent to the payroll or office administrator for verification and approval.

The payroll or office administrator will be able to see all of the uploaded timesheets and can approve them once they have been verified. They can also reject timesheets if there are any errors or discrepancies.

TRS makes it easy for consultants to keep track of their timesheets and for payroll or office administrators to manage them. It's a useful tool for any organization that needs to keep track of employee hours and contracts.

TRS is secure and only authorized users can access it. This helps to ensure that all of the information stored in the system is kept confidential.

Overall, TRS is a valuable tool that can help organizations manage their time reporting in an efficient and effective way.



## **Abbreviations**

HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
JS	Java Script
AJAX	Asynchronous java-script and XML
JSON	JavaScript Object Notation
Bootstrap	
JQuery	
C#	

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# **Chapter 1. Company's Background**

## **1.1 Overview of Company:**

Binary Republik is a SharePoint consulting company helping Clients Globally for their SharePoint and Office 365 requirements.

We have been working in close collaboration with our clients and IT consultancy firms for their content management requirements, however large or small. Beginning with the very first version of Microsoft SharePoint, we have so far covered the entire spectrum of services possible around its ecosystem; and have gradually built our services around various Content Management systems built on the Microsoft platform, such as – Site Core, DNN, Umbraco and Sitefinity.

Our services include Strategic Consulting, global implementations, farm configurations, Health Checks, Social Collaboration, UX & Branding, SharePoint development & customization, SharePoint Workflow implementations, SharePoint BI, Public Facing Sites, Intranet/ Extranet Portals, Enterprise Search, 3rd Party product Integration, SharePoint upgrades, Migration to SharePoint (earlier versions/ legacy application), SharePoint Maintenance & Support.

Binary Republik begun its operations as a SharePoint consulting company when SharePoint was still in its nascent stage. We have seen this platform emerge to the position it enjoys today and have flourished alongside. With our years of experience and having covered the ground for services possible around SharePoint and having developed unique methodologies along its services we are best suited in bringing the best out of your investments in SharePoint.

## **1.2 History of Company:**

Binary Republik has been into business for 10+ years. We specialize in Enterprise Content Management – Intranets / Extranets, BI, Business Process Management and Mobility solutions using SharePoint, Office 365 Solutions and other Microsoft Solutions in the Eco system.

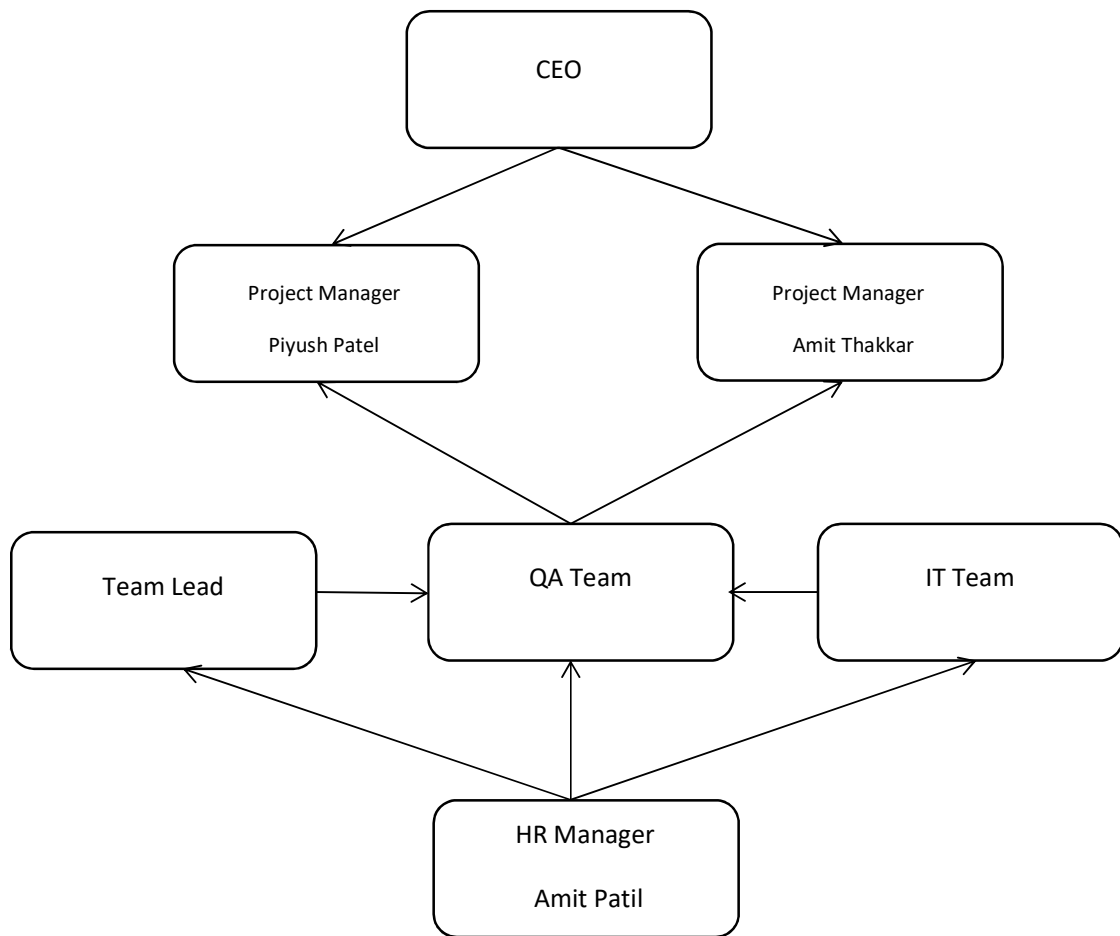
Majority of our clients are based out of North America and includes large Fortune 500 Enterprises (including Microsoft!). We help them with their solutions - beginning with Strategic or Architecture Phase, right till the UAT and Roll Out!

### 1.3 Different product / scope of work:

Our Company provide different services on SharePoint Consulting and Power BI Consulting Services.

Our services include Strategic Consulting, global implementations, farm configurations, Health Checks, Social Collaboration, UX & Branding, SharePoint development & customization, SharePoint Workflow implementations, SharePoint BI, Public Facing Sites, Intranet/ Extranet Portals, Enterprise Search, 3rd Party product Integration, SharePoint upgrades, Migration to SharePoint (earlier versions/ legacy application), SharePoint Maintenance & Support.

### 1.4 Organization chart:



## **1.5 Capacity of plant:**

Binary Republik has a strong leadership team that provides strategic direction, fosters innovation, and promotes a culture of excellence. Its management practices are designed to promote transparency, collaboration, and employee empowerment, which help to build a cohesive and high-performing team.

The capacity of the Binary Republik has around 50-60 employees.

## **Chapter 2. Overview of Different Plants**

Our Company believes in full technical growth of employees. Therefore, we have only one department as a development. Our all employees are full stack developers.

### **2.1 Workflow of Department**

As our company has only one department every developer has every skill so in our company, so teams are made based on projects. So, the basic workflow is according to the project team is made and in that team everyone is working on given task. In our team, the way we work is like, the client lists his requirements of the project by creating a task for us so that we can start working on the new task, complete the task, test it internally. We then give the updated code to the client and then client tests that task and gives feedback of that task.

### **2.2 List of Technical Specification of tools:**

- Visual Studio Code
- Git Hub
- Microsoft 365
- SQL Server
- Visual Studio
- Postman
- SharePoint online

## **2.3 Sequence of operation For Manufacturing**

1. Client Requirement
2. List of Proper information of Proper Requirement
3. Analyse Requirement
4. Prepare plans to implement
5. Implementation
6. Code Review
7. Testing
8. Delivering meaningful content

## **2.4 Details About Each Stage of Production**

### **1. Client Requirement:**

Client gives their requirement as a story. They give information about what they want. Then the story is divided into smaller modules and the modules if needed are divided into tasks.

### **2. List the Proper Information of Requirements:**

When the client adds a new story, we discuss it at length regarding their needs related to UI as well as backend. We then have a discussion with our team and in case of any queries, we can ask the client.

### **3. Analyze requirements:**

We internally discuss about the story of use cases and analyse the requirements and discuss about the story.



#### **4. Prepare plans to implement:**

The non-technical things related to the story have already been discussed so now we discuss the technical things about the functionalities needed, whether the same type of functionality exists somewhere else so we can reuse it, the flow of the code etc.

#### **5. Implementation:**

We are given the story according to its priority, and project manager assign tasks to the team members according to the skill set. Team member should work on the task, in case of any doubts the team member can always ask the project manager.

#### **6. Code Review:**

After completing the implementation, we upload the code and someone else from our team will review the code and comment if something is wrong or it can be implemented in an efficient manner, so we have to complete that code review changes in the story.

#### **7. Testing:**

After our code review is done they test and evaluate the updated code and makes sure that in any of the test cases our code doesn't break or hinder the performance.

#### **8. Delivering meaningful content:**

After successfully completing the given story, we are update that story on client-side site so that client can see that story functionality and he checks working of the given story and approve the story if it is working fine.

## Chapter 3. Introduction to Internship

### 3.1 Internship Summary

I was an intern at Binary Republik now, this opportunity was presented by the placement cell of our college. We can differentiate our internship in 2 phases learning phase and working phase, which include working on live project. In learning phase, we learnt different technologies, which is used in the company, and after this phase, we assigned to the live project.

First two months was a common training Like C#, Bootstrap, HTML, CSS, OOPS, JavaScript, jQuery, AJAX, JSON . Each day i have a session on different topics on these technologies and I have performed different task based on these sessions and topics.

### 3.2 Purpose

The purpose of this internship was to get an idea about the ins and outs of the real world working. The focus was definitely on enhancing my technical skills, but it was not just about. It was about communicating in an corporate environment, presentation of ideas etc. as well as coding.

### 3.3 Objective

Objective of internship is to gain details how company works, culture of the company. How company build project, and how they manage the projects.

### 3.4 Technology and Literature Review

- 1 Front End:** HTML, CSS, Bootstrap, JavaScript, C#, Bootstrap, AJAX, JSON, jQuery
- 2 Back End:** Node js, .Net
- 3 Tool:** VS Code

**HTML:** - HTML, in a full hypertext markup language, a formatting system material retrieved over the Internet. Each retrieval unit is known as a Web page (from World Wide Web), and such pages frequently contain hypertext links that allow related pages to be retrieved.

**CSS:** - Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as SVG, MathML or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media.

**Bootstrap:** - Bootstrap is a potent front-end framework used to create modern websites and web apps.

It's open-source and free to use, yet features numerous HTML and CSS templates for UI interface elements such as buttons and forms. Bootstrap also supports JavaScript extensions.

**.NET:** - .NET is a free, open-source, cross-platform framework developed by Microsoft that allows developers to build applications for Windows, web, and mobile platforms. It provides a robust and secure environment for developing, deploying, and managing applications, and supports multiple programming languages, including C# and Visual Basic.

### 3.5 Internship Planning (Overview)

Internship was divided into different segments as per the above plan to clear the basics and understanding of the Technology and Tools.

1. OOPs concept
2. HTML/CSS
3. Bootstrap
4. Logical Programming on C#
5. JavaScript
6. JQuery
7. Ajax
8. JSON

This all Concepts clear in Week 1 to Week 12 ....

Sr. No.	Title	Starting Date	Ending Date	Hrs.
1	Week-1	23-01-2023	29-01-2023	40
2	Week-2	30-01-2023	05-02-2023	40
3	Week-3	06-02-2023	12-02-2023	40
4	Week-4	13-02-2023	19-02-2023	40
5	Week-5	20-02-2023	26-02-2023	40
6	Week-6	27-02-2023	05-03-2023	40
7	Week-7	06-03-2023	12-03-2023	40
8	Week-8	13-03-2023	19-03-2023	40
9	Week-9	20-03-2023	26-03-2023	40
10	Week-10	27-03-2023	02-04-2023	40
11	Week-11	03-04-2023	09-04-2023	40
12	Week-12	10-04-2023	16-04-2023	40

### 3.6Tasks:

Based on C#

TASK 1. Create a class called "Bank Account" with properties for the account holder's name and balance. Include methods for "Deposit()" and "Withdraw()".

TASK 2. Create a class called "Calculator" with methods for addition, subtraction and multiplication.

TASK 3. Create a class called "Person" with properties for name, age, and address. Include a method called "Introduce ()" that returns a string introducing the person.

Introduce() => Hi, my name is {Name} and I am {Age} years old. I live at {Address}.

TASK 4. Create a class called "Employee" that inherits from the "Person" class and includes an additional property for the employee's job title. Override the "Introduce()" method to include job title.

Introduce() => Hi, my name is {Name} and I am {Age} years old. I am a {JobTitle} and I live at {Address}.

Based on Javascript , jQuery , HTML , CSS , Bootstrap

#### 1) Employee Directory

Employee Information: Each employee record could include basic information such as name, job title, department, phone number, email, and photo.



Search and Filter: A search bar could be included to allow users to quickly find an employee by name or department. Additionally, filters could be added to allow users to sort employees by job title, department, or location.

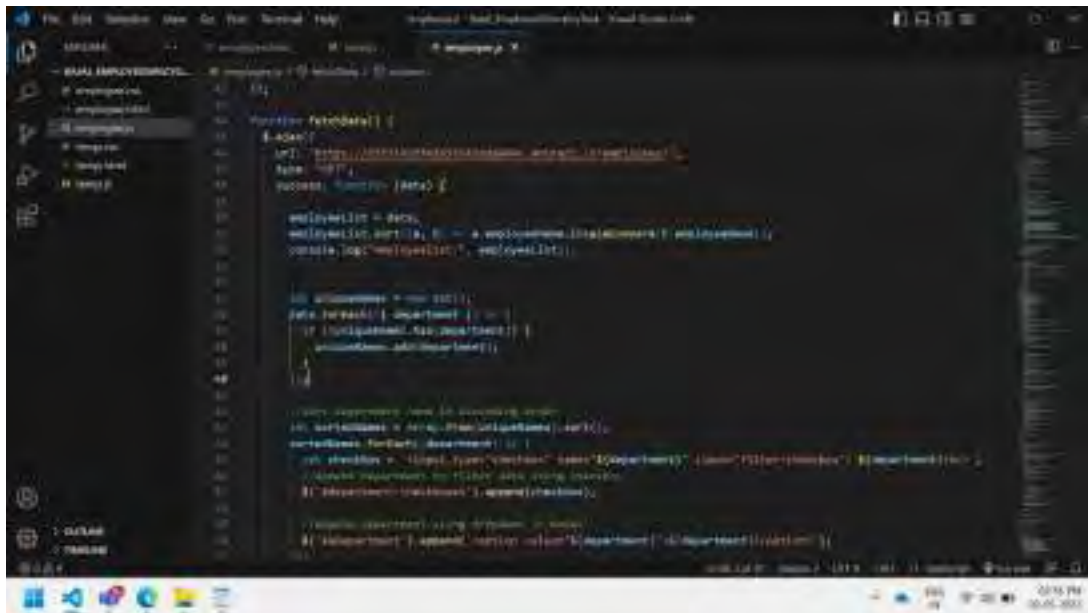
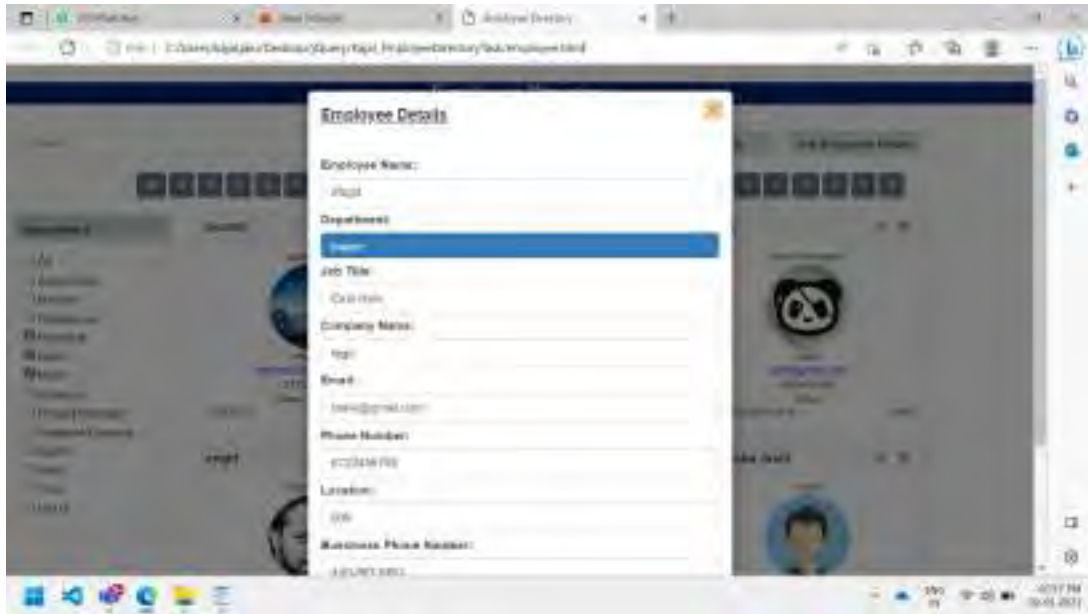


Pagination: To improve performance, the employee directory could be paginated to display a limited number of employees per page. Users could navigate between pages using pagination links or arrows.



Responsive Design: The employee directory could be designed to be responsive, so that it looks and works well on a variety of devices, including desktops, laptops, tablets, and smartphones.

Edit and Delete: To allow administrators to manage the employee directory, edit and delete functionality could be included to enable changes to employee information.



```
1 <table border="1">
2   <thead>
3     <tr>
4       <th>Name</th>
5       <th>Position</th>
6       <th>Salary</th>
7     </tr>
8   </thead>
9   <tbody>
10    <tr>
11      <td>John</td>
12      <td>Software Engineer</td>
13      <td>100000</td>
14    </tr>
15    <tr>
16      <td>Jane</td>
17      <td>Product Manager</td>
18      <td>120000</td>
19    </tr>
20    <tr>
21      <td>Mike</td>
22      <td>Data Analyst</td>
23      <td>80000</td>
24    </tr>
25    <tr>
26      <td>Sarah</td>
27      <td>Marketing Specialist</td>
28      <td>70000</td>
29    </tr>
30    <tr>
31      <td>David</td>
32      <td>Operations</td>
33      <td>60000</td>
34    </tr>
35  </tbody>
36 </table>
37
38 <input type="text" value="Search by name or position" />
39
40 <div class="list">
41   <ul>
42     <li>John - Software Engineer - $100,000</li>
43     <li>Jane - Product Manager - $120,000</li>
44     <li>Mike - Data Analyst - $80,000</li>
45     <li>Sarah - Marketing Specialist - $70,000</li>
46     <li>David - Operations - $60,000</li>
47   </ul>
48 </div>
```

## Chapter 4. Project Details

### Project Title: Time Reporting System

This project includes multiple modules but I have worked on 3 module name is TRS **Time Reporting System.**

#### 4.1 Project Definition

A Time Reporting System is an internal application designed to help people, manage their timesheets. Manager will be able to see all of the uploaded timesheets and can approve or reject it. Users will be able to access to their modules based on the role assigned to them.

#### 4.2 Project Abstract

Time Reporting System (TRS) is an internal application created for managing user's timesheets and Contracts. Users can access their modules based on the roles assigned to them. Consultants can upload their timesheets with relevant information, and Payroll /office admin can verify and approve respective Timesheets.

Front-End: Angular  
Back-End: Dot Net core Web API  
Database: SQL Server

#### 4.3 Project Overview

Below are the roles, which have access to the Contract Management System.

- Internal Employee
- External Employee
- Manager
- Super User

**Internal Employee:** Internal Employee can change password, change email, able to see current year list of holidays, payroll schedule, navigates to the monthly timesheet page, download/edit/update/delete timesheet attachments, add comment/message in timesheet view of the selected month, which shall be displayed to its manager in specified month.



**External Employee:** External Employee also do same thing as internal can. But one small change is whatever comment will add, they shall be displayed to its super user in specified month.

**Manager:** Manager shall be able to search active/inactive internal employee only which are work under him/her, verify and approve timesheet of only internal employee, can unlock the timesheets of internal employee, send remainder via email if forgot to fill timesheet, add comment.

If manager wants to add timesheet then he must need to create a separate account as an internal employee, edit/delete/update/download uploaded attachments.

**Super User:** Super user shall be able to search active/inactive internal employee, filter data based on employee type, verify and approve timesheet, unlock timesheet, send remainder if forgot to fill timesheet, add comment / message to only internal/external employee.

Upload/delete/update/add/download timesheet attachment.

If super user wants to add timesheet then he must need to create a separate account as an external employee.

## 4.4 Key Features

User access control

Timesheet management

Time tracking

Accessibility

User-friendly interface

Integration

## Chapter 5. Working Prototype

### 5.1 Implementation

Below are the roles which have access to the Time Reporting System.

- Internal Employee
- External Employee
- Manager
- Super User TRS

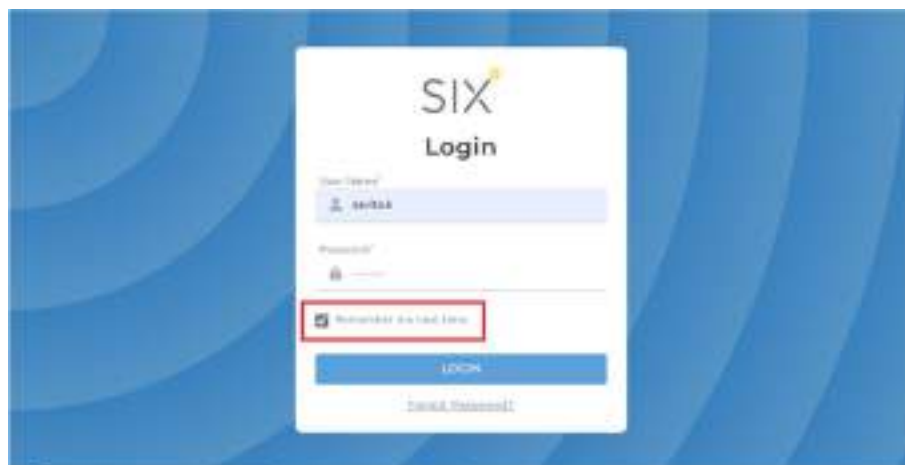
#### ◆ Login Screen for the Internal Employee/External Employee/Manager/Super User TRS

URL: <https://newtrs.sixconsultingcorp.com>



#### ◆ Remember me Next Time

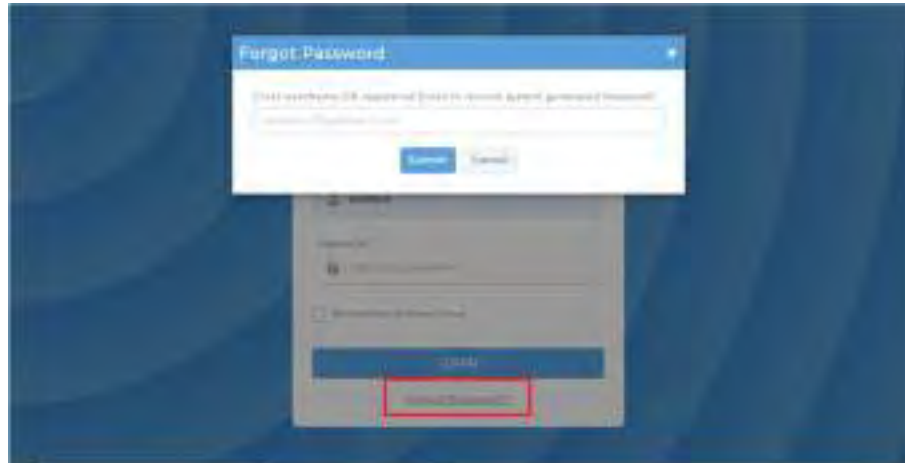
**Internal Employee/External Employee/Manager/Super User TRS** Saves their user session using this functionality.



◆ **Forgot Password**

**Internal Employee/External Employee/Manager/Super User TRS** User can get a new System generated Password; User can change it once they logged in using system generated password.

Only For the 1st time login of every User, after login 1st page shall be a Change password. User shall have to change their password (which will be provided by the system).



◆ **Change Password**

**Internal Employee/External Employee/Manager/Super User TRS** User shall be able to **Change Password** using the menu besides the **logout** button.





◆ **Change Email**

**Internal Employee/External Employee/Manager/Super User TRS User** shall be able to **Change Email** using the menu besides the **logout** button.

An **email** has been sent to **both Email id (Old Email/New Email)** of the **Registered User**.



◆ **Idle Screen**

System is automatically logout if users screen remains idle for 15 minutes and notified the user for the same.

◆ **Payroll Schedule & Holiday Calendar**

**Internal Employee/External Employee/Manager/Super User TRS User** shall be able to see current year List of Holidays as well as Payroll schedule.



## 5.2 Internal Employee

◆ **Monthly Timesheet**

After the Login, **Internal Employee** navigates to the **Monthly Timesheet** Page.

Additional hours code column shall be displayed on landing page if Contract Type is **Internal**.



◆ **Timesheet View**

Provided the Year, Month and, Contract Type Search filter to **Internal Employee**.



User shall be able to Key - In Hours as **Regular, Time-off** and **Holiday hours**.

Internal employee Key-in-hours for the specified month.

If **Internal employee** does not want to utilize **Time-off / Holiday**, then **Internal employee** must have to enter **Zero** as **Regular hours** in order to **Submit TS**.

**Additional hours code dropdown shall be displayed on Timesheet view if Contract Type is Internal.**



◆ **Timesheet View: - Color Code description**

- Brown: - <8 hours
- Green: - Approved hours
- Orange: - >8
- Blue: - =8



◆ **Timesheet View: - Upload/Update/Delete/Timesheet Attachments**

internal Employee shall be able to Add, Update, Delete the Uploaded attachments for the Timesheet if the **Contract Type** is **External**.

Internal Employee shall be not able to Add, Update, Delete the Uploaded attachments for the Timesheet if the **Contract Type** is **Internal**.



◆ **Timesheet View: - Download Timesheet Attachments**

Internal Employee shall be able Download Timesheet attachment by **clicking on specified attachment** or **Download all TS attachment** of the specified month by clicking on Download button besides the Available Timesheet column header if the **Contract Type** is External for Internal employee.



◆ **Timesheet View: - Add Comment**

Internal Employee shall be able to add **comment/message** in the **Timesheet view** of the **selected month** and it shall be displayed its **manager** in **specified month**.



## 5.3 External Employee

After the Login, **External Employee** navigates to the **Monthly Timesheet** Page.

Additional hours code column shall not be displayed on landing page if Contract Type is **External**.



### ◆ Timesheet View

Provided the Year, Month and, Contract Type Search filter to **External Employee**.



User shall be able to Key - In Hours as **Regular, Time-off** and **Holiday hours**.

External employee Key-in-hours for the specified month.

If **External employee** does not want to utilize **Time-off / Holiday**, then **External employee** must have to enter **Zero** as **Regular hours** in order to **Submit TS**.

**Additional hours code dropdown shall not be displayed on Timesheet view if Contract Type is External.**





◆ **Timesheet View: - Color Code description**

- Brown: - <8 hours
- Green: - Approved hours
- Orange: - >8
- Blue: - =8



◆ **Timesheet View: - Upload/Update/Delete Timesheet Attachments**

External Employee shall be able to Add, Update, Delete the Uploaded attachments for the Timesheet if the **Contract Type** is **External**.

External Employee shall be not able to Add, Update, Delete the Uploaded attachments for the Timesheet if the **Contract Type** is **Internal**.





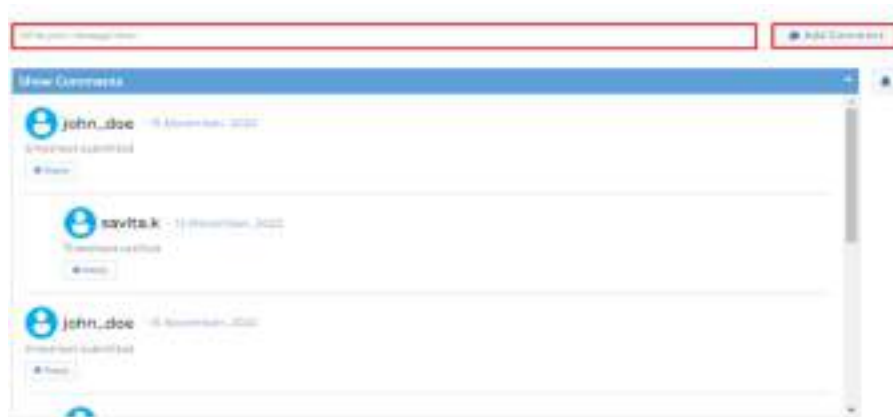
◆ **Timesheet View: - Download Timesheet Attachments**

**External Employee** shall be able **Download** Timesheet attachment by **clicking** on specified **attachment** or **Download all** TS attachment of the specified month by clicking on **Download** button besides the Available Timesheet column header if the **Contract Type** is **External** for **External employee**.



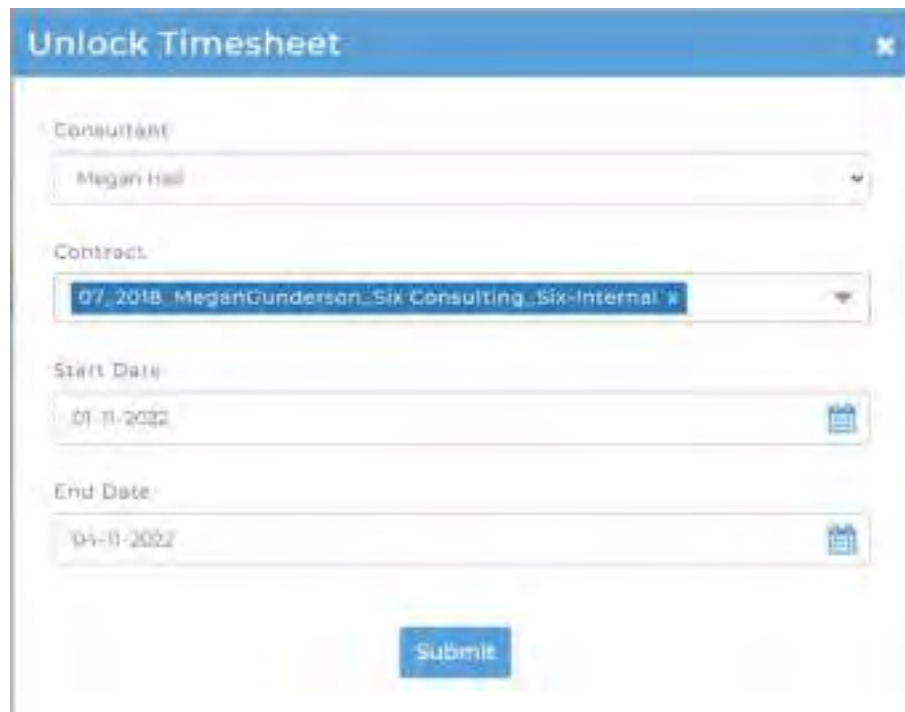
◆ **Timesheet View: - Add Comment**

**External Employee** shall be able to add **comment/message** in the **Timesheet view** of the **selected month** and it shall be displayed to its **Super User TRS** in **specified month**.





**Manager** shall be able to **unlock** the **Timesheets** of the **Internal employee** by Selecting **Unlock Timesheet Option** Under **Available Options**. An email has been sent to the Registered Email Id of the **Employee**.



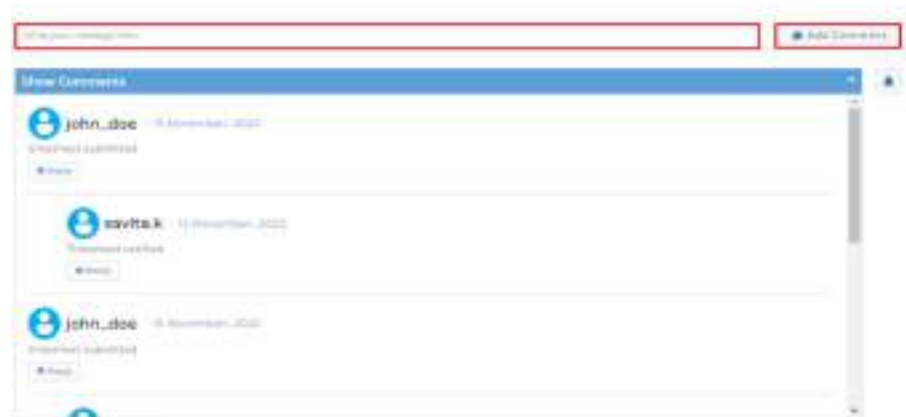
◆ **Send Reminder**

**Manager** shall be able to send **reminder** via **email** to selected **employee** by Selecting **Send Reminder Option** Under **Available Options**. if employee **messed** out to fill **timesheet**.



◆ **Timesheet View: - Add Comment**

**Manager** shall be able to add **comment/message** in the **Timesheet** view of the selected employee and that **comment** shall be **appeared** in the Timesheet view of the **selected employee** for that **specified month**.

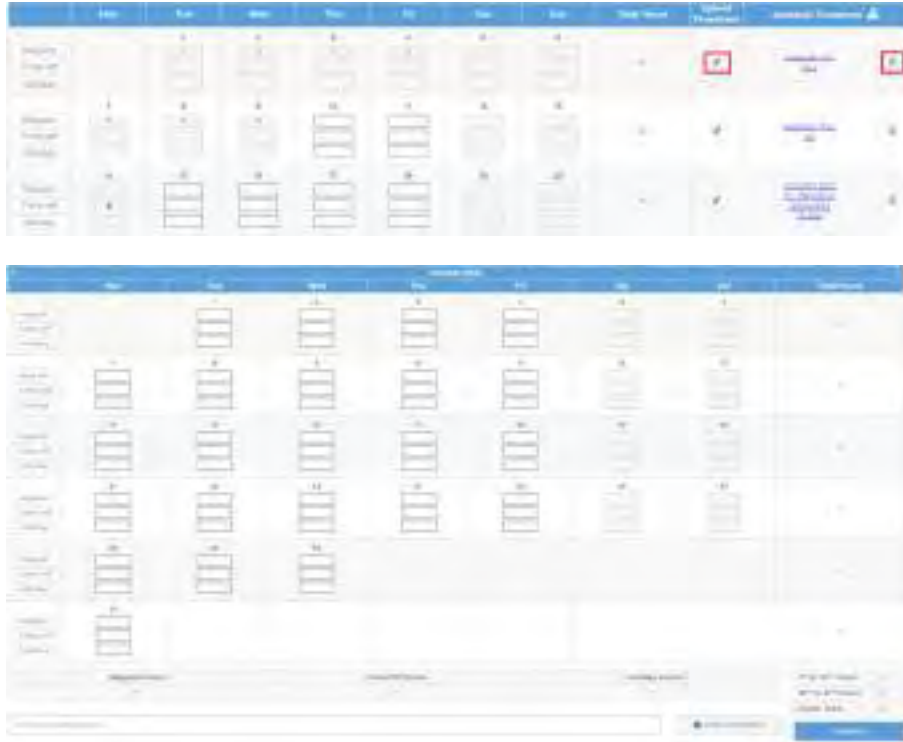


◆ **Add Timesheet**

If **Manager** wants to **Add TS**, then he must need to create a **separate account** as an **internal employee**. After that **Manager** shall be able to Key-in Hours.

◆ **Timesheet View: - Upload/Update/Delete Timesheet Attachments**

**Manager** shall be able to **Add, Update, Delete** the Uploaded attachments for the Timesheet if the Contract Type is **External** for **Internal employee**.



◆ **Timesheet View: - Download Timesheet Attachments**

**Manager** shall be able **Download** Timesheet attachment by **clicking** on specified **attachment** or **Download all** TS attachment of the specified month by clicking on Download button besides the Available Timesheet column header if the Contract Type is External for Internal employee.



◆ **Daily TS Report**

**Manager** shall be able to see **Daily TS Report** by Selecting **Daily Timesheet Reports** Option Under **Available Reports**.



**Manager** can filter the data of the employee Daily TS report by the dividing the specified months into two parts:

- 1st to 15th dates
- 16th to (28th/29th/30th/31th) dates

**Color code description:**

- Green: Time sheet Verified
- Yellow: Upload Timesheet Available & Verification is Pending
- Red: Either Timesheet Hours & Document missing

**Manager** shall be able to **export** the filtered data in **Daily TS Report**.



◆ **Monthly TS Report**

**Manager** shall be able to see **Monthly TS Report** by Selecting **Monthly Timesheet Reports** Option Under **Available Reports**.



**Manager** can filter the data of the **Internal Employee TS** report by following filters.

- Month and Year filter

- Consultant Name
- Contract Name
- Contract Type (Active / Inactive)
- Selected Additional hour codes

**Manager** shall be able to **export** the filtered data in **Monthly TS Report**.



#### ◆ Missing TS Report

**Manager** shall be able to see **Missing TS Report** by Selecting **Missing Timesheet Reports** Option Under **Available Reports**.



**Manager** can filter the data of the employee Missing TS report by the dividing the specified months into two parts:

- 1st to 15th dates
- 16th to (28th/29th/30th/31th) dates

#### **Color code description:**

- Yellow: Upload Timesheet Available & Verification is Pending
- Red: Either Timesheet Hours & Document missing

**Manager** shall be able to **export** the filtered data in Missing TS Report.

if employee key-in hours for **one day**, and submit **whole week** TS. Then in missing TS it showing **zero** with **white background** for the **whole week** as if even one day has been approved.

same scenario for the weeks.



- 1st to 15<sup>th</sup>
- 16th to 28th/29th/30th/31th



### 5.3 Super User

After the Login, Super User TRS navigates to the **Manage Timesheet** Page.

Super User TRS shall be able to Search with Consultant name.

Status Filter: Super User TRS shall be able to search Active/inactive Internal employees Timesheet with this filter.

Super User shall be able to filter Active/Inactive employees using this filter.

Super User TRS shall be able to filter data based on employee type.

- Internal Employee
- External/Consultant Employee
- All Employee



◆ **Approve Timesheet**

Super User TRS shall be able to **Verify** and **Approve Timesheet** of the only **Internal/external employee** by **check the checkboxes** in the **Verified** column for a week and Approve the TS.



◆ **Unlock Timesheet**

Super User TRS shall be able to unlock the Internal and External employee. An email has been sent to the Registered Email Id of the employee.



**Unlock Timesheet**

Consultant: Adrien Gilbert

Contract: 02\_2019\_Adrien\_Gilbert\_Benedsoft\_Wipro/Capital One

Start Date: 03-10-2022

End Date: 07-10-2022

**Submit**

◆ **Send Reminder**

SuperUserTRS shall be able to send reminder via email to selected internal/external employee if employee missed out to fill timesheet.

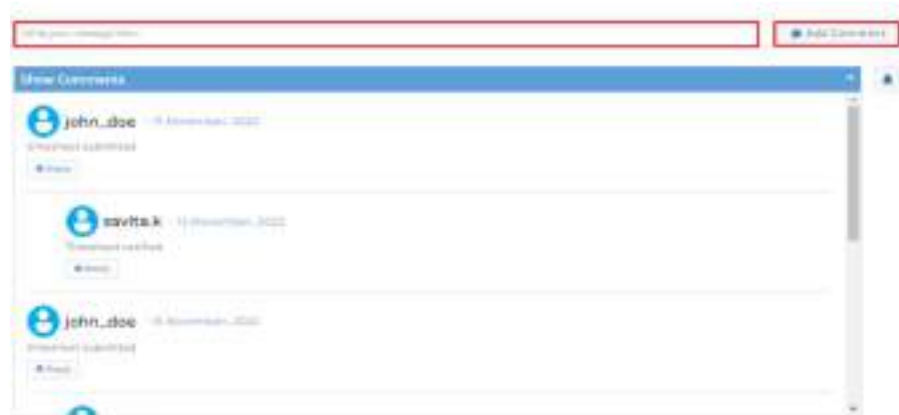
**SIX** | Welcome jantvis

**Manage Timesheet**

Send Reminder

◆ **Timesheet View: - Add Comment**

SuperUserTRS shall be able to add comment/message in the Timesheet view of the selected employee and that comment shall be appeared in the Timesheet view of the selected employee for that specified month.



◆ **Add Timesheet**

If **Super User TRS** wants to **Add TS**, then he must need to create a **separate account** as an **External employee**. After that **Super User TRS** shall be able to Key-in Hours.

◆ **Timesheet View: - Upload/Update/Delete Timesheet Attachments**

**SuperUserTRS** shall be able to **Add, Update, Delete** the Uploaded attachments for the Timesheet.

The screenshot shows a grid of timesheet data with columns for dates and employee names. A 'Download' button is highlighted in a red box in the top right corner of the grid.

◆ **Timesheet View: - Download Timesheet Attachments**

**SuperUserTRS** shall be able **Download** Timesheet attachment by clicking on **specified attachment** or **Download all** TS attachment of the specified month by clicking on **Download** button besides the Available Timesheet column header.

The screenshot shows a grid of timesheet data with columns for dates and employee names. A 'Download' button is highlighted in a red box in the top right corner of the grid.

◆ **Daily TS Report**

**Super User TRS** shall be able to see **Daily TS Report** by Selecting **Daily Timesheet Reports** Option Under **Available Reports**.



**Super User TRS** can filter the data of the employee Daily TS report by the dividing the specified months into two parts:

- 1st to 15th dates
- 16th to (28th/29th/30th/31th) dates

**Color code description:**

- Green: Time sheet Verified
- Yellow: Upload Timesheet Available & Verification is Pending
- Red: Either Timesheet Hours & Document missing

**Super User TRS** shall be able to **export** the filtered data in **Daily TS Report**.



#### ◆ Monthly TS Report

**Super User TRS** shall be able to see **Monthly TS Report** by Selecting **Monthly Timesheet Reports** Option Under **Available Reports**.



**Super User TRS** can filter the data of the **Internal/External Employee TS** report by following filters.

- Month and Year filter
- Consultant Name
- Contract Name
- Contract Type (Active / Inactive)
- Selected Additional hour codes



**Super User TRS** shall be able to **export** the filtered data in **Monthly TS Report**.

◆ **Missing TS Report**

**Super User TRS** shall be able to see **Missing TS Report** by Selecting **Missing Timesheet Reports** Option Under **Available Reports**.



**Super User TRS** can filter the data of the employee Missing TS report by the dividing the specified months into two parts:

- 1st to 15th dates
- 16th to (28th/29th/30th/31th) dates

**Color code description:**

- Yellow: Upload Timesheet Available & Verification is Pending
- Red: Either Timesheet Hours & Document missing





## Chapter 5. System Testing

Once a functionality is made it is very important to test it well because it might create the correct result in a particular scenario but might display wrong results in some other scenarios or even worse it might break or cause the whole project to stop working.

So, in this we test in two manners:

1. Unit Test
2. Integration Test

### UNIT TESTING

After a thorough code review is done, where we check whether the code has been written efficiently and in a correct manner that does not use a lot of time as well as memory, we move to unit testing which is the first part of testing. An appropriate environment is setup for its testing:

- The procedures belonging to other modules that the module under test calls.
- Nonlocal data structures that module accesses
- A procedure to call the functions of the module under test with appropriate parameters.
- We conducted unit testing while working on the units. Listed Unit tests while we are working on particular-section of the system.
- Test API call for null values in parameters to check API's working fine in those cases.
- On client-side State Management is also should handle the updates.
- Changes in report gives right output.
- Queries written in optimal and efficient manner to give correct outputs.

### INTEGRATION TESTING

In unit testing only a single module is tested but in integration testing the whole project containing various different modules are tested simultaneously. Firstly, there is a sanity check whether it is working properly or not and then it get tested extensively with

various different test cases in order to check that, that part of the module doesn't break as well as it doesn't create a hinderance to any other part of the module as well.

## **Chapter 6. Conclusion**

### **6.1 Summary of Internship**

During the internship, worked as a Python Developer and gained practical experience in developing a TRS. The internship provided me with a comprehensive understanding of software development, backend and frontend technologies, database management, and version control systems like Git. I also had exposure to a wide range of programming languages such as C#, Java, HTML, and Angular.

The completion of more than 10 different tasks helped me to develop a comprehensive understanding of these languages and technologies. While developing the TRS, I faced some challenges such as integrating all functions and customizing it to blend with the software and tracking the duration required by the developer to complete the given task.

However, with the help of the mentor and senior colleagues, the individual was able to complete the software within the given time frame. Moreover, different types of functionalities were added by me to make the CMS more enhanced.

### **6.2 Date of Continuous Evaluation**

Our college institution set up a continuous evaluation procedure in two parts, the first on 15th March, 2023, and the second on 9th May, 2023, where we had to present our work and submit weekly reports to an internal mentor in order to monitor the performance of students during the 12-week internship.

## References

- [1] R. E. Ziemer and W. H. Tranter, Principles of Communications, 7th ed. Hoboken, NJ: Wiley, 2015. [Online]. Available: <https://ebookcentral.proquest.com/lib/vu/reader.cation?docID=5106516&ppg=1>
- [2] J. D. Bellamy et al., Computer Telephony Integration. New York: Wiley, 2010.
- [3] C. Jacks, High Rupturing Capacity (HRC) Fuses. New York: Penguin Random House, 2013, pp. 175–225.
- [4] N. B. Vargafik, J. A. Wiebelt, and J. F. Malloy, "Radiative transfer," in Convective Heat. Melbourne: Engineering Education Australia, 2011, ch. 9, pp. 379–398.
- [5] H. C. Hottel and R. Siegel, "Film condensation," in Handbook of Heat Transfer, 2nd ed. W. C. McAdams, Ed. New York: McGraw-Hill, 2011, ch. 9, pp. 78–99.
- [6] W. M. Rohsenow, "Heat transmission," in Thermal Radiation Properties, vol. 3, M. W. Catton and J. P. Hartnett, Eds. New York: Macmillan, 2012, ch. 9, pp. 37–62.
- [7] H. Schmidt-Walter and R. Kories, Electrical Engineering. A Pocket Reference. Boston: Artech House, 2007. Accessed: Oct. 16, 2016. [Online]. Available: <http://ebruary.com>
- [8] H. H. Gaynor, Leading and Managing Engineering and Technology, Book 2: Developing Managers and Leaders. IEEE-USA, 2011. Accessed: Oct. 15, 2016. [Online]. Available: <http://www.ieeeusa.org/communications/ebooks/files/sep14/n2n802/Leading-and-Managing-Engineering-and-Technology-Book-2.pdf>

## **Appendix**

Scanned copies of your NOC Letter  
Scanned Copies of Weekly report Annexure-I  
Scanned copy of Annexure-II  
Other scanned supporting documents etc.

# **INTERNSHIP AT RJ INFOSOFT**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Sahil Arvindbhai Kakadiya**

**200390107044**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

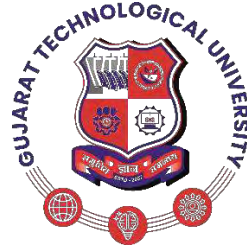


**Gujarat Technological University, Ahmedabad**

**August, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at RJ INFOSOFT** has been carried out by **SAHIL ARVINDBHAI KAKADIYA** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



## RJ INFOSOFT

207, Ambika Pinnacle, Lajamni chowk, Mota Varachha, Surat 394101

[contact@rjinfosoft.in](mailto:contact@rjinfosoft.in)

<http://www.rjinfosoft.in>

DATE: 15 AUGUST 2023

### CERTIFICATE OF INTERNSHIP

This is to certify that **MR. SAHIL ARVINDBHAI KAKADIYA** student of Saffrony institute of technology has successfully completed his internship at RJ INFOSOFT from 15<sup>th</sup> July 2023 to 15<sup>th</sup> August 2023.

During his tenure he has work on our Flutter development projects and has demonstrated great learning and working capabilities. His performance was consistently improving and he was highly motivated to keep learning new skills.

He was hard working and his performance was commendable, we RJ INFOSOFT wish him good luck for his future.

A handwritten signature in black ink, appearing to read 'Hardik Malaviya'.

**HARDIK MALAVIYA**

Founder & CEO

FOR, RJ INFOSOFT  
PROPRIETOR

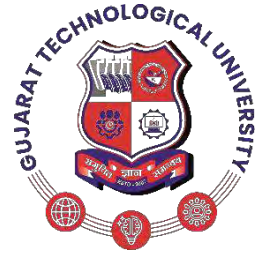
207, Ambika Pinnacle, Lajamni chowk, Mota Varachha, Surat 394101

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**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at RJ INFOSOFT** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. FirstName LastName & FirstName LastName (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**1.Sahil Arvindbhai Kakadiya**

\_\_\_\_\_

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## **ACKNOWLEDGMENT**

I would like to sincerely acknowledge Mr. Hardik Malviya for his exceptional guidance and teaching in the realm of Flutter development. His profound knowledge and patient mentorship have been instrumental in shaping my skills and understanding of this dynamic technology.

I am truly grateful for the invaluable lessons I've learned from him during our interactions. His dedication to sharing his expertise has empowered me to explore the world of Flutter with confidence and enthusiasm. Mr. Malviya's commitment to my growth as a developer has made a significant impact on my journey.

Furthermore, I extend my gratitude to RJ Infosoft, the company founded by Mr. Malviya, for fostering an environment where learning and innovation thrive. The resources and opportunities provided by RJ Infosoft have been pivotal in enhancing my learning experience and allowing me to apply my newfound knowledge.

I am honored to have had the privilege of being mentored by Mr. Hardik Malviya and to be associated with RJ Infosoft. Their contributions have undoubtedly enriched my journey into the world of Flutter development.

Thank you, Mr. Hardik Malviya, RJ Infosoft, and all those who have supported me on this rewarding journey of exploration and development.

## **Abstract**

During my internship at RJ Infosoft, I gained valuable experience and knowledge in the field of Application Development. Throughout this internship, my primary focus was on learning Dart language and Flutter Learning, a widely-used for UI/UX.

I was exposed to real-world projects and tasks that allowed me to understand the practical application of Flutter. I learned how to create dynamic and interactive web applications. Additionally, I had the opportunity to collaborate with experienced developers who provided guidance and insights into best practices within the industry.

Through hands-on experience and mentorship, I enhanced my coding skills, problem-solving abilities, and understanding of Application development workflows. This internship not only introduced me to the world of Flutter but also provided me large opportunity in Flutter. I am grateful for the knowledge and experience gained during my time at RJ Infosoft, which has prepared me for future challenges in the dynamic field of Application development.

The highlight of my internship was definitely the chance to work on a project that showcased my new skills. I led the way in building an advanced calculator and flashlight app, using the flexibility of Flutter. With the help of experienced mentors, we worked through the project step by step, which helped me better understand how apps are developed and improved.

## **COMPANY PROFILE**

RJ Infosoft is a privately owned venture of IT Solutions and IT Consultants formed in 2014.

RJ Infosoft is a worldwide product development and services company with a curious and passionate team of software engineers, usability experts, and business analysts. We are a fun, talented, team who loves working together and we have a passion for building remarkable software that people love.

Company work on following type project:

- UI/UX Design
- Web Development
- Mobile App Development
- Cloud Services

### **MISSION AND VISION OF THE COMPANY:**

Make Productive App for People to make easy life.

Provide the services – from new startups to Big Companies.

## **Intro Of Company**

### **Basic Information About Internship & Company:-**

Today marked the commencement of my four-week offline internship under the mentorship of Mr. Hardik Malaviya. As our guide and tutor, Mr. Malaviya introduced us to the company and outlined the working hours for the internship. In a detailed discussion that followed, we explored various facets of computer engineering and delved into the reasons behind the company's strong focus on a career in App Development.

This conversation provided me with valuable insights and a broader perspective on the world of Flutter Development. In the days ahead, Mr. Malaviya will be imparting his knowledge of Flutter and Dart Language for App Development. While the first day primarily revolved around acquainting us with his company and team, we also delved into a discussion about the scope of Flutter Development and a comprehensive exploration of its pros and cons.

In conclusion, this inaugural day has set the tone for an enriching learning experience. With Mr. Malaviya as our guide, the stage is now set for a transformational journey into the realm of Flutter Development, where theory will meet practical application and ideas will materialize into functional and innovative apps. I eagerly look forward to the days of discovery and growth that await.

# Domain Overview

## What is Flutter & Flutter Architecture?

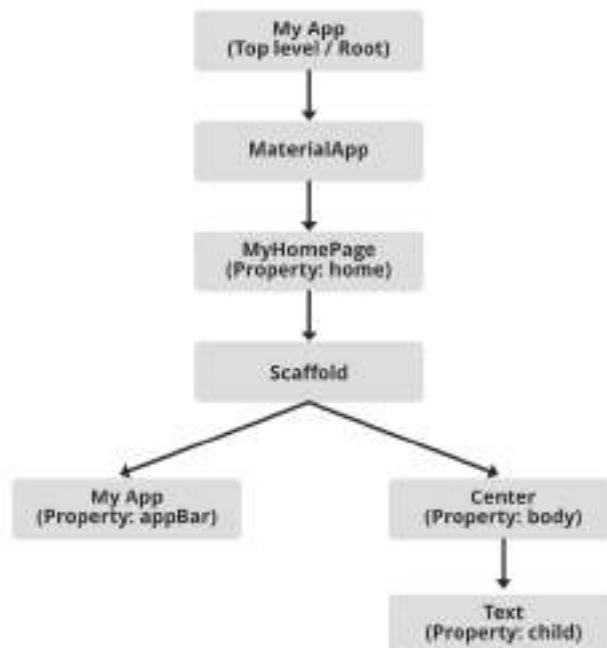
Flutter is an open-source UI software development kit (SDK) developed by Google. It is used to build natively compiled applications for mobile, web, and desktop from a single codebase. Flutter allows developers to create high-performance, visually appealing, and responsive applications that can run on multiple platforms with a consistent user experience.

A “Tool” that allows you to build native cross-platform(Android, ios, web , Desktop) applications one programming language and codebase.

Key features and aspects of Flutter include:

- Single Codebase for Multiple Platforms
- Expressive UI Framework
- Hot Reload
- Performance
- Widget-Based Architecture
- Open-Source and Strong Community

## Flutter Architecture:-



Flutter Architecture

## Installation of Flutter in Windows:-

Step-1 : Download Flutter SDK

Step-2 : Extract the Files

Step-3 : Update Path Variable for windows PowerShell

Step-4 : Confirm Installed Tools For Running Flutter

- Run Flutter Doctor

Step-5 : Download and Install Android Studio

Step-6 : Install and Download Flutter and Dart Extension.

Step-7 : Run Flutter Doctor

Step-8 : Run flutter doctor --android-licenses and input y in all licenses

Step-9 : Install Visual Studio

All Installation done with that setup and No issues found after flutter doctor.

```
C:\Users\S K>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, 3.10.6, on Microsoft Windows [Version 10.0.22621.2134], locale en-IN)
[✓] Windows Version (Installed version of Windows is version 10 or higher)
[✓] Android toolchain - develop for Android devices (Android SDK version 34.0.0)
[✓] Chrome - develop for the web
[✓] Visual Studio - develop for Windows (Visual Studio Community 2022 17.7.0)
[✓] Android Studio (version 2022.3)
[✓] VS Code (version 1.71.2)
[✓] Connected device (3 available)
[✓] Network resources

• No issues found!
```



## Create New Flutter Project:-

### 1.Using CMD Promte:-

Using Command promte give command flutter create <app\_name>

```
C:\Users\S K>flutter create my_app
Creating project my_app...
Resolving dependencies in my_app... (1.8s)
Got dependencies in my_app.
Wrote 129 files.

All done!
You can find general documentation for Flutter at: https://docs.flutter.dev/
Detailed API documentation is available at: https://api.flutter.dev/
If you prefer video documentation, consider: https://www.youtube.com/c/flutterdev

In order to run your application, type:

$ cd my_app
$ flutter run

Your application code is in my_app\lib\main.dart.
```

### 2.Using Android Studio:-

- Step-1 Open Android Studio
- Step-2 Click on New Flutter Project
- Step-3 Give name of Project
- Step-4 Click on Create button.



```
1  import 'package:flutter/material.dart';
2
3  void main() {
4    runApp(const MyApp());
5  }
6
7  class MyApp extends StatelessWidget {
8    const MyApp({super.key});
9
10   // This widget is the root of your application.
11   @override
12   Widget build(BuildContext context) {
13     return MaterialApp(
14       title: 'Flutter Demo',
15       theme: ThemeData(
16         // This is the theme of your application.
17         //
18         // TRY THIS: Try running your application with "flutter run". You'll see
19         // the application has a blue toolbar. Then, without quitting the app,
20         // try changing the seedColor in the colorScheme below to Colors.green
21         // and then invoke "hot reload" (save your changes or press the "hot
22         // reload" button in a Flutter-supported IDE, or press "r" if you used
23         // the command line to start the app).
24         //
25         // Notice that the counter didn't reset back to zero; the application
26         // state is not lost during the reload. To reset the state, use hot
27         // restart instead.
28         //
29         // For more information on this, see the documentation on
30         // https://flutter.dev/docs/testing/testing
31         //
32         // Otherwise, you should definitely keep the default light green
33         // color, because it's the most accessible foreground color on the
34         // platform.
35         //
36         // For debugging, changing this to a different color (say, purple)
37         // lets you identify the app's Flutter debug overlay. Don't forget
38         // to restart the app!
39         //
40         // For more information, see the documentation on
41         // https://flutter.dev/docs/testing/testing
42         //
43         // For accessibility information specifics, see the documentation on
44         // https://flutter.dev/docs/testing/accessibilityFlutter
45         colorScheme: ColorScheme.fromSeed(seedColor: Colors.deepPurple),
46       ),
47     );
48   }
49 }
```

## Intro about Generated Files and Folder:-

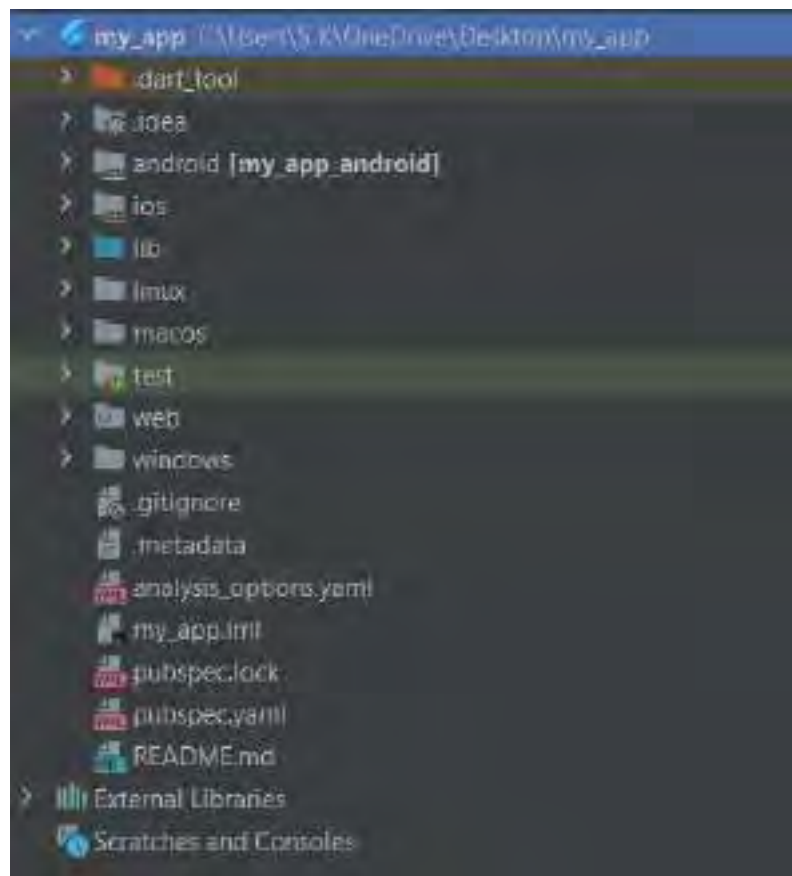
- 1).idea : Refers to your project concept or the app idea you're planning to develop using Flutter.
- 2)android : Flutter allows you to create Android applications using its framework.
- 3)ios : Similarly, you can create iOS applications using Flutter.
- 4)lib : In Flutter, the lib directory is where you place most of your Dart code files that make up your app's logic and user interface.
- 5)linux : Flutter enables you to create applications for Linux desktop platforms.
- 6)macos : You can create macOS applications using Flutter as well.
- 7)test : The test directory is where you write and organize your unit tests and integration tests to ensure your app functions correctly.
- 8)web : Flutter allows you to build web applications using the same codebase you use for mobile and desktop apps.
- 9).gitignore : This file contains a list of files and directories that should be ignored by Git version control, helping you manage which files should not be tracked.

10).metadata : This file might refer to metadata related to your Flutter project, but without more context, it's unclear how exactly it's being used here.

11)pubspec.lock : This file is generated by the Dart package manager (pub) and locks the versions of your project's dependencies. It ensures that your project uses the same versions of dependencies across different environments.

12) pubspec.yaml: This is a critical file in a Flutter project. It defines the metadata for your project and lists the dependencies your project relies on. You also define various settings and configurations related to your app in this file.

13) README.md: This is a Markdown file that typically contains important information about your project. It's often used to provide instructions, documentation, and explanations for other developers or users who come across your project.



### Flutter Folders and Files

## Default Program in Flutter:-

```
1  import 'package:flutter/material.dart';
2
3  void main() {
4    runApp(const MyApp());
5  }
6
7  class MyApp extends StatelessWidget {
8    const MyApp({super.key});
9
10   @override
11   Widget build(BuildContext context) {
12     return MaterialApp(
13       title: 'Flutter Demo',
14       theme: ThemeData(
15         colorScheme: ColorScheme.fromSeed(seedColor: Colors.deepPurple),
16         useMaterial3: true,
17       ), // ThemeData
18       home: const MyHomePage(title: 'Flutter Demo Home Page'),
19     ); // MaterialApp
20   }
21 }
22
23 class MyHomePage extends StatefulWidget {
24   const MyHomePage({super.key, required this.title});
25   final String title;
26
27   @override
28   State<MyHomePage> createState() => _MyHomePageState();
29 }
```

```

31 class _MyHomePageState extends State<MyHomePage> {
32   int _counter = 0;
33
34   void _incrementCounter() {
35     setState(() {
36       _counter++;
37     });
38   }
39
40   @override
41   Widget build(BuildContext context) {
42     return Scaffold(
43       appBar: AppBar(
44         backgroundColor: Theme.of(context).colorScheme.inversePrimary,
45         title: Text(widget.title),
46       ), // AppBar
47       body: Center(
48         child: Column(
49           mainAxisAlignment: MainAxisAlignment.center,
50           children: <Widget>[
51             const Text(
52               'You have pushed the button this many times!',
53             ), // Text
54             Text(
55               '$_counter',
56               style: Theme.of(context).textTheme.headline4,
57             ), // Text
58           ], // <Widget>[]
59         ), // Column
60       ), // Center
61       floatingActionButton: FloatingActionButton(
62         onPressed: _incrementCounter,
63         tooltip: 'Increment',
64         child: const Icon(Icons.add),
65       ), // This trailing comma makes auto-formatting nicer for build methods. // Flo
66     ); // Scaffold
67   }
68 }

```

# Android Virtual Device for Flutter Application

## What is Virtual Device/Emulator?

An Android Virtual Device (AVD) is a configuration that defines the characteristics of an Android phone, tablet, Wear OS, Android TV, or Automotive OS device that you want to simulate in the Android Emulator. The Android Emulator is a tool that lets you run Android apps on your computer without having to have an actual physical device.

The Android Emulator is a powerful tool that can be used for a variety of purposes in Android development, including:

- Testing your app on different devices and configurations
- Debugging your app
- Developing features that require specific hardware or software
- Creating screenshots and videos of your app
- Learning about the Android platform

To use the Android Emulator, you first need to create an AVD. You can do this by opening the Android Studio AVD Manager and selecting the "Create Virtual Device" button. You will then be prompted to choose the type of device you want to simulate, the Android version you want to use, and the amount of memory you want to allocate to the emulator.

Once you have created an AVD, you can start the emulator by selecting it in the AVD Manager and clicking the "Start" button. The emulator will boot up and load the Android OS. You can then install your app on the emulator and start testing it.

The Android Emulator is a valuable tool for Android developers. It can help you save time and money by allowing you to test your apps on a variety of devices without having to purchase them all. It can also help you find and fix bugs in your apps before they are released to users.

Here are some of the benefits of using a virtual device or emulator in Android development:

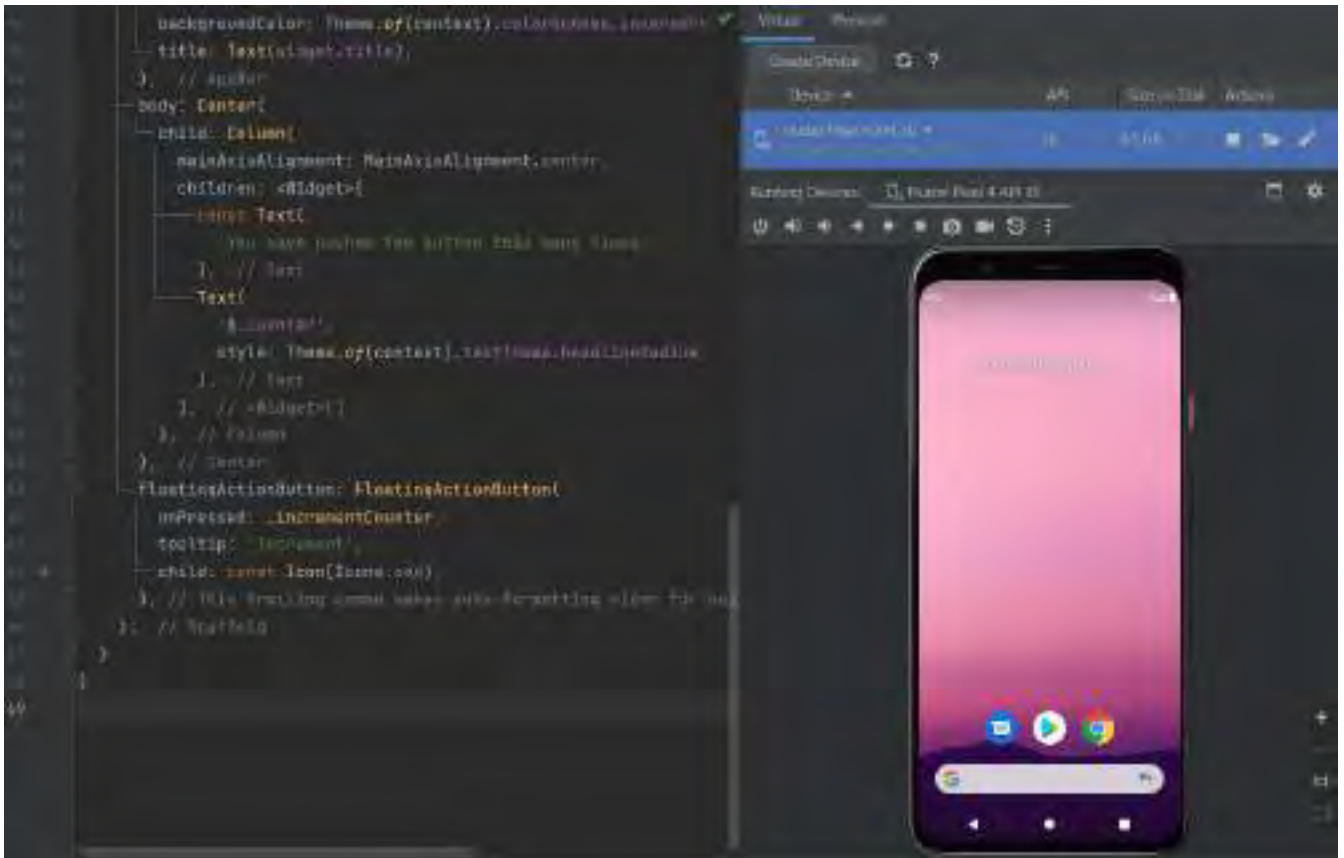
- Save time and money: You can test your app on a variety of devices without having to purchase them all.
- Find and fix bugs: The emulator can help you find and fix bugs in your app that may not be apparent on a physical device.
- Test your app on different configurations: You can test your app on different screen sizes, resolutions, and Android versions.
- Learn about the Android platform: The emulator can be used to learn about the different features and capabilities of the Android platform.

If you are developing Android apps, I highly recommend using the Android Emulator. It is a powerful tool that can help you save time, money, and headaches.

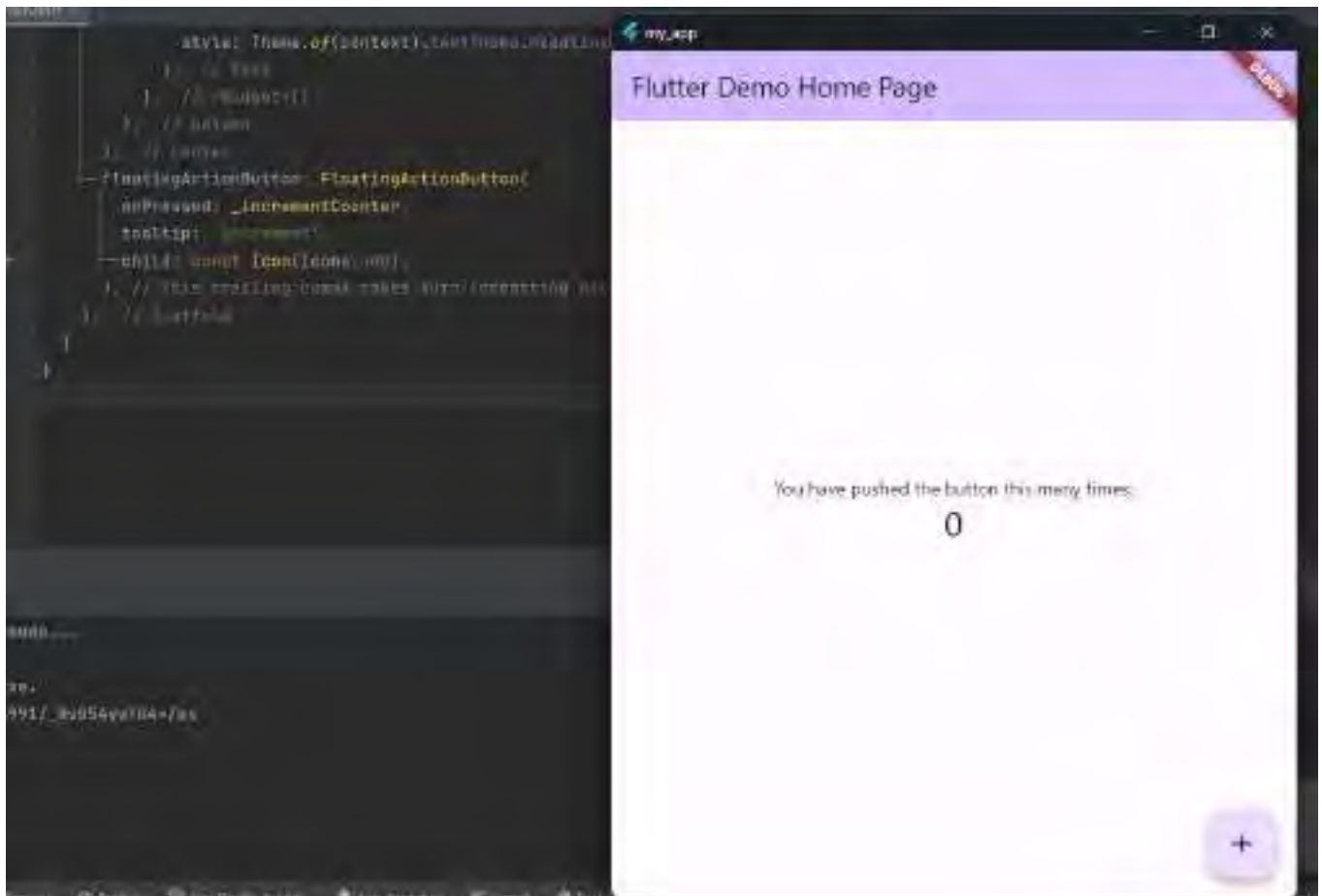
## Create an AVD for Flutter Application:-

### 1.Application on AVD:-

- Open Android Studio.
- Click on the Tools menu and select Android > AVD Manager.
- Click on the Create Virtual Device button.
- In the Select Device dialog, choose the Phone category and select a device model.
- In the System Image dialog, select the Android version you want to use.
- In the Android Virtual Device dialog, enter a name for your virtual device and click on the Finish button.



## 1. Emulator run Application:-



## 2. Run and Test Flutter App on a Real Android Device:-

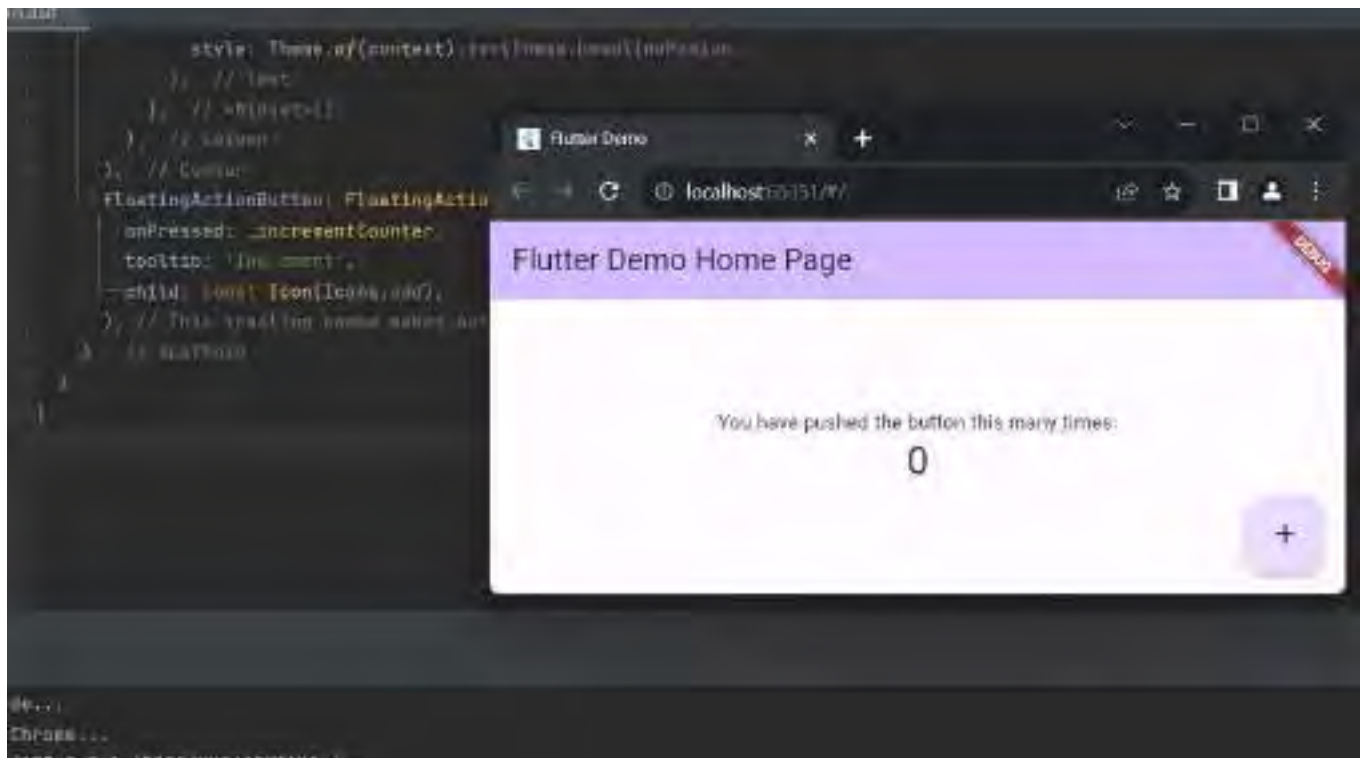
- Enable **developer options** and **USB Debugging** on your device. This varies slightly by android version. But the short version is you tap on the device build number 7 times. Then a “**Developer Options**” option comes up. After that, you can click “**enable USB Debugging.**” See the linked Android documentation for the most up-to-date instructions.
- Then plug your phone into your computer with a **USB cable**. You’ll see some popup on your phone asking if you want to allow **USB debugging** with that computer. Say “yes”.
- Run **Flutter** just like you would if you had a simulator running.

## 3.For web:-

Run Flutter Application on website ,

- Step-1 Select device web
- Step-2 Select main.dart
- Step-3 Run the code.





# Overview of Dart Language

## Introduction of Dart Language:-

Dart is an open-source, object-oriented programming language created by Google. It is designed to be concise, expressive, and scalable. Dart can be used to develop web applications, mobile applications, desktop applications, and server-side applications.

## Key Features of Dart Language:-

1. **Statically typed:** Static typing means that the types of variables and expressions are checked at compile time. This helps to prevent errors and makes code more reliable. For example, if you try to add a string to an integer, the compiler will give you an error.
2. **Strongly typed:** Strong typing means that the types of variables and expressions must be compatible. This helps to prevent errors and makes code more secure. For example, you cannot assign a string to a variable that is declared as an integer.
3. **Object-oriented:** Dart is an object-oriented language, which means that it supports classes, objects, inheritance, and polymorphism. This makes it a powerful language for developing complex applications. For example, you can create classes to represent real-world objects and objects to represent instances of those classes.
4. **Asynchronous:** Dart supports asynchronous programming, which allows you to handle multiple tasks at the same time. This is essential for developing responsive and efficient applications. For example, you can use asynchronous programming to fetch data from a server in the background while the user is still interacting with your application.
5. **Web-friendly:** Dart is a web-friendly language, which means that it can be used to develop web applications that are fast, efficient, and secure. Dart is compiled to JavaScript, which makes it easy to deploy to the web.
6. **Cross-platform:** Dart is a cross-platform language, which means that it can be used to develop applications that run on multiple platforms, such as Android, iOS, and the web. This makes it a good choice for developers who want to create applications that can be used by a wide range of users.

## 1. First Program in Dart:-

```
void main() {  
  print('Hello, World!');  
}
```

Output:-

```
C:/Flutter_windows_3.10.6-stable/flut
Hello, World!

Process finished with exit code 0
```

## 2.Variables & Datatypes:-

```
void main() {
    // declare a variable of type int
    int number = 10;

    // declares a variable of type String
    String name = 'SK';

    // print the values of the variables
    print('The number is ${number}');
    print('The name is ${name}');
}
```

Output:-

```
C:/flutter_windows_3.10.6-stable/flu
The number is 10
The name is SK

Process finished with exit code 0
```

## 3.Class and Objects:-

Class:-

A class is a blueprint or a template for creating objects. It defines the structure, properties, and behaviors that objects of that class will have. In Flutter, classes are used to define UI components, data models, utility functions, and more.

Object:-

An object is an instance of a class. It's created based on the class blueprint and has its own set of data and behavior as defined by the class. Objects are the entities you interact with in your Flutter application.

```
1 class Person {
2   String name;
3   int age;
4
5   Person(this.name, this.age);
6
7   void printDetails() {
8     print('Name: ${name}');
9     print('Age: ${age}');
10  }
11 }
12
13 void main() {
14   var person = Person('SK', 20);
15
16   person.printDetails();
17 }
```

Output:-

```
C:/flutter_windows_3.10.6-stable/f
Name: SK
Age: 20

Process finished with exit code 0
```

#### 4. Difference between Var and Dynamic in Dart:-

**var** = only one data type we assign after that we same datatype we overwrite or assign.

**dynamic** = multiple data type we assign after that multiple datatype we overwrite or assign.

#### 5. Function in Dart:-

You define a function using the void keyword (or another return type if the function returns a value), followed by the function's name and a set of parentheses that can hold parameters.

```

1 void main(){
2   print("hi");
3
4   var myc = myClass(); //here myClass() is to
5   myc.printName("hi there"); // function call
6   myc.printName("hello");
7   print(myc.add(5,7));
8 }
9 class myClass {
10
11   myClass() {
12     // Default Constructor it's needed when we
13     print("Object created");
14   }
15
16   void printName(String name) {
17     //function Declaration
18     print(name); // function defination
19   }
20
21   int add(int a, int b) {
22     // int a=5,
23     //int b=6;
24     int sum = a + b;
25     return sum;
26   }
27 }

```

Output:-

```

C:/Flutter_windows_3.10.6-stable/flutter/bin/c
hi
Object created
hi there
hello
12

Process finished with exit code 0

```

## 6.List in Dart:-

You can create a list using the List constructor or using a shorthand syntax using square brackets [].

### Syntax:-

//Using shorthand syntax List

```
<String> fruits = ['apple', 'banana', 'orange'];
```

```
1 void main() {
2     // declare a list of integers
3     List<int> numbers = [];
4
5     // add even numbers between 1 and 100 to the list
6     for (int i = 2; i <= 100; i += 2) {
7         numbers.add(i);
8     }
9
10    // calculate the sum of the even numbers
11    int sum = 0;
12    for (int number in numbers) {
13        sum += number;
14    }
15
16    // print the sum
17    print('The sum of all even numbers between 1 and 100 is  $\{sum\}$ ');
18 }
```

Output:-

```
C:/flutter_windows_3.10.6-stable/flutter/bin/cache/dart
The sum of all even numbers between 1 and 100 is 2550
Process finished with exit code 0
```

## 7. Maps and Hash-Map:-

**Maps:-** In Dart, a Map is a collection of key-value pairs where each key is associated with a value. A HashMap is a specific implementation of a Map that offers fast lookups, insertions, and deletions.

### Syntax for Map:-

```
Map<String, String> capitals = { 'USA': 'Washington, D.C.', 'France': 'Paris', 'Japan': 'Tokyo' };
```

**HashMap:** A HashMap is an implementation of the Map interface in Dart that uses a hash table for efficient lookups, insertions, and deletions. You can create a HashMap using the HashMap constructor or by using the shorthand syntax with curly braces {}.

**Note:** In most practical scenarios, you don't necessarily need to explicitly use HashMap. The built-in Dart Map type usually offers efficient performance for typical use cases.

Maps and HashMaps are important data structures in Dart and are widely used for organizing and accessing data, such as key-value pairs, configurations, and more.

```

1 void main() {
2     var map_name = {
3
4         'key1': 'value1',
5         'key2': 2,
6         'key 3': 3.0,
7         'key4': true
8     };
9
10    // map_name['key1'] = 'deep'; replace value of key 1
11    map_name['key5'] = "saskd";
12
13    print(map_name);
14    print(map_name['key2']);
15
16
17    var mapName = Map();
18    mapName['Name'] = 'sk';
19    mapName['key5'] = 5;
20    mapName['avg.rating'] = 3.0;
21
22    print(mapName);
23
24    print(mapName.isNotEmpty());
25    print(mapName.isEmpty());
26    print(mapName.length);
27    print(mapName.keys);
28    print(mapName.values);
29    print(mapName.containsKey('Name'));
30    print(mapName.containsValue(false));
31    print(mapName.remove('avg.rating'));
32
33    print(mapName);
34 }

```

## Output:-

```
C:/flutter_windows_3.18.6-stable/flutter/bin/cache/dart-sdk/bin/dart.exe
{key1: value1, key2: 2, key3: 3.8, key4: true, key5: skkd}
2
{Name: sk, key5: 5, avg.rating: 3.8}
true
false
3
(Name, key5, avg.rating)
(sk, 5, 3.8)
true
```

```
false
3
(Name, key5, avg.rating)
(sk, 5, 3.8)
true
false
3.8
{Name: sk, key5: 5}
```

## 8.Final and Const Keyword Difference:-

In Flutter and Dart, both final and const help improve performance and maintain code integrity by enforcing immutability. The choice between final and const depends on whether you need the value to be determined at runtime or compile-time, and whether the value can change after it's assigned.

Keep in mind that while using const provides more optimizations, it also has more restrictions on what values it can hold. In most cases, final is suitable for values that will be determined during runtime, while const is best suited for values that are known at compile-time.

### final Keyword:-

- A final variable can only be set once and cannot be changed afterwards.
- The value of a final variable is determined at runtime.
- You can declare a final variable without assigning a value, but you need to initialize it before it's used.

### const Keyword:-

- A const variable is a compile-time constant and must be assigned a value at the time of declaration.
- The value of a const variable must be known at compile-time.
- const variables are evaluated at compile-time, and their values are known before runtime.



```
1 void main(){
2   print("welcome to Dart!");
3   final String name;
4
5   name = "sk";
6   print(name);
7   const n = "dh"; //value can not be reassigned
8   print(n);
9
10
11   final names = [
12     "aman",
13     "Aman",
14     "gap",
15     "sahil"
16   ];
17
18   names.add("smit");
19
20   print(names);
21
22   const p = {
23     "fedf",
24     "sftg",
25     "tgdF"
26   };
27
28   print(p);
29 }
```

Output:-

```
C:/flutter_windows_3.16.6-stable/flutter/bin/cache/dart-sdk/b
welcome to Dart!
sk
dh
[aman, Aman, gap, sahil, smit]
[fedf, sftg, tgdF]

Process finished with exit code 0
```

## 9. Conditional Programming and Loops in Dart:-

```
1 void main(){
2
3     for(int a = 1; a<=10; a++) {
4         print("Hello World");
5     }
6     // while(){
7     // }
8
9     int no =45;
10
11     while(no<50){
12         print("no is $no");
13         no++;
14     }
15 }
```

Output:-

```
C:/flutter_windows_3.10.6-stable/flutter
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
Hello World
no is 45
no is 46
no is 47
no is 48
no is 49
Process finished with exit code 0
```

# Widget in Flutter

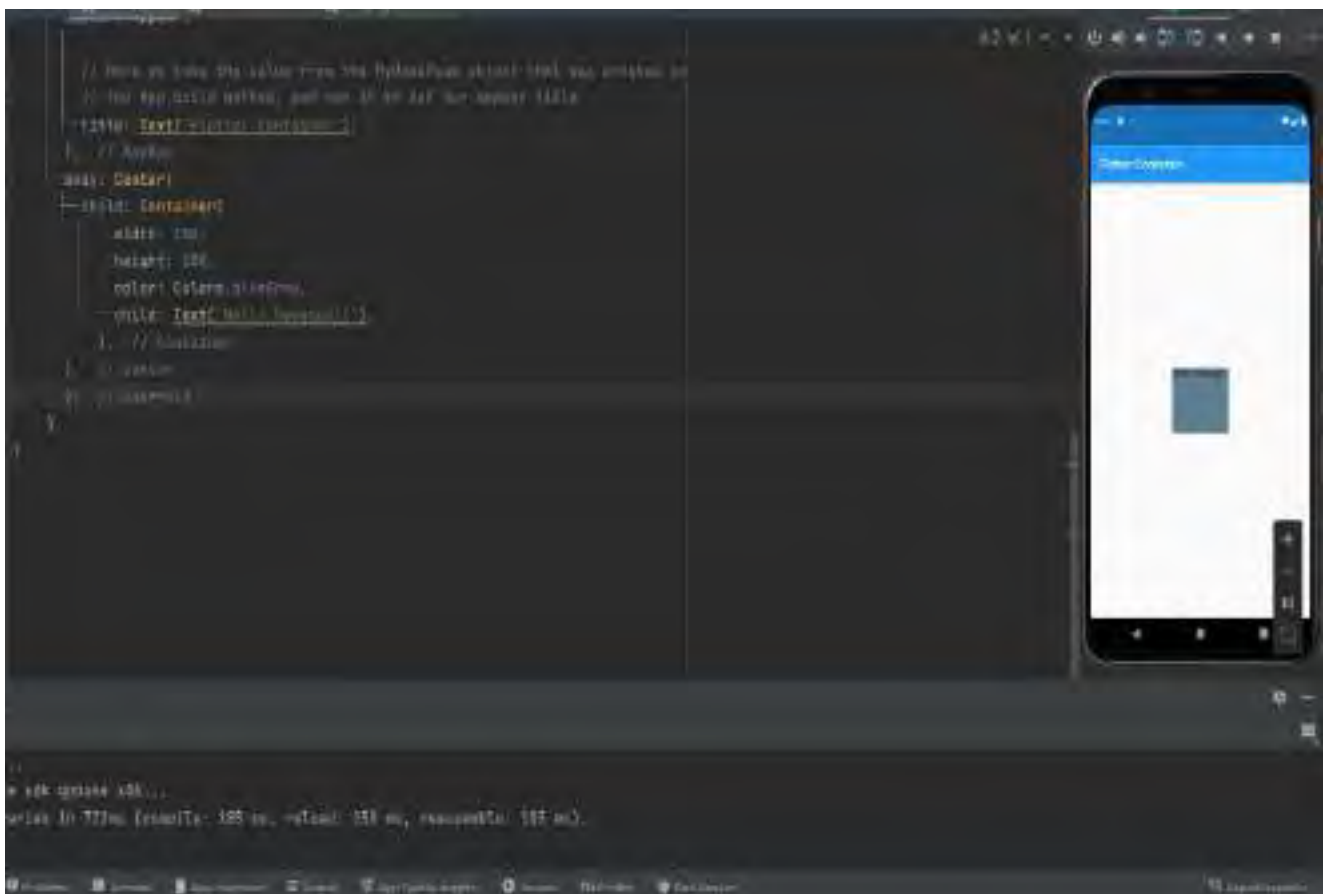
## Learn about flutter widget:-

Flutter widgets are built using a modern framework that takes inspiration from React. The central idea is that you build your UI out of widgets. Widgets describe what their view should look like given their current configuration and state.

## 1.Container Widget:-

The Container widget is highly customizable and can be used to create various UI components such as buttons, cards, input fields, and more. It's particularly useful for creating structured layouts and applying consistent styling to different parts of your app's UI.

In Flutter, the Container widget is a versatile and commonly used widget that provides a convenient way to create a box-like element with various styling options and layout properties. The Container widget is used to define visual aspects, such as padding, margin, alignment, borders, backgrounds, and more.



## 2.Center Widget:-

In Flutter, the Center widget is used to center its child widget both horizontally and vertically within the available space. It's a convenient way to achieve centered alignment without having to manually adjust positioning.



## 3.Text and it's Styles:-

In Flutter, the Text widget is used to display a string of text on the screen. You can customize the appearance of the text using various styles.



## 4.Types of Button in flutter:-

1. Text Button
2. Outlined Button
3. Elevated Button

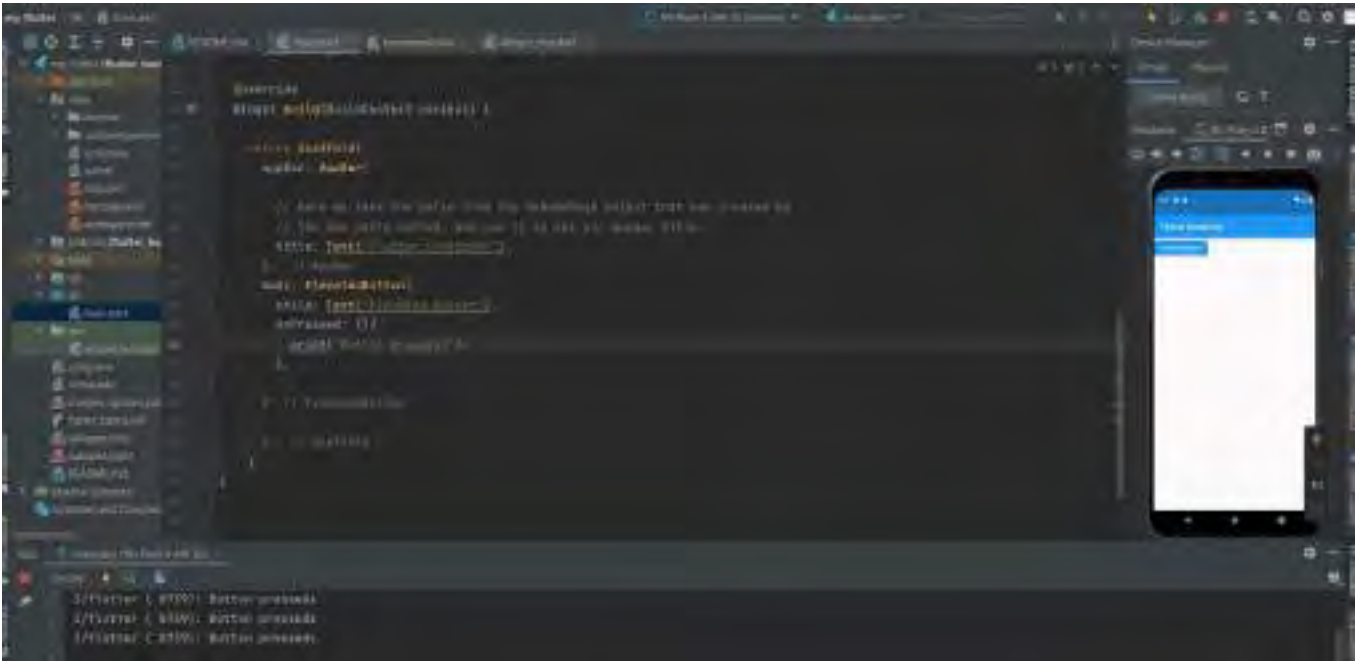
### 1. Text Button:-



### 2. Outlined Button:



### 3. Elevated Button



### 5.How to Add image in Flutter App:-

Step-1: Create an assets folder in the root of your project.

Step-2: Create a subfolder inside the assets folder called images.

Step-3: Copy your image file into the images folder.

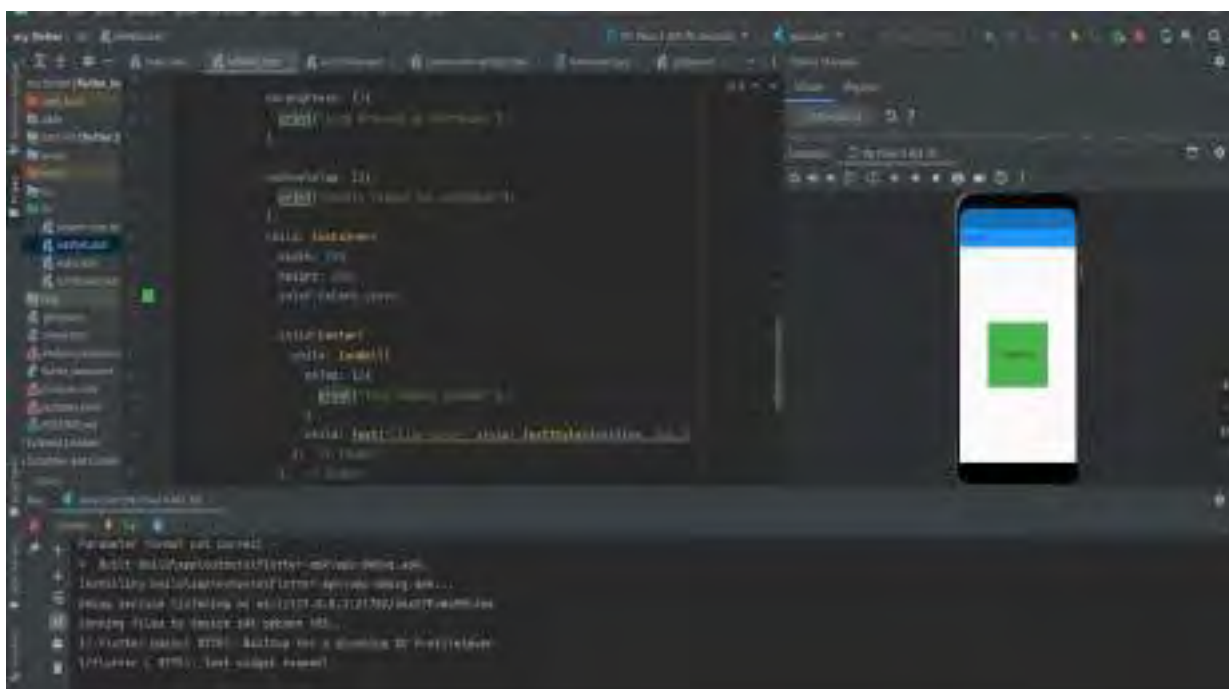
Step-4: Open the pubspec.yaml file and add the following line to the assets section: assets: - assets/images/image\_name.png  
Replace image\_name with the name of your image file.

Step-5: In code, you can use the Image widget to display the image. For example: Image.asset('assets/images/image\_name.png')

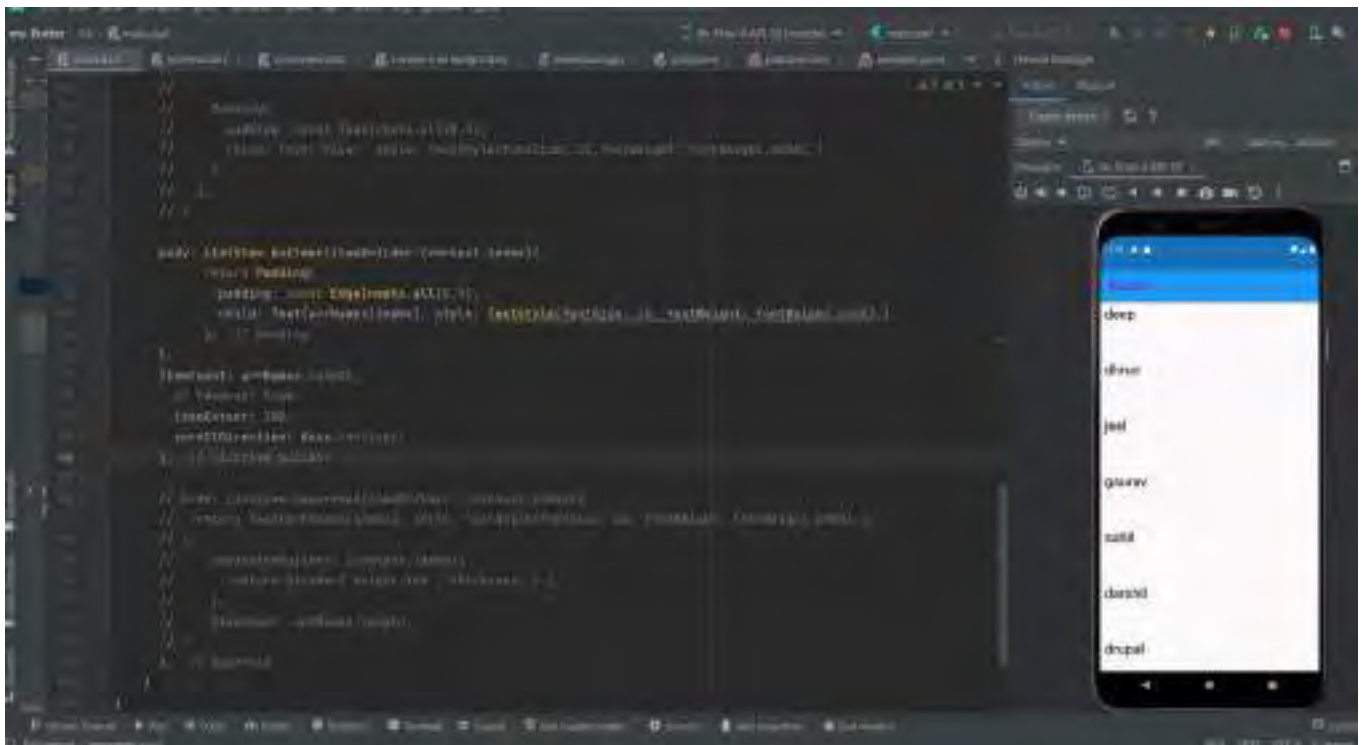
## 6.Row and Columns Widgets:-



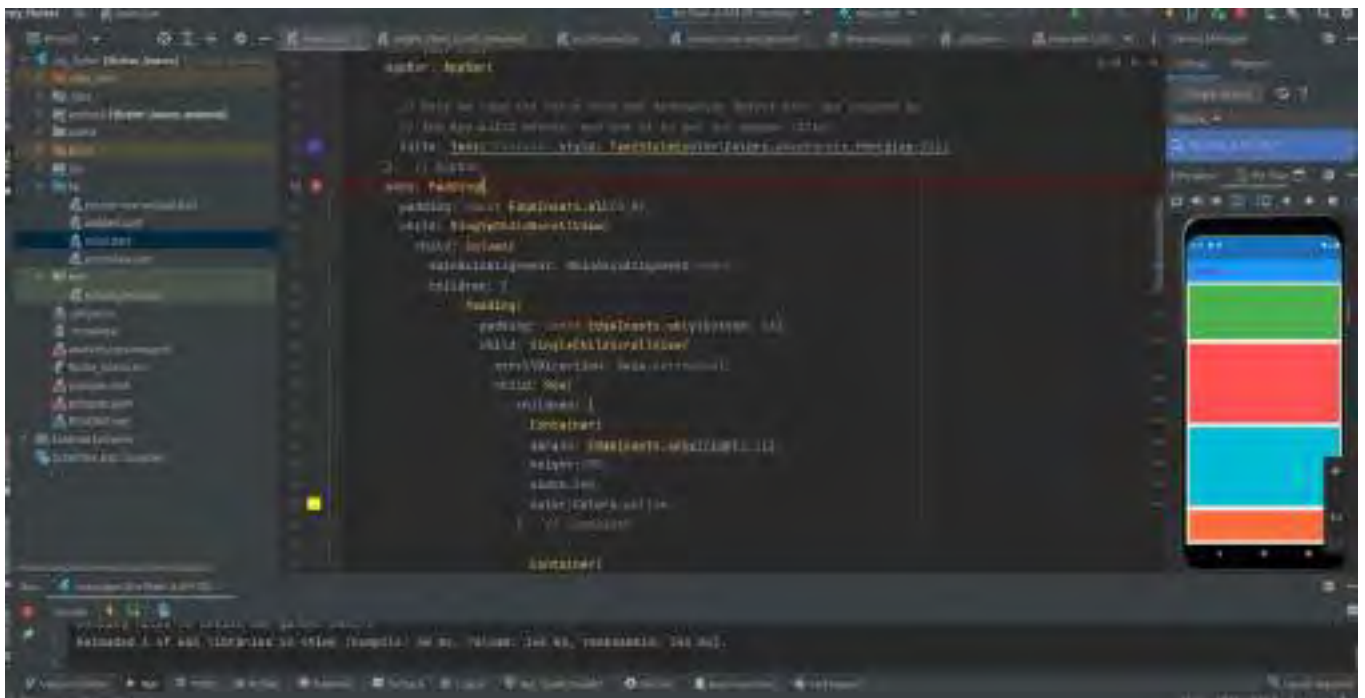
## 7.Inkwell Widget:-



## 8. List-View Widget:-



## 9. Scroll-View Widget:-





# Internship Projects

## 1. Flashlight Application :-

```
import 'package:flutter/material.dart';
import 'package:torch_controller/torch_controller.dart';

void main() {
  TorchController().initialize();
  runApp(const MyApp());
}

class MyApp extends StatelessWidget {
  const MyApp({super.key});

  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      title: 'FlashLight',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      home: const TorchLight(),
    );
  }
}

class TorchLight extends StatefulWidget {
  const TorchLight({super.key});

  @override
  State<TorchLight> createState() => _TorchLightState();
}

class _TorchLightState extends State<TorchLight> {
  var isActive = false;
  var controller = TorchController();

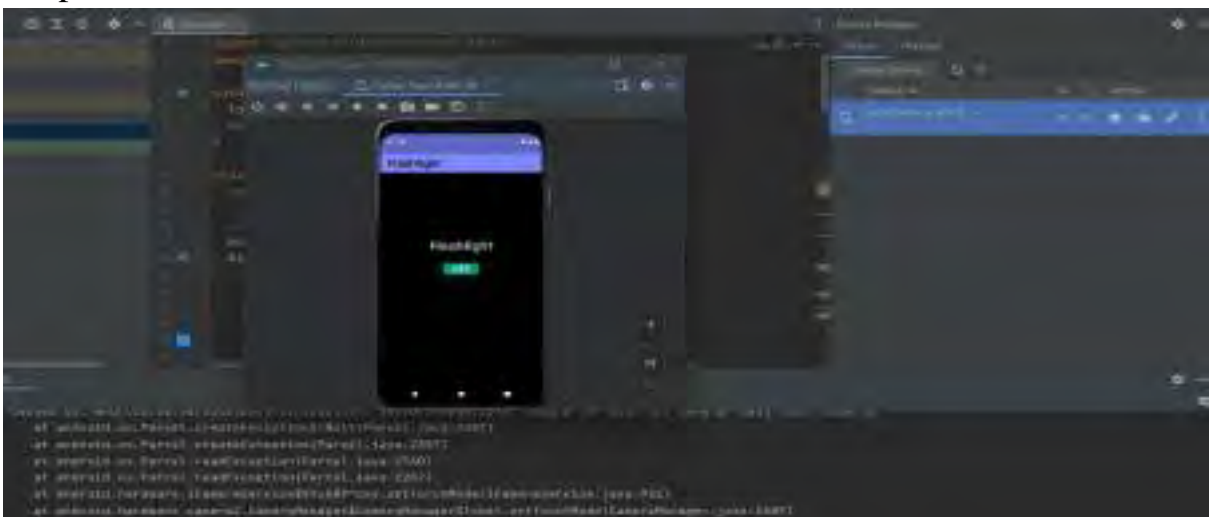
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: const Color.fromARGB(255, 0, 0, 0),
      appBar: AppBar(
        backgroundColor: Color.fromARGB(255, 128, 136, 255),
        elevation: 0.0,
        title: Text(
          "Flashlight",
          style: TextStyle(
            color: const Color.fromARGB(255, 0, 0, 0), fontSize: 30),
        ),
      ),
      body: Column(
        children: [
          Expanded(
            child: Padding(
              padding: EdgeInsets.all(8.0),
              child: Center(
                child: Column(
                  mainAxisAlignment: MainAxisAlignment.center,
```

```

        children: [
          Padding(
            padding: const EdgeInsets.only(left: 70, right: 70),
            child: Container(
              child: Text(
                "Flashlight",
                style: TextStyle(
                  color: isActive ? Colors.white : Colors.white70,
                  fontSize: 35,
                  fontWeight: FontWeight.w600),
              ),
            ),
          ),
          SizedBox(
            height: 25,
          ),
          ElevatedButton(
            onPressed: () {
              controller.toggle();
              isActive = !isActive;
              setState(() {});
            },
            child: Text(isActive ? 'ON' : 'OFF',
              style: TextStyle(
                fontSize: 25, fontWeight: FontWeight.w500)),
            style: ElevatedButton.styleFrom(
              backgroundColor: Colors.teal,
              padding: EdgeInsets.only(left: 20, right: 20),
            ),
          ),
          SizedBox(
            height: 130,
          ),
        ],
      ),
    ),
  ),
);
}
}

```

Output:-



## 2.Make Calculator Application:-

```
import 'package:flutter/material.dart';
import 'package:math_expressions/math_expressions.dart';

void main() {
  runApp(MaterialApp(
    debugShowCheckedModeBanner: false,
    home: CalculatorApp(),
  ));
}

class CalculatorApp extends StatefulWidget {
  const CalculatorApp({Key? key}) : super(key: key);

  @override
  State<CalculatorApp> createState() => _CalculatorAppState();
}

class _CalculatorAppState extends State<CalculatorApp> {
  double firstNum = 0.0;
  double secondNum = 0.0;
  var input = "";
  var output = "";
  var operation = "";
  var hideInput = false;
  var outputSize = 38.0;

  onClick(value) {
    if (value == "AC") {
      input = "";
      output = "";
    } else if (value == "<") {
      if (input.isNotEmpty) {
        input = input.substring(0, input.length - 1);
      }
    } else if (value == "=") {
      if (input.isNotEmpty) {
        var userInput = input;
        userInput = userInput.replaceAll("x", "*");
        Parser p = Parser();
        Expression = p.parse(userInput);
        ContextModel cm = ContextModel();
        var finalValue = expression.evaluate(EvaluationType.REAL, cm);
        output = finalValue.toString();

        if (output.endsWith(".0")) {
          output = output.substring(0, output.length - 2);
        }

        input = output;
        hideInput = true;
        outputSize = 49;
      }
    } else {
      input = input + value;
      hideInput = false;
      outputSize = 38;
    }
  }

  setState(() {});
}
```

```

}

@override
Widget build(BuildContext context) {
  return Scaffold(
    backgroundColor: Colors.white,
    body: Column(
      children: [
        Expanded(
          child: Container(
            width: double.infinity,
            padding: EdgeInsets.all(20),
            color: Colors.black,
            child: Column(
              mainAxisAlignment: MainAxisAlignment.end,
              crossAxisAlignment: CrossAxisAlignment.end,
              children: [
                Text(
                  hideInput ? " " : input,
                  style: TextStyle(fontSize: 45, color: Colors.white),
                ),
                SizedBox(
                  height: 18,
                ),
                Text(
                  output,
                  style: TextStyle(
                    fontSize: outputSize,
                    color: Colors.white.withOpacity(0.8)),
                ),
                SizedBox(
                  height: 28,
                ),
              ],
            ),
          ),
        ),
        Row(
          children: [
            button(text: "AC", buttonBgColor: Colors.grey),
            button(text: "( )", buttonBgColor: Colors.lightBlue),
            button(text: "%", buttonBgColor: Colors.lightBlue),
            button(text: "/", buttonBgColor: Colors.lightBlue),
          ],
        ),
        Row(
          children: [
            button(text: "7"),
            button(text: "8"),
            button(text: "9"),
            button(text: "x", buttonBgColor: Colors.lightBlue),
          ],
        ),
        Row(
          children: [
            button(text: "4"),
            button(text: "5"),
            button(text: "6"),
            button(text: "-", buttonBgColor: Colors.lightBlue),
          ],
        ),
        Row(
          children: [

```

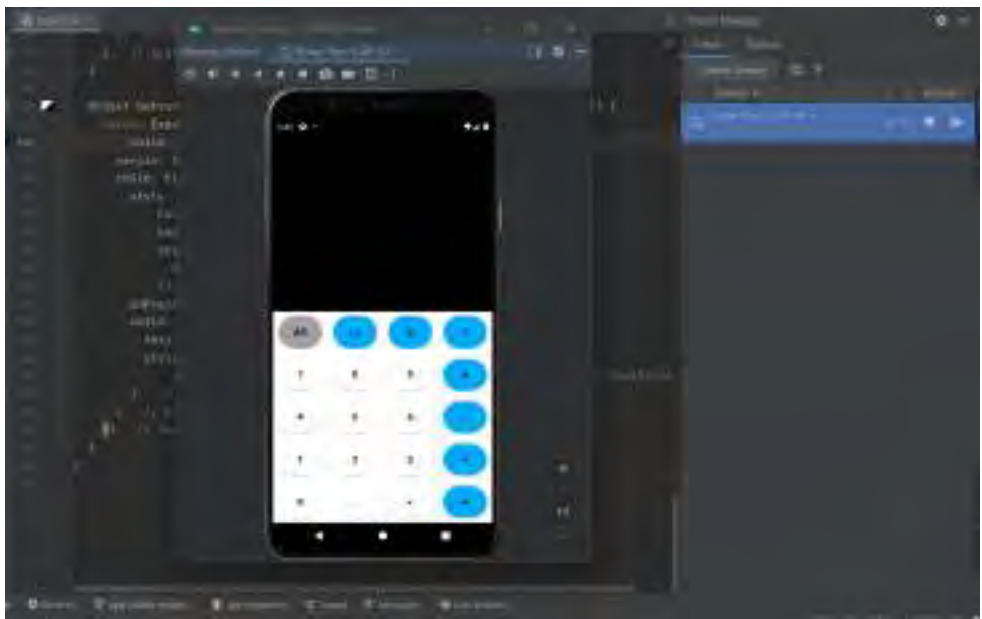
```

        button(text: "1"),
        button(text: "2"),
        button(text: "3"),
        button(text: "+", buttonBgColor: Colors.lightBlue),
    ],
),
Row(
  children: [
    button(text: "0"),
    button(text: "."),
    button(text: "<"),
    button(text: "=", buttonBgColor: Colors.lightBlue),
  ],
),
),
),
);
}

Widget button({text, buttonBgColor = Colors.white, tColor = Colors.black}) {
  return Expanded(
    child: Container(
      margin: EdgeInsets.all(10),
      child: ElevatedButton(
        style: ElevatedButton.styleFrom(
          backgroundColor: buttonBgColor,
          padding: EdgeInsets.all(20),
          shape: RoundedRectangleBorder(
            borderRadius: BorderRadius.circular(40),
          ),
        ),
        onPressed: () => onButtonClick(text),
        child: Text(
          text,
          style: TextStyle(
            color: tColor, fontSize: 18, fontWeight: FontWeight.bold),
        ),
      ),
    ),
  );
}
}

```

**Output:-**



## **Conclusion**

My Four-week internship at RJ Infosoft has been an invaluable experience that has expanded my knowledge and skills in the realm of Flutter Development. Throughout this journey, I have had the privilege of immersing myself in a dynamic and collaborative environment, working alongside talented professionals who are passionate about their craft.

During my time at RJ Infosoft, I delved deep into the intricacies of Flutter, gaining hands-on experience in designing, implementing, and optimizing Mobile Applications. The mentorship provided by the experienced developers was instrumental in my learning process, as they patiently guided me through real-world projects and challenges. I was exposed to the latest industry practices, coding standards, and development methodologies, all of which have significantly enhanced my technical acumen.

Moreover, the internship allowed me to witness firsthand the importance of effective communication and teamwork in a professional setting. This experience not only improved my technical skills but also bolstered my soft skills, which are equally vital for success in any professional setting.

I am profoundly grateful for the opportunity to learn and grow at RJ Infosoft. The exposure to real-world projects, the guidance from skilled mentors, and the supportive work culture have combined to create an enriching and transformative experience. As I move forward in my journey, I am excited to apply the knowledge and skills I have gained here to future endeavors, and I am confident that this internship has laid a strong foundation for my career in Flutter development.

In closing, I extend my sincere gratitude to the entire team at RJ Infosoft for their warm welcome, guidance, and support. This internship has been a stepping stone towards my professional aspirations, and I am eager to continue my journey of growth and learning in the world of Application Development.

## References

<https://docs.flutter.dev/>

<https://www.youtube.com/c/flutterdev>

<https://www.geeksforgeeks.org/flutter-tutorial/>

# **INTERNSHIP AT CODIFLY INFOTECH**

**AN INTERNSHIP REPORT**

*Submitted by*

**Kalgi Vinubhai Viradiya**

**200390107031**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**August, 2023**





**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Codify Infotech** has been carried out by **Kalgi Vinubhai Viradiya** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

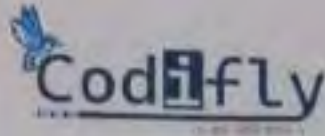
Prof. Chetan Chauhan

Internal Guide

Prof. Akshay Kansara

Head of Department

# Company Certificate



## Internship Completion Certificate

13 August 2023

We delighted to confirm that Kalpi Virajshri Virajshri has successfully completed her internship with Codifly Infotech. The internship, spanning from 21/07/2023 to 12/08/2023, encompassed Front-End App Development, Web Design.

Throughout the internship, she demonstrated exceptional dedication and enthusiasm. She exhibited strong adaptability and professionalism while engaging in various projects. Her contributions showcased her attention to detail and commitment to excellence. She actively participated, her willingness to learn and grow was evident, and she consistently exhibited effective communication and teamwork skills.

In recognition of Kalpi Virajshri's outstanding performance, we pleased to present her with this Internship Completion Certificate. Her dedication and contributions have left a positive impact on our team, and we are confident that she will excel in her future endeavors.

We extend our best wishes to Kalpi Virajshri for her future achievements.

Sincerely,

Rohit Vyas  
Founder & Director  
Codifly Infotech



[codiflyinfotech@codifly.com](mailto:codiflyinfotech@codifly.com)



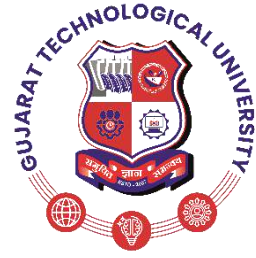
Address: Ganga Park, Opp. Chhatrapati  
Shri Sai Institute, S.S. 1341000  
Nana Vastehad, Surat, Gujarat - 395009



Call: 9898989898  
9898989898



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship report submitted along with the Internship entitled **Internship at Codify Infotech** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad is a bonafide record of original project work carried out by me under the supervision of Mr. Rohit Vyas and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Kalgi Vinubhai Viradiya**

---

## **ACKNOWLEDGMENT**

I wish to extend my profound gratitude to **Codify Infotech** for affording me the privilege of partaking in a 15-day internship focused on **Flutter Technology**. As a dedicated student, this immersive experience has proven to be a pivotal asset, enriching my practical insights within the domain.

I am deeply appreciative of the invaluable guidance and unwavering support extended by Mr. Rohit Vyas, the distinguished founder of Codify Infotech, as well as Mr. Bhautik Gujrati from the HR department. Their mentorship has provided me with a nuanced understanding of Flutter's technological landscape, underscoring its relevance in contemporary software development.

The opportunity to bridge theoretical constructs with tangible implementations by actively contributing to the development of a mobile application has been an illuminating journey. Spanning the entire gamut from ideation to realization, this process has endowed me with a holistic comprehension of the intricate software development lifecycle.

The depth of knowledge and exposure amassed during my tenure at Codify Infotech is deeply cherished. I firmly believe that this exposure stands poised to underpin my forthcoming academic and professional pursuits in the ever-evolving technological arena.

I extend my heartfelt gratitude for the invaluable opportunity bestowed upon me.

Sincerely,

Kalgi Viradiya

## **Abstract**

During my immersive 15-day internship at Codifly Infotech, a forward-thinking tech firm specializing in Flutter app solutions, I had the incredible opportunity to collaborate closely with professionals across diverse domains. My journey kicked off with an in-depth exploration of the Flutter app development realm. I delved into the nuances of UI/UX design, concentrating on elevating user interaction and satisfaction. Beyond technical skills, I also enriched my collaborative aptitudes. Participating in code evaluations, joining team huddles, and embracing Agile methodologies, I cultivated effective communication and teamwork proficiencies that are integral to professional software development. The zenith of my internship was marked by conceiving and actualizing a fully functional Flutter application. Witnessing my creation come alive on diverse devices and platforms was immensely gratifying and bolstered my confidence in both coding and design capacities. My tenure at Codifly Infotech not only refined my technical prowess but also heightened my understanding of the harmonious fusion of design and development in yielding impactful applications. Reflecting on this journey, I'm indebted to Codifly's adept professionals for their guidance, which has undeniably equipped me to thrive in the realm of Flutter app development.

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# **CHAPTER 1. INTRODUCTION**

## **1.1 COMPANY PROFILE**

Codifly Infotech, established in August 2021 and headquartered in Surat, is a dynamic and rapidly expanding software development company specializing in cutting-edge web and mobile application development services. Despite its relatively short existence, the company has demonstrated remarkable growth and prowess in the field, offering a comprehensive range of services that encompass Mobile Application Development, Web Design, Desktop Application Development, and other pioneering computing and communication technology services.

The company's service offerings are wide-ranging and impactful. In the realm of Web Development, Codifly Infotech crafts visually stunning and highly functional websites tailored to meet each client's unique needs. With a keen focus on Mobile App Development, the team specializes in creating user-friendly and intuitive mobile applications across various platforms, catering to the ever-growing mobile user base. Codifly Infotech's expertise extends to Cloud Solutions as well, providing businesses with scalable, flexible, and accessible cloud-based solutions that align with the demands of the modern digital landscape.

## **1.2 MISSION AND VISION OF WEBITO INFOTECH**

### **1.2.1 Mission**

Codifly Infotech is committed to empowering businesses and individuals by harnessing the potential of technology. Our mission is to deliver innovative and reliable software solutions that enhance efficiency, drive growth, and enable our clients to thrive in the digital era. We strive to build enduring partnerships through our customer-centric approach, dedication to quality, and a passion for staying at the forefront of technological advancements. By blending creativity with technical expertise, we aim to create solutions that not only meet but exceed the expectations of our clients, contributing to their success and fostering mutual growth. Codifly Infotech recognizes the responsibility that comes with technological prowess.

### **1.2.1 Vision**

At Codifly Infotech, vision is to become a global leader in software development, known for our exceptional services and groundbreaking solutions. It envision a future where our technology-driven offerings contribute to shaping a more connected, efficient, and innovative world. By fostering a culture of continuous learning, collaboration, and adaptability, aim to push the boundaries of what technology can achieve. Codifly Infotech aspire to be recognized as a trusted partner, driving digital transformation across industries, while maintaining our core values of integrity, excellence, and social responsibility. As we continue to expand and evolve, our vision remains centered on delivering meaningful impact through cutting-edge technology solutions.

## **1.3 PROJECT OVERVIEW**

Welcome to Flutter-based recipe app, where the joy of cooking meets the ease of technology. Here, you're in control – pick recipes that match your taste, and get cooking times, ingredients, and steps right at your fingertips. Found something you love? Save it as a favorite. And to make things even easier, use smart filters to find just what you're craving. Best of all, the app works great on any device, so you can explore and cook wherever you are. It's like having a personalized recipe book that fits in your pocket. You get world of recipes made simple, delicious, and right for you. Each recipe comes with clear and concise cooking times, detailed ingredient lists, and step-by-step instructions that are easy to follow. It's like having a personal chef right in your kitchen.

In essence, recipe app isn't just about recipes – it's about making cooking accessible, enjoyable, and customized to your preferences. Whether you're a beginner looking for simple dishes or an experienced cook eager to explore new flavors, our app is here to make your culinary journey more delightful and convenient. Welcome to a world of flavors, convenience, and connection.

# CHAPTER 2. BASIC OF FLUTTER

## 2.1 INTRODUCTION

Flutter is a cross-platform UI toolkit developed by Google, designed to create natively compiled applications for mobile, web, and desktop from a single codebase. It uses the Dart programming language and offers a rich set of pre-designed widgets to build interactive user interfaces.

## 2.2 SOFTWARE REQUIREMENTS

### 2.2.1 Flutter SDK and Dart

The first thing you'll need is the Flutter SDK. You can download it from the official Flutter website. The SDK contains the necessary tools and libraries to develop Flutter applications. Flutter uses the Dart programming language. The Flutter SDK comes bundled with the Dart SDK, so you don't need to install it separately.

```
C:\Users\Admin>flutter --version
Flutter 3.10.6 • channel stable • https://github.com/flutter/flutter.git
Framework • revision f468f3366c (5 weeks ago) • 2023-07-12 15:19:05 -0700
Engine • revision cdbeda788a
Tools • Dart 3.0.6 • DevTools 2.23.1
```

Fig 2.1. Flutter SDK and Dart

### 2.2.2 Integrated Development Environment (IDE)

While you can use any text editor to write Dart code, Google recommends using Android Studio or Visual Studio Code (VS Code) with the Flutter and Dart plugins for an enhanced development experience. These IDEs offer features like code completion, debugging, and integration with the Flutter DevTools.

### 2.2.3 Additional Dependencies

Flutter projects often require additional dependencies or packages to integrate specific functionalities. You can manage these dependencies using the `pubspec.yaml` file in your project, and Flutter's package manager, `pub`.

## **2.3 FRAMWORKS**

### **2.3.1 Widget Library**

Flutter's UI is built using widgets. The Flutter widgets library provides an extensive set of building blocks for creating UI elements, layouts, and interactive components. Widgets define how your app's UI looks and behaves, and they can be combined to create complex user interfaces.

### **2.3.2 Material Design and Cupertino Design**

Flutter embraces both the Material Design language (from Google) and the Cupertino design language (from Apple). These design systems provide guidelines for consistent and platform-specific UI elements. Flutter includes widgets that match the design patterns of both Android (Material) and iOS (Cupertino).

### **2.3.3 Flutter Engine**

The Flutter engine is a low-level rendering and layout engine that powers the visuals and interactions in Flutter apps. It's responsible for rendering UI elements, handling gestures, and managing animations. The engine works with platform-specific host environments to provide a consistent experience across platforms.

# CHAPTER 3. WIDGETS

## 3.1 BASIC WIDGETS

### 3.1.1 Text

Displays styled text with properties like style, text Align, and overflow.

#### Properties:

- data (String): The actual text content that you want to display.
- style (TextStyle): Defines the visual appearance of the text, such as font size, color, and more.
- text Align (Text Align): Specifies how the text should be aligned horizontally within its container.
- soft Wrap (bool): Determines whether the text should wrap onto multiple lines if it's too long for its container.
- overflow (Text Overflow): Defines how to handle text that overflows its container's bounds.
- maxLines (int): Sets the maximum number of lines the text should occupy.
- textScaleFactor (double): Scales the text size relative to the default font size.
- text Direction (Text Direction): Specifies the reading direction of the text (ltr or rtl).
- locale (Locale): Defines the locale for the text, which affects formatting like date and number display.



Fig 3.1 Text Decoration

### 3.1.2 Icon

Displays icons using the Icons class or custom icons with the Icon Data constructor.

### Properties:

- Icons (Icon Data): Specifies the icon to display. You can use icons from the Icons class or custom icon data.
- color (Color): Sets the color of the icon.
- size (double): Defines the size of the icon.
- semantic Label (String): Provides an accessibility label for the icon to assist users with visual impairments.



Fig 3.2 Icon

### 3.1.3 Image

Displays images from different sources (assets, network URLs) with properties like fit, alignment, and color.

- Asset Images:  
Asset images are static images that are bundled with your app and are located in the assets directory. They are typically used for icons, logos, and other static images.
- Network Images:  
Network images are loaded from URLs over the internet. They are useful for displaying images from remote sources like web servers or APIs.
- File Images:  
File images are images loaded from local files on the device. They are useful for displaying images captured by the user or images saved in the app's storage.

### 3.1.4 Button

Common properties include on Pressed (for callback on button press), style (for customization), and child (widget inside the button).

### 3.1.5 TextField

Accepts user input with properties like decoration (input decoration), controller (for

managing input), and keyboard Type (input type).

## **3.2 BASIC WIDGETS**

### **3.2.1 Container**

The Container widget is a versatile layout widget that provides a rectangular area in which you can place other widgets. It's commonly used to control the alignment, padding, margin, and decoration of its child widgets.

### **3.2.2 Row and Column:**

The Row widget arranges its children horizontally in a single row. It's used to create side-by-side layouts, such as navigation bars, forms, and lists of items.

The Column widget arranges its children vertically in a single column. It's used for creating vertical layouts, such as lists, forms, and headers.

### **3.2.3 Stack:**

The Stack widget in Flutter is a powerful layout widget that allows you to place multiple child widgets on top of each other, effectively layering them within a single container. This stacking behavior is useful for creating complex layouts, overlaying elements, and building custom UI components that require overlapping and precise positioning.

## **3.3 NAVIGATION WIDGETS**

### **3.3.1 Navigator Widget**

The Navigator widget can be considered as a navigation stack that keeps track of the routes/screens in your app. You can push new routes onto the stack using `Navigator.push()`, and pop routes using `Navigator.pop()` to navigate back. The `Navigator` can be used to handle various navigation actions, such as pushing new routes, popping routes, and replacing routes. It offers methods like `push`, `pushNamed`, `pop`, `popUntil`, and more for managing navigation.

### **3.3.2 PageRouteBuilder:**

PageRouteBuilder is a class that constructs a Page Route with custom transitions and animations. It allows you to define your own transition animation, such as slide, fade, or custom animations. You can customize properties like transition Duration, pageBuilder,transitionsBuilder,and more. It's particularly useful when you want to create unique and visually appealing screen transitions.

## **3.4 MATERIAL DESIGN WIDGETS**

### **3.4.1 AppBar**

Displays a top app bar with a title, actions, and navigation. The AppBar widget is used to create a top app bar that typically contains the app's title, actions (such as icons or buttons), and navigation controls. It's a fundamental UI component that provides users with access to key app functionality and navigation options.

### **3.4.2 Bottom Navigationbar**

Displays a navigation bar with tabs at the bottom of the screen. The BottomNavigationBar widget creates a navigation bar with tabs at the bottom of the screen. It's commonly used to allow users to switch between different sections or views within the app.

### **3.4.3 Card**

Displays a card-like container for grouping related content. The Card widget creates a material design card-like container that holds related content. It's often used to group content together and provide a visual distinction between different sections of the app.

## **3.4 USER INTERFACE**

A user interface (UI) refers to the visual and interactive components that users interact with when using a mobile or web application. It encompasses the layout, design, and functionality of an app's screens, including how information is presented and how users can interact with that information. Flutter provides a rich set of tools and widgets to create and customize user interfaces efficiently.



Enclosed herewith are several UI design artifacts that I conceived and developed during the course of my internship. These designs showcase the practical application of my acquired skills and knowledge in the field. I am pleased to present these creations as evidence of my capability to contribute effectively to real-world design projects.



**Fig. 3.3 First UI**

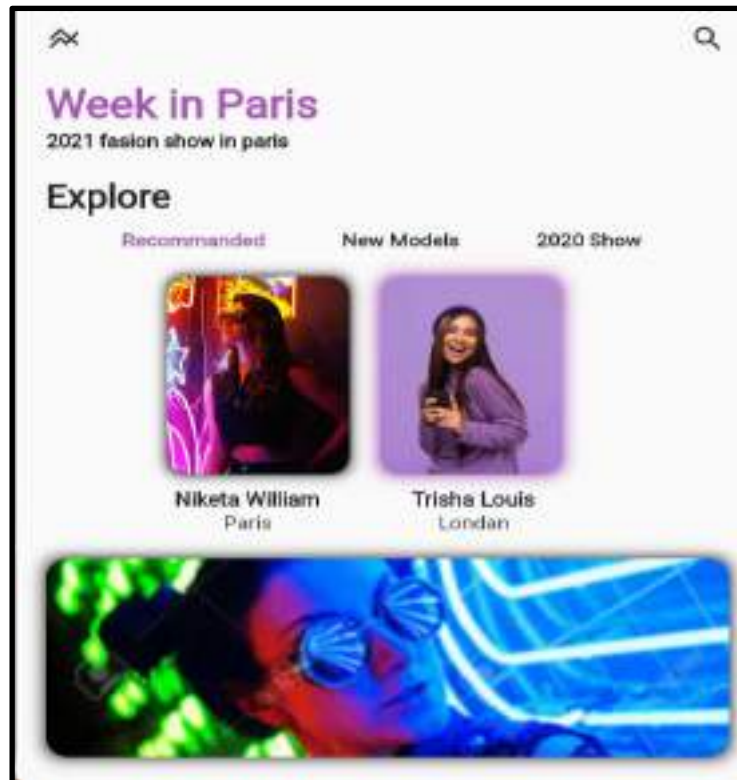


Fig 3.4 Second UI

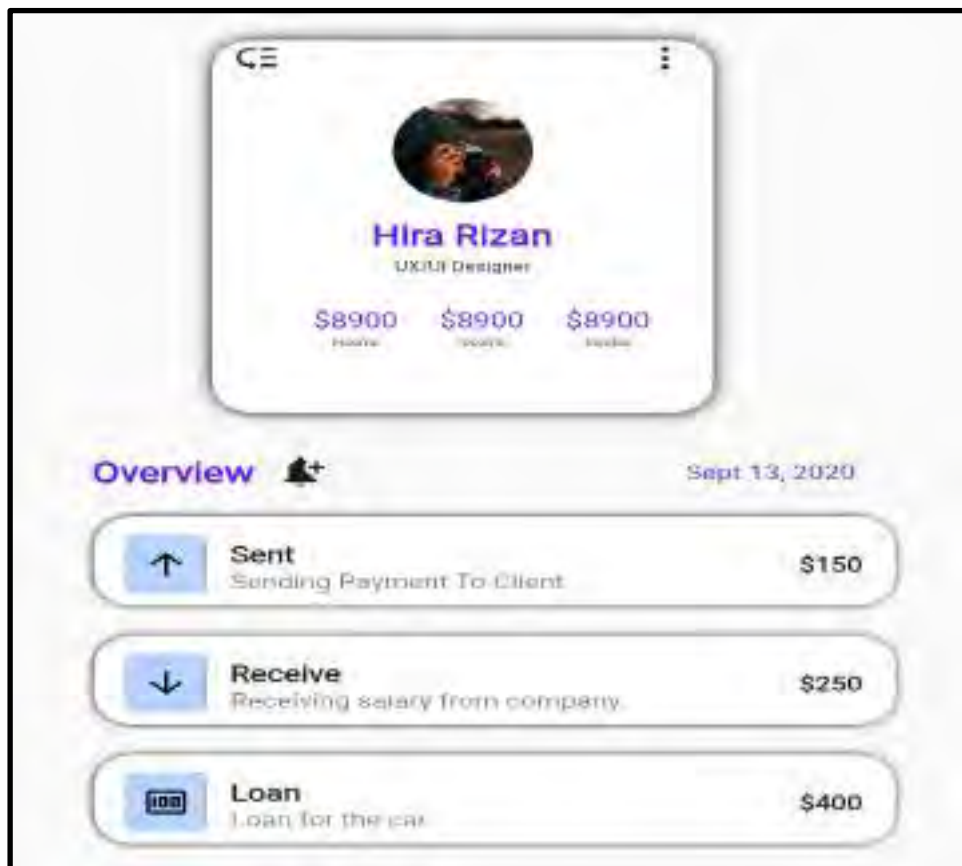


Fig. 3.5 Third UI

## Chapter 4. PROTOTYPE OF APPLICATION

I included a collection of screenshots showcasing how my app looks and functions.



Fig 4.1 Home Screen



Fig 4.2 Navigation Menu



Fig 4.3 Inside



Fig 4.4 Favourite

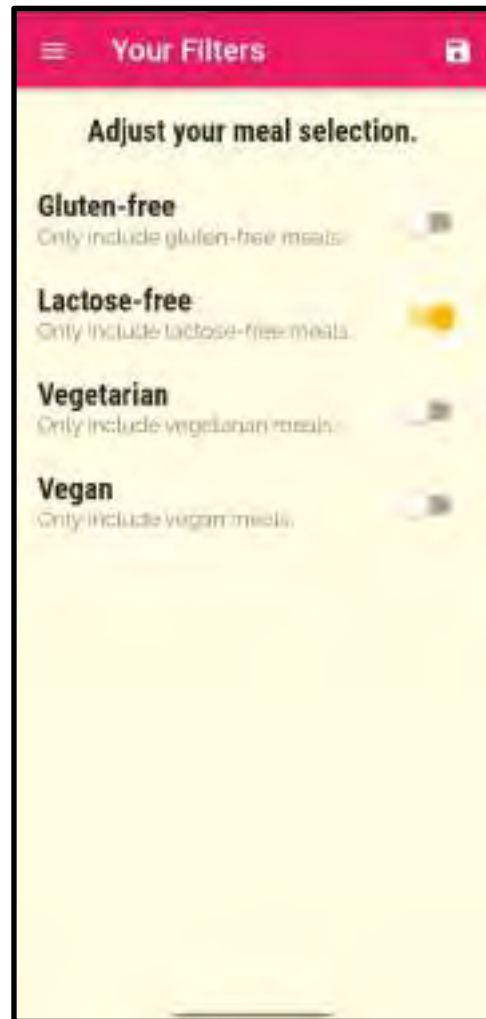


Fig 4.5 Filter



Fig 4.6 Recipe

## References

- [1] For built application: <https://flutter.dev/>
- [2] Third-party flutter dependency and package installation site: <https://pub.dev/>
- [3] Third-party assets and resources for development:  
<https://lordicon.com/icons>
- [4] Flutter learning:  
[https://youtube.com/playlist?list=PLR2qQy0Zxs\\_UdqAcaipPR3CG1Ly57UlhV](https://youtube.com/playlist?list=PLR2qQy0Zxs_UdqAcaipPR3CG1Ly57UlhV)

# Appendix

Offer letter:

**Codify**  
Infotech

To:  
Raji Vyas  
Infotech No. 2002906700  
rajivyas02@gmail.com

July 24, 2023

**Internship Confirmation Letter at Codify Infotech**

Dear Raji Vyas,

We are delighted to extend our heartfelt congratulations on your selection as an Intern at Codify Infotech. This letter serves as a formal confirmation of your acceptance into our prestigious organization. We believe that your exceptional academic background and dedication make you a valuable addition to our team.

**Terms of Internship:**

- **Duration:** The internship program is scheduled to run for 2 weeks commencing on 26th July 2023.
- **Designation:** As an intern, you will be assigned to the esteemed Software Department, where you will have the privilege of collaborating on real-world projects.
- **Working Hours:** Your internship hours will be from 09:00 AM to 5:00 PM, Monday through Friday.
- **Compensation:** Please be assured that the internship provided with remuneration benefits will be provided monthly.
- **Performance Evaluation:** Your progress and achievements will be assessed through interim and final assessments, and we will provide feedback to help you refine your skills and gain valuable insights.
- **Code of Conduct:** Throughout your internship, we expect you to uphold the highest standards of professionalism, adhering to the established code of conduct followed by all employees at Codify Infotech.

Thank you for your interest in our organization. We are excited to have you on board and look forward to your valuable contributions during your internship program.

With my warm regards,  
Welcome you to the family of Codify Infotech.

Sincerely,  
  
**Rohit Vyas**  
Founder & Director  
Codify Infotech



**CODIFY INFOTECH**  
SURAT

 [codify@infotech.com](mailto:codify@infotech.com)  **Surat**, Gandhinagar, Dist. Chhatarpur  
Muz. No. Gandhinagar, Dist. Chhatarpur  
Surat Gandhinagar, Dist. Chhatarpur, Gujarat

 **Call** 07902906700  
WhatsApp: 9479456789



# **INTERNSHIP AT CREART SOLUTIONS**

## **AN INTERNSHIP REPORT**

*Submitted by*

**KAUSHAL DINESHJI THAKOR**

**210390107504**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

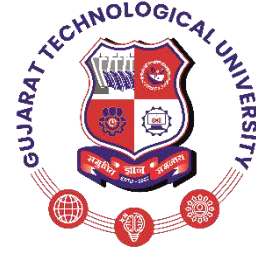


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at CreArt Solution** has been carried out by **Kaushal Dineshji Thakor** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department

**Company Certificate**

## Joining Letter

<h1>INTERNSHIP JOINING LETTER</h1>	 <hr/>
Date: 27 <sup>th</sup> July 2023	
<i>This is to certify that</i>	
Mr/Ms. KAUSHAL THAKOR Enrollment No : 210390107504 College : Saffron institute of technology	
has been selected for the 15 days of summer internship from 27 <sup>th</sup> July 2023 to 10 <sup>th</sup> August 2023 at <b>CreArt Solutions</b> , Ahmedabad.	
We wish him/her all the best for his future endeavours.	
 <hr/> <b>Krishnamohan Gupta</b> Director	<b>CreArt Solutions PVT LTD.</b> 202, Heritage Horizon, Opp. Hotel Div Corporate, C.G. Road, Ahmedabad, Gujarat, India - 380009 <a href="http://www.creat.in">www.creat.in</a>   <a href="mailto:hello@creat.in">hello@creat.in</a>   <b>Office Location:</b> INDIA   USA   UK

## Completion Letter

# INTERNSHIP COMPLETION LETTER

Date: 10<sup>th</sup> August 2023



*This is to certify that*

Mr/Ms. KAUSHAL THAKOR  
Enrollment No : 210390107564  
College : Saffron Institute of Technology

has successfully completed the 15 days of summer internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 @  
CreArt Solutions, Ahmedabad.

We wish him/her all the best for his future endeavours.



Krishnamohan Gupta  
Director

**CreArt Solutions PVT LTD.**

202, Heritage Horizon, Opp Hotel Div Corporate, C.G Road,  
Ahmedabad, Gujarat, India - 380009  
[www.creat.in](http://www.creat.in) | [hello@creat.in](mailto:hello@creat.in) | **Office Locations:** INDIA | USA | UK



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CreArt Solutions** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. & Alkesh Kaba (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Kaushal Dineshji Thakor**

## **ACKNOWLEDGMENT**

This Summer Internship work has been the most practical and exciting part of my learning experience, which would be an asset for me and also for my future carrier.

I would like to thank my head od department **Mr. Akshay Kansara**, who was a constant source of inspiration.

My most sincere thanks to my internal Internship guide for his/her kind co-operation and who has always been guiding, encouraging and motivating me throughout the internship and project. I am gratefully to my collage **Saffrony Institute of Technology**for providing me all the required resources and good working environment.

I would like to thank my external guide **Mr. Alkesh Kaba**, for supporting me throughout the internship work and motivating me. I would also like to thank the **organization** “**CreArt Solutions PVT LTD**” who supported me for my internship and project.

Thank you.

## **Abstract**

This report contains the work done by the author during his internship at *CreArt Solutions*. It shows the work I did in the company during my internship period. In the report, the author discusses the process of manufacturing and steps of assembly of the machines. The author also discusses the structure of the company, all the departments and their work. It also explains what the author learned during this internship period.

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## **Abbreviations**

HTML Hypertext Markup Language

CSS Cascading Style Sheets

IDE Integrated Development Environment

XAMPP X-operating system, Apache, MySQL, PHP, Perl

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Scanned copies of weekly reports duly signed by internal and external guide	
Scanned attendance sheet if any	
Any supporting documents in scanned copy	

# Chapter 1. INTRODUCTION

## 1.1 COMPANY PROFILE:



Fig 1.1 Company Logo

CreArt is a privately owned venture of IT Solutions, Digital Marketing, Software Solutions and SEO services formed in 2013, in Ahmedabad, India. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

It is a full-service digital marketing agency providing services for brand identity, search engine optimization, search engine marketing & website design. CreArt specialized in web development e-commerce website design & conversion rate optimization for online stores. Also offer hosting domain, hosting support & maintenance.

CreArt offers Internship programs. Basically, they are free or paid either online/ offline.

Website Link: <https://creart.in/>

### 1.1.1 MISSION AND VISION OF THE COMPANY:

Our internship program was conducted from 27-July-2023 to 10-August-2023. During our internship course, we were to be taught about various concepts of the PHP and Laravel Framework from very basic.

We covered different important basics which are used in every programming language. The Goals to be achieved during whole internship course were as follows:

1. Basic PHP
2. How to download Xampp and how to use it
3. PHP Laravel
4. Make Project

## **1.2 System Information**

**Tools:** Laptop, Internet, XAMPP, Visual Studio code(IDE).

**Technology:** HTML, CSS, JAVASCRIPT

## Chapter 2 Internship Program

### 2.1 Internship Program Learning.

#### 2.1.1 Week-1 Basic Introduction of PHP

##### ❖ 27 July 2023

###### 1. Introduction about PHP and Laravel

- PHP is stand for 'Hypertext Preprocessor'.
- PHP is a server-side scripting language that is embedded in HTML. It is mainly used in back-end of website. It is also mange dynamic content, database, session tracking etc.
- The comments in PHP can be #, //, /\*..\*/.
- XAMPP is used to run PHP programs.

###### 2. Information and Task of Internship

- Internship project- Video calling web app
- Company details.
- Certificate

##### ❖ 28 July 2023



Fig 2.1 XAMPP Download

1. Download XAMPP and create and run program.

- Download and install XAMPP for windows from chrome browser for run a PHP program. It provides connect to local server and database connection to PHP program. It is required to load and run a PHP program.

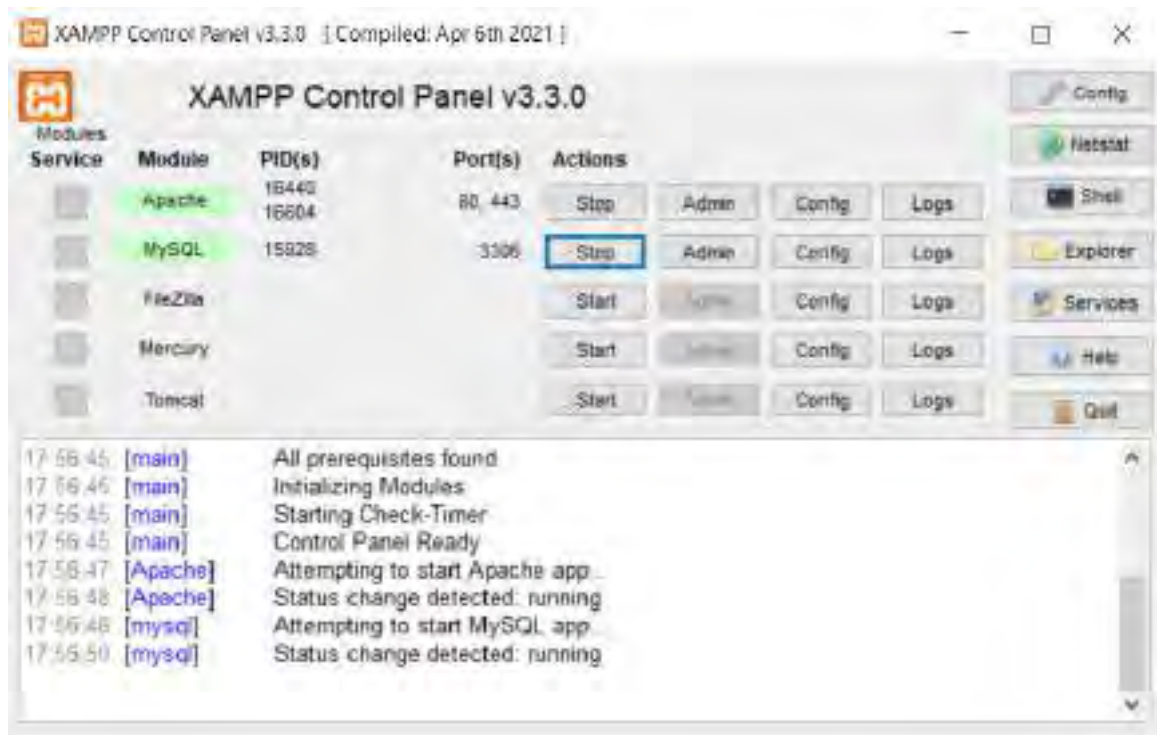


Fig 2.2 XAMPP Panel

```

<!DOCTYPE html>

<html>

<body>

<h1>My first PHP page</h1>

<?php

echo "Hello World!";

?>

</body>

</html>
  
```

❖ **31 July 2023**

1. PHP variable

- Variable are the entity that are used for storing the values. The value can be assigned to the variable in following manner:

`$variable_name=value;`

Ex.

```
<?php
$i=10;
echo "the value of variable= $i";
?>
```

## 2. Data type

- Data Types define the type of data a variable can store. PHP allows 4 different type of data types. Mention below.

1. Boolean
2. Integer
3. Double
4. String

The special data type is NULL

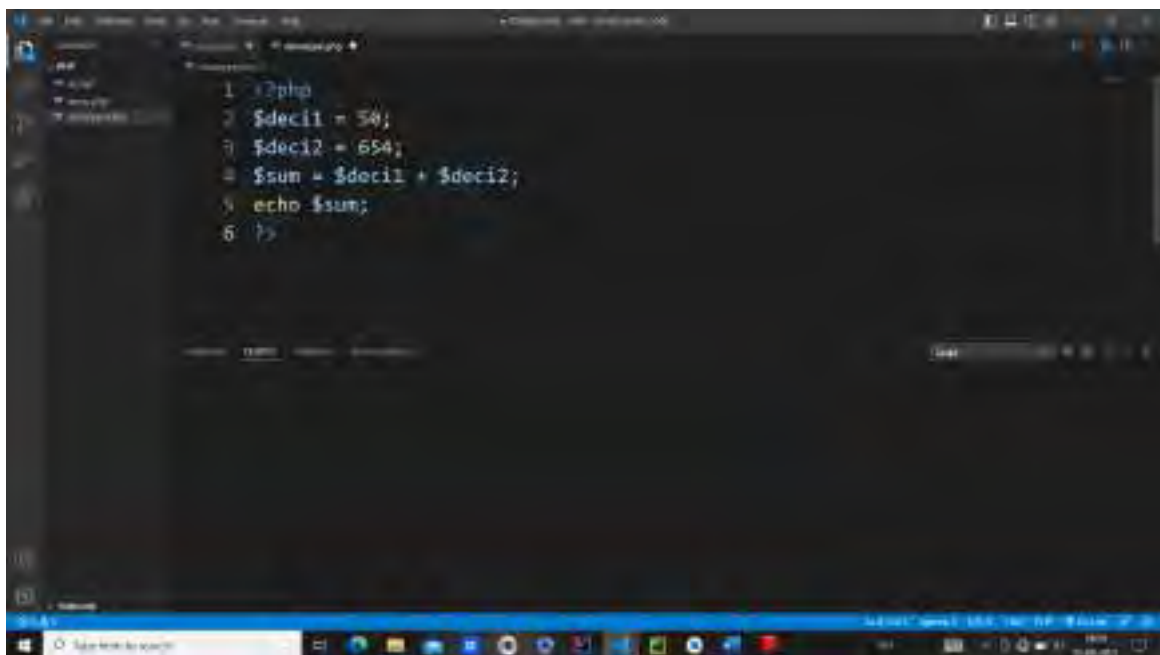
A screenshot of a code editor window with a dark theme. The editor contains six lines of PHP code: 1. <?php, 2. \$dec1 = 50;, 3. \$dec2 = 654;, 4. \$sum = \$dec1 + \$dec2;, 5. echo \$sum;, 6. ?>. The code is displayed in a light-colored font against the dark background. The editor's interface includes a file explorer on the left and a terminal or command prompt area at the bottom.

Fig 2.3 variable example

## ❖ 1August 2023

### 1. PHP arrays

- Array is similar type of elements, each element has two parts key and value.

# Arrays in PHP



Fig 2.4 Array In PHP

Fig 2.5 Arrays example

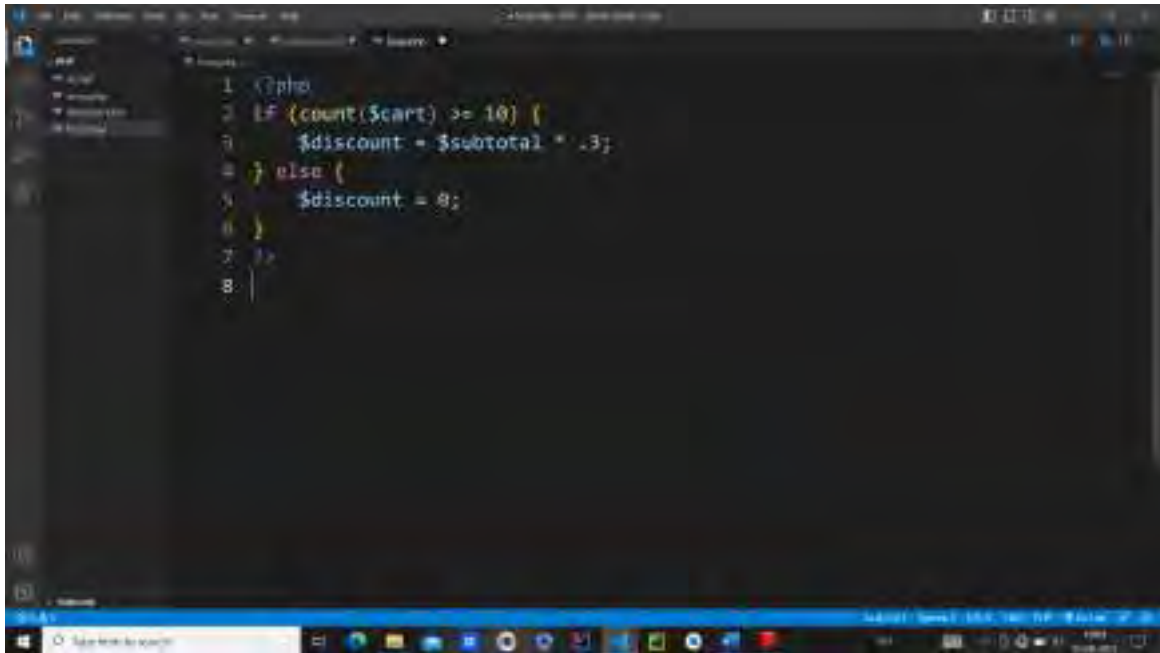
```
1 <?php
2 $age = array("peter">"35", "ben">"45", "jon">"45");
3 echo "peter is ".$age["peter"]."old";
4 >>
```

- Array creation=\$mylist=array(10,20,30,40);



## 1. conditional statements and loops

- Comparison operators are used in combination with the if, else, and elseif keywords to build conditional statements that control the flow of a program.
- Selection statement: if, if...else,if...elseif.

A screenshot of a code editor window showing PHP code. The code is as follows:

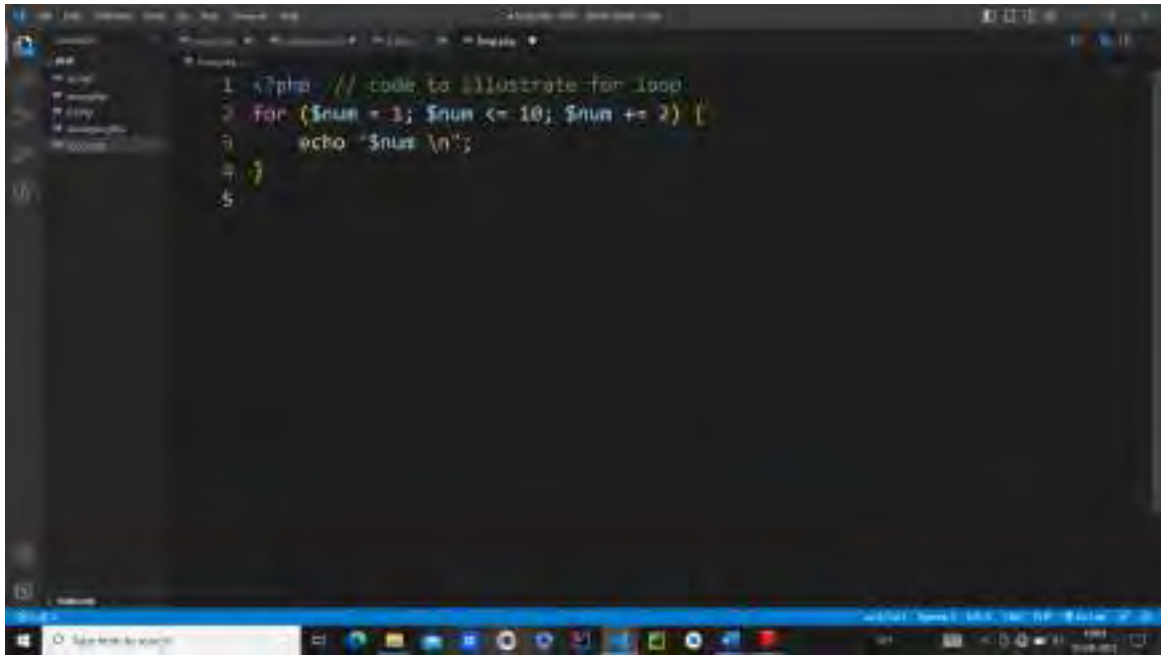
```
1 <?php
2 if (count($cart) >= 10) {
3     $discount = $subtotal * .3;
4 } else {
5     $discount = 0;
6 }
7 }
8 |
```

The code is displayed in a dark-themed editor with line numbers on the left. The code implements an if-else selection statement to calculate a discount based on the number of items in a cart.

Fig 2.6 Selection statement example

## 2. Loop Statement

- Loop in PHP is used to execute a statement or a block of statements, multiple times until and unless a specific condition is met. This helps the user to save both time and effort of writing the same code multiple times.
- 
- for loop
- while loop
- do-while loop

A screenshot of a terminal window with a dark background. The terminal shows a PHP script being executed. The script contains a for loop that starts at 1 and increments by 2 up to 5. The output of the script is the numbers 1, 3, 5, 7, and 9, each on a new line. The terminal window has a title bar at the top and a taskbar at the bottom.

```
1 <?php // code to illustrate for loop
2 for ($num = 1; $num <= 10; $num += 2) {
3     echo "$num \n";
4 }
5
```

Fig 2.7 Loop statement example

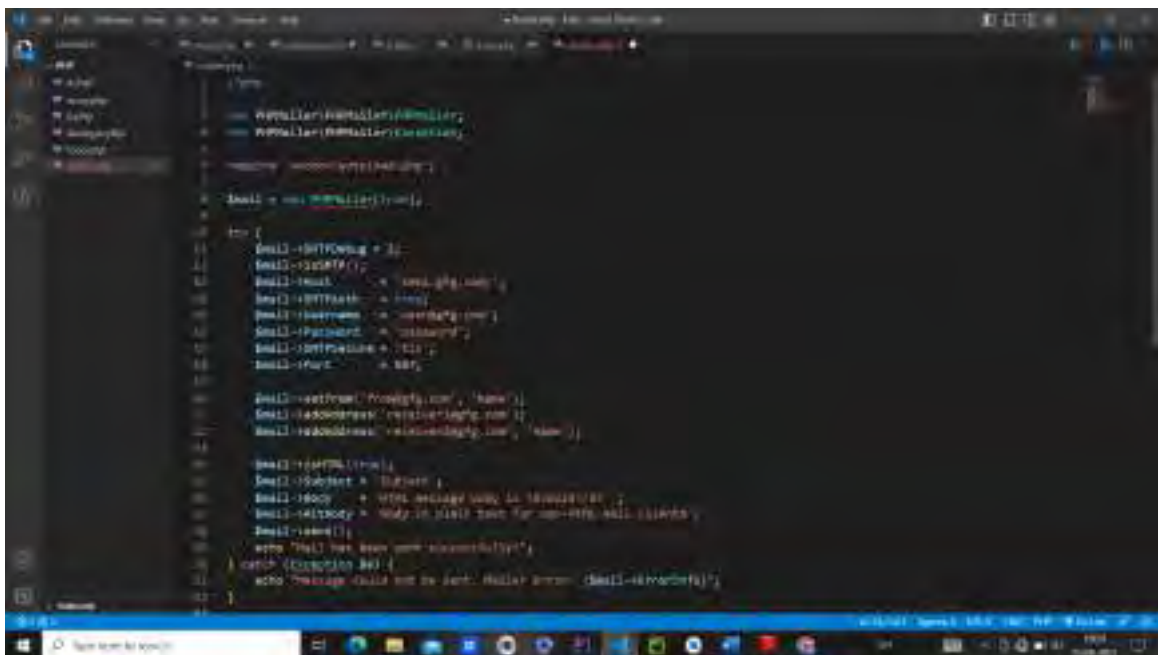
## 2.1.2 Week-2 Project and PHP Laravel

### ❖ 3 August 2023

#### 1. introduction to PHP mailer library

- PHPMailer is a code library to send (transport) emails safely and easily via PHP code from a web server (MUA to the MSA server).
- Sending emails directly via PHP code requires a high-level familiarity to SMTP standard protocol and related issues and vulnerabilities about Email injection for spamming. PHPMailer simplifies the process of sending emails and it is very easy to use.
- Create a PHPMailer class object.

`$mail = PHPMailer()`

A screenshot of a code editor showing PHPMailer implementation. The code includes the following lines:

```
use PHPMailer\PHPMailer\PHPMailer;
use PHPMailer\PHPMailer\Exception;

require 'vendor/autoload.php';

$mail = new PHPMailer(true);

try {
    $mail->SMTPSecure = 'tls';
    $mail->isSMTP();
    $mail->Host = 'smtp.gmail.com';
    $mail->SMTPAuth = true;
    $mail->Username = 'user@gmail.com';
    $mail->Password = 'password';
    $mail->SMTPSecure = 'tls';
    $mail->Port = 587;

    $mail->setFrom('FromName', 'Name');
    $mail->addAddress('recipient@gmail.com');
    $mail->addAddress('recipient2@gmail.com', 'Name');

    $mail->isHTML(true);
    $mail->Subject = 'Subject';
    $mail->Body = 'HTML message body is <strong>HTML</strong>';
    $mail->AltBody = 'Body is plain text for non-HTML clients';
    $mail->send();

    echo "Mail has been successfully sent";
} catch (Exception $e) {
    echo "Message could not be sent. Mailer error: (".$mail->ErrorInfo).";
}
```

Fig 2.8 PHP Mailer example

### ❖ 4 August 2023

#### 1. Video calling web application

- Video calling web application is where two-way or multipoint reception and transmission of audio and video signals by people in different locations for real-time communication.
- In this project we create simple video calling web page.

## 2. Front-end Development

- HTML & CSS is used to develop front-end side of web application.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Video Calling Web App</title>
5   <link rel="stylesheet" type="text/css" href="style.css">
6   <script src='https://cdn.scaledrone.com/scaledrone.min.js'></script>
7   <script type="text/javascript" src="script.js"></script>
8 </head>
9 <body>
10  <div class="header">
11    <h1 align="center">Video Calling Web App</h1>
12  </div>
13
14  <div class="content">
15    <video class="from" id="localVideo" autoplay muted></video> |
16    <video class="to" id="remoteVideo" autoplay controls></video>
17  </div>
18
19  <div class="footer">
20    <h1 align="center">@copyright</h1>
21  </div>
22 </body>
23 </html>
```

Fig 2.9 HTML of website

Fig 2.10 CSS of website

```
1  .header {
2      height: 100px;
3      border: 1px solid black;
4      background-color: black;
5  }
6  h1 {
7      color: white;
8  }
9  .footer {
10     height: 80px;
11     border: 1px solid black;
12     background-color: black;
13 }
14 .content {
15     height: 400px;
16     border: 1px solid black;
17 }
18 .from {
19     height: 250px;
20     width: 250px;
21     border: 1px solid black;
22     margin-top: 100px;
23     margin-left: 300px;
24     border-radius: 20px;
25     float: left;
26 }
27 .to {
28     height: 250px;
29     width: 250px;
30     border: 1px solid black;
31     margin-top: 100px;
32     margin-left: 300px;
33     border-radius: 20px;
34     float: left;
35 }
```

## ❖ 7 August 2023

### 1. Javascript of website

```
if (!location.hash) {
  location.hash = Math.floor(Math.random() * 0xFFFFFFFF).toString(16);
}
const roomHash = location.hash.substring(1);
const drone = new ScaleDrone('8iFajSULSQLorBFR');
const roomName = 'observable-' + roomHash;
const configuration = {
  iceServers: [{
    urls: 'stun:stun.l.google.com:19302'
  }]
};
let room;
let pc;
function onSuccess() {};
function onError(error) {
  console.error(error);
};
drone.on('open', error => {
  if (error) {
    return console.error(error);
  }
  room = drone.subscribe(roomName);
  room.on('open', error => {
    if (error) {
      onError(error);
    }
  });
  room.on('members', members => {
    console.log('MEMBERS', members);
    const isOfferer = members.length === 2;
    startWebRTC(isOfferer);
  });
});
function sendMessage(message) {
  drone.publish({
    room: roomName,
    message
  });
}
function startWebRTC(isOfferer) {
  pc = new RTCPeerConnection(configuration);
  pc.onicecandidate = event => {
    if (event.candidate) {
      sendMessage({'candidate': event.candidate});
    }
  }
}
```

```

};
if (isOfferer) {
  pc.onnegotiationneeded = () => {
    pc.createOffer().then(localDescCreated).catch(onError);
  }
}
pc.onaddstream = event => {
  remoteVideo.srcObject = event.stream;
};
navigator.mediaDevices.getUserMedia({
  audio: true,
  video: true,
}).then(stream => {
  localVideo.srcObject = stream;
  pc.addStream(stream);
}, onError);
room.on('data', (message, client) => {
  if (client.id === drone.clientId) {
    return;
  }
  if (message.sdp) {
    pc.setRemoteDescription(new RTCSessionDescription(message.sdp), () => {
      if (pc.remoteDescription.type === 'offer') {
        pc.createAnswer().then(localDescCreated).catch(onError);
      }
    }, onError);
  } else if (message.candidate) {
    pc.addIceCandidate(
      new RTCIceCandidate(message.candidate), onSuccess, onError
    );
  }
});
}
function localDescCreated(desc) {
  pc.setLocalDescription(
    desc,
    () =>sendMessage({'sdp': pc.localDescription}),
    onError
  );
}

```

## ❖ 8August 2023

1.Create a video channel for video calling web application

- Scaledrone is used to create video channel.
- Channel ID:8iFajSULSQLorBFR





Fig 2.13 Packagist website



❖ 10August 2023

1.Example of Laravel Framework.

```
if ($credential_no || $ssn || $passport_no || $birthdate) {  
    $workersResults1 = Worker::select()  
        ->when($credential_no, function ($query) use ($credential_no) {  
            return $query->where('credential_no', $credential_no);  
        })  
        ->when($ssn, function ($query) use ($ssn) {  
            return $query->orWhere('ssn', $ssn);  
        })  
        ->when($passport_no, function ($query) use ($passport_no) {  
            return $query->orWhere('passport_no', $passport_no);  
        })  
        ->when($birthdate, function ($query) use ($birthdate, $gender) {  
            return $query->orWhere(function ($query) use ($birthdate, $gender) {  
                $query->whereDate('birthdate', $birthdate)  
                    ->where('gender', $gender);  
            });  
        });  
    ->get();  
} else {  
    $workersResults1 = collect([]);  
}
```

Fig 2.14 Example of Laravel

## Chapter 3Project

- In My Internship, I learn PHP and Develop “Video Calling Web Application”.

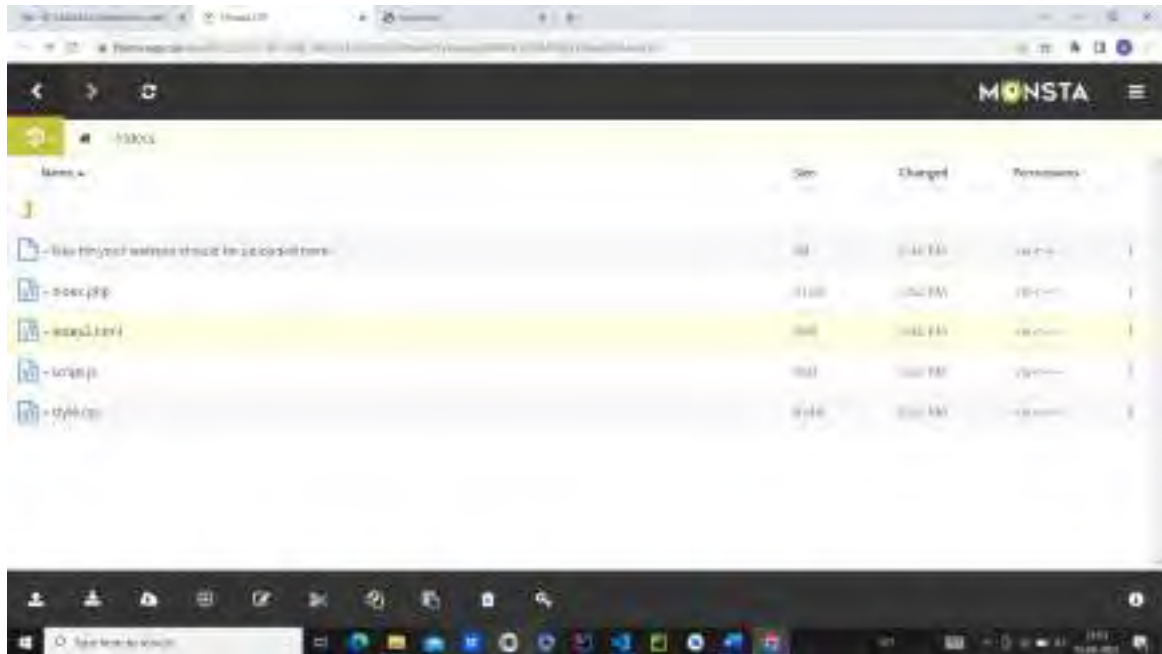


Fig 3.1 Hosting files

- add a project files into the infinity free for hosting.
- Video calling web app is a web application by which a user can do a video call to other user from different location at any time



Fig 3.2 Hosting website



Fig 3.3 Prototype

- We used “Infinity free” web hosting platform to host our website.

## **Chapter 4 Conclusion**

My internship in CreArt Solutions has been an excellent and rewarding experience. I can conclude that have been a lot I've learnt from my work in the internship. I am able to develop a dynamic web-based application using PHP and Laravel Framework. It is a amazing experience to host my own website on internet. This internship has enabled me to contribute meaningfully to PHP and has gives me a glimpse into the challenges and opportunities in my career. Working in Web Development using PHP language has increased my interested my interest in them.

## References

- [1] [www.laravel.com](http://www.laravel.com)
- [2] [www.W3School.com](http://www.W3School.com)
- [3] [www.wikipedia.org](http://www.wikipedia.org)
- [4] [www.udemy.com](http://www.udemy.com)
- [5] [www.researchgate.net](http://www.researchgate.net)

## **Appendix**

Scanned copies of your NOC Letter  
Scanned Copies of Weekly report Annexure-I  
Scanned copy of Annexure-II  
Other scanned supporting documents etc.

# **INTERNSHIP AT SILENT INFOTECH**

## **AN INTERNSHIP REPORT**

*Submitted by*

**KHUNT HETVI CHETANBHAI**

**200390107027**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

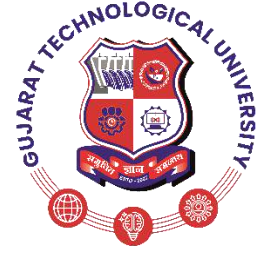


**Gujarat Technological University, Ahmedabad**

**August, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at SILENT INFOTECH** has been carried out by **KHUNT HETVI CHETANBHAI** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

Prof. Chetan Chauhan

Internal Guide

Prof. Akshay Kansara

Head of Department



# Company Certificate



**Silent Infotech**  
www.silentinfotech.com

Date : Aug 12, 2023

## Certificate of Internship

**Internship Mode: Offline**

TO WHOM IT MAY CONCERN

This is to certify that **Ms. Hetvi Khunt**, a student of **Saffrony Institute of Technology**, has successfully completed his internship in the field of **Web Technology** at **Silent Infotech Pvt Ltd.** from **July 27, 2023** to **August 10, 2023** under the guidance of Mr. Amit Kansagara and Mr. Abishek Shah.

Her internship activities include learning web concepts, HTML Design, Gitlab, JavaScript concepts, SQL concepts, Linux Commands etc.

During the period of her internship program with us, she had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish him every success in her life and career.

For Silent Infotech Pvt Ltd.

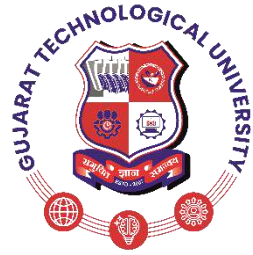
Jignesh Vaghasiya

**Silent Infotech Pvt.Ltd.**

**Director**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **SILENT INFOTECH** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Mr. Abhishek Shah** and **Mr. Amit Kansagara** that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

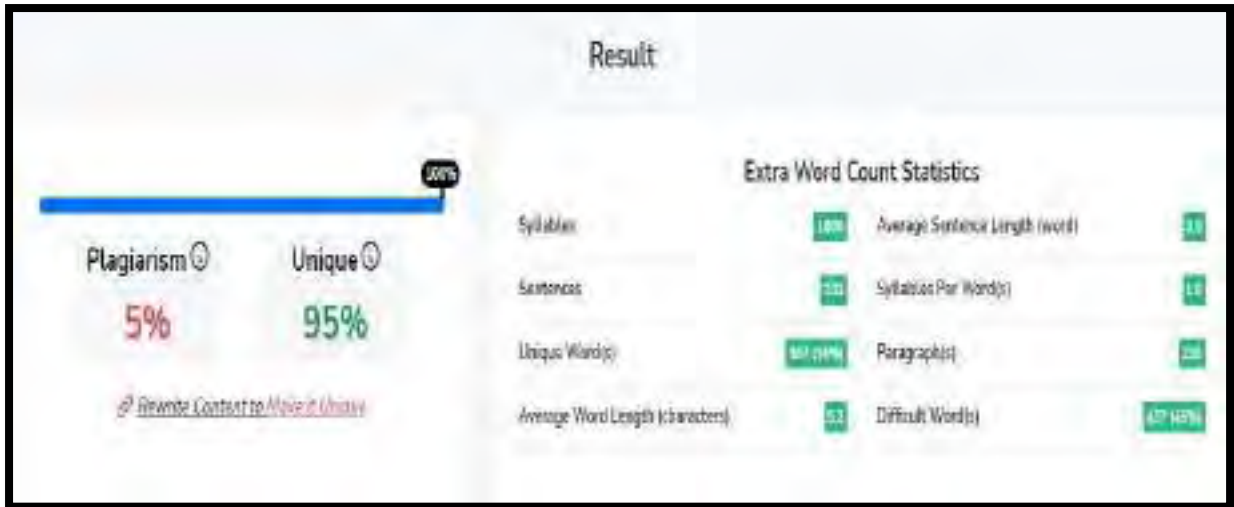
Name of the Student

Sign of Student

1. **Khunt Hetvi Chetanbhai**

\_\_\_\_\_

# PLAGIARISM REPORT



## **ACKNOWLEDGMENT**

I would like to give special thanks to S.P.B. Patel Engineering College and Silent Infotech for giving me this wonderful Internship opportunity. I am very happy that I got this opportunity to learn from the professionals and prepare to work in the industry. Silent Infotech have a very good professional team from whom I have learned and they have the best atmosphere to work in.

## **ABSTRACT**

During my internship, I learned about various aspects of creating websites, like using HTML to structure content, using CSS to make it look good, and JavaScript to add interactive features. I also explored managing data using SQL, tracking changes with GitLab, and basic computer commands in Linux. Additionally, I learned how different parts of a website can communicate using REST API. Putting all this learning into action, I built a website for managing a restaurant. This project demonstrated my ability to combine these skills to create something functional.

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# **CHAPTER 1. ABOUT THE COMPANY**

## **1.1 COMPANY PROFILE**

Silent Infotech is a full-service business solutions provider. They specialize in using smart technology to help businesses quickly create new features for their operations. Their focus is on making technology work efficiently for businesses in today's digital world. They have experience in various industries like Telecom, Printing, Seafood Processing, and more, which makes them a versatile partner for many different types of businesses.

## **1.2 History**

Silent Infotech started in 2014 with three entrepreneurs who wanted to use technology to solve business problems. Since then, they've become a trusted partner for big global companies, helping them with creative software solutions.

## **1.3 SCOPE OF WORK**

Silent Infotech is good at making custom solutions for different industries. They can help with things like managing warehouses, improving manufacturing, and even creating special apps for businesses.

## **1.4 MISSION AND VISION OF THE COMPANY**

Silent Infotech's goal is to make technology solutions that help businesses be more productive and successful. They want to be the go-to partner for businesses of all sizes, helping them use technology to do better in today's changing business world.

## **1.5 TRAINING**

Silent Infotech helps businesses with their technology needs. They're experts in using a technology stack called Odoo ERP. They can create web-based solutions, mobile apps, and even special technology for industries like manufacturing and logistics.

# CHAPTER 2. GIT BASICS

## 2.1 INTRODUCTION TO GIT

- Git is a version control system that tracks changes in your project's code.
- It helps in collaborative work, keeps track of changes, and allows for easy revert to previous versions.
- Developers use Git to manage their projects, work together, and maintain code history.

## 2.2 BASIC GIT CONCEPTS

- Commits are like snapshots of your code at different points. They help track changes and create a timeline of your project's history.
- Branches are separate paths in your project. You can create branches to experiment without affecting the main code.
- Merging combines changes from different branches, making sure everything fits together smoothly.
- Pull Requests are a way to propose changes and collaborate. Others review and discuss before merging.
- Clone lets you make a copy of a repository from a remote server (like GitHub) to your local machine.

## 2.3 GIT WORKFLOW

- Start by creating a repository for your project, whether it's new or existing.
- Make changes and commit them with a message describing what you did.
- Create new branches to experiment without touching the main code.
- When ready, create a pull request to propose changes to the main code.
- Once changes are approved, merge them into the main codebase.
- If changes conflict, resolve them to make sure everything works together.

## CHAPTER 3. EXPLORING SQL

### 3.1 WHAT IS SQL?

- **SQL:** Structured Query Language
- SQL is a powerful tool for managing and manipulating databases. It allows you to interact with databases by writing queries to retrieve, update, and organize data.

### 3.2 ADVANCED SQL CONCEPTS

- **JOINS:** JOINS help you combine data from multiple tables. It's like piecing together a puzzle to see the whole picture.
- **GROUP BY Clause:** When you want to analyze data as groups, like calculating the total sales per month, GROUP BY comes in handy.
- **ORDER BY Clause:** ORDER BY helps you sort data in a specific order, like arranging customer names alphabetically.
- **Functions:** Functions perform calculations on data. You can use them to find averages, counts, or maximum values.
- **Subqueries:** These are queries inside queries. They're useful when you need information from one query to use in another.

### 3.3 SQL Workflow

- **Creating a Database:** Start by creating a database to organize your data.
- **Creating Tables:** Define tables with the appropriate columns to store your data.
- **Inserting Data:** Add data to your tables using the INSERT statement.
- **Querying Data:** Retrieve specific data using the SELECT statement, using conditions with WHERE.
- **Updating Data:** Modify existing data with the UPDATE statement.
- **Deleting Data:** Remove unwanted data with the DELETE statement.

# CHAPTER 4. INTRODUCTION TO HTML AND CSS

## 4.1 HTML

- HTML stands for Hyper Text Mark-up Language.
- HTML5 is a revised version of the original HTML standard.

## 4.2 CSS

- CSS stands for ‘Cascading Style Sheets’ and is the language of design for web pages, giving site designers the ability to suggest how their site documents are styled.

### **Advantages of HTML5 and CSS3:**

- Cost effective Multi-Platform Development
  - Good page ranking
  - Offline browsing
  - Consistency across multiple browsers
  - Better mobile access to Business Intelligence
  - A better user experience
- HTML5 and CSS3 represent numerous opportunities in web development for businesses that develop and deploy online content and web applications. Overall, by using both of these tools in your businesses' web development you can optimize your users' web experience, provide a solid foundation for your SEO.

## **CHAPTER 5. BASICS OF JAVASCRIPT AND TYPESCRIPT**

- JavaScript to program the behavior of web pages.
- JavaScript (JS) is a lightweight, interpreted, or just-in-time compiled programming language with first-class functions.
- It is most well-known as the scripting language for Web pages, many non-browser environments also use it, such as Node.js and Adobe Acrobat.

### **5.1 PROMISES**

- The Promise object represents the eventual completion (or failure) of an asynchronous operation and its resulting value. It consists mainly of two properties and they are state and result.
- When a Promise object is "fulfilled", the result is a value. When a Promise object is "rejected", the result is an error object.

### **5.2 ASYNC/AWAIT**

- The word “async” before a function means a function that always returns a promise.
- The keyword await makes JavaScript wait until that promise settles and returns its result.

### **5.3 WHAT IS TYPESCRIPT?**

- TypeScript is a object-oriented, open source and superset of the JavaScript so JavaScript gets converted into TypeScript by changing the extension from .js to .ts.
- TypeScript allows us to specify the types of data being passed around within the code, and has the ability to report errors when the types don't match.

- It has better code structure as compared to the JavaScript and it highlights the error at the compilation time.
- It provides additional features like static typing, classes and interfaces.
- Needs a compiler to compile and generate in the JavaScript file.
- In typescript, source file is saved with .ts extension.

➤ **Disadvantages of the using typescript are:**

- It takes longer time to compile the code as compared to the JavaScript.
- Doesn't support abstract classes.
- It can't run typescript code on the browser directly.

## **CHAPTER 6. OVERVIEW OF THE INTERNSHIP**

### **6.1 DOMAIN / INTERNSHIP TITLE:**

Developing websites using HTML, CSS and JS.

### **6.2 PROJECT NAME:**

Restaurant Management System

### **6.3 ABSTRACT:**

The project presents the experience and skill gained during Internship. This project is about developing a website using HTML, CSS, and JavaScript. This was done using a helpful tool called Visual Studio Code. The website has a user-friendly menu at the top with sections like "Specialty," "Menu," "Book Table," "Contact Us," and "Reviews." These sections let customers explore the restaurant's special dishes, interact with a fun menu, easily reserve tables, send messages through a form, and share their own reviews.

The restaurant menu is organized by categories of menu items. Main objective to build the system is for reservation service by online to the customer. Each item has a name and price. With this system reservation management will become easier.

By using these simple but effective tools, the project aims to make the restaurant more visible online, giving customers a better experience and showing how making websites can benefit modern businesses.

## **CHAPTER 7. SYSTEM ANALYSIS**

### **7.1 STUDY OF CURRENT SYSTEM**

There are systems for restaurant and cafe management. It has functionalities like, view menu, infrastructure of the place, contact information, feedback form and so on. Some systems are vast and somewhat having complex functionalities. Some of them are having online order food feature and deliver to the consumers.

We have to make system graphical user interface as simple as we can. So, each and every person can easily make use of it.

### **7.2 PROBLEM AND WEAKNESS OF CURRENT SYSTEM**

There are few restaurants and cafe websites that do not have the feature of reserving a table due to which the people needs to call in advance to the respective cafes or the other way may be walk in dining. However, there may be chances that there is rush and have to wait a long. This is usually witnessed during festivals and weekends.

Another way of make reservation for the table is by the phone call but there are lot of chances to miscommunication and also management staff will book the table on the paper so there is higher probability of lost and duplication or entered wrong information of customers.

Some of the websites are having less attention of people. And the reason behind that is, it has less social media presence. And it causes loss to them because young generations are not happened to see them on their feed. Sometimes the website is not that good when it comes to responsive. Few websites have poor aesthetics due to which it fails to appeal the customer.



### **7.3 REQUIREMENT ANALYSIS OF NEW SYSTEM**

Now a day, the world is getting into digital world. System was trying to build out to make people even more convenience on any aspects. This website provides a system where the customer can track the location of cafe, look for the desired dish from the menu, also view the special movie of the cafeteria, the review the ambience of the cafe. Moreover, It offers the facility of booking the table beforehand which make it easy for the customers as they don't have to wait during rush timings. It is win-win situation that will bring benefits to the world. This system was bringing a convenience for customer that can get the glimpse and review of the cafe and their food, just with the help of a computer.

It provides customer with a completely new way to make reservation as earlier the customer needed to call the cafe in order to book table while the website that has the feature of making TABLE RESERVATION and just asks the date and the time and books the table. Hence, this makes the task easy for the customer. By providing customer convenience and also increase the sales. No time wasted while calling for booking or letting the customer browse the menu over the system. This system provides more reliable usability, maintainability and dependability functions.

# CHAPTER 8. SYSTEM MODELING

## 8.1 USE CASE DIAGRAM

A use case diagram is used to represent the dynamic behavior of a system. It encapsulates the system's functionality by incorporating use cases, actors, and their relationships. It models the tasks, services, and functions required by a system/subsystem of an application. It depicts the high-level functionality of a system and also tells how the user handles a system.

Here, Restaurant management system's use case diagram is given. We have two actors which are User and Admin. Diagram includes functionalities which is accessed and provides by the actors.

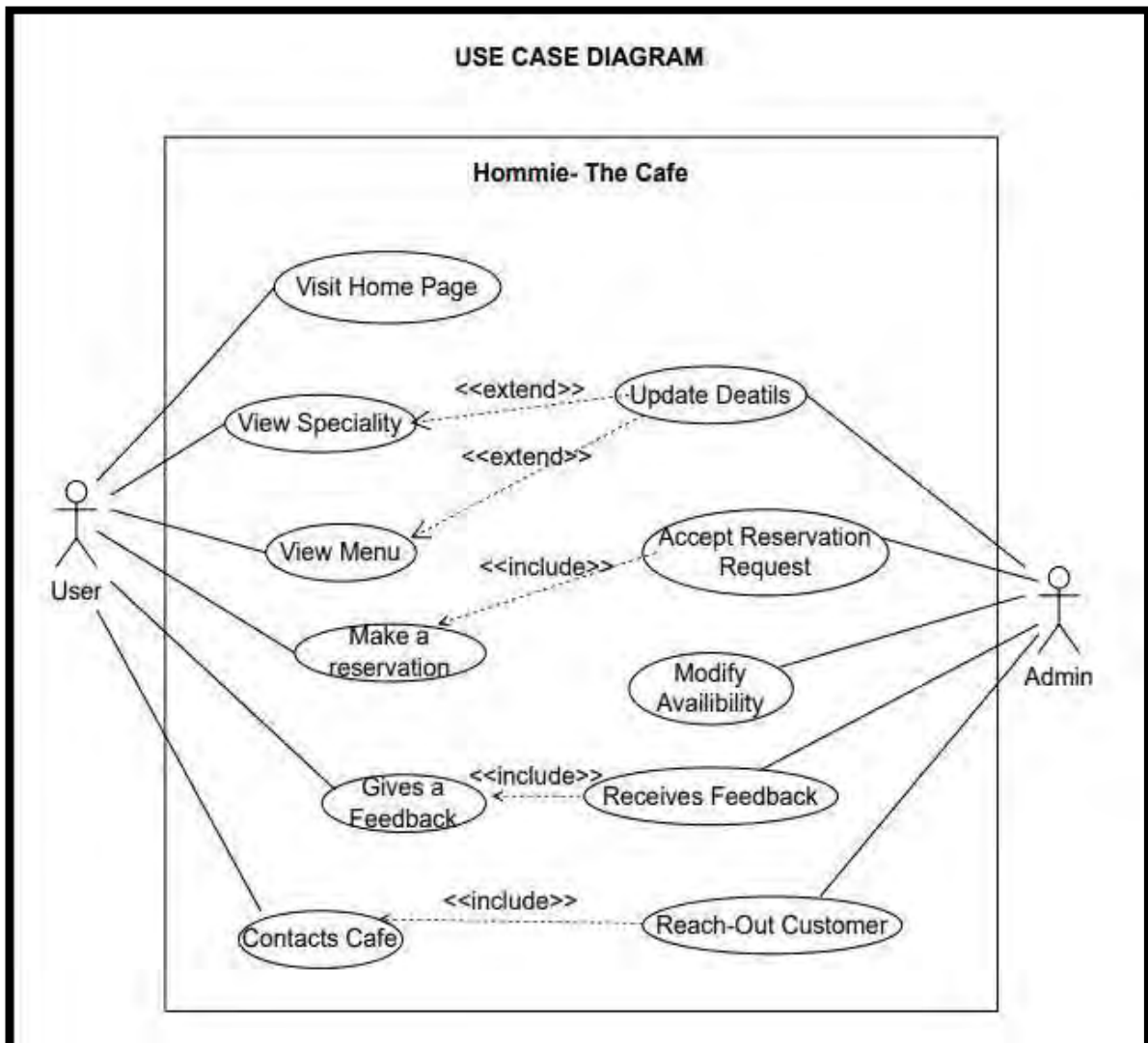


Fig 8.1 Use Case Diagram

## 8.2 ACTIVITY DIAGRAM

Activity diagram is used to demonstrate the flow of control within the system rather than the implementation. It models the concurrent and sequential activities.

As shown in figure activities to be performed into “Hommie- The Cafe” website. It represents flow of the system and also describes flow of control of the website from start to end point.

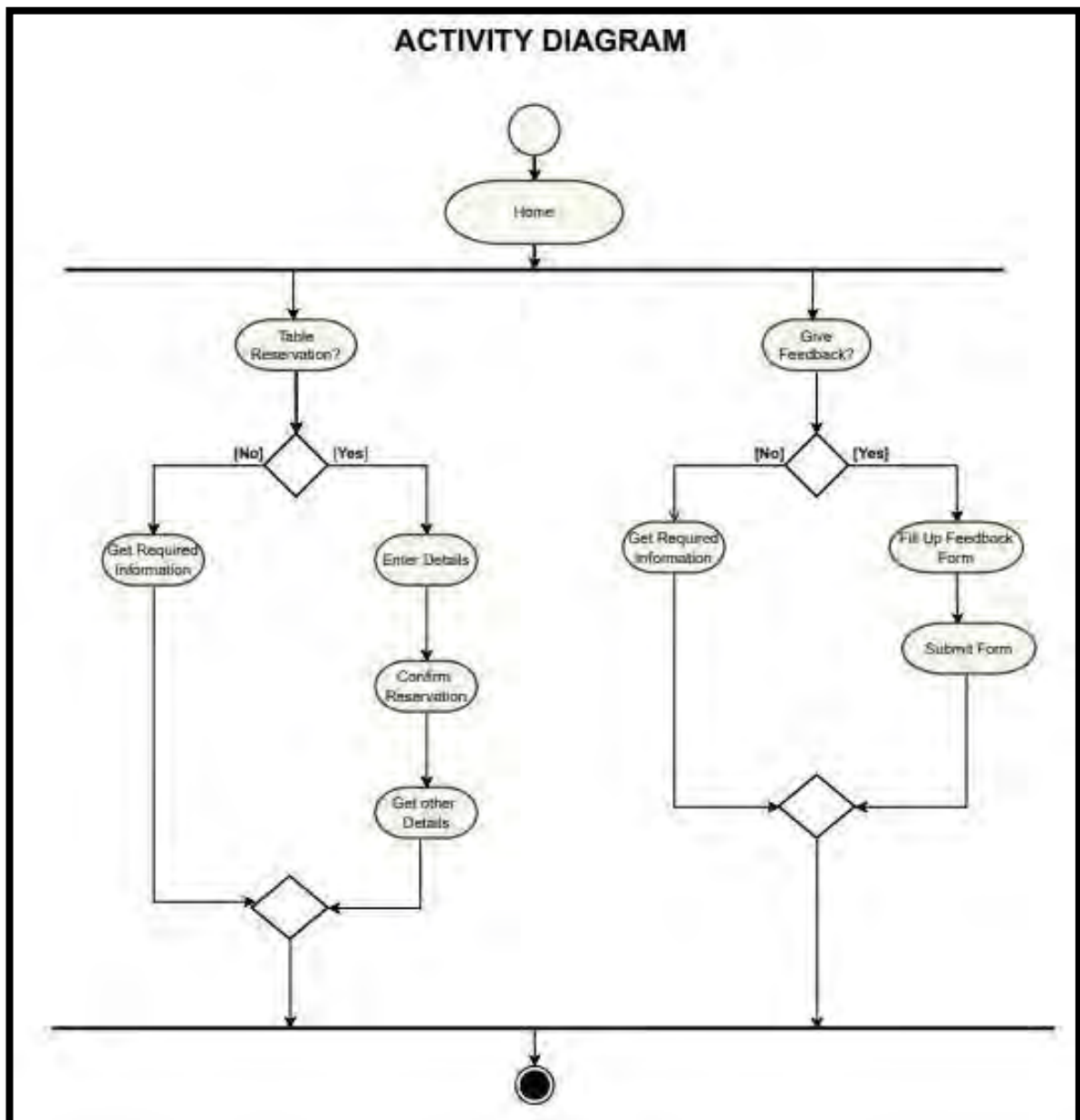


Fig 8.2 Activity Diagram

# CHAPTER 9. IMPLEMENTATION

## 9.1 SNAPSHOTS OF PROJECT

### Home Page:

Every page contains navbar through which you can move across from one page to another. Home page contains main title of the cafe – “Hommie- The Cafe”. Then working times of the cafe is displayed. Next to that infrastructure of the cafe is shown.



Fig 9.1 Home Page Image



Fig 9.2 Timing Image



**Fig 9.3 Infrastructure Image**

**Speciality Page:**

In this page special dishes of the cafes are included. It contains name of the dishes, image of the dishes and lastly description of the food items.



**Fig 9.4 Speciality Image**



Fig 9.5 Speciality Image


-> **Hovering effect:**



Fig 9.6 Speciality Image

## Menu Page:

In menu page of the cafe is shown. Items name followed by its price and it is divided by categories and subcategories of the food. Users can views menu get to know about price and varieties by referring to the website.



The image shows a digital menu titled "Our Menu" with a light wood-grain background. It is organized into four sections: BURGER, PIZZA, SANDWICHES, and ICE-CREAMS. Each section contains a table with two columns: "Type" and "Price".

<b>Our Menu</b>			
<b>BURGER</b>			
Type	Price	Type	Price
Aloo tikki burger	200	Exotic Vegetables	220
Vegetables Gourmet Burger	250	BBQ Paneer Burger	250
Spicy Chicken And Cheese Burger	300		
<b>PIZZA</b>			
Margherita Pizza	300	Grilled Paneer Pizza	320
Mexican Pizza	320	Indi Tandoori Pizza	350
Veggie Paradise Pizza	350	BBQ Chicken Pizza	390
<b>SANDWICHES</b>			
Simple aloo matar/vegetable sandwich	100	Mexican Sandwich	130
Paneer Scherwan Sandwich	150	Cheese Masala	150
Bread butter	80		
<b>ICE-CREAMS</b>			
Vanilla	80	Chocolate	130
Mango/Strawberry	120	Butter Scotch	110
Homise Special	200		

Fig 9.7 Menu Image

<b>MOCKTAILS</b>			
Classic Mint Mojito	170	Watermelon Agua	190
Homice Special ginger,lemon,mint iced tea	190	Fresh juice(watermelon/pineapple)	170
Detox pomegranate & watermelon with mint	190		
<b>SHAKES</b>			
Chocolate coffee frappe/cold coffee	170	Kitkat/Bronnie thick shake	200
Choco-chip and hazelnut thick shake	220	Fruit Shake(Mango/strawberry)	200
<b>COFFEE</b>			
Espresso	60	Cappuccino	80
Hot Choco Bournvita	100	Hot Chocolate	120
Cafe Hazel Nut	100		
<b>FRENCH FRIES</b>			
Simple French Fries	70	Masala French Fries	80
Peri-Peri French Fries	100	Cheese Masala French Fries	110
<b>CUP CAKES</b>			
Too much chocolate/Oreo delight	mini-25/large-60	Pink Love/Red velvet	mini-20/large-60
Belgium chocolate/Ferero Rocher	mini-30/large-80	5 Star/Kitkat/Gems/Bounty	mini-30/large-80
<i>Have Fun guys...!!!</i>			

**Fig 9.8 Menu Image**

### **Book Table Page:**

Table reservation page is for reserve or book table beforehand. It required some information for book your table. Information that is required for booking is name of the person who made reservation, his/her Email id, Phone number, Number of guests, date and time, and also have an optional description field. After submitting details reservation is made successfully and data submitted by user is recorded in database. People from admin side will be able to see the submitted by user and they will confirm the reservation.





Fig 9.9 Book Table Image

**Contact Us Page:**

In this page contact information of the cafe is included. Phone numbers and email id for contact cafe is given. Every page contains footer which includes location and social media links of the cafe and copyright

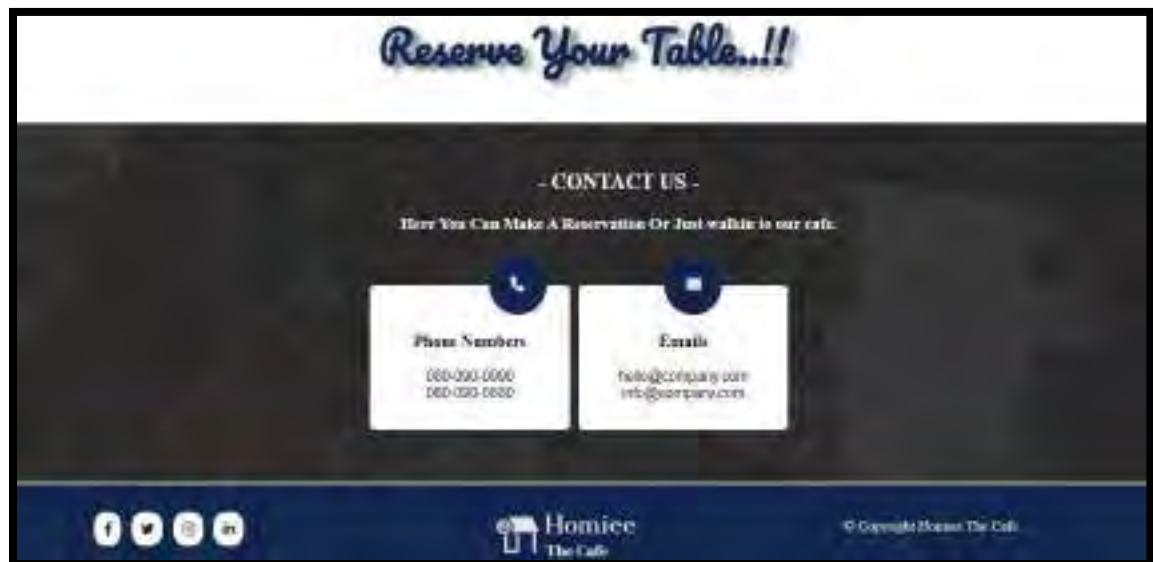


Fig 9.10 Contact Us Image

### Review Us Page:

Review us page contains a form for submit feedback about cafe. Name, email id, ratings among one to five and description field for describe experience at cafe. These data will go to the server side. And admin will able to view data.

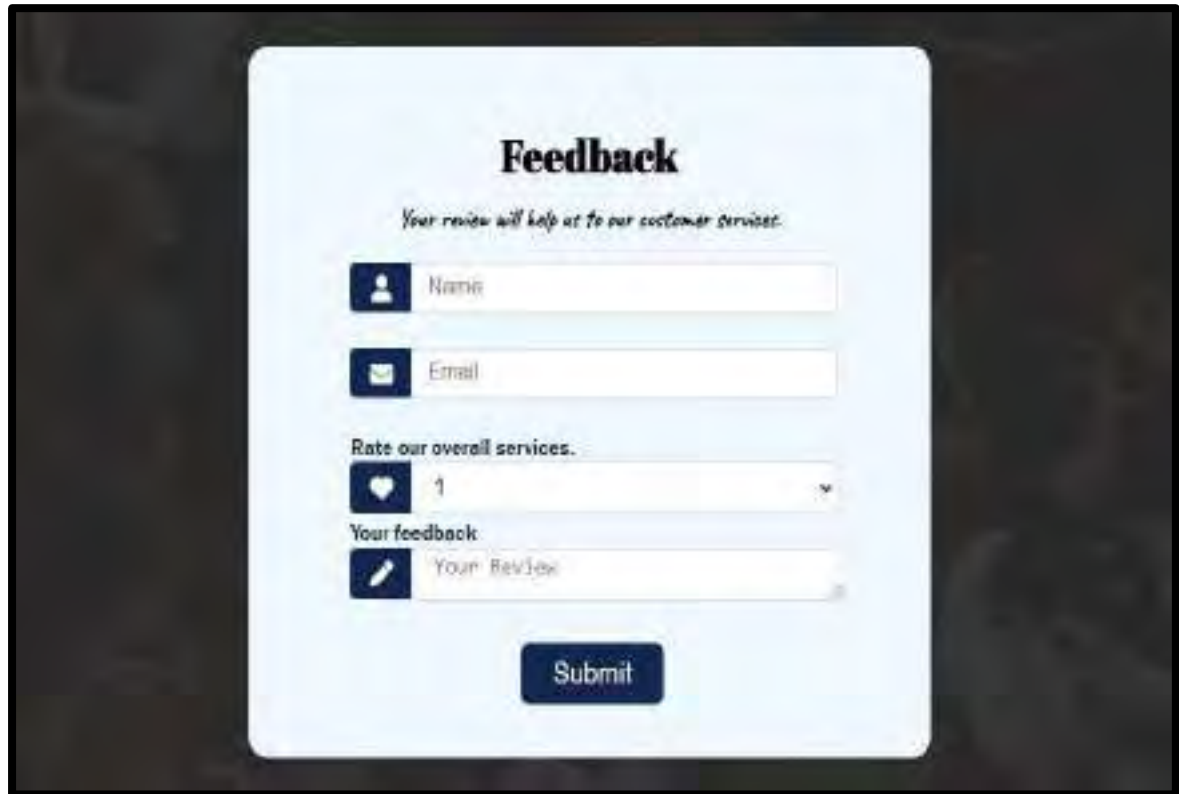
The image shows a feedback form titled "Feedback" on a light blue background. Below the title is a subtitle: "Your review will help us to our customer services." The form contains four input fields: a "Name" field with a person icon, an "Email" field with an envelope icon, a "Rate our overall services." field with a heart icon and a dropdown menu showing the number "1", and a "Your feedback" field with a pencil icon. A dark blue "Submit" button is located at the bottom of the form.

Fig 9.11 Feedback Image

## **CHAPTER 10. CONCLUSION**

In this project I have gained valuable knowledge and also explored new things and learnt that. This project is an interactive website for manage restaurants and cafe. For implementation of this project, I have explored some new functions and also got some errors. For resolving such errors I tried new ways to implement it. This project contains simple graphical user interface and some features which is useful to users for perform desired activities.

## REFERENCES

<https://www.thebyte9.com/news/how-can-html5-css-benefit-your-business>

<https://www.w3schools.com/js/>

<https://developer.mozilla.org/en-US/docs/Web/JavaScript>

<https://www.youtube.com/playlist?list=PLC3y8-rFHvvgg3vaYjHGnModB54rxOk3>

[https://www.tutorialspoint.com/uml/uml\\_activity\\_diagram.htm#:~:text=Activity%20diagram%20is%20basically%20a,sequential%2C%20branched%2C%20or%20concurrent.](https://www.tutorialspoint.com/uml/uml_activity_diagram.htm#:~:text=Activity%20diagram%20is%20basically%20a,sequential%2C%20branched%2C%20or%20concurrent.)

## Appendix

### OFFER LETTER:

**Offer: Internship as Web Developer**  
1 message

---

Abishek Shah <abishek.shah@silentinfotech.com> Fri, Jul 28, 2023 at 4:45 PM  
To: khunthetvi, silentinfotech@gmail.com  
Cc: Jignesh Vaghasiya <jignesh@silentinfotech.com>

**Subject: Internship Confirmation - July 27, 2023, to August 10, 2023**

Dear Hetvi,

We are thrilled to inform you that you have been selected for the Web Developer internship at Silent Infotech Private Limited. Congratulations on being chosen for this exciting opportunity! We are confident that your skills and enthusiasm will be a valuable addition to our team.

**Internship Details:**

Internship Position: Web Developer Intern  
Internship Period: July 27, 2023, to August 10, 2023  
Department: Department of Research - Web Development.  
Reporting Time: 9 am on July 27, 2023  
Location: Ahmedabad HQ


We believe this internship will provide you with valuable hands-on experience and professional growth opportunities. Our team is looking forward to working with you and making this a productive and rewarding experience for both parties.

Once again, congratulations on your selection! We're excited to have you on board as part of our team.

Thank you,

Feel free to call us at +1-817-601-7574  
Book a FREE Demo/Meeting from Calendar

Kind Regards,  
Abishek Shah  
Project Manager  
Silent Infotech Inc



Skype: silentinfotech

# **INTERNSHIP AT CREAT SOLUTIONS PVT LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

*Khushal Nandaniya*

**200390107052**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

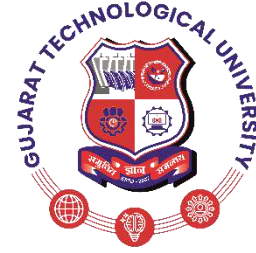


**Gujarat Technological University, Ahmedabad**

**August, 2023**



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**ENGINEERING COLLEGE**  
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## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report **CreArt Solutions PVT LTD.** submitted along with the project entitled **Internship at CreArt Solutions PVT LTD.** has been carried out by **Khushal Nandaniya** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

Sign

Sign

Prof.

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



## INTERNSHIP COMPLETION LETTER

Date: 10<sup>th</sup> August 2023

This is to certify that

Mr/Ms. **Krushal Nananiya**  
Enrollment No : 200390107062  
College : **Saifony Institute of technology**

has successfully completed the 15 days of summer internship from **27<sup>th</sup> July 2023** to **10<sup>th</sup> August 2023** at **CreArt Solutions, Ahmedabad.**

We wish him/her all the best for his future endeavours



**Krishnamohan Gupta**  
Director

### **CreArt Solutions PVT LTD.**

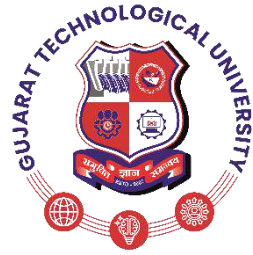
202, Heritage Horizon, Opp Hotel Day Corporate, 1<sup>st</sup> G Road,  
Ahmedabad, Gujarat, India - 380009

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## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CreArt Solutions PVT LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay kansara & shubhangi Chaturvedi** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**1. Khushal Nandaniya**

\_\_\_\_\_

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## **ACKNOWLEDGMENT**

In this review, I would like to extend my heartfelt acknowledgments to all those who have made my online internship a valuable and enriching experience.

First and foremost, I am immensely grateful to Alkesh Kaba for their unwavering guidance and mentorship throughout this internship. Their expertise, constructive feedback, and willingness to share insights have been instrumental in shaping my understanding and skills.

I would also like to thank the entire CreArt Solutions PVT LTD. team for their warm welcome and constant support. The collaborative environment and open discussions allowed me to immerse myself in real-world projects and gain practical exposure.

My gratitude extends to my fellow interns who made this journey even more enjoyable. Our teamwork, brainstorming sessions, and shared learning significantly enhanced my internship experience.

Furthermore, I express my appreciation to Sublime Text for providing essential resources and tools that facilitated my tasks and learning during the internship.

Lastly, I am indebted to my family and friends for their encouragement and understanding throughout this remote internship period.

In conclusion, I am honored to have had the opportunity to be a part of this internship, and the collective efforts of everyone mentioned above have contributed immensely to my growth and learning.

Thank you all for your support.

## Abstract

This report contains the work done by the author during his internship at *CreArt Solutions PVT LTD*. This internship report provides an overview of practical learning during a Python Django web development internship. Focused on hands-on experience, the report details the exploration of Django's components and their application in projects like Notice Hub Web App. The internship underscored the importance of translating theory into practical skills, showcasing the ability to create dynamic web applications.

# **Chapter 1: Introduction to the industry**

## **1.1 Company Profile**

CreArt is a privately owned venture of IT Solutions and IT Consultants formed in 2013. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

CreArt is dedicated towards perfection in every aspect. Professionalism is the main ingredient of CreArt. We strongly believe in delivering the best services to the clients till their satisfaction. Main objective of CreArt is to provide professional , qualitative , innovative and accessible services in every possible form.

## **1.2 MISSION AND VISION OF THE COMPANY:**

### **1.2.1 Our Mission**

Our main objective is to provide professional, qualitative, innovative and accessible services in every possible form.

### **1.2.2 Our Vision**

We strongly believe in delivering the best services to the clients till their satisfaction.

## **Chapter 2: Introduction to the project**

### **2.1 Project summary**

The Django Notice Hub Web App is a dynamic platform designed to efficiently manage and disseminate notices within an organization or community. Built using the Django framework, the app offers user-friendly features for both administrators and users. Administrators can seamlessly create, edit, and categorize notices, while users can easily access and search for relevant information. The app employs Django's authentication system to ensure secure access and offers an intuitive user interface for a streamlined experience. With its emphasis on simplicity and effectiveness, the Django Notice Hub Web App serves as a valuable tool for optimizing internal communication and information sharing.

### **2.2 Project features**

It contains features such as notice creation ,modification and updation. It also shows the date and time when notice was published on the web-app and also shows the date and time of updated notice by the administration. Admin can edit the notice when requires and also it has a feature of deleting multiple notices from the interface. We can add user and generate password for them to access admin portal. We can see recent actions taken into the site such as notice creation ,updation or deletion. There is a feature of a changing password as well for the admin.

### **2.3 Project technology**

The Notice Hub Web App is developed using the Django framework, which serves as the foundational technology for building the entire application. Django, a high-level Python web framework, provides a robust and efficient environment for creating dynamic web applications. Its core features, such as the Model-View-Controller (MVC) architecture, object-relational mapping (ORM), and built-in user authentication system, enable the seamless development of complex applications like the Notice Hub. Additionally, Django's support for templating, database management, security measures, and URL routing contributes to the app's user-friendly interface, scalability, and overall performance.

## Chapter 3: Notice hub web-app

### 3.1 Interface of the web-app

This is the landing page of the notice hub web-app which shows the latest notices uploaded by the administrator and also shows the date and time of creation and updation as well.



### 3.2 Login Page of the Notice Hub admin panel

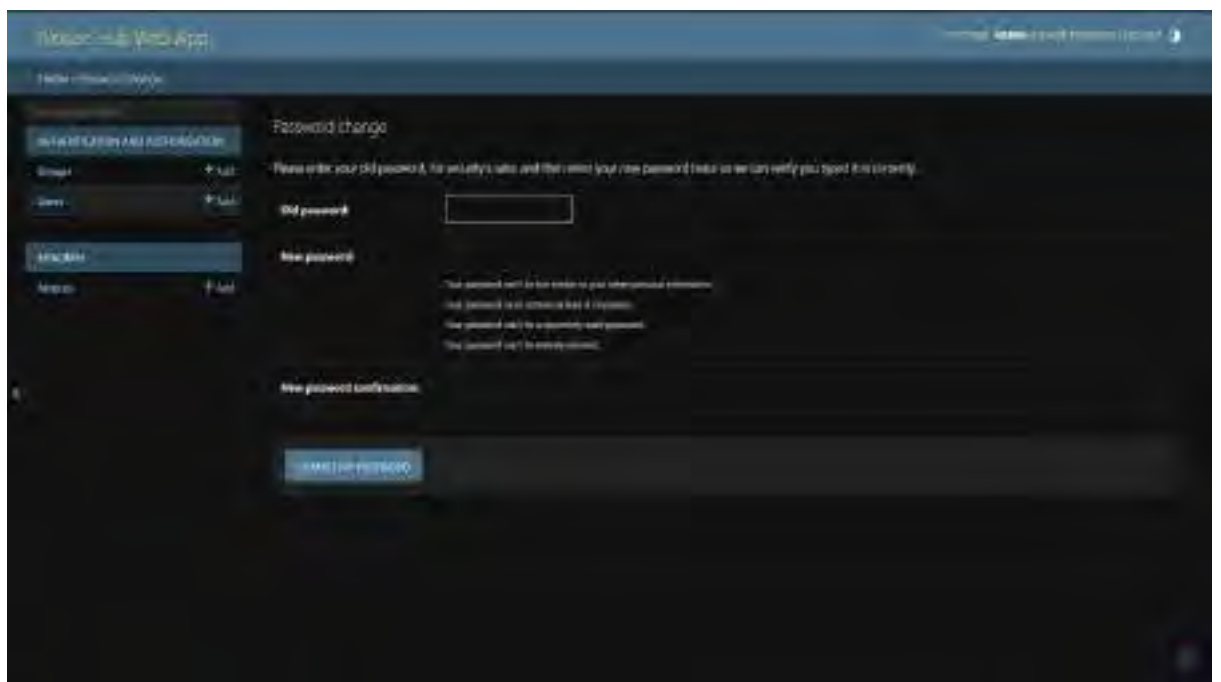
This is the login page for the admin to access the backend of the notice hub where user can login via his credentials such as username and password.





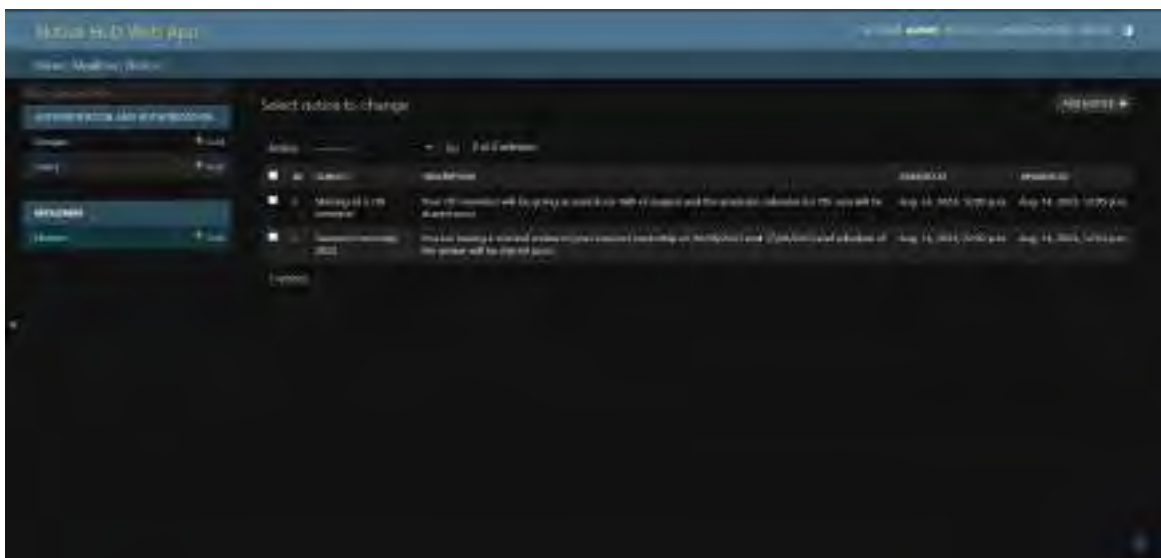
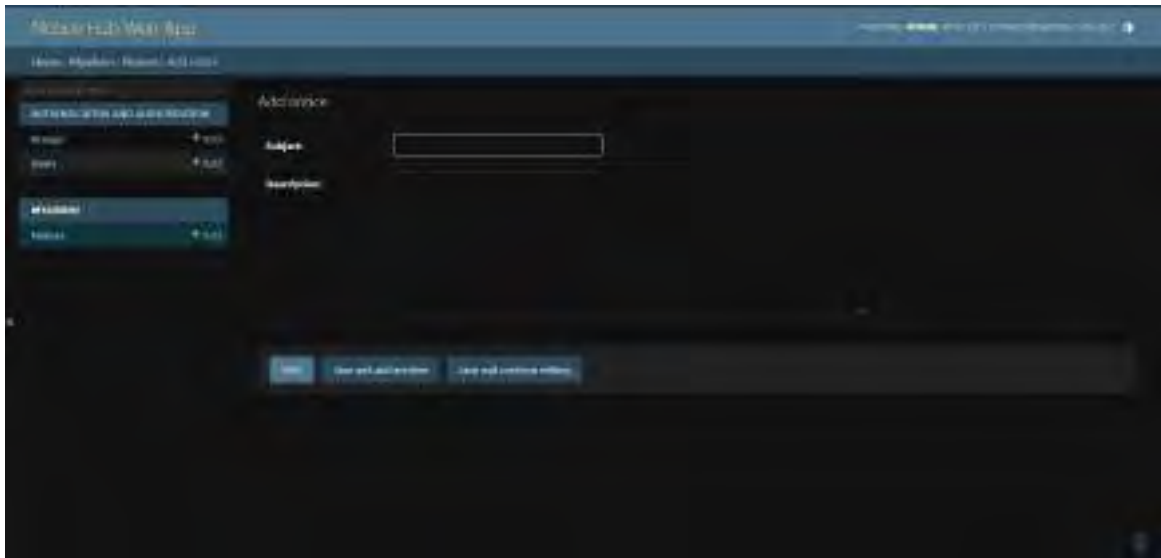
### 3.3 Admin panel of the notice hub

This is an admin panel of the notice hub web-app where admin can see recent action taken by the administrator and it can also add notices to the interface via here. Admin can also perform certain task such as authorization and authentication of the user and groups and admin can also change his password and also log out from here.



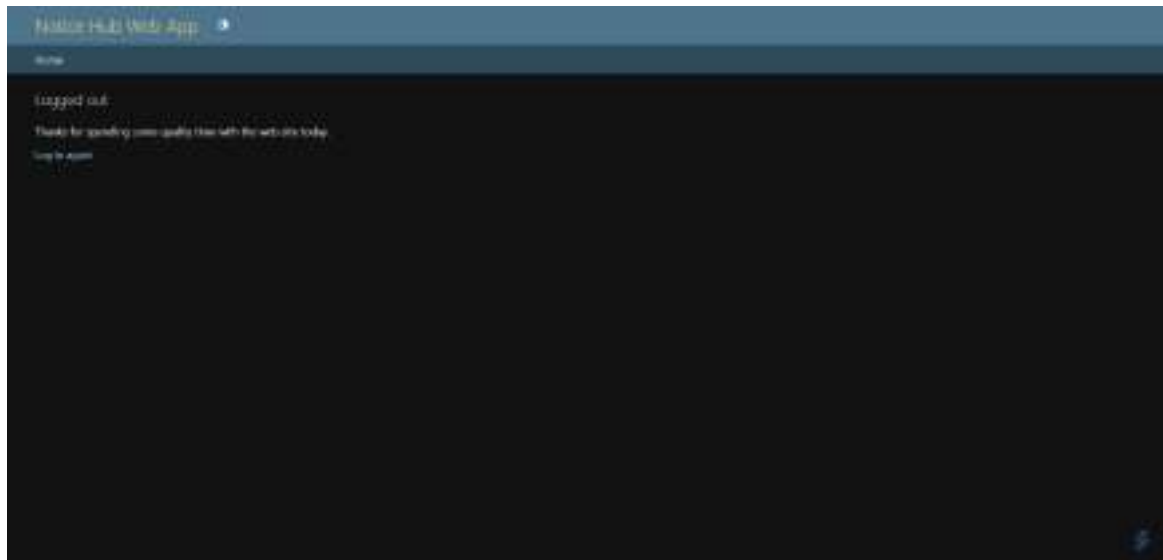
### 3.4 Notice management

This is the page where admin can add notices with the respective subject and description of the notices , also admin has a option for the saving the notice and save and add another notice or save and continue editing the notice. And admin can also see all the created notice on the platform and see the changes or made the changes as well. If user want to delete multiple notices at a time that also can be done here on this page.



### 3.5 Logout page

After clicking onto logout user will be redirected to this page and here there is a option of login again if admin want to.



## References

# **INTERNSHIP AT YUDIZ SOLUTIONS LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Khushiben Minehskumar Gor**

**190390107009**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



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**Gujarat Technological University, Ahmedabad**

**May 2023**



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## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at YUDIZ SOLUTIONS LTD.** has been carried out by **Khushiben Mineshkumar Gor** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Prof. Upashana Goswami

Internal Guide

Prof. Akshay Kansara

Head of Department

# COMPANY CERTIFICATE



Date: 28<sup>th</sup> April, 2023

## To whom so ever It May Concern

This is to certify that **Ms. Khushi Gor** student of **Saffrony Institute of Technology** is working as a Trainee/Intern with our Company for the duration of six months starting from 1<sup>st</sup> February, 2023 to till date, as a **Web Design Trainee** working on the project "**Career Counselling Web Application**".

Her exposure in these areas is very good. During her tenure with us, she ably handled major responsibilities and we found her to be hardworking, creative and very productive.

We have found her to be self-starter who is motivated, duty bound, and a highly committed team player with strong conceptual knowledge.

The company will not provide any type of Source Code outside the premises. We wish her good luck for her future endeavours.

Sincerely,



Kinjal Shah

Functional Manager

# PMMS CERTIFICATE



## GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023

Date of certificate generation : 08 May 2023 (12:13:51)

This is to certify that, *Gor Khushiben Mineshkumar* ( Enrolment Number - 190390107009 ) working on project entitled with *Internship at Yudz Solutions Limited* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal

Internship Project Report	Completed
---------------------------	-----------

Name of Student : *Gor Khushiben Mineshkumar*

Name of Guide : *Miss. Upasmita Goswami*

Signature of Student \_\_\_\_\_

\*Signature of Guide \_\_\_\_\_

### Disclaimer :

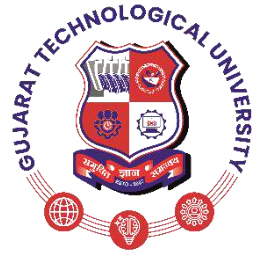
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## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Yudiz Solutions Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Mr. Kirtan Gajjar (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Khushiben Mineshkumar Gor**

## ACKNOWLEDGMENT

It's my proud privilege to release the feelings of my gratitude to several people who helped me directly or indirectly to conduct this internship.

First, I would like to thank **Yudiz Solution Pvt. Ltd.** for giving me the opportunity to do an internship within the organization. I express my heartfelt indebtedness and owe a deep sense of regard to my external mentor **Mr. Kirtan Gajjar**, for their sincere enlightenment and inspiration during this internship. I extend thanks to my faculty guide, **Prof. Upashana Goswami**, for their guidance during this Internship.

I am highly indebted to **Prof. Akshay Kansara** for his guidance and constant supervision as well as for providing necessary information regarding the Internship.

It's my honor to thank the **Saffrony Institute of Technology** and **Gujarat Technological University** for providing such kind of opportunity for students to broaden their perception of how the real world works the field of Computer engineering looks like as well organizing the whole internship program and its effort to make sure that the whole internship program to achieve its desired goals.

## ABSTRACT

*This report contains the work done by me during the internship at **Yudiz Solutions Ltd.** In the beginning of internship there was a common training of Object-oriented Programming, SOLID principles, DSA, JS.*

*In the duration of **common training**, I was learning about OOPs main four pillars which are inheritance, abstraction, encapsulation, and polymorphism. Using OOPs concepts, I had to develop a Bank Management App. Also, we had to apply SOLID principles on this App. In DSA I had to implement different sorting algorithms like quick sort, bubble sort, etc. and different data structures like stack, queue, linked list, etc.*

*After the common training I had **core web design training**. In the duration of web design training, I had learnt that how to add different types of plugins in the web design, how to generate font face, how to generate fav icon, HTML and CSS standard coding structure, how the CSS properties work with each other when applied together etc. After that I started working on Project definition.*

*A **career counseling web application** designed to help students identify suitable career options based on their test results. The web app is built using React and offers students the ability to book counseling sessions based on their test results. Students can book these sessions with certified career counselors who provide guidance and advice on how to achieve their career goals.*

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## ABBREVIATIONS

PHP	Hypertext Preprocessor
UI/UX	User Interface/ User eXperience
.NET	Network Enabled Technology
MEAN	MongoDB, ExpressJs, AngularJs, NodeJs
MERN	MongoDB, ExpressJs, ReactJs, NodeJs
OOP	Object Oriented Programming
DSA	Data Structure and Algorithms
JS	Java Script
HTML	Hyper Text Markup Language
CDN	Content Delivery Network
XML	eXtensible Markup Language
.ttf	True Type Font
.woff	Web Open Font Format
.eot	Embedded Open Type
.svg	Scalable Vector Graphics
AWS	Amazon Web Services
AI/ML	Artificial Intelligence / Machine Learning
AR/VR	Augmented Reality / Virtual Reality
IOT	Internet Of Things

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## **CHAPTER 1: COMPANY INTRODUCTION**

### **1.1 COMPANY PROFILE:**

Yudiz Solutions is recognized as an eminent company in the software industry that offers the best-in-class digital solutions and impressive services that stands out globally. Yudiz Solutions Limited is a leading technologies services provider based in Ahmedabad, India.

Incorporated in 2011 by Bharat Patel, Pratik Patel, and Chirag Leuva, Yudiz Solutions began as a website development company, before progressing gradually into mobile application development, 2D/3D game development, windows development, IoT development, AR/VR development, AI/ML solutions, and Blockchain development.

Yudiz Solutions have also been strategizing in providing Metaverse, Web 3.0, and IOT-based solutions this Year. Yudiz Solutions has consistently provided unique value propositions to its clients through foresighted, robust, and qualitative solutions. It has been working in areas such as entertainment, travel, tourism, pharma, healthcare, retail, e-commerce, real estate, automobile, media, finance, and much more catering to a host of Indian and Global Clients.

We are a team of 400+ proficient and resourceful developers & designers. The team has successfully delivered 6000+ projects for various industry niches. Yudiz Solutions has been acknowledged by many of its communities and has been awarded countless accolades, having been recognized as the best mobile app development company in Gujarat by GESIA, awarded Best Blockchain Studio at the Web 3.0 Summit organized by Entrepreneur India, and honored with the Best Game Developer Award at Gamexx.

## 1.2 DIFFERENT COMPANY DEPARTMENTS:

- Web Development
- Mobile App Development
- Game Development
- UI/UX Design
- Digital Marketing
- Blockchain Development
- Artificial Intelligence

### 1.2.1 Technical specifications & Tools

- Web Development: - PHP, Laravel, .NET, MEAN, MERN, WordPress, Magento, Shopify, Django
- Mobile App: - Kotlin, Flutter
- Game development: - Unity 2D/3D
- UI/UX: - Adobe XD, Sigma

## 1.3 DIFFERENT COMPANY PRODUCTS:

- **Web Development**
  - Dangee Dums
  - The MarcketSquawk
  - Consulate Brewing Company
  - WOW designs
  - The Arabic Time
  - Dream Clothing
- **Game Development**
  - Rummy 24
  - Phonics Museum
  - Teen Patti
  - Space Zoom

- **Mobile Development**
  - Stanley
  - Digikiki
  - Flinnt
  - Perfect Selections
- **Blockchain**
  - TrustME
  - MacQueen
  - Flucky Games
  - SoMee
- **AR/VR**
  - Trompadu
  - Liquor Store
- **.NET**
  - BetandWin
  - Easy Logistics
  - Foodista
  - Shopper's love

## CHAPTER 2: INTERNSHIP INTRODUCTION

### 2.1 ORIENTATION:

On our very first day, we had an orientation session and fun games. We are around 100 trainees of all the departments in Yudziz Solutions. We had an introductory session with all department heads and higher authorities of the company.

From the next day we were given our official mail-id credentials and keka credentials. To keep track of employees' attendance, the keka application is used by company employees. Also, after that we had a session on "How to use keka?"

Below are the images from the Yudziz Work Environment.



*Fig. 2.1.1 Myself at Workplace*



*Fig. 2.1.2 Myself at Workplace*



*Fig. 2.1.3 Myself at Workplace*

### 2.1.1 Internship Planning:

Below is the table that shows the planning of Internship.

<b>Task Title</b>	<b>Task Name</b>	<b>Start Date</b>	<b>End Date</b>
<b>Basic Training</b>	Basic OOPs Concept	1/02/2023	7/02/2023
	SOLID Principles	8/02/2023	13/02/2023
	DSA	14/02/2023	17/02/2023
	JS	20/02/2023	28/02/2023
<b>Core Web Design Training</b>	Add Plugins	01/03/2023	7/03/2023
	Fav icon	09/03/2023	10/03/2023
	Font Face	13/03/2023	15/03/2023
<b>Ollato – Career counseling Web app</b>	Login Page	16/03/2023	21/03/2023
	Sign up Page		
	Student Profile Page	22/03/2023	23/03/2023
	Edit Profile Page	24/03/2023	29/03/2023
	Dashboard	30/03/2023	07/04/2023
	Packages Page	10/04/2023	13/04/2023
	Test Process Page	14/04/2023	21/04/2023
	Assessment Page	24/04/2023	28/04/2023
	Settings Page	29/04/2023	Till Date

*Table 2.1.1.1 Internship Planning*

### 2.1.2 Internship Effort Time:

Below table shows the effort time of the internship I spent.

<b>Sr. No.</b>	<b>Title</b>	<b>Starting Date</b>	<b>Ending Date</b>	<b>Hours</b>
1	Week 1	01/02/2023	04/02/2023	32
2	Week 2	06/02/2023	10/02/2023	40
3	Week 3	13/02/2023	17/02/2023	40
4	Week 4	20/02/2023	24/02/2023	40
5	Week 5	27/02/2023	04/03/2023	48
6	Week 6	06/03/2023	10/03/2023	40
7	Week 7	13/03/2023	17/03/2023	40
8	Week 8	20/03/2023	24/03/2023	40
9	Week 9	27/03/2023	01/04/2023	48
10	Week 10	03/04/2023	07/04/2023	40
11	Week 11	10/04/2023	14/04/2023	40
12	Week 12	17/04/2023	21/04/2023	40
13	Week 13	24/04/2023	28/04/2023	40

*Table 2.1.2.1 Internship Effort Time*

## 2.2 INTERNSHIP FLOW:



Fig. 2.2.1 Internship Flow



## 2.3 COMMON TRAINING:

In our common training we had the tasks on basics of the all web related department work. In common training we had training of OOP Concepts, SOLID principles, DSA, JS.

### 2.3.1 OOP Concepts:

- **Inheritance:** Inheritance means creating new classes based on existing ones. A class that is inherited from another class can reuse the methods and fields of that class. In addition, you can add new fields and methods to your current class as well.
- **Abstraction:** Abstraction is a process of hiding implementation details and exposes only the functionality to the user. In abstraction, we deal with ideas and not events. This means the user will only know “what it does” rather than “how it does”.
- **Encapsulation:** Encapsulation is a way of hiding the implementation details of a class from outside access and only exposing a public interface that can be used to interact with the class.
- **Polymorphism:** Encapsulation is a way of hiding the implementation details of a class from outside access and only exposing a public interface that can be used to interact with the class.
  - **Types of Polymorphism:**
    - **Compile-time:** When there are multiple functions with the same name but different parameters then these functions are said to be overloaded. Functions can be overloaded by changes in the number of arguments or/and a change in the type of arguments. It is also called as “**Method Overloading**”.
    - **Run-time:** When an object of a child class is created, then the method inside the child class is called. This is because the method in the parent class is overridden by the child class. Since The method is overridden, this method has more priority than the parent method

inside the child class. So, the body inside the child class is executed. It is also called “**Method Overriding**”.

- **Bank Management App using OOP:**

- This Bank App is made with concrete class. Concrete class means the Main one class which has all the methods in it.
- This Bank App has different functionality like open account, add money to account, withdraw money from account, print statement, print account information, search account, switch account.
- The below figures are the implementation of Bank Management App using OOP.

```

1  src 2 BankManagementSystem.java
2  import java.util.ArrayList;
3  import java.util.Random;
4  import java.util.Scanner;
5  import java.util.Random.*;
6
7  class Account {
8      private int accountNumber;
9      private String accountHolderName;
10     private String accountType;
11     private Double balance;
12     private ArrayList<String> transactionHistory;
13
14     public Account(int accountNumber, String accountHolderName, String accountType, double balance) {
15         this.accountNumber = accountNumber;
16         this.accountHolderName = accountHolderName;
17         this.accountType = accountType;
18         this.balance = balance;
19         this.transactionHistory = new ArrayList<>();
20     }
21
22     public int getAccountNumber() {
23         return accountNumber;
24     }
25
26     public String getAccountHolderName() {
27         return accountHolderName;
28     }
29
30     public String getAccountType() {
31         return accountType;
32     }
33 }

```

Fig. 2.3.1.1 Bank Management App

```

40:3 BankManagementSystem.java
28
29     public String getAccountType() {
30         return accountType;
31     }
32
33     public double getBalance() {
34         return balance;
35     }
36
37     public ArrayList<String> getTransactionHistory() {
38         return transactionHistory;
39     }
40
41     public void addTransaction(String transaction) {
42         transactionHistory.add(transaction);
43     }
44
45     public void addMoney(double amount) {
46         balance += amount;
47         addTransaction("Deposit: " + amount);
48     }
49
50     public void withdrawMoney(double amount) {
51         if (balance >= amount) {
52             balance -= amount;
53             addTransaction("Withdrawal: " + amount);
54         } else {
55             System.out.println("Insufficient balance!");
56         }
57     }
58 }

```

Fig. 2.3.1.2 Bank Management App

```

40:3 BankManagementSystem.java
38
39     public void printStatement() {
40         System.out.println("Account Statement for account number: " + accountNumber);
41         for (String transaction : transactionHistory) {
42             System.out.println(transaction);
43         }
44     }
45
46     public void printAccountInfo() {
47         System.out.println("Account number: " + accountNumber);
48         System.out.println("Account holder name: " + accountHolderName);
49         System.out.println("Account type: " + accountType);
50         System.out.println("Balance: " + balance);
51     }
52 }
53
54 class Bank {
55     private ArrayList<Account> accounts;
56     private int nextAccountNumber;
57     Random r = new Random();
58
59     public Bank() {
60         this.accounts = new ArrayList<>();
61         this.nextAccountNumber = r.nextInt(1000);
62     }
63
64     public void openAccount(String accountHolderName, String accountType, double initialBalance) {
65         Account account = new Account(nextAccountNumber, accountHolderName, accountType, initialBalance);
66         accounts.add(account);
67         System.out.println("Account created successfully. Account number is: " + nextAccountNumber);
68         nextAccountNumber++;
69     }
70 }

```

Fig. 2.3.1.3 Bank Management App

```
src > BankManagementSystem.java
91     public void addMoney(int accountNumber, double amount) {
92         Account account = findAccount(accountNumber);
93         if (account != null) {
94             account.addMoney(amount);
95             System.out.println("Money added successfully.");
96         } else {
97             System.out.println("Account not found.");
98         }
99     }
100
101     public void withdrawMoney(int accountNumber, double amount) {
102         Account account = findAccount(accountNumber);
103         if (account != null) {
104             account.withdrawMoney(amount);
105         } else {
106             System.out.println("Account not found.");
107         }
108     }
109
110     public void printStatement(int accountNumber) {
111         Account account = findAccount(accountNumber);
112         if (account != null) {
113             account.printStatement();
114         } else {
115             System.out.println("Account not found.");
116         }
117     }
118
119     public void printAccountInfo(int accountNumber) {
120         Account account = findAccount(accountNumber);
121         if (account != null) {
```

Fig. 2.3.1.4 Bank Management App

```

120     public void printAccountInfo(int accountNumber) {
121         Account account = findAccount(accountNumber);
122         if (account != null) {
123             account.printAccountInfo();
124         } else {
125             System.out.println("Account not found.");
126         }
127     }
128 }
129
130 public void switchAccount() {
131     Scanner scanner = new Scanner(System.in);
132     System.out.println("Enter account number:");
133     int accountNumber = scanner.nextInt();
134     Account account = findAccount(accountNumber);
135     if (account != null) {
136         System.out.println("Switched to account number " + accountNumber);
137     } else {
138         System.out.println("Account not found.");
139     }
140 }
141
142 public void searchAccount() {
143     Scanner scanner = new Scanner(System.in);
144     System.out.println("Enter search query:");
145     String query = scanner.nextLine().toLowerCase();
146     boolean found = false;
147     for (Account account : accounts) {
148         if ((String.valueOf(account.getAccountNumber()).contains(query)
149             || account.getAccountHolderName().toLowerCase().contains(query)) {
150             System.out.println(account.getAccountNumber() + " - " + account.getAccountHolderName());
151             found = true;
152         }
153     }
154 }

```

Fig. 2.3.1.5 Bank Management App

```

155     }
156 }
157
158 public void listAllAccounts() {
159     for (Account account : accounts) {
160         System.out.println(account.getAccountNumber() + " - " + account.getAccountHolderName()
161             + " - " + account.getAccountType() + " - " + account.getBalance());
162     }
163 }
164
165 public void transferMoney(int fromAccountNumber, int toAccountNumber, double amount) {
166     Account fromAccount = findAccount(fromAccountNumber);
167     Account toAccount = findAccount(toAccountNumber);
168     if (fromAccount == null || toAccount == null) {
169         System.out.println("One or both accounts not found.");
170     } else if (fromAccount.getBalance() < amount) {
171         System.out.println("Insufficient balance.");
172     } else {
173         fromAccount.withdrawMoney(amount);
174         toAccount.addMoney(amount);
175         System.out.println("Transfer successful.");
176     }
177 }
178
179 private Account findAccount(int accountNumber) {
180     for (Account account : accounts) {
181         if (account.getAccountNumber() == accountNumber) {
182             return account;
183         }
184     }
185     return null;
186 }

```

Fig. 2.3.1.6 Bank Management App

```

210     switch (choice) {
211         case 1:
212             System.out.println("Enter account holder name:");
213             scanner.nextLine();
214             String accountHolderName = scanner.nextLine();
215             System.out.println("Enter account type:");
216             String accountType = scanner.nextLine();
217             System.out.println("Enter initial balance:");
218             double initialBalance = scanner.nextDouble();
219             bank.openAccount(accountHolderName, accountType, initialBalance);
220             break;
221         case 2:
222             System.out.println("Enter account number:");
223             int accountNumber = scanner.nextInt();
224             System.out.println("Enter amount to add:");
225             double amountToAdd = scanner.nextDouble();
226             bank.addMoney(accountNumber, amountToAdd);
227             break;
228         case 3:
229             System.out.println("Enter account number:");
230             int accountNumberToWithdrawFrom = scanner.nextInt();
231             System.out.println("Enter amount to withdraw:");
232             double amountToWithdraw = scanner.nextDouble();
233             bank.withdrawMoney(accountNumberToWithdrawFrom, amountToWithdraw);
234             break;
235         case 4:
236             System.out.println("Enter account number:");
237             int accountNumberForStatement = scanner.nextInt();
238             bank.printStatement(accountNumberForStatement);
239             break;
240         case 5:
241             System.out.println("Enter account number:");

```

Fig. 2.3.1.7 Bank Management App

```

204         return null;
205     }
206 }
207
208 public class BankManagementSystem {
209     public static void main(String[] args) {
210         Bank bank = new Bank();
211
212         Scanner scanner = new Scanner(System.in);
213
214         while (true) {
215             System.out.println("Enter choice:");
216             System.out.println("1. Open account");
217             System.out.println("2. Add money");
218             System.out.println("3. Withdraw money");
219             System.out.println("4. Account statement");
220             System.out.println("5. Account info");
221             System.out.println("6. Delete account");
222             System.out.println("7. Search account");
223             System.out.println("8. List all accounts");
224             System.out.println("9. Transfer money");
225             System.out.println("10. Quit");
226
227             int choice = scanner.nextInt();
228
229             switch (choice) {
230                 case 1:
231                     System.out.println("Enter account holder name:");
232                     scanner.nextLine();
233                     String accountHolderName = scanner.nextLine();
234                     System.out.println("Enter account type:");
235                     String accountType = scanner.nextLine();

```

Fig. 2.3.1.8 Bank Management App

```

137: BankManagementSystem.java
138:         break;
139:     case 5:
140:         System.out.println("Enter account number:");
141:         int accountNumberForInfo = scanner.nextInt();
142:         bank.printAccountInfo(accountNumberForInfo);
143:         break;
144:     case 6:
145:         bank.switchAccount();
146:         break;
147:     case 7:
148:         bank.searchAccount();
149:         break;
150:     case 8:
151:         bank.listAllAccounts();
152:         break;
153:     case 9:
154:         System.out.println("Enter account number to transfer from:");
155:         int fromAccountNumber = scanner.nextInt();
156:         System.out.println("Enter account number to transfer to:");
157:         int toAccountNumber = scanner.nextInt();
158:         System.out.println("Enter amount to transfer:");
159:         double amountToTransfer = scanner.nextDouble();
160:         bank.transferMoney(fromAccountNumber, toAccountNumber, amountToTransfer);
161:         break;
162:     case 10:
163:         System.exit(0);
164:         break;
165:     default:
166:         System.out.println("Invalid choice.");
167:         break;
168: }

```

*Fig. 2.3.1.9 Bank Management App*

### 2.3.2 SOLID Principles:

SOLID is a popular set of design principles that are used in object-oriented software development. SOLID is an acronym that stands for five key design principles: single responsibility principle, open-closed principle, Liskov substitution principle, interface segregation principle, and dependency inversion principle. All five are commonly used by software engineers and provide some important benefits for developers. The source code we write should follow the SOLID principles. SOLID stands for:

- **S Single Responsibility:** The Single Responsibility Principle states that a class should do one thing and therefore it should have only a single reason to change.
- **O Open – close:** We should be able to add new functionality without touching the existing code for the class. This is because whenever we modify the existing code, we are taking the risk of creating potential bugs. So, we should avoid touching the tested and reliable (mostly) production code if possible.

- **L Liskov Substitution:** The Liskov Substitution Principle states that subclasses should be substitutable for their base classes. This means that, given that class B is a subclass of class A, we should be able to pass an object of class B to any method that expects an object of class A, and the method should not give any weird output in that case.
- **I Interface Segregation:** Segregation means keeping things separated, and the Interface Segregation Principle is about separating the interfaces. The principle states that many client-specific interfaces are better than one general-purpose interface. Clients should not be forced to implement a function they do not need.
- **D Dependency Inversion:** The Dependency Inversion principle states that our classes should depend upon interfaces or abstract classes instead of concrete classes and functions.

### 2.3.3 DSA:

- **Different Sorting Algorithms implementation**
  - **Quick Sort:** Quick sort is the fastest comparatively from almost all sorting algorithms. The key process in quickSort is a partition(). The target of partitions is to place the pivot (any element can be chosen to be a pivot) at its correct position in the sorted array and put **all smaller elements to the left of the pivot, and all greater elements to the right of the pivot**. This partition is done recursively which finally sorts the array.
  - **Bubble sort:** Bubble Sort is the simplest sorting algorithm that works by **repeatedly swapping the adjacent elements** if they are in the wrong order. This algorithm is not suitable for large data sets as its average and worst-case time complexity is quite high.
- **Different Data structure implementation**
  - **Stack:** A Stack is a linear data structure that follows the **LIFO (Last-In-First-Out)** principle. Stack has one end, whereas the Queue has two ends (**front and rear**). It contains only one pointer **top pointer** pointing to the topmost element of the stack. Whenever an element is added in the stack, it



is added on the top of the stack, and the element can be deleted only from the stack. In other words, a stack can be defined as a container in which insertion and deletion can be done from the one end known as the top of the stack.

- **Queue:** A Queue is defined as a linear data structure that is open at both ends and the operations are performed in **First In First Out (FIFO)** order. We define a queue to be a list in which all additions to the list are made at one end, and all deletions from the list are made at the other end. The element, which is first pushed into the order, the operation is first performed on that.
- **Linked list:** Linked list consists of nodes where each node contains a data field and a reference(link) to the next node in the list.

#### 2.3.4 JS:

Java script is used to program the behavior of webpage. JavaScript can change the content of HTML element.

- **Basics of JS:** In the basics of JS, we learnt following things:
  - Variable Declaration
  - Let, var, const
  - Operators:
    - Arithmetic
    - Assignment
  - Data types:
    - String
    - Number
    - Bigint
    - Boolean
    - Undefined
    - Null
    - Symbol
    - Object

- **Type coercion:** Type coercion is the automatic or implicit conversion of values from one data type to another (such as strings to numbers).
- **Deep – Shallow copy:** A deep copy means that all the values of the new variable are copied and **disconnected from the original** variable. A shallow copy means that certain (sub-)values are **still connected** to the original variable.
- **Arrow Function:** Arrow functions were introduced in ES6. Its syntax is as below:

```
Hello = () => {  
  return "Hello World!";  
}
```

- **Array Methods:**
  - **Length:** It returns the size of an array.
  - **toString():** The JavaScript method toString() converts an array to a string of (comma separated) array values.
  - **Join():** The join() method also joins all array elements into a string. It behaves just like toString(), but in addition you can specify the separator.
  - **Push():** Add element to array.
  - **Pop():** Remove element from array.
  - **Shift():** Shifting is equivalent to popping, but working on the first element instead of the last.
  - **Unshift():** This method adds a new element to an array (at the beginning).
  - **Slice():** The slice() method slices out a piece of an array. The slice() method creates a new array. The slice() method does not remove any elements from the source array.
  - **Splice():** The splice() method adds new items to an array. With clever parameter setting, you can use splice() to remove elements without leaving "holes" in the array.

- **Sort():** The sort() method sorts an array alphabetically.
- **Reverse():** The reverse() method reverses the elements in an array. You can use it to sort an array in descending order.
- **forEach():** The forEach() method calls a function (a callback function) once for each array element.
- **Map():** The map() method creates a new array by performing a function on each array element. The map() method does not execute the function for array elements without values. The map() method does not change the original array.
- **Filter():** The filter() method creates a new array with array elements that pass a test.
- **Reduce():** The reduce() method runs a function on each array element to produce (reduce it to) a single value. The reduce() method does not reduce the original array.
- **Every():** The every() method checks if all array values pass a test.
- **Some():** The some() method checks if some array values pass a test.
- **IndexOf():** The indexOf() method searches an array for an element value and returns its position.
- **LastIndexOf():** Array.lastIndexOf() is the same as Array.indexOf(), but returns the position of the last occurrence of the specified element.
- **Scope chaining:** Scope chains establish the scope for a given function. Each function defined has its own nested scope, and any function defined within another function has a local scope which is linked to the outer function — this link is called the chain.
- **Closures:** Closure gives you access to an outer function's scope from an inner function. In JavaScript, closures are created every time a function is created, at function creation time.

- **Promises:** The Promise object represents the eventual completion (or failure) of an asynchronous operation and its resulting value.
- **Async-await:** We use the async keyword with a function to represent that the function is an asynchronous function. The async function returns a promise. The await keyword is used inside the async function to wait for the asynchronous operation. The use of await pauses the async function until the promise returns a result (resolve or reject) value.

## CHAPTER 3: CORE WEB DESIGNING TRAINING

In web designing training, we got to know the standard way of writing HTML structure for webpage and its CSS. We must write HTML and CSS in such a way that when there are changes in client design then there should be no or minimum changes in HTML structure while CSS can be altered. Comments must be added in both HTML and CSS.

**HTML:** HTML is a standard markup language for all the webpages. There are so many HTML like article tag, aside tag, form tag, table tag, etc.

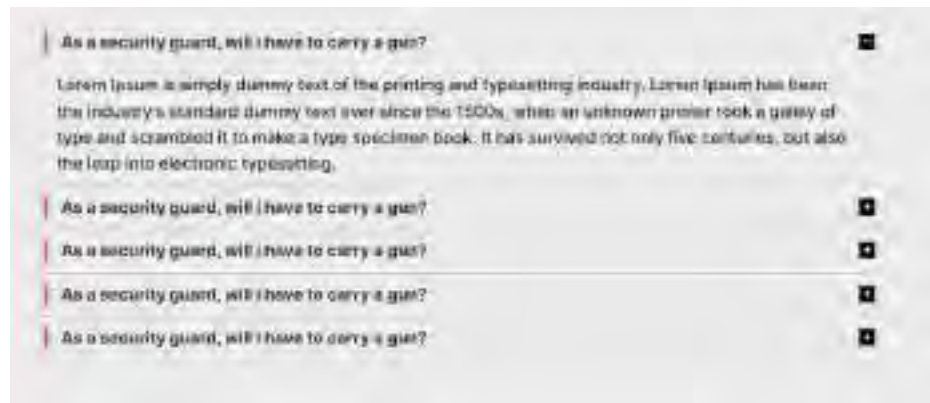
**CSS:** CSS is the language we use to style HTML or XML. It is the stylesheet for webpages. Stylesheet is to describe how the HTML element should be rendered.

**BOOTSTRAP:** Bootstrap is a potent front-end framework used to create modern websites and web apps. It's open-source and free to use yet features numerous HTML and CSS templates for UI interface elements such as buttons and forms. Bootstrap also supports JavaScript extensions.

### 3.1 ADD PLUGINS:

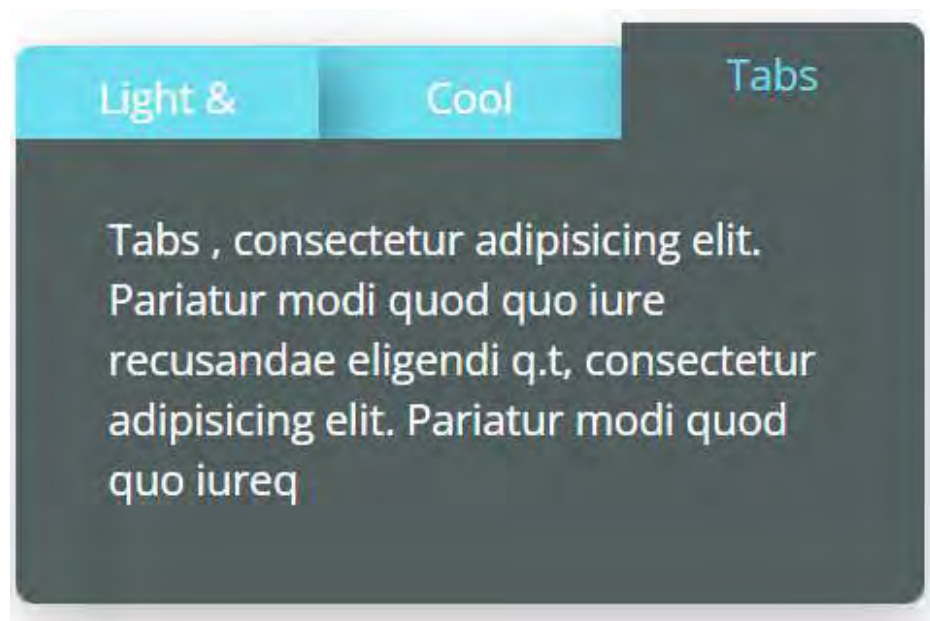
There are two ways to add jQuery in a document. First is CDN link and second is file of jQuery.min.js. How to do following tasks in webpage was made clear to us:

- Add plug-in of following:
  - **Accordion:** Accordions are the Dropdown type sections. When we click on the button the text or data will be visible otherwise the heading will be visible. It is shown in below figure.



*Fig. 3.1.1 Accordion*

- **Tabs:** Tabs are the tabs we usually see on the dashboards of websites. Tabs is shown in the below figure.



*Fig. 3.1.2 Tabs*

- **Slider:** Sliders are to slide pictures or sections. It is as shown in the figure below.



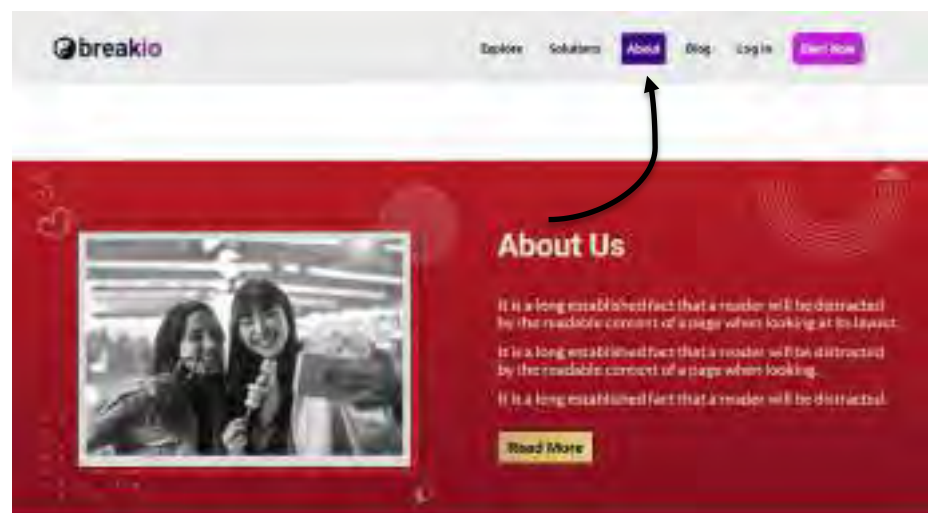
*Fig. 3.1.3 Slider*

- **Back-to-top button:** This Button is to go to top of website from any section of website. It is shown in below figure.



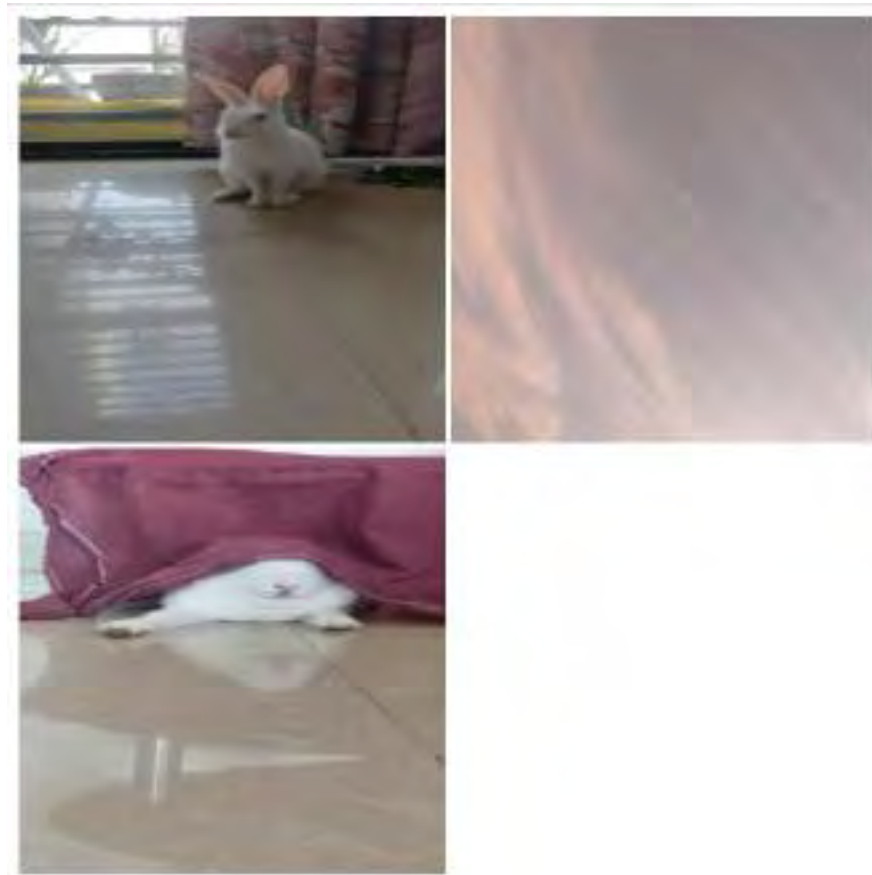
*Fig. 3.1.4 Back to Top Button*

- **Page-to-scroll:** It is the plugin which checks if the section of website is in the viewport area, then it reflects in Navigation bar. For this we have to give id to sections which will be used by plugin. It is shown in below figure.



*Fig. 3.1.5 Page to Scroll*

- **Animation:** We can also write CSS for Animation which we also learnt but it is faster and easier to add animation by adding plugin. These types of animation plugins do not need any JS.
- **Fancy Box:** Fancy Box plugin is basically the showing pictures in gallery form. It is as shown in the figure below.



*Fig. 3.1.6 Fancy Box*





*Fig. 3.1.7 Fancy Box*

- Font Awesome: It is used to add icons to websites. Icons As shown in below figure.

Booking ID	Product	Customer	Date	Amount	Payment Mode	Status	Action
#20462	Hat	Matt Dickson	13/05/2022	\$4.00	Transfer Bank	Completed	
#18933	Lease	Wilma	22/05/2022	\$3.50	Cash on Delivery	Completed	
#10096	Chair	Travis Byrd	18/06/2022	\$10.00	Cash on Delivery	Completed	
#14324	Bag	Brad Mason	06/06/2022	\$10.00	Cash on Delivery	Completed	
#17188	Headset	Sanderson	25/06/2022	\$22.95	Cash on Delivery	Cancelled	
#78007	MAJE	Jari Pedersen	04/07/2022	\$34.95	Transfer Bank	Completed	
#59825	Clock	Miriam Kidd	11/07/2022	\$74.95	Transfer Bank	Completed	
#64222	T-shirt	Dominic	24/08/2022	\$245.95	Cash on Delivery	Completed	

*Fig. 3.1.8 Font Awesome*

- Different CSS properties: We learnt different CSS properties like below mentioned:
  - Transform
  - Position
  - Float
  - Display, etc.

- **Fav icon:** Fav icons are shown at the tab of browser. To generate fav icon, we have to generate fav icon from site and then add its CSS link to head tag. Fav icons are size of 16x16. The fav icon is as shown in the below figure.



*Fig. 3.1.9 Fav icon*

- **Font-face generation:** There may be some cases when the client has its own different fonts to apply on website. So, the font face is generated by the font file the client has provided. If this is not the case, then we can add font links which are available on Google Fonts.
  - To generate font, .ttf extension file needs to be uploaded on the font face generator website and generate font face. There are five webfont file extensions that need to be generated are .ttf, .svg, .eot, .woff, and .woff2.
  - Then add generated files and CSS to your project.
  - After that, change the path in CSS file to project folder destination.
- **Media query:** Media queries are used to make the website responsive in different viewport sizes. We give different breakpoints in the media query CSS to be changed when the breakpoint is matched.

### 3.2 PROJECT PROCESS:

- **Research and Plan:** Perform solution specific research and draft a plan accordingly.
- **Code:** Utilize modern and scalable coding practice with our in-house team of experts.
- **Build:** Building the solutions from scratch with the help of expert resources.
- **Monitor:** Carefully monitor each aspect of the product for optimum performance.

- **Test:** Achieving the best user experience for users through rigorous testing methods.
- **Release:** Gathering true data to make alternations and finally releasing the solutions.
- **Deploy:** Installing, configuring, and constantly improving to tackle modern upgrades.
- **Operate:** Post-production support and maintenance for enhancing performance.

## CHAPTER 4: OLLATO - CAREER COUNSELING APP

I am working in Yudiz as a Jr. web designer. So, my main role and responsibilities are to handle the front end. And as I am a Jr. web designer, so at the begging level I have to take care of HTML Structure and CSS of this web app.

**Problem definition:** Prepare a Career Counselling Web App for Students in which they can give the test and based on Test results they can get direction and counselling to choose correct career path.

What: Career Counselling

Why: To choose the correct career path

How: Web App

**Project Definition:** Ollato is a Career counseling web app which fulfills the objective of guiding the students to select their career path correctly by giving tests of different subjects which are basically under two broad sections, Aptitude, and Interest.

**Backend:** PHP, MySQL, NodeJs

**Frontend:** HTML, CSS, Bootstrap5, Saas (Updated CSS version), ReactJs, JQuery, Wordpress

**Tools:** AWS, VS Code

Ollato is a React App and will be deployed using PaaS (Platform as a Service) deployment model provided by AWS. The Amazon S3 (Simple Storage Service) is used to store application data. In this project I had the role to handle Front-end (HTML, CSS).

#### 4.1 OLLATO LOGIN PAGE:

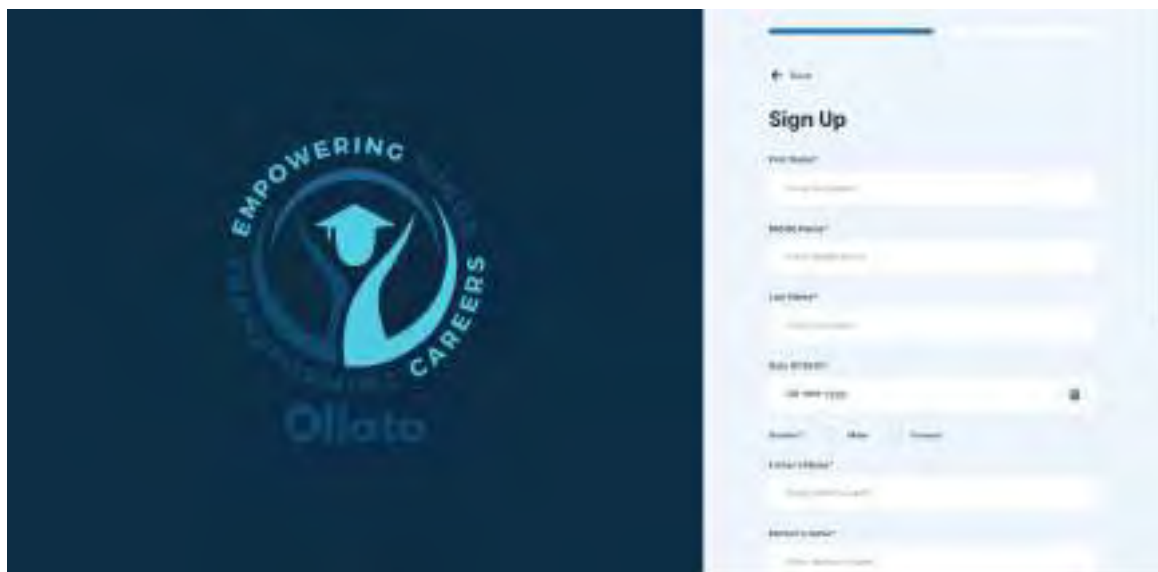
Below figure is Login Page of Ollato web app. By this the registered student can have access to the application.



*Fig. 4.1.1 Ollato Login Page*

#### 4.2 OLLATO SIGN UP PAGE:

Below figures are Sign up page of Ollato web app. By Sign up page the new visitor of app or student can get registered themselves.



*Fig. 4.2.1 Ollato Sign up page*

*Fig. 4.2.2 Ollato Sign up Page*

### 4.3 OLLATO STUDENT PROFILE:

After Sign up the student profile will be having details filled in by student in sign up form. The unique Ollato student code is generated for all the signed-up students. Below figure shows how the student profile looks after signing in. In the left-hand side, the side bar is placed to navigate through the app.

*Fig. 4.3.2 Ollato Student Profile*

#### 4.4 OLLATO STUDENT EDIT PROFILE:

The edit profile button in student profile is used to edit the student information. Below are the figures of how the edit profile page looks like.

The screenshot displays the 'Student Details' section of the edit profile page. It features a circular profile picture on the left and a form with the following fields:

Student Details			
First Name	Middle Name		
Shruti	testProff		
Last Name	Mother's Name		
test	testProff		
Father's Name	Date Of Birth		
testProff	03-02-2004		
Mobile Number	Email ID		
9990412293	testProff@gmail.com		
Country	State	District	Pin Code

Fig. 4.4.1 Ollato Student Edit Profile Page

The screenshot displays the 'Education Details' section of the edit profile page. It features a form with the following fields:

Education Details			
Board	Standard		
DBEC	9		
School Name			
NI garothi			
Address Line 1	Address Line 2		
TRST	TEST		
Country	State	District	Pin Code
India	Gujarat	Ekam	77777
Subject Droped			
Science drop	Yes	No	Maths drop
	Yes	No	Yes
	No		No

Fig. 4.4.2 Ollato Student Edit Profile Page

## 4.5 OLLATO DASHBOARD:

Ollato dashboard, where students can view their test results, the process and track their progress. The student can get their detailed report based on test results.



Fig. 4.5.1 Ollato Dashboard Process



Fig. 4.5.2 Ollato Dashboard Progress



## 4.6 OLLATO PACKAGES PAGE:

The packages page has different packages for students to buy for taking the test. Below figure shows the package page of Ollato app. It also has the package history and active packages button to check package history and active packages.

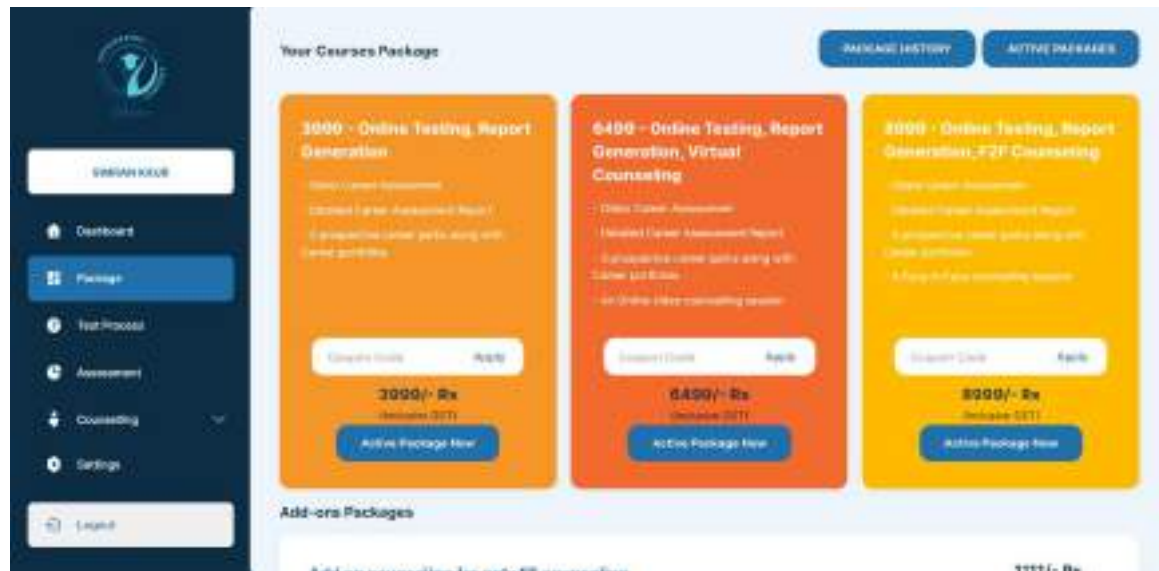


Fig. 4.6.1 Ollato Packages Page

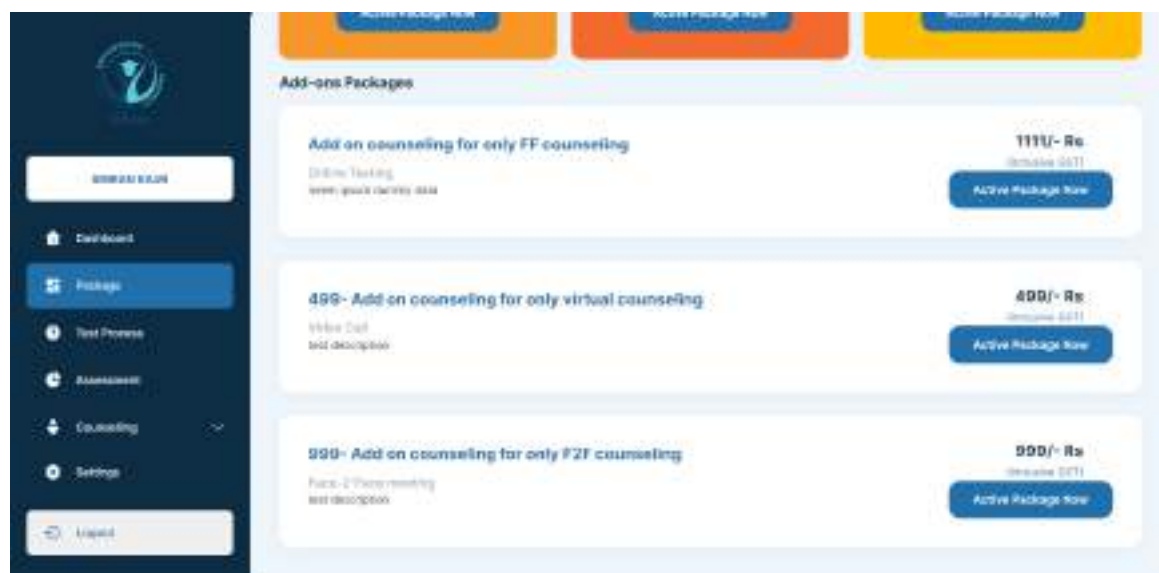


Fig. 4.6.2 Ollato Packages Page Add-ons



#### 4.8 OLLATO ASSESSMENT PAGE:

The assessment page has the track of the tests already given and after all the tests completed the detailed report is generated and can be downloaded. Below figure shows the assessment page.



*Fig. 4.8.1 Ollato Assessment Page*

Below figures show the detailed report generated and can be downloaded after completion of all the tests. To generate the graphs from the result the graph libraries are used.



Fig. 4.8.2 Ollato Assessment Page – Detailed Report



Fig. 4.8.3 Ollato Assessment Page – Detailed Report

#### 4.9 OLLATO COUNSELING PAGE:

The counseling page has the facility to book sessions with career counselors, psychologists, and subject experts. With their help the student can get to choose correct career path and mental health related help. Below figure shows the counseling page.



*Fig. 4.9.1 Ollato Counseling Page*

## **CHAPTER 5: DISCUSSION AND CONCLUSION**

### **5.1 OVERALL INTERNSHIP EXPERIENCE:**

During this internship I learnt many technical and non-technical things. From this internship, I understood the working environment of a tech company. And how to communicate with the manager, or other team members. The more you communicate with others it's better to understand the problems and solutions.

During this internship the following skills are improved:

- Technical skills
- Communication skills
- Presentation skills
- Time management
- Teamwork

Overall, my internship at Yudiz Solutions Pvt. Ltd. has been successful. I was able to gain practical skills and work in a fantastic environment.

Also, I have completed the probation period by end of April 2023, and I have been offered employment in same company.

### **5.2 CONCLUSION:**

In a nutshell, this internship has been an excellent and rewarding experience. I can conclude that there has been a lot I've learned from my work at "Yudiz Solution Pvt. Ltd". The technical aspects of the work I've done are not flawless and could be improved. I believe my time spent on research and discovering it was well worth it.

## REFERENCES

1. CSS tutorials online available at <https://www.w3schools.com/css/default.asp>
2. HTML tutorials online available at <https://www.w3schools.com/html/default.asp>
3. JavaScript official document online available at <https://developer.mozilla.org/en-US/docs/Web/JavaScript>
4. Object-oriented Programming tutorials online available at <https://www.geeksforgeeks.org/four-main-object-oriented-programming-concepts-of-java/>

## APPENDIX 1

### JOINING LETTER



150 (Top Floor), Phase 2, Ahmed road, Near Iron  
Cross Road, Ahmedabad, Gujarat, India-380014  
Phone | 878-1970064 | +91 7974403200  
Email | [hr@yudiz.com](mailto:hr@yudiz.com) | [www.yudiz.com](http://www.yudiz.com)

Date: 17<sup>th</sup> October, 2022

To,  
Respected Sir/Madam  
Training & Placement Officer

**Subject: Joining Letter**

Dear Sir/Madam,

We are pleased to select **Ms. Khushi Gor** as a project trainee in **Yudiz Solutions Pvt. Ltd.**, who is in the final year in your institute. We have offered her training for six months where the stipend would be Rs.5000/- per month. Based on her performance, we will also offer her employment after her training is successfully completed. She will be entitled to a monthly remuneration of Rs. 25,000 (Rupees Twenty five thousand only) per month in 1<sup>st</sup> year and Rs. 30,000 in 2<sup>nd</sup> year of employment which indicates Cost to Company (CTC). Her salary will be reviewed after a period of 30 months and Rs. 50, 000 performance bonus divided into 2 years of full time employment.

She will be working in **Frontend Development Department** under the guidance of Department Head during the project.

Sincerely,



Kinjal Srath  
Functional Manager- HR  
Yudiz Solutions Limited



## APPENDIX 2

### ATTENDANCE SHEET

Attendance sheet				
File Edit View Insert Format Data Tools Extensio				
View only				
A1:D4 Name: Khushi Gor				
	A	B	C	D
1	<b>Name: Khushi Gor</b> <b>Enrollment No.: 190390107009</b> <b>Branch: Computer Engineering</b> <b>Department: Web Design</b>			
2				
3				
4				
5	<b>Date</b>	<b>February</b>	<b>March</b>	<b>April</b>
6	1	P	P	P
7	2	P	P	SUNDAY
8	3	P	P	P
9	4	P	SATURDAY	P
10	5	SUNDAY	SUNDAY	P
11	6	P	P	P
12	7	P	P	P
13	8	P	DHULETI	SATURDAY
14	9	P	P	SUNDAY
15	10	P	P	P
16	11	SATURDAY	1/2	P
17	12	SUNDAY	SUNDAY	P
18	13	P	P	P
19	14	P	P	P
20	15	P	P	SATURDAY
21	16	P	P	SUNDAY
22	17	P	P	P
23	18	SATURDAY	SATURDAY	P
24	19	SUNDAY	SUNDAY	P
25	20	P	P	P
26	21	P	P	P
27	22	P	P	SATURDAY
28	23	P	P	SUNDAY
29	24	P	P	P
30	25	SATURDAY	SATURDAY	P
31	26	SUNDAY	SUNDAY	P
32	27	P	P	P
33	28	P	P	P
34	29	-	P	SATURDAY
35	30	-	P	SUNDAY
36	31	-	P	-

# **INTERNSHIP AT CSRBOX Foundation**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Khuvendra Surendra Chaudhary**

**190390107003**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

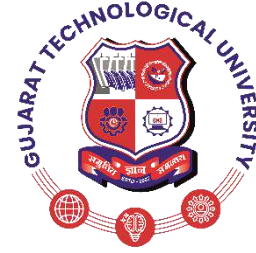


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at CSRBOX Foundation** has been carried out by **Khuvendra Surendra Chaudhary** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Upashana Goswami

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



**IBM SkillsBuild**

Date: 26/04/2023

## **TO WHOM IT MAY CONCERN**

This is to certify that Kirtivendra Chaudhary, a student of S.P.B Patel Engineering College has successfully completed his internship in the field of Data Analytics from 13th Feb 2023 to 7th May 2023 (Total number of Weeks: 12) under the guidance of Ms. Anjali Verma.

His internship activities include-

Activities	Summary
MasterClass	Attended 4 MasterClass for the concept clarity around Data Analysis, Data Science and Python.
Deliverables	Submission of 5 Deliverables namely- Concept Note, Data Sets and Sources, Model Building, Final Submission and Powerpoint Presentation.
IBM SkillsBuild Courses	Finished 14 Learning Modules on the platform around Data Science, Data Analytics, Python, R, Design Thinking and Advanced Google Analytics.

During the period of his internship program with us, he had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish him every success in his life and career.

For CSRBOX



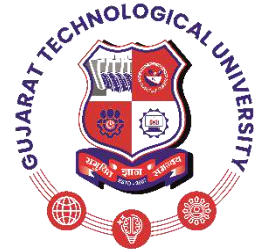
**Mrs. Anjali Verma**  
Associate Consultant - IBM SkillsBuild  
For IBM SkillsBuild (CSRBOX Foundation)  
806-808, Shivalik Saryanov, Near Vakil Sahib Bridge, Bopal, Ahmedabad, Gujarat 380058  
Gujarat, India 380058

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SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CSRBOX Foundation** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upashana Goswami & Ms. Anjali Verma (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. Khuvendra Surendra Chaudhary

\_\_\_\_\_

## **ACKNOWLEDGMENT**

This internship opportunity I had with CSRBOX Foundation was a great chance for learning and professional development. Therefore, I consider myself a very lucky individual as I was provided with an opportunity to participate. I am also grateful for meeting so many wonderful people and professionals who led me through this internship period.

I am using this opportunity to express my deepest gratitude and special thanks to Ms. Anjali Verma who despite being busy with their duties, took time out to hear, guide and keep me on the correct path and allowed me to carry out my internship at their esteemed organization and extend during the training..

I perceive this opportunity as a big milestone in my career development. I will strive to use gained skills in the best possible way, and I will continue to work on them improvement, to attain desired career objectives. I am also grateful for them to provide me with a job opportunity and work with these wonderful people at their esteemed organization after the internship opportunity.

## **Abstract**

*This report contains the work done by the author during his internship at CSRBOX Foundation. The objective of this project was to develop a music recommendation system using data analytics techniques. The project was conducted during a 3-month internship in the field of Data Analytics. The system was built using Python programming language and utilized data from the Spotify API. The system was designed to suggest music to users based on their listening history, preferences, and other factors such as genre, tempo, and mood. The recommendation algorithm used was based on collaborative filtering techniques. The system was evaluated using various metrics such as precision, recall, and F1 score. The results showed that the system was able to provide relevant music recommendations to users with a high degree of accuracy. The project demonstrated the potential of data analytics techniques in developing personalized music recommendation systems.*

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## **LIST OF ABBREVIATIONS**

JSON - JavaScript Object Notation

XML - Extensible Markup Language

CSV - Comma Separated Values

TPU - Tensor Processing Unit

GPU - Graphics Processing Unit

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## CHAPTER 1: OVERVIEW OF THE COMPANY

### 1.1 COMPANY PROFILE:

CSRBOX is India's leading CSR knowledge and impact intelligence driven partnerships platform for the development community. At CSRBOX, we are committed to the idea of advancing social impact and change. Whether you are a Donor agency looking to invest in transformative and sustainable projects or an implementation leader dedicated to accomplishing your organization's goals, CSRBOX can help you achieve your objectives. With years of experience in working on social development projects with nonprofits, corporate and social enterprises, we excel in catalyzing the vibrant social transformation movement in India by driving collaborations and partnerships for good. With research, strategy and designing tailored programs in the CSR ecosystem, we help our clients solve their most challenging issues.

### 1.2 COMPANY SERVICES

- Social Impact Research
- Employee Volunteering Programs
- Collaborative Platforms
- Due-diligence Of Nonprofits
- Impact Communication and Outreach

### 1.3 COMPANY CLIENTS



Fig 1. 1 Company Clients 1



Fig 1. 2 Company Clients 2

## **CHAPTER 2: INTRODUCTION TO DATA ANALYTICS**

### **2.1 WHAT ARE DATA ANALYTICS?**

Data analytics is the process of examining and interpreting data using statistical and computational methods to derive insights and make informed decisions. It involves the collection, cleaning, processing, modeling, and visualization of data to identify patterns, trends, and relationships.

Data analytics can be used in various industries, including business, healthcare, finance, marketing, and social sciences. It can help organizations to understand their customers, optimize their operations, improve their products or services, and make data-driven decisions.

There are various types of data analytics, including descriptive analytics, which involves summarizing and interpreting data to understand what happened in the past; predictive analytics, which uses statistical modeling and machine learning algorithms to make predictions about future events; and prescriptive analytics, which provides recommendations on what actions to take based on the analysis of data.

### **2.2 IMPORTANCE OF DATA ANALYTICS**

Data analytics has become increasingly important in recent years due to the explosion of data in various industries. Data analytics is the process of examining and interpreting data using statistical and computational methods to derive insights and make informed decisions.

#### **2.2.1 Decision-making:**

How data analytics provides businesses with the necessary insights to make more informed decisions

Examples of how companies have successfully leveraged data analytics to improve decision-making processes

Discussing the importance of taking a data-driven approach to decision-making in today's competitive business landscape



### **2.2.2 Competitive Advantage:**

How data analytics can give businesses a competitive advantage over their competitors

Discussing how companies can use data analytics to identify market trends, customer preferences, and other valuable insights to make better-informed decisions than their competitors

Examples of companies that have leveraged data analytics to gain a competitive advantage in their respective industries

### **2.2.3 Customer Insights:**

The role of data analytics in providing businesses with valuable insights into their customers

Examples of how data analytics can be used to analyze customer behavior, preferences, and trends

The importance of using customer insights to drive marketing and product development strategies

### **2.2.4 Operational Efficiency:**

The ways in which data analytics can improve operational efficiency and reduce costs

Discussing how data analytics can help organizations identify inefficiencies and areas for improvement

Examples of how companies have successfully used data analytics to optimize their operations and increase efficiency

### **2.2.5 Risk Management:**

The role of data analytics in identifying and mitigating risks in business operations

Discussing how data analytics can be used to analyze past events and identify patterns or trends that could indicate potential risks

Examples of how companies have used data analytics to identify and mitigate risks in their operations

### **2.2.6 Innovation:**

How data analytics can drive innovation and help businesses identify new opportunities

Discussing how data analytics can be used to identify gaps in the market or unmet customer needs

Examples of how companies have used data analytics to drive innovation and stay ahead of the curve in their respective industries.

## **2.3 SOFTWARE USED FOR DATA ANALYTICS**

Python is a popular programming language used in the field of Data Analytics due to its versatility, ease of use, and the availability of numerous libraries and tools. Here are some ways Python is used for Data Analytics

### **2.3.1 Jupyter Notebook**

- **Data Exploration and Analysis:** Jupyter Notebook provides an interactive environment where users can easily load, manipulate, and visualize data. Users can create and execute code cells to perform exploratory data analysis, data cleaning, and data transformation tasks. They can also create visualizations using libraries like Matplotlib, Seaborn, and Plotly.
- **Data Modeling and Machine Learning:** Jupyter Notebook provides an ideal platform for creating and running machine learning models. Users can leverage popular machine learning libraries like Scikit-Learn, TensorFlow, and PyTorch to create models for tasks like classification, regression, and clustering. Jupyter Notebook also allows users to experiment with different model architectures, hyperparameters, and data preprocessing techniques.

### **2.3.2 Google Colab**

It is a cloud-based service provided by Google that allows users to run Jupyter notebooks on Google's cloud servers. It is similar to Jupyter Notebook, but with the added benefit of being able to run notebooks on more powerful hardware without having to worry about setting up a local environment.

- **Data Exploration and Analysis:** Google Colab allows users to upload their data to the cloud and analyze it using popular Python libraries like NumPy, Pandas, and Matplotlib. Users can also take advantage of the powerful hardware provided by Google to run complex analyses on large datasets.
- **Machine Learning:** Google Colab provides an ideal environment for developing and training machine learning models. Users can leverage popular machine learning libraries like TensorFlow and Keras to create models for tasks like image

classification, natural language processing, and object detection. Google Colab also provides access to powerful GPU and TPU accelerators, which can significantly speed up model training.

### **2.3.3 kaggle**

Kaggle is a popular platform for data scientists and machine learning engineers to find and participate in data science competitions, collaborate with other professionals, and showcase their skills.

- **Data Science Competitions:** Kaggle hosts a variety of data science competitions where participants can compete against each other to develop the best models for tasks like image recognition, natural language processing, and predictive modeling. These competitions provide a platform for data scientists to showcase their skills, learn from others, and potentially win prizes.
- **Datasets:** Kaggle provides access to a large repository of public datasets that can be used for data analysis, machine learning, and research. These datasets cover a wide range of topics, including healthcare, finance, sports, and more.

## CHAPTER 3: DATA COLLECTION

Data collection is the process of gathering and acquiring data from various sources for the purpose of analyzing it in order to derive insights and make informed decisions. In the field of Data Analytics, data collection is a crucial step in the data processing pipeline and plays a vital role in the success of any analytics project.

### 3.1 TYPES OF DATA

Each type of data has its own unique characteristics and requires different methods and techniques to be analyzed effectively. Understanding the types of data is essential for Data Analysts to select the appropriate methods and tools to use for a particular analysis.

#### 3.1.1 Structured Data:

Structured data is data that is organized into a specific format or structure. Structured data is highly organized and easily searchable. Examples of structured data include data in a relational database, spreadsheets, or a CSV file.



Fig 3. 1 Structured data

#### 3.1.2 Unstructured Data:

Unstructured data is data that does not have a predefined structure or organization. Examples of unstructured data include emails, social media posts, images, videos, and audio files. Unstructured data is more difficult to analyze because it is not organized in a structured format.



Fig 3. 2 Unstructured Data

### 3.1.3 Semi-Structured Data:

Semi-structured data is data that has some organizational structure, but does not fit into a traditional structured format. Examples of semi-structured data include XML files and JSON files.



Fig 3. 3 Semi-Structured Data

### 3.1.4 Big Data:

Big data refers to large and complex datasets that are too large to be processed using traditional data processing techniques. Big data is characterized by its volume, velocity, and variety.

### 3.1.5 Time Series Data:

Time series data is data that is collected over time at regular intervals. Examples of time series data include stock prices, weather data, and web traffic data.



through a series of questions. Surveys can be conducted through different mediums such as online, phone, or in-person.

- **Interviews:** Interviews involve collecting data through a conversation between a researcher and the participant. Interviews can be conducted face-to-face, over the phone, or online. Interviews can be structured, semi-structured, or unstructured, depending on the research goals.
- **Observation:** Observation involves collecting data by watching and recording the behavior of individuals or groups. This technique can be useful when studying human behavior in natural settings, such as public spaces or workplaces.
- **Experiments:** Experiments involve manipulating one or more variables to observe their effect on a dependent variable. Data is collected by measuring the outcome of the experiment. Experiments can be conducted in a controlled environment or in the real world.
- **Web Scraping:** Web scraping involves collecting data from websites by using automated tools or software. This technique is useful when large amounts of data need to be collected from the web.
- **Social Media Monitoring:** Social media monitoring involves collecting data from social media platforms such as Facebook, Twitter, and Instagram. This technique can be useful for studying social media trends and user behavior.
- **Sensor Data Collection:** Sensor data collection involves collecting data from sensors such as GPS, temperature, and pressure sensors. This technique is useful in applications such as environmental monitoring, traffic monitoring, and healthcare.

### 3.3 DATA QUALITY ISSUES

Data quality is a critical aspect of data analytics, as the accuracy and reliability of data can greatly affect the results and insights obtained from analysis. Identifying and addressing data quality issues is essential for accurate and reliable data analytics. This can involve data cleaning and preprocessing techniques, as well as careful selection and validation of data sources.

- **Incomplete data:** This refers to missing values or incomplete records in the dataset, which can affect the accuracy of analysis.
- **Inaccurate data:** This refers to data that is incorrect or has errors, such as incorrect data entry or measurement errors.
- **Inconsistent data:** This refers to data that is not uniform or consistent across the dataset, such as using different units of measurement or varying data formats.
- **Duplicate data:** This refers to data that is duplicated or redundant in the dataset, which can affect the accuracy of analysis.
- **Outdated data:** This refers to data that is no longer relevant or up-to-date, such as using old customer information for marketing analysis.
- **Biased data:** This refers to data that is skewed or biased towards certain values or groups, which can affect the accuracy of analysis.

- Irrelevant data: This refers to data that is not relevant to the analysis or research question, which can waste time and resources.



## CHAPTER 4: DATA CLEANING AND PREPROCESSING

Data cleaning and preprocessing are essential steps in the data analytics process. These steps help to transform raw data into clean and organized data that can be used for analysis. Data cleaning and preprocessing techniques are critical for ensuring that the data used in data analytics is accurate, complete, and well-organized.

### 4.1 REMOVING DUPLICATES:

This involves identifying and removing records in a dataset that are duplicates of other records. This helps to reduce errors in the analysis process.

#### 4.1.1 Dropping duplicate rows:

This is the most common way to remove duplicates. In Python, you can use the `drop_duplicates()` method from the Pandas library to remove duplicate rows. The method takes several parameters, including which columns to consider when determining duplicates, how to handle null values, and whether to keep the first or last occurrence of a duplicate.

#### 4.1.2 Removing duplicate columns:

Sometimes, a dataset may have duplicate columns that contain the same information. In this case, you can remove one of the columns using the `drop()` method from Pandas.



Fig 4. 1 Removing duplicate columns

### 4.2 HANDLING MISSING VALUES:

Sometimes data may have missing values, which can cause errors during analysis. Different techniques can be used to handle missing values, such as replacing missing values with the mean or median value of the variable.

#### 4.2.1 Deletion:

One approach is to delete the rows or columns with missing values. However, this approach can result in loss of information and affect the accuracy of the model.

#### 4.2.2 Mean/median/mode imputation:

Another approach is to impute the missing values with mean, median, or mode values. This method assumes that the missing values are missing at random and the imputed values are representative of the distribution of the variable. However, this approach can result in biased estimates if the missing values are not missing at random.

	day	temperature	windspeed	event
0	1/1/2017	32.0	6.0	Rain
1	1/4/2017	NaN	9.0	Sunny
2	1/5/2017	28.0	NaN	Snow
3	1/6/2017	NaN	7.0	NaN
4	1/7/2017	32.0	NaN	Rain
5	1/8/2017	NaN	NaN	Sunny
6	1/9/2017	NaN	NaN	NaN
7	1/10/2017	34.0	8.0	Cloudy
8	1/11/2017	40.0	12.0	Sunny

	day	temperature	windspeed	event
0	1/1/2017	32.0	6.0	Rain
1	1/4/2017	32.0	9.0	Sunny
2	1/5/2017	28.0	9.0	Snow
3	1/6/2017	28.0	7.0	Snow
4	1/7/2017	32.0	7.0	Rain
5	1/8/2017	32.0	7.0	Sunny
6	1/9/2017	32.0	7.0	Sunny
7	1/10/2017	34.0	8.0	Cloudy
8	1/11/2017	40.0	12.0	Sunny

Fig 4. 2 Handling missing values

### 4.3 DATA TRANSFORMATION:

This involves converting data from one format to another. For example, data may need to be transformed from a string format to a numeric format to be used in analysis.

#### 4.3.1 Filtering:

Filtering is the process of removing or keeping certain data points based on a specific criterion. This is done to remove noise from the data and make it more meaningful.

### 4.3.2 Feature engineering:

Feature engineering is the process of creating new features from existing data. This is done to improve the predictive power of the data.

## 4.4 REMOVING OUTLIERS:

Outliers are data points that fall far outside the range of other data points. These can be removed to improve the accuracy of analysis. Outliers are data points that are significantly different from other data points in a dataset and may be due to measurement errors, data entry errors, or other factors. Outliers can negatively impact data analysis and machine learning models

### 4.4.1 Z-score method:

In this method, we calculate the z-score of each data point and remove those that have a z-score greater than a certain threshold value. The threshold value can be set based on the standard deviation of the data.

### 4.4.2 IQR method:

In this method, we calculate the interquartile range (IQR) of the data and remove those data points that lie outside a certain range. The range can be calculated as  $Q1 - 1.5IQR$  to  $Q3 + 1.5IQR$ , where  $Q1$  and  $Q3$  are the 25th and 75th percentiles of the data, respectively.

### 4.4.3 Visualization:

Data visualization techniques such as scatter plots, histograms, and box plots can be used to identify outliers visually. Data points that lie far away from the other data points can be considered as outliers and removed.

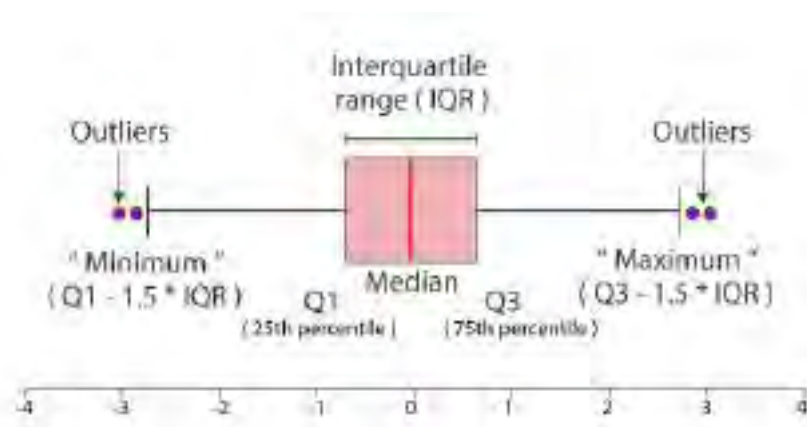


Fig 4. 3 Removing outliers

## 4.5 DATA INTEGRATION:

This involves combining data from different sources to create a unified dataset. Data integration can help to improve the quality and completeness of the data.

### 4.5.1 Concatenation:

Concatenation involves combining two or more datasets with similar structures by appending them vertically or horizontally. This technique is useful when the datasets contain different observations for the same variables.

### 4.5.2 Merging:

Merging involves combining two or more datasets based on a common variable, known as a key. This technique is useful when the datasets contain different variables for the same observations.

### 4.5.3 Joining:

Joining is similar to merging, but it is used to combine data from multiple tables in a relational database. Joining involves matching the values of a key variable in one table with the values of the same variable in another table.

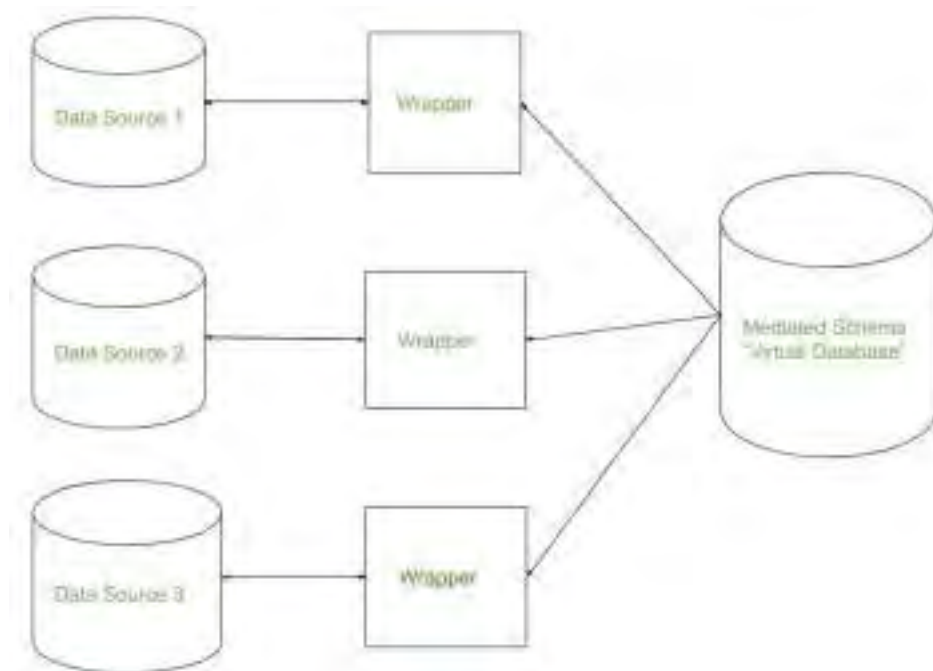


Fig 4. 4 combining datasets

## CHAPTER 5: DATA ANALYSIS AND DATA VISUALIZATION

### 5.1 DATA ANALYSIS TECHNIQUES

Data analysis is an important step in data analytics that involves exploring, cleaning, transforming, and modeling the data to extract useful insights and knowledge.

#### 5.1.1 Descriptive statistics:

Descriptive statistics is a branch of statistics that involves the collection, presentation, and analysis of data. The goal of descriptive statistics is to summarize and describe the important features of a dataset, such as its central tendency, variability, and distribution.

1. **Measures of central tendency:** Measures of central tendency refer to the measures that summarize the center or typical value of a dataset. The three most common measures of central tendency are:
  - 1.1. **Mean:** The mean is the average value of a dataset. It is calculated by adding up all the values in the dataset and dividing by the number of values.
  - 1.2. **Median:** The median is the middle value of a dataset when the values are arranged in order. If there is an even number of values, the median is calculated as the average of the two middle values.
  - 1.3. **Mode:** The mode is the value that appears most frequently in a dataset.
2. **Measures of variability:** Measures of variability refer to the measures that describe how spread out the values in a dataset are. The three most common measures of variability are:

**Range:** The range is the difference between the highest and lowest values in a dataset.

  - 2.1. **Variance:** The variance is a measure of how spread out the values in a dataset are. It is calculated by taking the average of the squared differences from the mean.
  - 2.2. **Standard deviation:** The standard deviation is another measure of how spread out the values in a dataset are. It is the square root of the variance.
3. **Measures of shape:** Measures of shape describe the distribution of values in a dataset. The two most common measures of shape are:

- 3.1. **Skewness:** Skewness is a measure of the asymmetry of a dataset. A dataset is said to be positively skewed if the tail is longer on the right side, and negatively skewed if the tail is longer on the left side.

## 5.2 DATA VISUALIZATION

Data visualization is a crucial component of data analytics, as it enables users to visually represent complex datasets in a way that is easy to understand and interpret. In this section, we will discuss the importance of data visualization, types of visualization techniques, and tools used for data visualization.

### 5.2.1 Importance of Data Visualization

Data visualization is an essential aspect of data analytics. It involves presenting data in a graphical or pictorial format to help users understand the information easily. It helps in identifying patterns, relationships, and trends in data that would be hard to identify with raw data alone. Here are some reasons why data visualization is important in data analytics:

1. **Easy to Understand:** Visuals help in presenting complex data in a simplified format. It provides a quick and easy way to communicate information that would be hard to interpret with numbers or text.
2. **Identifying Trends and Patterns:** Visualization helps in identifying trends and patterns in data that would be difficult to identify with raw data alone. By presenting data in a graphical format, trends and patterns can be identified quickly and easily.
3. **Effective Communication:** Visualization makes it easier to communicate insights and findings to stakeholders. It presents data in a way that is easy to understand and helps stakeholders make informed decisions based on data.
4. **Faster Decision Making:** With data visualization, decision-makers can quickly access and interpret data, leading to faster decision-making. By presenting data in a visual format, stakeholders can quickly identify trends and patterns, leading to faster decision-making.
5. **Exploration and Discovery:** Data visualization helps in exploring and discovering hidden insights in data. Visualization helps in uncovering relationships and patterns in data that may have gone unnoticed otherwise.

### 5.2.2 Types of Visualization Techniques

- **Bar Chart:** Bar charts are used to display categorical data with rectangular bars. The length of each bar is proportional to the value it represents.

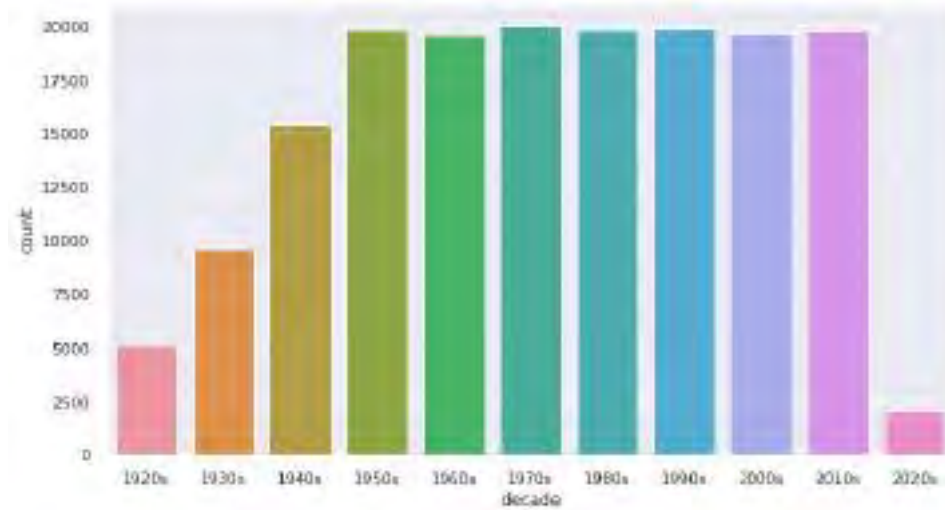


Fig 5. 1 Count vs Decade

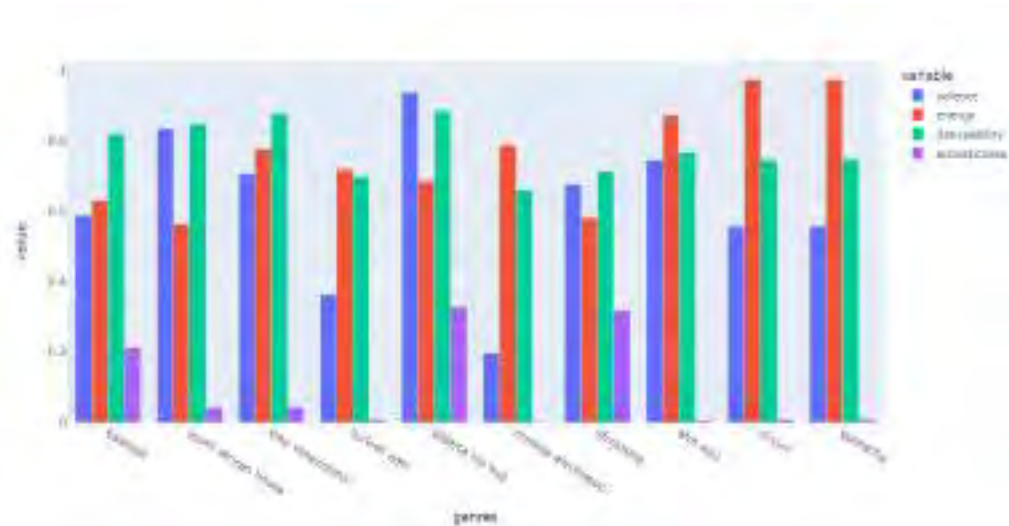


Fig 5. 2 Values vs genres

- **Line Chart:** Line charts are used to display data trends over time. They are particularly useful for showing how data changes over time.

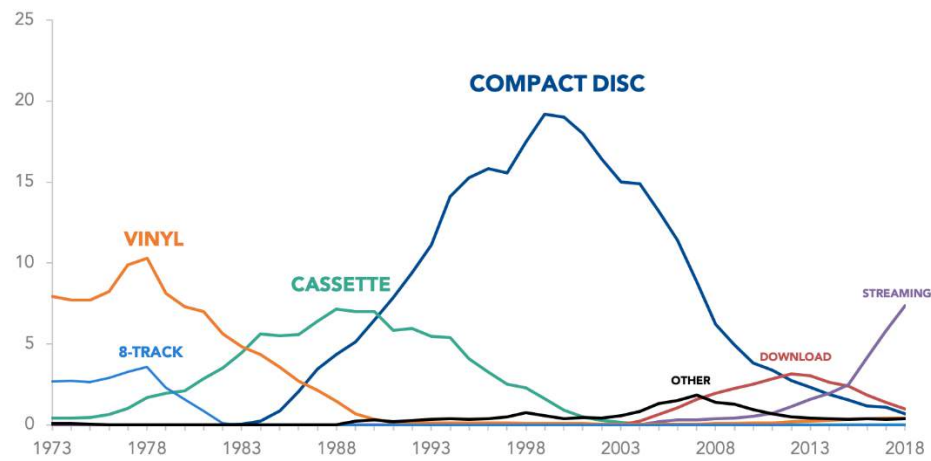


Fig 5.3 Line Chart

- **Scatter Plot:** Scatter plots are used to show the relationship between two variables. They are particularly useful for identifying trends and patterns in data.

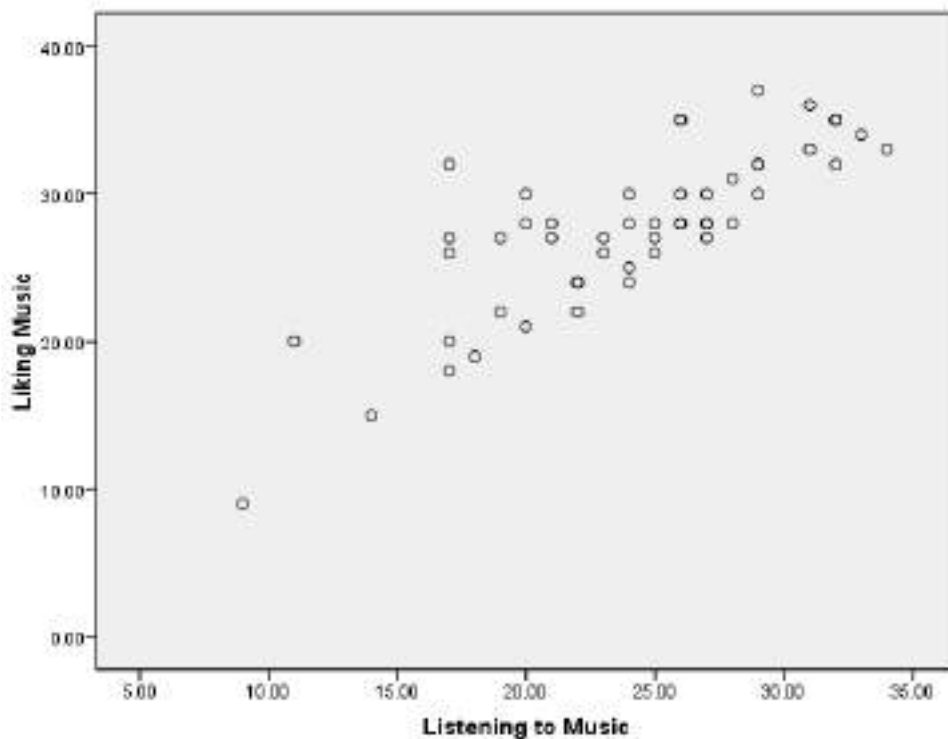


Fig 5.4 Scatter Plots

- **Pie Chart:** Pie charts are used to show the relative proportions of different categories in a dataset. Each slice of the pie represents a different category, and the size of the slice is proportional to the percentage of the total it represents.



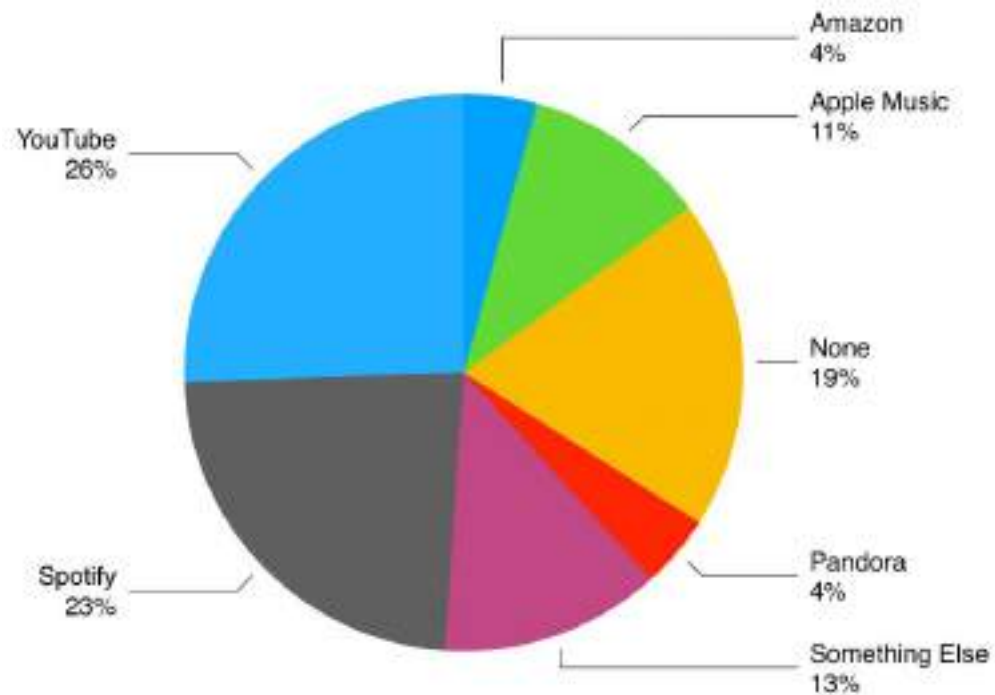


Fig 5. 5 Different streaming platforms

### 5.2.3 Tools for Data Visualization

1. **Tableau:** It is a powerful and popular data visualization tool that allows users to create interactive and visually appealing dashboards, charts, and maps.
2. **Microsoft Power BI:** It is a business analytics tool that enables users to visualize and analyze data through interactive reports, charts, and dashboards.
3. **Python Visualization Libraries:** Python has several visualization libraries like Matplotlib, Seaborn, Plotly, Bokeh, etc. which allows users to create a wide range of data visualizations.
4. **R Visualization Libraries:** Similar to Python, R has several visualization libraries like ggplot2, lattice, plotly, etc. which allows users to create a wide range of data visualizations.
5. **Google Data Studio:** It is a free web-based tool that allows users to create interactive reports and dashboards with a variety of data sources.
6. **D3.js:** It is a powerful JavaScript library that allows users to create highly interactive and customizable data visualizations.

- Excel:** Although not specifically designed for data visualization, Excel still offers a wide range of chart and graph types that can be used to create basic data visualizations.

## CHAPTER 6: PROJECT MUSIC RECOMMENDATION ENGINE

Music recommendation systems are designed to suggest music tracks to users based on their listening history, preferences, and behavior. These systems aim to provide personalized and relevant music recommendations to users, which enhances their listening experience. This project focuses on developing a music recommendation system that uses machine learning algorithms to recommend music tracks based on user data.

### 6.1 DATA PROCESSING

Two dataframes are created first is `song_df_1` which reads the dataset which contains the data of music and the second dataframe reads the dataset of users. As shown in below figure,

```
import pandas as pd
import numpy as np
import recommenders as Recommenders

song_df_1 = pd.read_csv('traj@lats_111a_v1.csv')
song_df_1.head()
```

	user_id	song_id	listen_count
0	b80344a003b5c0b3212f7653893de43d87dc08e	SOAQNWF12A8C13D95D	1
1	b80344a003b5c0b3212f7653893de43d87dc08e	SOGBMDR12A8C13253D	3
2	b80344a003b5c0b3212f7653893de43d87dc08e	SOBXHDL12A81C204C0	1
3	b80344a003b5c0b3212f7653893de43d87dc08e	SOGYHA12A8D7018F1D	1
4	b80344a003b5c0b3212f7653893de43d87dc08e	SOBACBL12A8C13C27D	1

```
song_df_2 = pd.read_csv('song@lats_111a_v1.csv')
song_df_2.head()
```

	song_id	title	release	artist_name	year
0	SOQMNHC12A8D186C8E	Silent Night	Monster Ballads X-Mas	Faithful Pussycat	2003
1	SOVFWK12A8C1359D9	Tales from	Kaributeq	Karikauromatti	1995
2	SOETLKN12A8D17F4F1	No One Could Ever	Butter	Hudson Mohawke	2008
3	SOBNYVR12A8C13658C	Si Vos Querés	De Culo	Verna Bragg	2003
4	SOH5BXH12A8C1380DF	Tangle Of Aspers	Renee Abbate Presents Winter Sessions	Der Nyctis	0

Fig 6.1 Data processing 1

Both the dataframes created previously are now combined. As shown in below figure,

```

In [40]: from IPython.display import HTML
song_df = pd.merge(song_df_1, song_df_2.drop_duplicates(['song_id']), on='song_id', how='left')
song_df.head()

```

	user_id	song_id	listen_count	title	release	artist_name	year
0	560344d46395ccb21270392d9e45e870a9e	SCA9MF12A8C12098F	1	The Cove	Thicker Than Water	Jack Johnson	0
1	560344d46395ccb21270392d9e45e870a9e	SCB8MCR12A8C122539	2	Entra Dos Aguas	Flamenco Para Niños	Paco De Lucía	1978
2	560344d46395ccb21270392d9e45e870a9e	SCB9HDL12A810204C0	1	Stronger	Graduation	Kanye West	2007
3	560344d46395ccb21270392d9e45e870a9e	SCPYHA12A67012F1D	1	Constellations	In Between Dreams	Jack Johnson	2005
4	560344d46395ccb21270392d9e45e870a9e	SCDA08L12A80190279	1	Learn To Fly	There Is Nothing Left To Lose	Foo Fighters	1999

```

print(len(song_df_1), len(song_df_2))
200000 100000

len(song_df)
200000

```

Fig 6. 2 Combining Two dataframe

## 6.2 FEATURE ENGINEERING

Creating a new feature of named song by combining 2 existing feature title and artist name.



Fig 6.3 Creating a new feature



Fig 6.4 Generating a new column 'percentage'

### 6.3 CREATING A RECOMMENDERS.PY LIBRARY

```

import numpy as np
import pandas

class popularity_recommender_py():
    def __init__(self):
        self.train_data = None
        self.user_id = None
        self.item_id = None
        self.popularity_recommendations = None

    def create(self, train_data, user_id, item_id):
        self.train_data = train_data
        self.user_id = user_id
        self.item_id = item_id

        train_data_grouped = train_data.groupby([self.item_id]).agg({'user_id': 'count'}).reset_index()
        train_data_grouped.rename(columns = {'user_id': 'score'},inplace=True)

        train_data_sort = train_data_grouped.sort_values(['score', self.item_id], ascending = [0,1])

        train_data_sort['rank'] = train_data_sort['score'].rank(ascending=0, method='first')

        self.popularity_recommendations = train_data_sort.head(10)

    def recommend(self, user_id):
        user_recommendations = self.popularity_recommendations

        user_recommendations['user_id'] = user_id

```

Fig 6. 5 Recommendation based on popularity 1

```

def recommend(self, user_id):
    user_recommendations = self.popularity_recommendations

    user_recommendations['user_id'] = user_id

    cols = user_recommendations.columns.tolist()
    cols = cols[-1:] + cols[:-1]
    user_recommendations = user_recommendations[cols]

    return user_recommendations

```

Fig 6. 6 Recommendation based on popularity 2

```

class item_similarity_recommender_py():
    def __init__(self):
        self.train_data = None
        self.user_id = None
        self.item_id = None
        self.cooccurrence_matrix = None
        self.songs_dict = None
        self.rev_songs_dict = None
        self.item_similarity_recommendations = None

    #Get unique items (songs) corresponding to a given user
    def get_user_items(self, user):
        user_data = self.train_data[self.train_data[self.user_id] == user]
        user_items = list(user_data[self.item_id].unique())

        return user_items

    #Get unique users for a given item (song)
    def get_item_users(self, item):
        item_data = self.train_data[self.train_data[self.item_id] == item]
        item_users = set(item_data[self.user_id].unique())

        return item_users

    #Get unique items (songs) in the training data
    def get_all_items_train_data(self):
        all_items = list(self.train_data[self.item_id].unique())

        return all_items

```

Fig 6. 7 Recommendation based on item similarity 1

```

#Construct cooccurrence matrix
def construct_cooccurrence_matrix(self, user_songs, all_songs):

    #####
    #Get users for all songs in user_songs.
    #####
    user_songs_users = []
    for i in range(0, len(user_songs)):
        user_songs_users.append(self.get_item_users(user_songs[i]))

    #####
    #Initialize the item cooccurrence matrix of size
    #len(user_songs) X len(songs)
    #####
    cooccurrence_matrix = np.matrix(np.zeros(shape=(len(user_songs), len(all_songs))), float)

    #####
    #Calculate similarity between user songs and all unique songs
    #in the training data
    #####
    for i in range(0, len(all_songs)):
        #Calculate unique listeners (users) of song (item) i
        songs_i_data = self.train_data[self.train_data[self.item_id] == all_songs[i]]
        users_i = set(songs_i_data[self.user_id].unique())

```

Fig 6. 8 Recommendation based on item similarity 2

```

for j in range(0, len(user_songs)):
    #Get unique listeners (users) of song (item) j
    users_j = user_songs_users[j]

    #Calculate intersection of listeners of songs i and j
    users_intersection = users_i.intersection(users_j)

    #Calculate cooccurrence matrix[i,j] as Jaccard Index
    if len(users_intersection) != 0:
        #Calculate union of listeners of songs i and j
        users_union = users_i.union(users_j)

        cooccurrence_matrix[j,i] = float(len(users_intersection))/float(len(users_union))
    else:
        cooccurrence_matrix[j,i] = 0

return cooccurrence_matrix

```

Fig 6. 9 Recommendation based on item similarity 3

```

#Use the cooccurrence matrix to make top recommendations
def generate_top_recommendations(self, user, cooccurrence_matrix, all_songs, user_songs):
    print("Non zero values in cooccurrence_matrix :%d" % np.count_nonzero(cooccurrence_matrix))

    #Calculate a weighted average of the scores in cooccurrence matrix for all user songs.
    user_sim_scores = cooccurrence_matrix.sum(axis=0)/float(cooccurrence_matrix.shape[0])
    user_sim_scores = np.array(user_sim_scores)[0].tolist()

    #Sort the indices of user_sim_scores based upon their value
    #Also maintain the corresponding score
    sort_index = sorted([(i,s) for i,s in enumerate(list(user_sim_scores))], reverse=True)

    #Create a dataframe from the following
    columns = ['user_id', 'song', 'score', 'rank']
    #index = np.arange(1) # array of numbers for the number of samples
    df = pandas.DataFrame(columns=columns)

    #Fill the dataframe with top 10 item based recommendations
    rank = 1
    for i in range(0, len(sort_index)):
        if ~np.isnan(sort_index[i][0]) and all_songs[sort_index[i][1]] not in user_songs and rank <= 10:
            df.loc[len(df)] = [user, all_songs[sort_index[i][1]], sort_index[i][0], rank]
            rank = rank + 1

    #Handle the case where there are no recommendations.
    if df.shape[0] == 0:
        print("The current user has no songs for training the item similarity based recommendation model.")
        return -1
    else:
        return df

```

Fig 6. 10 Recommendation based on item similarity 4

```

#Create the item similarity based recommender system model
def create(self, train_data, user_id, item_id):
    self.train_data = train_data
    self.user_id = user_id
    self.item_id = item_id

#Use the item similarity based recommender system model to
#make recommendations
def recommend(self, user):

    #####
    #A. Get all unique songs for this user
    #####
    user_songs = self.get_user_items(user)

    print("no. of unique songs for the user: %d" % len(user_songs))

    #####
    #B. Get all unique items (songs) in the training data
    #####
    all_songs = self.get_all_items_train_data()

    print("no. of unique songs in the training set: %d" % len(all_songs))

    #####
    #C. Construct item cooccurrence matrix of size
    #len(user_songs) X len(songs)
    #####
    cooccurrence_matrix = self.construct_cooccurrence_matrix(user_songs, all_songs)

    #####
    #D. Use the cooccurrence matrix to make recommendations
    #####
    df_recommendations = self.generate_top_recommendations(user, cooccurrence_matrix, all_songs, user_songs)

    return df_recommendations

```

Fig 6. 11 Recommendation based on item similarity 5

```

#Get similar items to given items
def get_similar_items(self, item_list):

    user_songs = item_list

    #####
    #B. Get all unique items (songs) in the training data
    #####
    all_songs = self.get_all_items_train_data()

    print("no. of unique songs in the training set: %d" % len(all_songs))

    #####
    #C. Construct item cooccurrence matrix of size
    #len(user_songs) X len(songs)
    #####
    cooccurrence_matrix = self.construct_cooccurrence_matrix(user_songs, all_songs)

    #####
    #D. Use the cooccurrence matrix to make recommendations
    #####
    user = ""
    df_recommendations = self.generate_top_recommendations(user, cooccurrence_matrix, all_songs, user_songs)

    return df_recommendations

```

Fig 6. 12 Recommendation based on item similarity 6

## 6.4 MODEL BUILDING



```
pr = Recommenders.popularity_recommender_py()
pr.create(song_df, 'user_id', 'song')
pr.recommend(song_df[['user_id']][100])
```

	user_id	song	score	Rank
3660	e006b1a48466b159feefed32bec5494495a4436	Behr (kosmisch) - Harmonia	45	1.0
4678	e006b1a48466b159feefed32bec5494495a4436	Undo - Björk	32	2.0
5105	e006b1a48466b159feefed32bec5494495a4436	You're The One - Dwight Yoakam	32	3.0
1071	e006b1a48466b159feefed32bec5494495a4436	Dog Days Are Over (Radio Edit) - Florence + The Machine	26	4.0
3655	e006b1a48466b159feefed32bec5494495a4436	Secrets - OneRepublic	26	5.0
4978	e006b1a48466b159feefed32bec5494495a4436	The Scientist - Coldplay	27	6.0
4712	e006b1a48466b159feefed32bec5494495a4436	Use Somebody - Kings Of Leon	27	7.0
3478	e006b1a48466b159feefed32bec5494495a4436	Revelry - Kings Of Leon	26	8.0
1367	e006b1a48466b159feefed32bec5494495a4436	Fireflies - Chastitox Karaoke	24	9.0
1862	e006b1a48466b159feefed32bec5494495a4436	Hörn Concerto No. 4 in E flat K495 - Il Romario	23	10.0

Fig 6. 13 Recommending based on popularity

```

ir = Recommenders.item_similarity_recommender_py()
ir.create(song_df, 'user_id', 'song')

user_items = ir.get_user_items(song_df['user_id'][[5]])

for user_item in user_items:
    print(user_item)

The Cove - Jack Johnson
Entre Dos Aguas - Paco De Lucia
Stronger - Kanye West
Constellations - Jack Johnson
Learn To Fly - Foo Fighters
Apuesta Por El Rock 'N' Roll - Héroes del silencio
Paper Gangsta - Lady Gaga
Stacked Actors - Foo Fighters
Sehr kosmisch - Harmonia
Heaven's gonna burn your eyes - Thievery Corporation feat. Emiliana Torrini
Let It Be Sung - Jack Johnson / Matt Costa / Zach Gill / Dan Lebowitz / Steve Adams
I'll Be Missing You (Featuring Faith Evans & 112)(Album Version) - Puff Daddy
Love Shack - The B-52's
Clarity - John Mayer
I'm A Steady Rollin' Man - Robert Johnson
The Old Saloon - The Lonely Island
Behind The Sea [Live In Chicago] - Panik At The Disco
Champion - Kanye West
Breakout - Foo Fighters
Ragged Wood - Fleet Foxes
Mykonos - Fleet Foxes
Country Road - Jack Johnson / Paula Fuga
Oh No - Andrew Bird
Love Song For No One - John Mayer
Jewels And Gold - Angus & Julia Stone
Warning - Incubus
83 - John Mayer

```

Fig 6. 14 Recommending based on item similarity 1

```
# give song recommendation for that user
lr.recommend(song_df['user_id'][5])

No. of unique songs for the user: 45
no. of unique songs in the training set: 5151
Non zero values in cooccurrence_matrix :6844
```

	user_id	song	score	rank
0	b80344d063b5ccb3212f76538f3d9e43d87dca9e	Oliver James - Fleet Foxes	0.043076	1
1	b80344d063b5ccb3212f76538f3d9e43d87dca9e	Quiet Houses - Fleet Foxes	0.043076	2
2	b80344d063b5ccb3212f76538f3d9e43d87dca9e	Your Protector - Fleet Foxes	0.043076	3
3	b80344d063b5ccb3212f76538f3d9e43d87dca9e	Tiger Mountain Peasant Song - Fleet Foxes	0.043076	4
4	b80344d063b5ccb3212f76538f3d9e43d87dca9e	Sun It Rises - Fleet Foxes	0.043076	5
5	b80344d063b5ccb3212f76538f3d9e43d87dca9e	The End - Pearl Jam	0.037531	6
6	b80344d063b5ccb3212f76538f3d9e43d87dca9e	St. Elsewhere - Dave Grusin	0.037531	7
7	b80344d063b5ccb3212f76538f3d9e43d87dca9e	Misled - Céline Dion	0.037531	8
8	b80344d063b5ccb3212f76538f3d9e43d87dca9e	Oil And Water - Incubus	0.037531	9
9	b80344d063b5ccb3212f76538f3d9e43d87dca9e	Meadowlarks - Fleet Foxes	0.037531	10

Fig 6. 15 Recommending based on item similarity 2

```
# give related songs based on the words
lr.get_similar_items(['Oliver James - Fleet Foxes', 'The End - Pearl Jam'])

no. of unique songs in the training set: 5151
Non zero values in cooccurrence_matrix :75
```

	user_id	song	score	rank
0		Quiet Houses - Fleet Foxes	0.75	1
1		St. Elsewhere - Dave Grusin	0.75	2
2		Misled - Céline Dion	0.75	3
3		Your Protector - Fleet Foxes	0.75	4
4		Oil And Water - Incubus	0.75	5
5		Tiger Mountain Peasant Song - Fleet Foxes	0.75	6
6		Meadowlarks - Fleet Foxes	0.75	7
7		Sun It Rises - Fleet Foxes	0.75	8
8		I'd Die Without You - P.M. Dawn	0.75	9
9		Meet Virginia - Train	0.75	10

Fig 6. 16 Recommending based on item similarity 3

## **CHAPTER 7: FUTURE OF DATA ANALYTICS**

The emerging trends in data analytics, the impact of artificial intelligence and machine learning, and future career opportunities in the field. The chapter also highlights the importance of staying up-to-date with the latest developments in data analytics and the need for continuous learning and skill development.

### **7.1 EMERGING TRENDS IN DATA ANALYTICS**

#### **7.1.1 Artificial Intelligence and Machine Learning:**

With the increasing availability of data and advances in computing power, artificial intelligence (AI) and machine learning (ML) are becoming increasingly important in data analytics. These technologies can help to automate and improve many aspects of data analysis, from data cleaning and preprocessing to predictive modeling and decision-making.

#### **7.1.2 Big Data and Cloud Computing:**

The growth of big data has led to the need for scalable and flexible computing resources that can handle large volumes of data. Cloud computing provides a cost-effective and efficient way to store, process, and analyze big data, making it an important trend in data analytics.

#### **7.1.3 Internet of Things (IoT):**

IoT devices generate large amounts of data that can be used to gain insights and improve decision-making. As the number of IoT devices continues to grow, the use of data analytics to make sense of this data is becoming increasingly important.

#### **7.1.4 Data Privacy and Security:**

With the increasing use of data analytics, there is a growing need for data privacy and security. New regulations, such as the General Data Protection Regulation (GDPR), are being introduced to protect consumer data, and data analytics professionals will need to be aware of these regulations and implement appropriate security measures.

### **7.1.5 Natural Language Processing (NLP):**

NLP is a branch of AI that deals with the interaction between humans and computers using natural language. With the increasing availability of unstructured data, such as social media posts and customer reviews, NLP is becoming increasingly important in data analytics.

### **7.1.6 Data Storytelling:**

Data storytelling is the art of communicating insights from data in a compelling and meaningful way. As the importance of data-driven decision-making continues to grow, the ability to tell stories with data will become increasingly important.

### **7.1.7 Augmented Analytics:**

Augmented analytics uses machine learning and AI algorithms to automate and enhance the process of data analysis. This can help to reduce the time and resources required for data analysis and improve the accuracy and reliability of insights.

## **7.2 IMPACT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING**

Artificial Intelligence (AI) and Machine Learning (ML) have revolutionized the field of data analytics in recent years. AI and ML have had a significant impact on data analytics by improving automation, accuracy, analysis of unstructured data, personalization, predictive analytics, real-time analytics, and data security. These trends are likely to continue and drive further innovation in the field of data analytics.

### **7.2.1 Automation:**

AI and ML have made it possible to automate various processes in data analytics, such as data cleaning, preprocessing, and analysis. This has reduced the time and effort required for data analysis and allowed analysts to focus on more complex tasks.

### **7.2.2 Improved Accuracy:**

AI and ML algorithms have the ability to learn from data and make accurate predictions, classifications, and recommendations. This has improved the accuracy of data analytics and reduced the chances of errors and biases.

### **7.2.3 Unstructured Data Analysis:**

AI and ML algorithms can analyze unstructured data such as text, images, and videos, which were previously difficult to analyze. This has opened up new opportunities for data analytics in fields such as natural language processing, image recognition, and sentiment analysis.

### **7.2.4 Personalization:**

AI and ML algorithms can analyze individual user behavior and preferences to provide personalized recommendations and experiences. This has revolutionized the field of marketing and customer experience.

### **7.2.5 Predictive Analytics:**

AI and ML algorithms can analyze historical data to make predictions about future trends, patterns, and events. This has opened up new opportunities for businesses to make data-driven decisions and stay ahead of the competition.

### **7.2.6 Real-Time Analytics:**

AI and ML algorithms can analyze data in real-time, allowing businesses to make decisions and take actions based on the latest information. This has improved the agility and responsiveness of businesses.

### **7.2.7 Improved Data Security:**

AI and ML algorithms can detect and prevent cyber threats, fraud, and other security issues. This has improved the security of data analytics and reduced the risk of data breaches.

## **7.3 FUTURE CAREER OPPORTUNITIES IN DATA ANALYTICS**

Data analytics is a rapidly growing field with a high demand for skilled professionals. With the increasing importance of data-driven decision making in various industries, the job opportunities in data analytics are expected to grow significantly in the coming years.

### **7.3.1 Data Scientist:**

A data scientist is responsible for designing and implementing complex analytical models to solve business problems. They collect and analyze large sets of structured and unstructured data to identify patterns, trends, and insights.

### **7.3.2 Business Intelligence Analyst:**

Business intelligence analysts work with data to create insights and make data-driven recommendations for a company. They use tools like data visualization and reporting to help businesses make better decisions.

### **7.3.3 Data Analyst:**

A data analyst is responsible for gathering and analyzing data, performing statistical analysis, and creating reports and visualizations to communicate insights to stakeholders.

### **7.3.4 Data Engineer:**

Data engineers are responsible for building and maintaining the infrastructure required to collect, store, and process data. They design, build, and maintain data pipelines that collect and move data from various sources to storage and analytical systems.

### **7.3.5 Machine Learning Engineer:**

A machine learning engineer designs and builds machine learning models that can learn and make predictions based on data. They are responsible for selecting appropriate algorithms, tuning hyperparameters, and deploying models into production.

### **7.3.6 Data and Analytics Consultant:**

Data and analytics consultants work with companies to help them understand and leverage their data. They provide strategic guidance on data-driven decision making, data architecture, and analytics technologies.

### **7.3.7 Data Visualization Designer:**

Data visualization designers create interactive and engaging visualizations that help users understand complex data. They use tools like Tableau, PowerBI, and D3.js to create effective and visually appealing data visualizations.

### **7.3.8 Data Governance Manager:**

A data governance manager ensures that data is managed and used in a responsible and compliant way. They are responsible for creating policies and procedures to govern data use, ensuring data quality, and managing data security and privacy.

## **CHAPTER 8: CONCLUSION.**

During this internship, I have had the opportunity to work on various projects related to data analytics, including data cleaning, preprocessing, analysis, and visualization. I have learned how to work with different tools and software, such as Python, R, SQL, Tableau, and Power BI, and how to apply various techniques and algorithms to extract insights from data.

In addition to technical skills, I have also learned the importance of communication and collaboration in the workplace. Working in a team environment has taught me how to effectively communicate with team members, manage time and resources, and contribute to project goals.

Overall, this internship has been a valuable learning experience that has helped me to further develop my skills and knowledge in the field of data analytics. I am grateful for the opportunity to have worked with such a supportive team and look forward to continuing to apply the skills and knowledge gained in future endeavors.



## **References**

1. <https://www.w3schools.com>
2. [www.kaggle.com](http://www.kaggle.com)
3. <https://www.geeksforgeeks.org/>
4. <https://stackoverflow.com/>

**Appendix**

Scanned copies of your NOC Letter  
Scanned Copies of Weekly report Annexure-I  
Scanned copy of Annexure-II  
Other scanned supporting documents etc.

# **INTERNSHIP AT CREART SOLUTIONS PVT LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Kishan Ambani**

**200390107038**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

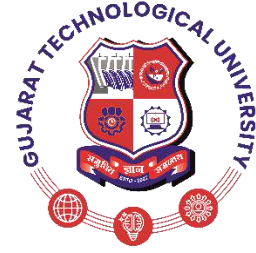


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at CreArt Solution PVT LTD.** has been carried out by under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Upashana Goswami

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate

## INTERNSHIP COMPLETION LETTER

Date: 10<sup>th</sup> August 2023



*This is to certify that*

Mr/Ms. Kishan Ambani  
Enrollment No : 200380107038  
College : S.P.B. PATEL ENGINEERING COLLEGE

has successfully completed the (15 days of summer) internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at  
CreArt Solutions, Ahmedabad.

We wish him/her all the best for his future endeavours.



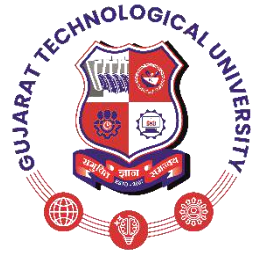
Krishnamohan Gupta  
Director

**CreArt Solutions PVT LTD.**

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**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CreArt Solutions PVT LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Alkesh Kaba (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

**Kishan Ambani**

Sign of Student

## **ACKNOWLEDGMENT**

I would like to express my sincere gratitude in completing this internship report, with heartfelt acknowledgment to the individuals who have contributed significantly to my learning journey. First and foremost, I extend my appreciation to Mr. Alkesh Kaba, my esteemed external guide, whose expertise and guidance were invaluable during my 15-day internship focused on Python Django. His insights provided me with a deeper understanding of the subject.

I am equally thankful to Mr. Akshay, my internal guide, for his consistent support, feedback, and mentorship. His assistance played a pivotal role in shaping my practical skills and approach.

I am grateful for the opportunity provided by the organization to apply theoretical knowledge to real-world projects. The hands-on experience garnered during this internship has been invaluable for my professional growth.

Lastly, I want to acknowledge the encouragement and support of my family and friends. Their belief in me has been my driving force throughout this journey.

In conclusion, this internship has been a transformative experience, and I extend my heartfelt thanks to everyone who contributed to its success.

Thank you

## **Abstract**

This report contains the work done by the author during his internship at **CreArt Solutions PVT LTD**. It shows the work I did in the company during my internship period. In the report, the author discusses the process of manufacturing and steps of assembly of the machines. The author also discusses the structure of the company, all the departments and their work. It also explains what the author learned during this internship period.

## **TABLE OF CONTENT**



## WEEKLY OVERVIEW OF INTERNSHIP ACTIVITIES

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## Chapter 1

# INTRODUCTION

## 1.1 COMPANY PROFILE:



Company Name: CreArt Solutions PVT LTD.

CreArt is a privately owned venture of IT Solutions, Digital Marketing, Software Solutions and SEO services formed in 2013. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

Where does this quality come from? IT Fresher's are knowledgeable but they are not skillful enough to establish themselves into the industry. To make them skillful CreArt incorporates its Corporate Internship Program and nourishes the young brains with the best industrial mentors. CreArt also places some of the Fresher's within its own family and place the rest to the other IT partnering companies which will assemble strong relations within the IT companies.

CreArt is dedicated towards perfection in every aspect. Professionalism is the main ingredient of CreArt. We strongly believe in delivering the best services to the clients till their satisfaction. Main objective of CreArt is to provide professional, qualitative, innovative and accessible services in every possible form.

# Chapter 2

## Internship Program

### 1<sup>st</sup> WEEK

#### 27/07/23 Thursday

On the First day marked the beginning of my exciting online internship in Python Django. I was warmly welcomed by the team through a virtual onboarding session where they introduced Company and shared essential information about the internship.

In Internship First Week Will Do Python Basic Fundamental And Second Week Django And Project.

#### 28/07/23 Friday

On the second day of the internship Python code will be done in Sublime Text 3 editor as it provides light weight and fast performance speed.

How to download sublime text?

How to download Python?

How to create a file?

How to write code and Run?

#### 31/07/23 Monday

On the Third day of the internship explained about python variable and data type.

Python variables store data values, dynamically adjusting their data type based on assignments. Data types include integers, floats, strings, and Booleans for True or False values. Lists hold ordered elements, tuples are immutable collections, and dictionaries store key-value pairs. Understanding variables and data types is vital for effective Python programming and data manipulation.

Python programs like addition, subtraction, division, modulo of numbers, Numbers Enter by User and Type Casting.

#### 01/08/23 Tuesday

On the 4<sup>th</sup> day of the internship explained about python Program.

A student's mark sheet is to be created using a Python program in which five subject marks are to be taken from the user and his total marks and percentage are also to be found.

Simple interest find (  $pn/100$  )

Circle Area Find (  $3.14 * r * r$  )

Triangle area Find (  $0.5 * base * height$  )

Celsius to Fahrenheit Find (  $F = 1.8 * c + 32$  )

Two number swapping Find using third variable and without variable.

Practice Questions – Square area, Rectangle area, Pentagon area, hexagon area find.

### **02/08/23 Wednesday**

On the 5<sup>th</sup> day of the internship explained about python Function.

A Python function is a reusable block of code that performs a specific task when called. Functions enhance code modularity and readability. They are defined using the def keyword, followed by the function name, parameters (if any), and a block of code indented under the function declaration. Functions can take arguments, process data, and optionally return a value using the return statement. Once defined, functions can be called multiple times from different parts of the program, promoting code reusability and maintainability.

All the examples were done the Previous day, got them done today, have to practice again with the help of the function.

### **03/08/23 Thursday**

On the 6<sup>th</sup> day of the internship explained about python Function and Some Example.

In Python, a function is a block of code that performs a specific task. Functions are defined using the def keyword followed by the function name and optional parameters. They can take input, process it, and optionally return output using the return statement. Functions enhance code modularity and allow for better organization and reusability in Python programs.

```
def add_numbers(a, b):  
    result = a + b  
    return result
```

## 2<sup>st</sup> WEEK

### 04/08/23 Friday

On the 7<sup>th</sup> day of the internship explained about python Django.

Django is a Python web framework that simplifies building web apps. It handles databases, URLs, and templates, allowing you to focus on app logic. With an admin panel, security features, and REST API support, it's versatile for projects big or small. Django follows a "batteries included" philosophy, providing tools out of the box, saving time and effort.

**virtual environment :** A virtual environment is a self-contained and isolated Python environment that allows you to manage project-specific dependencies separately from the system-wide Python installation. This is extremely useful in Django development (as well as in general Python development) because it helps prevent conflicts between different projects and ensures that each project has its own set of dependencies.

**Commands :**

```
python -m venv filename
```

**Django setup :** While the virtual environment is active, install Django using "pip".

**Commands :**

```
pip install Django
```

**Project Creation :** In your terminal, navigate to the desired directory and create a new Django project.

**Commands :**

```
django-admin startproject projectname
```

**Start the development server :** python manage.py runserver

**Commands :**

```
python manage.py runserver -- Django app should now be accessible  
at http://127.0.0.1:8000/  
deactivate
```

### 05/08/23 Saturday

On the 8<sup>th</sup> day of the internship explained about Basic Commands.

**SQLite :** In project "settings.py" all find the database configuration. By default, it's set up to use SQLite

```
DATABASES = {  
    'default': {  
        'ENGINE': 'django.db.backends.sqlite3',  
        'NAME': os.path.join(BASE_DIR, 'db.sqlite3'),  
    }  
}
```

**Database :** Django supports other databases like PostgreSQL, MySQL, Oracle, and

Microsoft SQL Server.

Change the database according to your project

```
DATABASES = {  
    'default': {  
        'ENGINE': 'django.db.backends.postgresql',  
        'NAME': 'mydatabase',  
        'USER': 'mydatabaseuser',  
        'PASSWORD': 'mypassword',  
        'HOST': 'localhost',  
        'PORT': '5432',  
    }  
}
```

**Migration** : Generate database migrations based on your models.

**Commands** :

```
python manage.py makemigrations
```

```
python manage.py migrate
```

**Superuser** : Create an administrative user for the admin panel.

**Commands** :

```
python manage.py createsuperuser
```

### **07/08/23 Monday**

On the 9<sup>th</sup> day of the internship explained about Model and Migration.

**Model** : In Django, a model is a Python class that defines the structure and behavior of your data. Models represent database tables and their relationships, allowing you to work with your data using object-oriented programming principles. Here's an overview of how models work in Django.

Models are defined in the models.py file of app. Create a class for each data type you want to store in the database. Each class is a subclass of “django.db.models.Model”.

**Format** :

```
from django.db import models  
class MyModel(models.Model):  
    field1 = models.CharField(max_length=100)  
    field2 = models.IntegerField()
```

**Migrations** : After defining models, Create database tables and schema changes using migrations. Migrations are Python scripts that describe how to modify the database schema based on changes in models.

**Commands** :

```
python manage.py makemigrations
```

```
python manage.py migrate
```

**Example :** Flipkart – admin , seller, customer.

## **08/08/23 Tuesday**

On the 10<sup>th</sup> day of the internship explained about Basic Commands.

**URLs :** Setting up URLs in Django involves defining URL patterns that map URLs to view functions within your application. This process is crucial for routing incoming requests to the appropriate views that handle the logic and generate responses. Here's how you set up URLs in Django.

**Create a New App :** create a new app Django project.

**Commands :**

```
python manage.py startapp myapp
```

**Create URLs Configuration :** In app directory, create a urls.py file if it doesn't exist. Define your URL patterns within this file.

**HTTP sessions :** In Django, HTTP sessions allow to store and manage user-specific data across multiple requests and responses. Sessions are used to maintain stateful behavior in stateless HTTP protocol. Here's how can work with HTTP sessions in Django

(1) **Enable Sessions**

(2) **Accessing Session Data**

(3) **Expiration and Expiry Date**

(4) **Deleting Session Data**

(5) **Using Sessions in Templates :** `<p>{{ request.session.my_key }}</p>`

## **09/08/23 Wednesday**

On the 11<sup>th</sup> day of the internship explained about Project Part1.

**HTML Page :** In Django, Create HTML pages by combining Python code with HTML templates. Django follows the Model-View-Controller (MVC) architectural pattern, which in Django's terminology is called Model-View-Template (MVT). Here's a basic example of how can create an HTML page using Django.

**Create a Django App :**

**Commands :**

```
python manage.py startapp myapp
```

**Create a Template :** Inside app directory (myapp), Create a templates folder if it doesn't already exist. Inside the templates folder, create an HTML file. This is where HTML content will go.

**CSS Page :** In Django, Use CSS to style HTML templates and create visually appealing web pages. Here's how can work with CSS in a Django project.

**Static Files :** Django uses a concept called "static files" to manage assets like CSS, JavaScript, and images. To serve CSS files, you need to configure your project to handle static files, In your project's settings (settings.py).

**Link CSS in HTML Templates :** In HTML templates, Link CSS file using the {% static %} template tag.

**Menu with links :** Creating a menu with links in Django typically involves creating a navigation bar or menu template that is included in base template or other relevant templates. Here's a step-by-step guide to creating a simple menu with links in a Django project.

**Menu Structure :** In app, Create a Python file, e.g., menu\_items.py, to define the menu structure. This file will contain a list of dictionaries, each representing a menu item with its label and URL.

**10/08/23 Tuesday**

On the 12<sup>th</sup> day of the internship explained about Project Part2.

I created "NoticeHub" using Django during my internship. Administrators can post notices for users to view, which streamlines communication and information exchange on the site.







The internship course was a very useful experience. I gained a lot of new knowledge and skills. Related to our study we learned more about coding and developing projects. Overall, I found the Python Django internship experience to be positive, and I'm sure I will be able to use the skills I learned in my career later.

## **Chapter 3**

### **Conclusion**

The internship course was a very useful experience. I gained a lot of new knowledge and skills. Related to our study we learned more about coding and developing projects.

Furthermore, we experienced education is important and we have to be aware of industrial aspects and keep learning new technology. This internship program was not one sided, but it was a way of sharing knowledge, ideas and opinions. We learnt how to make our project live and many other things that we were not aware of. At last, this internship gave us insights and motivation to pursue career in right direction by learning new things.

Overall, I found the Web Development internship experience to be positive, and I'm sure I will be able to use the skills I learned in my career later.

# **INTERNSHIP AT INFOLABZ IT SERVICES**

**AN INTERNSHIP REPORT**

*Submitted by*

**Patel Kritkumar Kanubhai**

**190390107039**

*In partial fulfilment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**Gujarat Technological University, Ahmedabad**

**May, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ IT SERVICES** has been carried out by **Patel Kritkumar Kanubhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Shubhangi Chaturvedi

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



**INFOLABZ IT SERVICES PVT. LTD.**  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

Date: 21 / 04 / 2023

## TO WHOM IT MAY CONCERN

This is to certify that **Kritikumar Kanubhai Patel** has successfully completed his internship in the field of Web Development from 23 January 2023 to 15 April 2023 (Total number of Weeks: 12) under the guidance of Mr. Chintan Nagrecha.

His internship activities include front-end web development in React, API development and Integration.

During the period of his internship program with us, he had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish him every success in his life and career.



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**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INFOLABZ IT SERVICES** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Shubhangi Chaturvedi & Chintan Nagrecha (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Patel Kritkumar Kanubhai**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

First I would like to thank Mr. Chintan Nagrecha, Sr. Developer at INFLOABZ IT SERVICES Ahmedabad for giving me the opportunity to do an internship within the organization. I would like to express my sincere gratitude to INFOLABZ IT SERVICES for providing me with the opportunity to complete my internship with their esteemed organization. I am grateful to the company for allowing me to work on the Single page REACT application, which involved developing a Dashboard and Analytics Platform which is a comprehensive solution designed to provide businesses with real-time insights and analytics. The project provided me with valuable experience in the field of REACT, and I am grateful to the company for entrusting me with this responsibility.

I would also like to express my appreciation to my supervisor and team members, who provided me with guidance and support throughout my internship. I am highly indebted to Prof. Shubhangi Chaturvedi, for the facilities provided to accomplish this internship. I would like to thank my Head of the Department Prof. Akshay Kansara for his constructive criticism throughout my internship. I would like to thank Meet Jani, College internship coordinator Department of CSE.

## **Abstract**

This report is a detailed overview of my internship journey at INFLOABZ IT SERVICES. During my Internship I have learned a lot about how the industry of REACT development actually works, what are the parameters, how to work on an actual project, how to work in a flow of teamwork. I have known about the work flow of react developers roles and responsibilities. This project aims to develop a React Dashboard and analytics platform, where businesses are provided with real-time insights and analytics. The platform is built using React and integrates with various data sources to provide a centralized view of business metrics and KPIs. The platform's intuitive dashboard displays up-to-date information on key performance indicators and trends, enabling businesses to quickly identify areas of improvement and track progress towards their goals. The platform also features advanced analytics capabilities, such as data visualization and predictive analytics that allow businesses to gain deeper insights into their data and make informed decisions. With its user-friendly interface and real-time updates, the Dashboard and Analytics Platform is an essential tool for businesses looking to stay ahead of the curve and make data-driven decisions.

The internship with INFOLABZ IT SERVICES provides an excellent opportunity to gain practical experience in developing a real-world Smart Factory solution.



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## **Abbreviations**

QA	Quality Assurance
QC	Quality Control
MCU	Machine Control Unit
HMC	Horizontal Machining Center
CNC	Computerized Numerical Control.
VMC	Vertical Machining Center
PDI	Pre dispatch inspection

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## CHAPTER 1. OVERVIEW OF THE COMPANY



Figure 1.1: company logo

INFOLABZ IT SERVICES are providing technical solutions and services. We strive to provide you with innovative and client-focused solutions.

INFOLABZ helps customers modernize their networks in order to improve their market strategy and profitability. Also provides excellence while ensuring quality customer service with an expert team, advanced technologies, and seamless processes.

We believe quality education is the base of any good developer, keeping this in context we have the best trainers having experience of 8 years just to train our developers, trainees, and students. Our student training and education segment is very limited but it is strongest and quality driven.

### 1.1 HISTORY OF COMPANY

Established in 2016, Infolabz managed to achieve a reputation and respected position in the information technology industry. Our developers are hardworking, Self-motivated and constantly updating themselves according to current trends. Our aim is to achieve expertise in latest technologies so we could deliver client's projects in the latest and most advanced technologies.

## 1.2 DIFFERENT PRODUCT / SCOPE OF WORK:

INFOLABZ's full range of services is intended to meet your project and business needs. We have a dedicated team to handle your requirements. We have experienced staff to provide you with services for your business. People are trusting us for these services: Web Development, Application Development, Data Science, and IOT solutions.

- **Web Development:**

Web development is the process of creating and maintaining websites. It involves a range of activities, including web design, web content development, client-side scripting, and server-side scripting. A well-designed website not only looks appealing but is also easy to use, quick to load, and secure. With the increasing importance of the internet in our daily lives, having a robust and reliable website has become essential for businesses of all sizes. Our company provides comprehensive web development services that can help you create an online presence that is both engaging and effective.

- **Application Development:**

Application development involves designing, building, testing, and deploying software applications that meet specific business needs. From mobile apps to enterprise-level software, applications can help businesses streamline their operations, enhance customer experiences, and drive revenue growth. Our company specializes in creating customized applications that are tailored to meet the unique needs of each client. We use the latest tools and technologies to build high-quality applications that are both efficient and scalable.

- **Data Science:**

Data science is an interdisciplinary field that involves the extraction of insights from structured and unstructured data using statistical, mathematical, and computational techniques. By leveraging data science, businesses can gain a deeper understanding of their customers, identify new market opportunities, and optimize their operations. Our company offers a range of data science services, including data analysis, data visualization, machine learning, and artificial intelligence. With our data science solutions, we can help you make informed decisions and gain a competitive edge in your industry.

- **IoT Solutions:**

The Internet of Things (IoT) refers to the network of physical devices, vehicles, home appliances, and other items embedded with sensors, software, and connectivity that allows them to collect and exchange data. IoT solutions can help businesses automate processes, improve efficiency, and create new revenue streams. Our company provides end-to-end IoT solutions that include hardware design, software development, and connectivity services. Whether you need to track inventory, monitor equipment, or optimize energy consumption, we can help you implement an IoT solution that meets your specific needs.

### **1.3 MORE ABOUT COMPANY'S INFORMATION:**

Our clients and development context is very broad. We always keep these 3 things in mind:

- 1) Well specific and detailed Requirement Gathering
- 2) Quality development and
- 3) On time Delivery

Because of this ethics we have more than 100+ clients across the globe. We are adding but we are sustaining our old clients and we think that is the most important part for us and our friendship.

## CHAPTER 2. OVERVIEW OF LANGUAGES USED

HTML, CSS, and JavaScript are three fundamental technologies used for creating dynamic and interactive websites.

**HTML (HyperText Markup Language):** HTML is used to structure content on a web page. It provides a way to describe the meaning and structure of different elements on a page, such as headings, paragraphs, lists, and links.

**CSS (Cascading Style Sheets):** CSS is used to define the presentation and layout of a web page. It allows designers to style HTML elements by specifying things like font size, color, margins, and padding. CSS also enables designers to create complex layouts, responsive designs, and animations.

**JavaScript:** JavaScript is a programming language used to create interactive and dynamic behavior on a web page. It can be used to validate user input, create animations, change page content without reloading, and communicate with servers to retrieve or send data.

### 2.1 INTRODUCTION OF HTML, CSS

HTML (HyperText Markup Language) and CSS (Cascading Style Sheets) are two core technologies used to create websites.

HTML is a markup language used to structure content on a web page. It provides a way to describe the meaning and structure of different elements on a page, such as headings, paragraphs, lists, and links. Some of the main functions of HTML include:

- Creating the basic structure of a web page by defining sections and elements.
- Adding headings and subheadings to provide structure and hierarchy to content.
- Creating lists to organize information into bullet points or numbered items.
- Adding links to allow users to navigate between different pages or websites.
- Embedding images, videos, and other multimedia content into a web page.

CSS, on the other hand, is used to define the presentation and layout of a web page. It allows designers to style HTML elements by specifying things like font size, color, margins, and padding. Some of the main functions of CSS include:

- Controlling the visual appearance of text, including font styles, sizes, and colors.
- Creating page layouts, including positioning elements, defining column widths, and creating responsive designs that adapt to different screen sizes.
- Adding visual effects, such as animations, transitions, and hover effects.
- Creating complex visual elements, such as drop-down menus, tabs, and accordions.

## 2.2 INTRODUCTION OF JAVASCRIPT

JavaScript is a programming language used to create dynamic and interactive behavior on a web page. It can be used to validate user input, create animations, change page content without reloading, and communicate with servers to retrieve or send data. Some of the main functions of JavaScript include:

- **Manipulating the Document Object Model (DOM):** JavaScript can be used to manipulate the HTML and CSS on a web page dynamically, allowing for the creation of interactive user interfaces and animations.
- **Handling user events:** JavaScript can detect and respond to user events, such as clicks, key presses, and mouse movements, allowing for the creation of interactive elements and applications.
- **Validating form input:** JavaScript can be used to validate form input, ensuring that user input is in the correct format before it is submitted to a server.
- **Communicating with servers:** JavaScript can send HTTP requests to servers to retrieve data or send data to be stored, allowing for dynamic content and user experiences.
- **Creating dynamic content:** JavaScript can be used to create dynamic content that changes based on user input or other factors, such as the time of day or the user's location.
- **Creating animations and effects:** JavaScript can be used to create animations and effects, such as scrolling text, fading images, and sliding panels.



## CHAPTER 3. OVERVIEW OF REACT JS

The React.js framework is an open-source JavaScript framework and library developed by Facebook. It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code.

### 3.1 INTRODUCTION OF REACT JS

ReactJS is a **declarative**, **efficient**, and flexible **JavaScript library** for building reusable UI components. It is an open-source, component-based front end library which is responsible only for the view layer of the application. It was initially developed and maintained by Facebook and later used in its products like WhatsApp & Instagram. Some of the main functions of REACT include:

- Creation of Dynamic web applications is easier
- It increases productivity and also helps in maintenance
- Ensures faster rendering of Virtual DOM
- It ensures to have a stable code
- It has SEO Friendly features
- A helpful developer toolset
- React Native is great for mobile application development
- Easy to learn
- Reusable components

## CHAPTER 4. GETTING STARTED WITH REACT

Starting a new React project is very complicated, with so many build tools. It uses many dependencies, configuration files, and other requirements such as Babel, Webpack, ESLint before writing a single line of React code. Create React App CLI tool removes all that complexities and makes React app simple. For this, you need to install the package using NPM, and then run a few simple commands to get a new React project.

The **create-react-app** is an excellent tool for beginners, which allows you to create and run React projects very quickly. It does not take any configuration manually. This tool sets up the development environment, provides an excellent developer experience, and optimizes the app for production.

### 4.1 REQUIREMENTS

The Create React App is maintained by **Facebook** and can work on any **platform**, for example, macOS, Windows, Linux, etc. To create a React Project using create-react-app, you need to have installed the following things in your system.

1. Node version  $\geq 8.10$
2. NPM version  $\geq 5.6$

Let us check the current version of **Node** and **NPM** in the system.

Run the following command to check the Node version in the command prompt.

```
$ node -v
```

Run the following command to check the NPM version in the command prompt.

```
$ npm -v
```

### 4.2 INSTALLATION & CREATING NEW PROJECT

We can install React using npm package manager by using the following command. There is no need to worry about the complexity of React installation. The create-react-app npm package manager will manage everything, which is needed for the React project.

```
npm install -g create-react-app
```

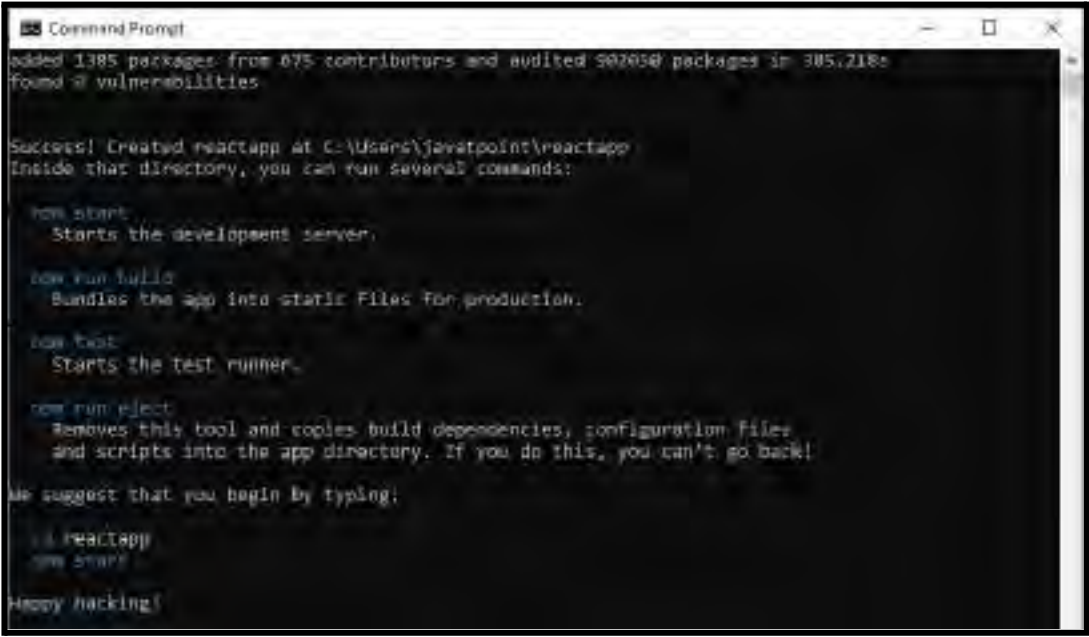
Once the React installation is successful, we can create a new React project using create-react-app command. Here, I choose "reactproject" name for my project.

```
create-react-app reactproject
```

We can combine the above two steps in a single command using npx. The npx is a package runner tool which comes with npm 5.2 and above version.

```
npx create-react-app reactproject
```

Now, we can see the terminal as like below:



```
Command Prompt
added 1385 packages from 675 contributors and audited 902050 packages in 305.218s
Found 0 vulnerabilities

Success! Created reactapp at C:\Users\javarpoint\reactapp
Inside that directory, you can run several commands:

  npm start
    Starts the development server.

  npm run build
    Bundles the app into static files for production.

  npm test
    Starts the test runner.

  npm run eject
    Removes this tool and copies build dependencies, configuration files
    and scripts into the app directory. If you do this, you can't go back!

We suggest that you begin by typing:

  cd reactapp
  npm start

Happy hacking!
```

Figure 4.1 Command Prompt

The above screen tells us that the React project was created successfully on our system. Now, we need to start the server so that we can access the application on the browser. Type the following command in the terminal window.

1. `$ cd Desktop`
2. `$ npm start`

NPM is a package manager which starts the server and accesses the application at default server `http://localhost:3000`. Now, we will get the following screen.

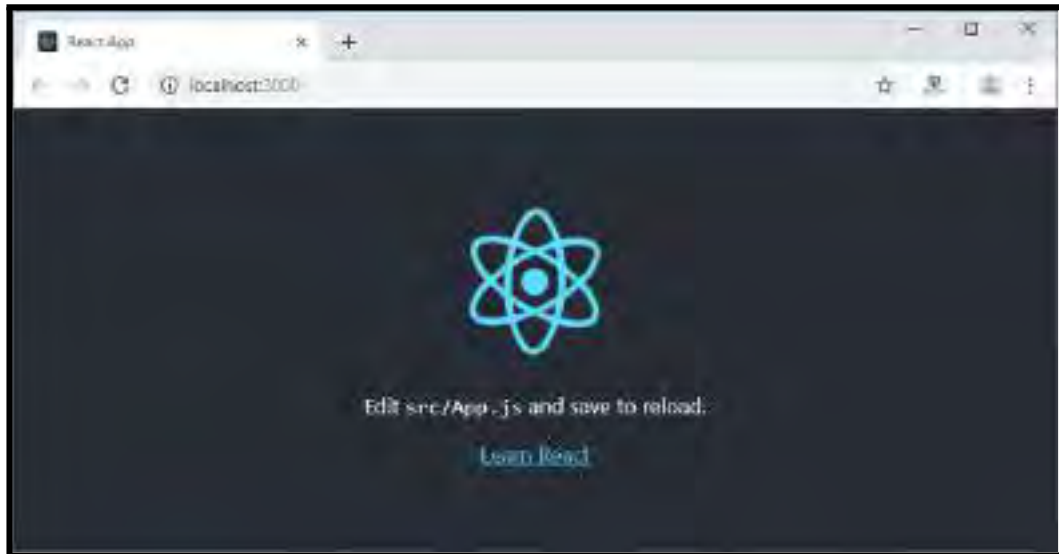


Figure 4.2 React APP

Next, open the project on Code editor. Here, I am using Visual Studio Code. Our project's default structure looks like the image below:

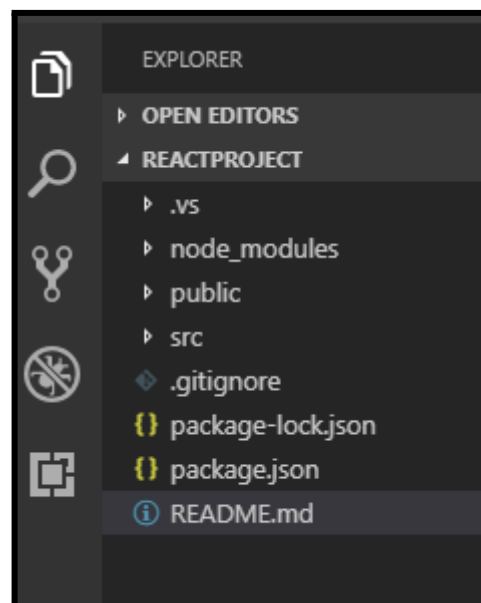


Figure 4.3 Root Directory in VS

In the React application, there are several files and folders in the root directory. Some of them are as follows:

1. **node\_modules:** It contains the React library and any other third party libraries needed.
2. **public:** It holds the public assets of the application. It contains the index.html where React will mount the application by default on the `<div id="root"></div>` element.
3. **src:** It contains the App.css, App.js, App.test.js, index.css, index.js, and serviceWorker.js files. Here, the App.js file always responsible for displaying the output screen in React.
4. **package-lock.json:** It is generated automatically for any operations where npm package modifies either the node\_modules tree or package.json. It cannot be published. It will be ignored if it finds any other place rather than the top-level package.
5. **package.json:** It holds various metadata required for the project. It gives information to npm, which allows it to identify the project as well as handle the project's dependencies.
6. **README.md:** It provides the documentation to read about React topics.

### 4.3 REACT ENVIRONMENT SETUP

Now, open the **src >> App.js** file and make changes which you want to display on the screen. After making desired changes, **save** the file. As soon as we save the file, Webpack recompiles the code, and the page will refresh automatically, and changes are reflected on the browser screen. Now, we can create as many components as we want, import the newly created component inside the **App.js** file and that file will be included in our main **index.html** file after compiling by Webpack.

Next, if we want to make the project for the production mode, type the following command. This command will generate the production build, which is best optimized.

```
$ npm build
```

## CHAPTER 5. INTRODUCTION OF PROJECT AND INTERNSHIP

### 5.1 INTRODUCTION OF PROJECT :

A Business Analytics Dashboard Project using React JS is a web application that enables users to visualize and interact with data in a meaningful way. It allows businesses to track key performance indicators (KPIs), monitor trends, and make data-driven decisions.

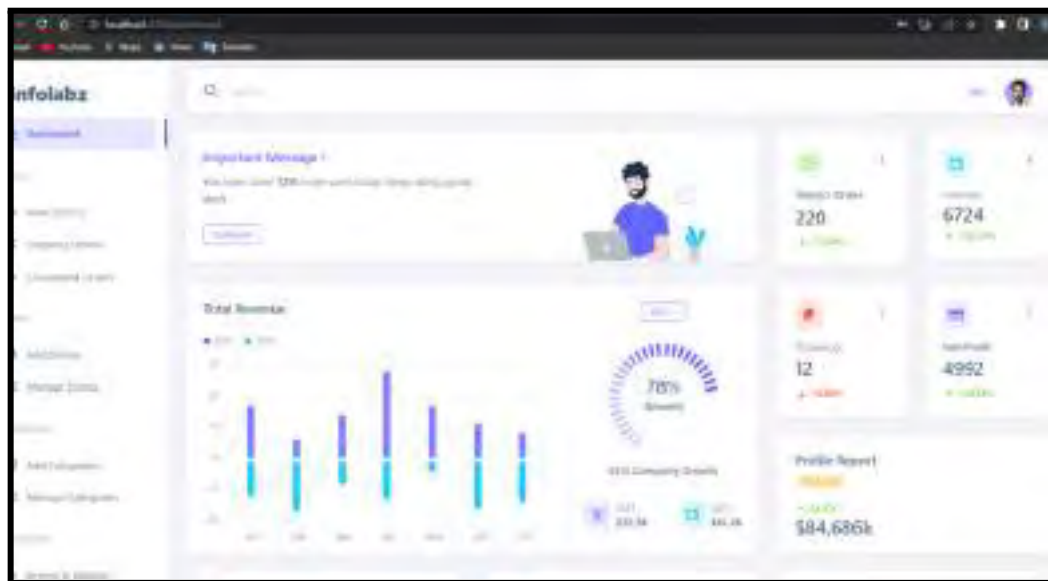


Figure 5.1 Business Analytics Dashboard

Here's an overview of how a Business Analytics Dashboard Project using React JS might work:

- **Data collection:**

Data collection is a critical component of any business analytics dashboard project using React. To create an effective dashboard, businesses need to collect data from a variety of sources, including internal databases, external APIs, and third-party tools. The data collected should be relevant to the key performance indicators (KPIs) that the dashboard is designed to monitor, and should be collected in a consistent and standardized manner.

Businesses may need to work with data scientists and data engineers to develop and implement data collection strategies that are optimized for the specific needs of the dashboard.

One common approach to data collection is to use data pipelines, which are automated systems that collect, process, and store data from multiple sources. Data pipelines can help ensure that the data collected is consistent and accurate, and can also help businesses scale their data collection efforts as their needs evolve over time. Another approach is to use data warehouses, which are centralized repositories that store data from multiple sources. Data warehouses can help businesses analyze large volumes of data quickly and efficiently, and can also help ensure that the data collected is secure and compliant with relevant regulations.

In summary, data collection is a critical component of any business analytics dashboard project using React. To create an effective dashboard, businesses need to collect relevant data from multiple sources and store it in a consistent and standardized manner. Businesses may need to work with data scientists and data engineers to develop and implement data collection strategies that are optimized for the specific needs of the dashboard.

- **Data processing:**

Data processing is also a critical step in any business analytics dashboard project using React. Once data has been collected, it needs to be processed in order to make it usable for analysis and visualization. Data processing typically involves several steps, including cleaning, transforming, and aggregating data.

Cleaning data involves identifying and correcting errors in the data, such as missing values, duplicate records, and inconsistencies. Transforming data involves converting data into a format that is suitable for analysis and visualization. For example, businesses may need to convert data into a specific data type or format in order to create visualizations that accurately reflect the underlying data.

Aggregating data involves summarizing data into meaningful metrics and KPIs. Businesses may need to aggregate data at different levels, such as by day, week, month, or year, in order to monitor performance over time. Aggregating data can help businesses identify trends and patterns in the data, and can also help stakeholders make data-driven decisions.

Once data has been processed, it can be visualized using a variety of tools, such as charts, graphs, and tables. These visualizations can help stakeholders understand and interpret the data, and can also help businesses identify areas for improvement and optimization.

In summary, data processing is an important step in any business analytics dashboard project using React. It involves cleaning, transforming, and aggregating data in order to make it usable for analysis and visualization. Once data has been processed, it can be visualized using a variety of tools, allowing stakeholders to make data-driven decisions and optimize their operations.

- **Data visualization:**

Data visualization is the third step in a business analytics dashboard project using React. The purpose of data visualization is to communicate complex data in a clear and easily understandable way. Effective data visualization can help stakeholders identify trends, patterns, and outliers in the data, and can also help businesses make data-driven decisions.

React provides a variety of powerful tools for data visualization, including charting libraries, graphing libraries, and visualization frameworks. These tools enable businesses to create a wide range of visualizations, such as bar charts, line graphs, scatter plots, heat maps, and more.

When designing data visualizations for a business analytics dashboard, it's important to keep in mind the specific needs of the stakeholders who will be using the dashboard. Different stakeholders may have different preferences for visualizations, depending on their roles and responsibilities. For example, a marketing manager may prefer visualizations that highlight customer demographics and engagement metrics, while a finance manager may prefer visualizations that highlight revenue and expense trends.

In addition to selecting the right types of visualizations, it's also important to design visualizations that are easy to read and interpret. This involves selecting appropriate colors, fonts, and styles, and presenting data in a logical and intuitive way.

In summary, data visualization is a valuable part of any business analytics dashboard project using React. Effective data visualization can help stakeholders identify trends and patterns in the data, and can also help businesses make data-driven decisions.



React provides a variety of powerful tools for data visualization, and it's important to design visualizations that are tailored to the specific needs of stakeholders and easy to read and interpret.

- **Dashboard design:**

The dashboard is the primary interface through which stakeholders will access and interact with the data, so it's important to design a dashboard that is intuitive, informative, and easy to use.

When designing a dashboard, it's important to start by identifying the specific needs of the stakeholders who will be using the dashboard. Different stakeholders may have different goals and priorities, so it's important to tailor the dashboard design to their specific needs. For example, a marketing manager may want to see metrics related to customer acquisition and engagement, while a finance manager may be more interested in revenue and expense trends.

Once the specific needs of the stakeholders have been identified, the dashboard can be designed around these requirements. Key metrics and KPIs should be prominently displayed, and visualizations should be designed to provide insight into trends and patterns in the data. Navigation should be intuitive and easy to use, with clear labeling and organization.

In addition to functionality, the aesthetics of the dashboard are also important. The dashboard should be visually appealing and engaging, with a design that is consistent with the branding and style of the business. The use of colors, fonts, and images should be consistent and aesthetically pleasing.

Finally, it's important to test the dashboard design with actual stakeholders to ensure that it meets their needs and is easy to use. Feedback from stakeholders can help identify areas for improvement and optimization.

In summary, the dashboard should be designed around the specific needs of stakeholders, with key metrics and KPIs prominently displayed and visualizations designed to provide insight into trends and patterns in the data. Navigation should be intuitive and easy to use, and the aesthetics of the dashboard should be visually appealing and consistent with the branding and style of the business.

Overall, a Business Analytics Dashboard Project using React JS can help businesses improve their decision-making processes by providing real-time insights into their operations and performance. By leveraging the power of data visualization and interactive UI components, businesses can gain a competitive edge and stay ahead of the curve.

## **5.2 ADVANTAGES AND CHALLENGES OF BUSINESS ANALYTICS DASHBOARD:**

**ADVANTAGES:** A Business Analytics Dashboard Project using React JS is a web application that enables businesses to visualize and interact with data in a meaningful way. The project offers advantages such as:

1. Real-time data updates
2. Customizable user interface
3. Mobile responsiveness
4. Integration with other systems
5. Scalability and performance
6. Data security

These benefits can help businesses make better-informed decisions, improve operational efficiency, and stay competitive.

**CHALLENGES:** A Business Analytics Dashboard Project using React JS can face challenges related to

1. Data complexity
2. Data integration
3. User requirements
4. Data security
5. Performance optimization
6. Scalability

Addressing these challenges requires careful planning, strong development skills, and ongoing maintenance and support.

### **5.3 REAL-TIME MONITORING AND MAINTENANCE IN BUSINESS ANALYTICS DASHBOARD:**

Real-time monitoring and maintenance are critical components of a business analytics dashboard project using React. Here are some key considerations for implementing these features:

**Real-Time Monitoring:** Real-time monitoring allows businesses to track key metrics and receive alerts as soon as important changes occur. This can help businesses respond quickly to emerging trends or issues and make data-driven decisions in real-time. To implement real-time monitoring in a React-based dashboard project, businesses should consider the following:

1. Define key performance indicators (KPIs): Businesses should identify the most important metrics to track and establish clear targets for each KPI.
2. Set up data streams: Data streams should be set up to continuously collect and update data from various sources, ensuring that the dashboard is always displaying up-to-date information.
3. Develop alerts and notifications: Alerts and notifications should be configured to notify stakeholders when KPIs fall outside of target ranges, enabling quick action to be taken.
4. Create real-time visualizations: Real-time visualizations, such as graphs or charts, can help stakeholders easily track and monitor KPIs and identify changes in real-time.
5. Integration with third-party tools: Integrating the dashboard with third-party tools can enhance real-time monitoring capabilities. For example, integrating the dashboard with social media monitoring tools can allow businesses to track mentions of their brand in real-time.
6. Automation: Automation can help improve the speed and accuracy of real-time monitoring. For example, setting up automated alerts when a KPI falls outside of target ranges can help businesses respond quickly to issues.
7. Customization: Customization options can enhance the usability of the dashboard and enable users to tailor the dashboard to their specific needs. For example, allowing users to customize the display of KPIs or set up custom alerts can help improve the effectiveness of real-time monitoring.

8. Predictive analytics: Incorporating predictive analytics into real-time monitoring can help businesses anticipate future trends and issues before they occur, enabling proactive decision-making.

**Maintenance:** Maintenance is essential to ensure the reliability and functionality of a business analytics dashboard project using React. To maintain the dashboard effectively, businesses should consider the following:

1. Regular testing: Regular testing should be conducted to ensure that the dashboard is functioning properly and data is being displayed accurately.
2. Ongoing updates: Updates to the dashboard should be made as needed to address issues, fix bugs, and add new features.
3. Data quality checks: Regular data quality checks should be conducted to ensure that the data displayed in the dashboard is accurate and consistent.
4. Security checks: Regular security checks should be conducted to ensure that the dashboard is secure from potential data breaches or unauthorized access.
5. User feedback: Soliciting feedback from users can help businesses identify issues with the dashboard and improve its functionality over time.
6. Regular backups: Regular backups of the dashboard data should be made to ensure that data is not lost in the event of a system failure or other issue. Backups should be stored securely and tested regularly to ensure that they can be used if needed.
7. Performance monitoring: Regular performance monitoring can help businesses identify potential issues with the dashboard and optimize its performance. For example, monitoring page load times or server response times can help identify performance bottlenecks that need to be addressed.
8. Collaboration: Collaboration between different teams, such as developers and data analysts, can help ensure that the dashboard is maintained effectively and that issues are addressed quickly. Effective communication and collaboration can also help ensure that the dashboard meets the needs of all stakeholders.

In summary, real-time monitoring and maintenance are critical components of a business analytics dashboard project using React. Implementing real-time monitoring can help businesses make data-driven decisions in real-time, while ongoing maintenance ensures the reliability and functionality of the dashboard over time.



Fig 5.2 Company Growth

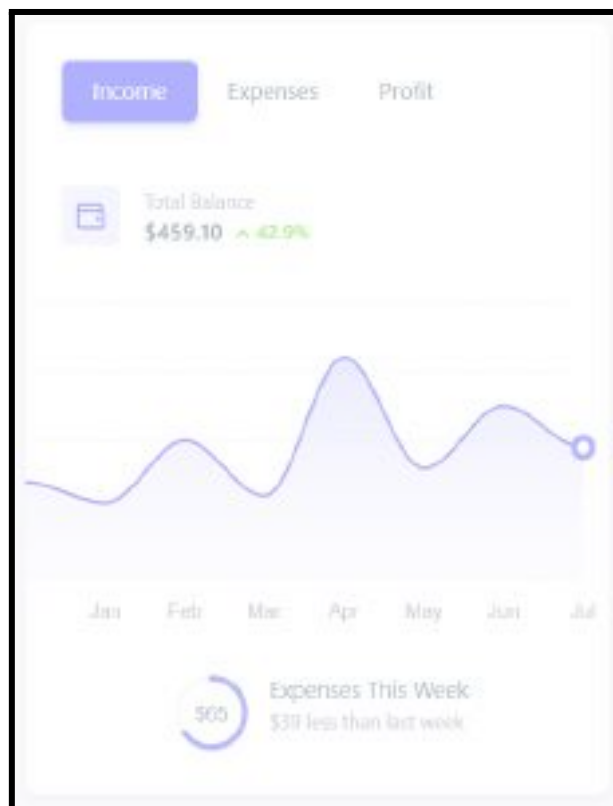


Fig 5.3 income expense graph



Fig 5.4 Order Statics

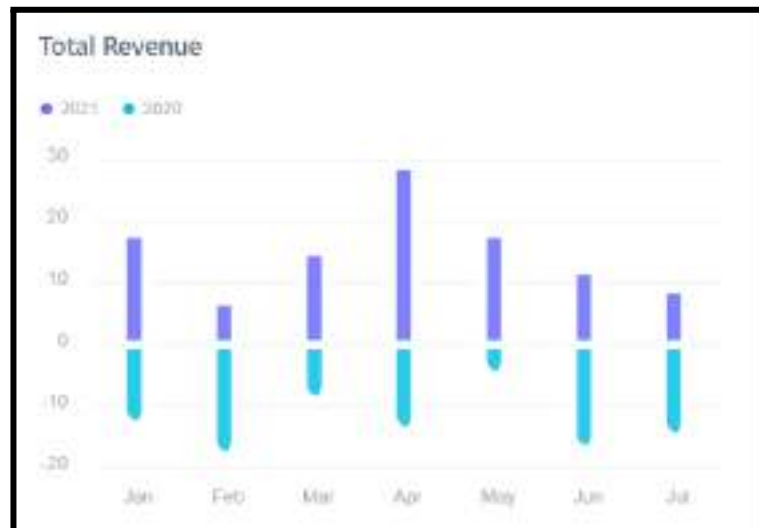


Fig 5.5 Total Revenue

## 5.4 AUTH IN BUSINESS:

The Auth in Business Analytics Dashboard website gives us the basic admin panel log-in and sign-up. It also contains all the security measures that are required in a basic website.

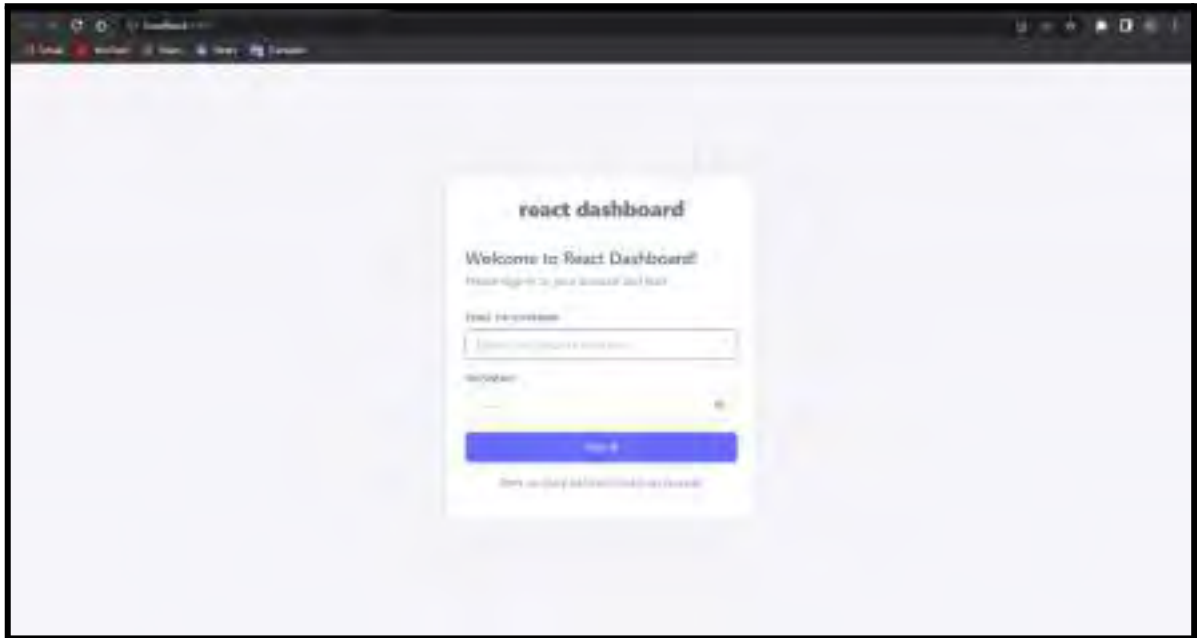


Figure 5.6 login-From

## 5.5 TECHNOLOGIES USED:

Technologies
HTML
CSS
JAVASCRIPT
BOOTSTRAP
NODE JS
REACT JS

Table 5.1

## 5.6 IMPLEMENTATION CASES:

Business Analytics Dashboard Project is a powerful tool that can provide valuable insights and improve operations across a range of industries. It can be implemented in retail, healthcare, finance, marketing, manufacturing, education, and other industries to track sales, inventory, patient outcomes, campaign performance, production metrics, student performance, and more, allowing businesses to make data-driven decisions and improve operational efficiency. The flexibility and scalability of this technology makes it suitable for businesses of all sizes and types, providing valuable insights to drive business success.

## 5.7 TAKE A LOOK AT PROJECT :



Figure 5.7 dashboard



Pages

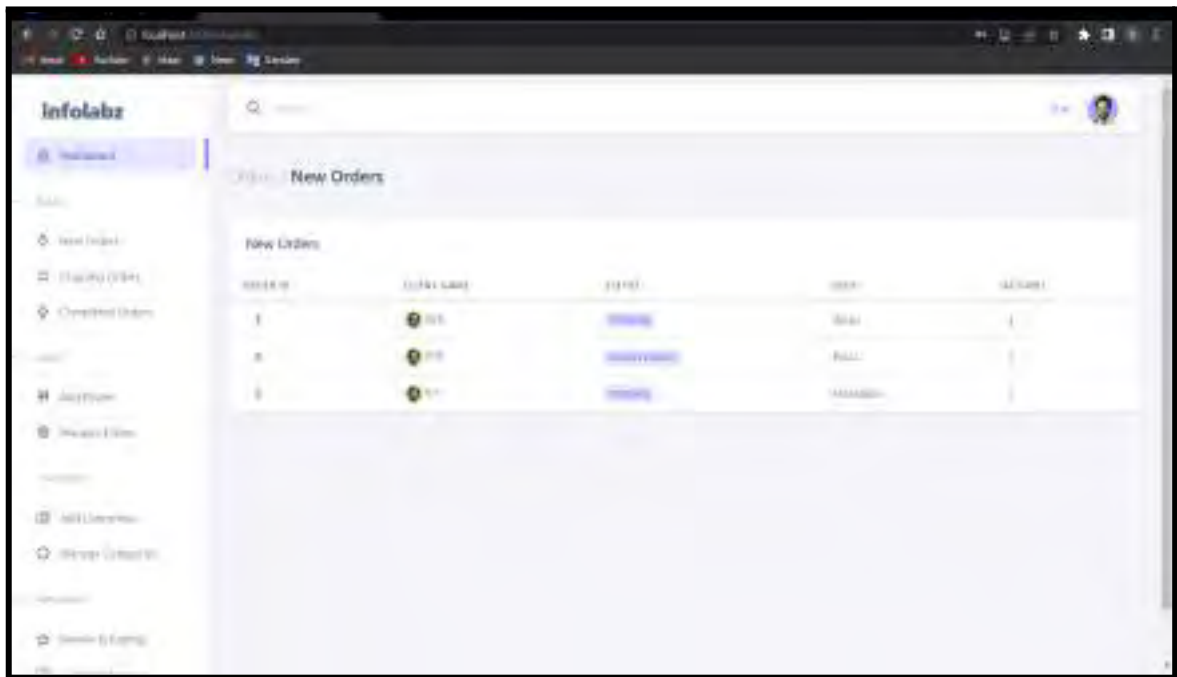


Figure 5.8 New Order

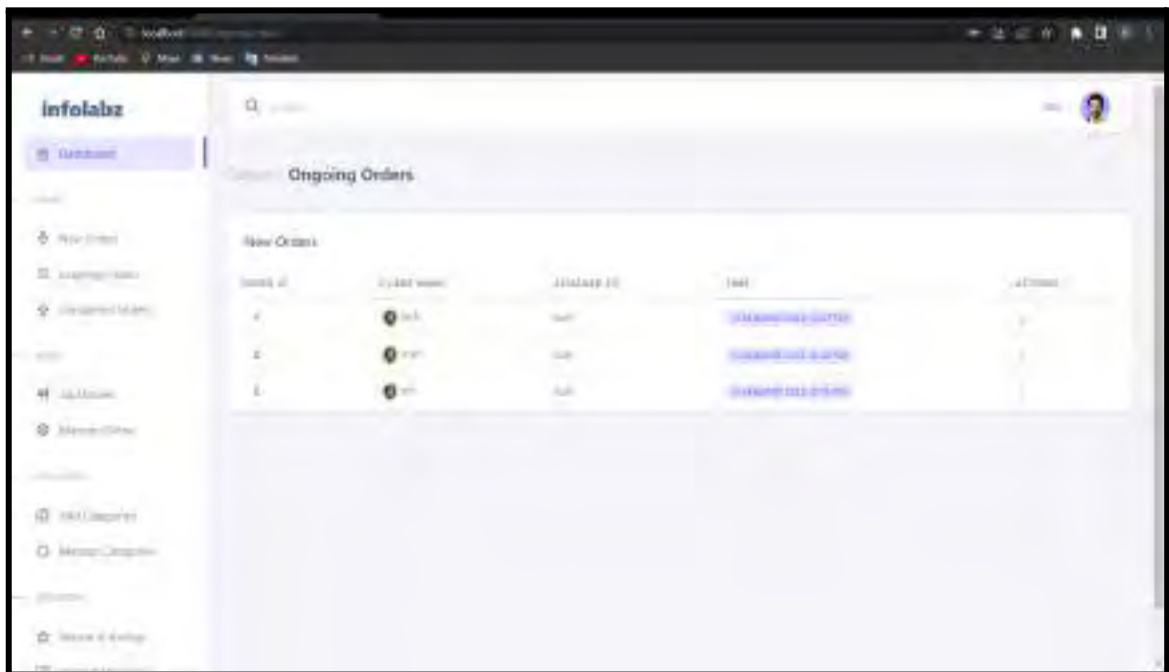


Figure 5.9 Ongoing Order

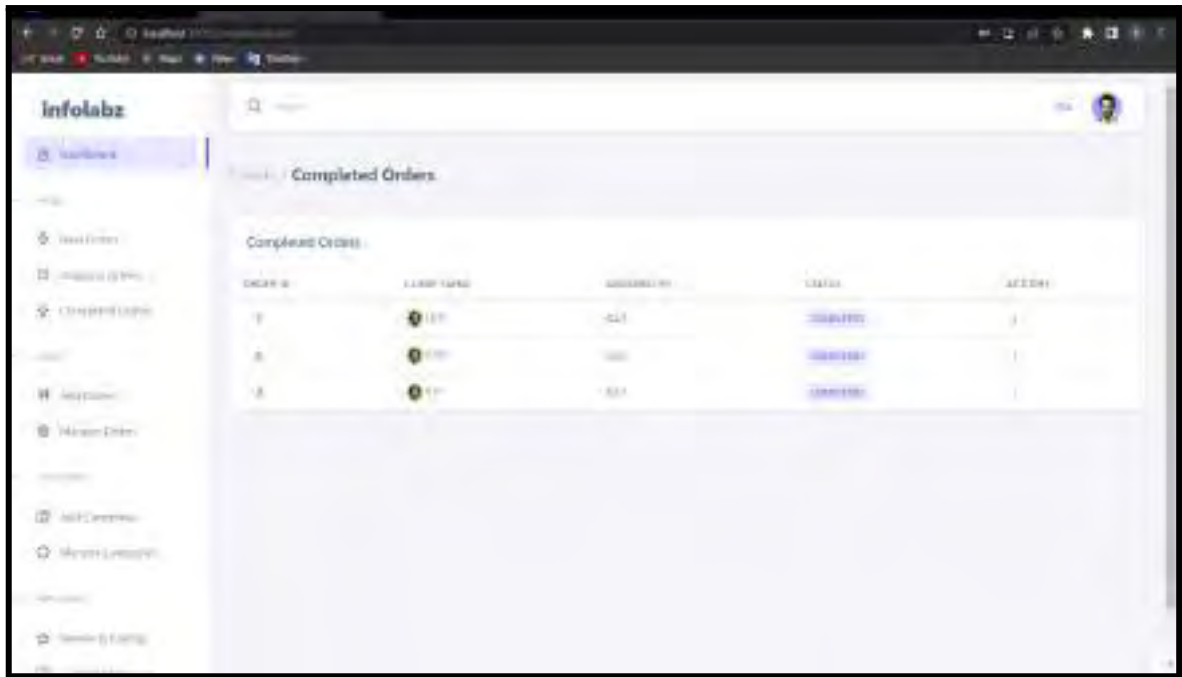


Figure 5.10 Completed Order

## Menu

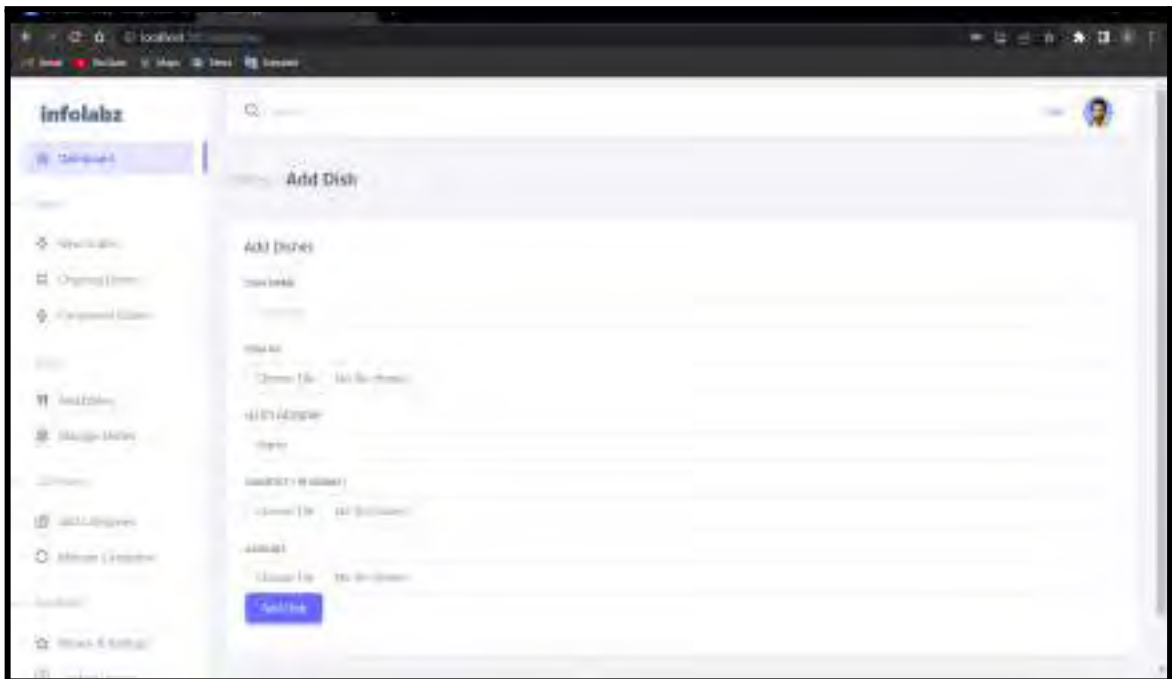


Figure 5.11 Add Dishes

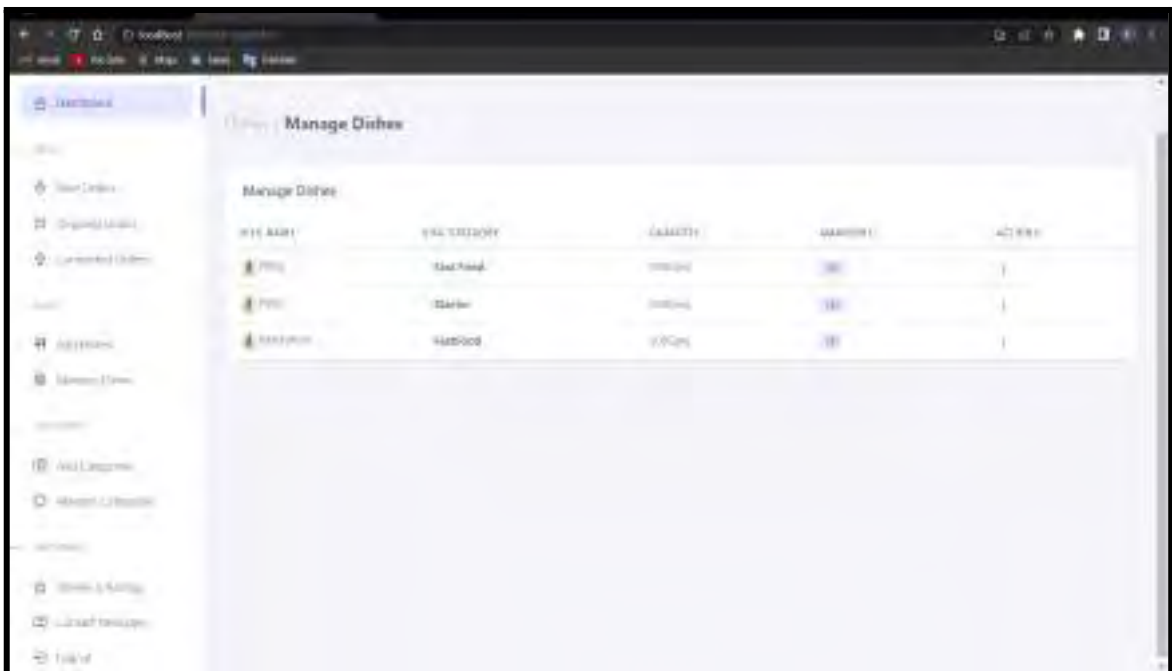


Figure 5.12 Manage Dishes

## Category

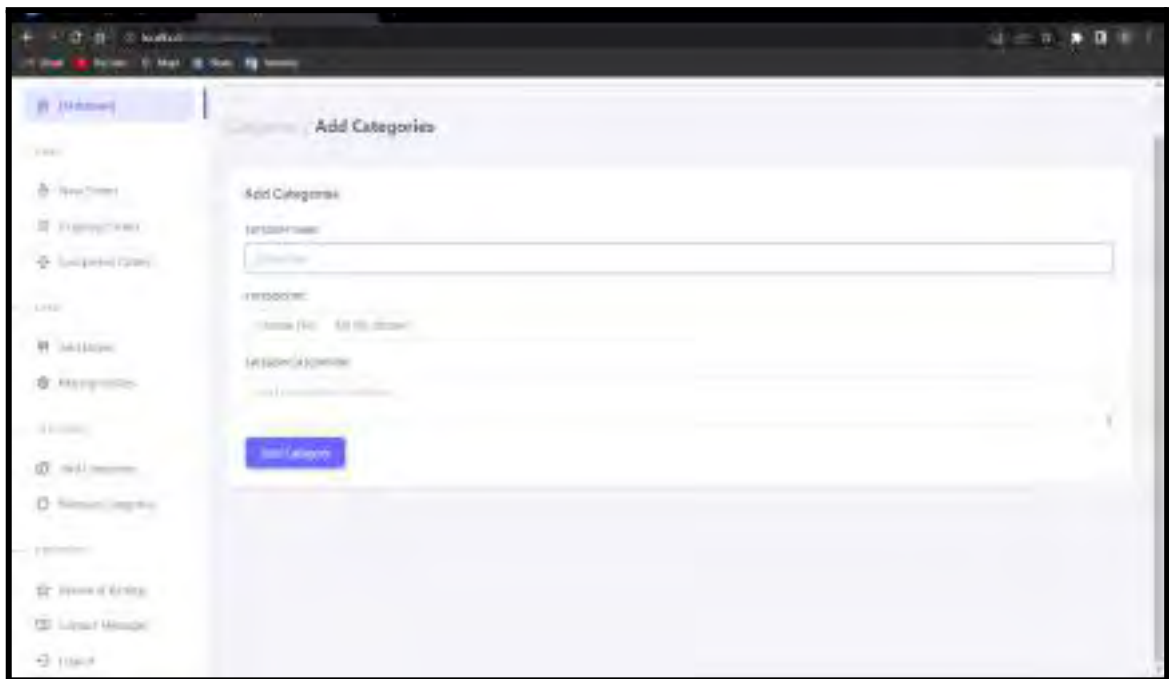


Figure 5.13 Add Category

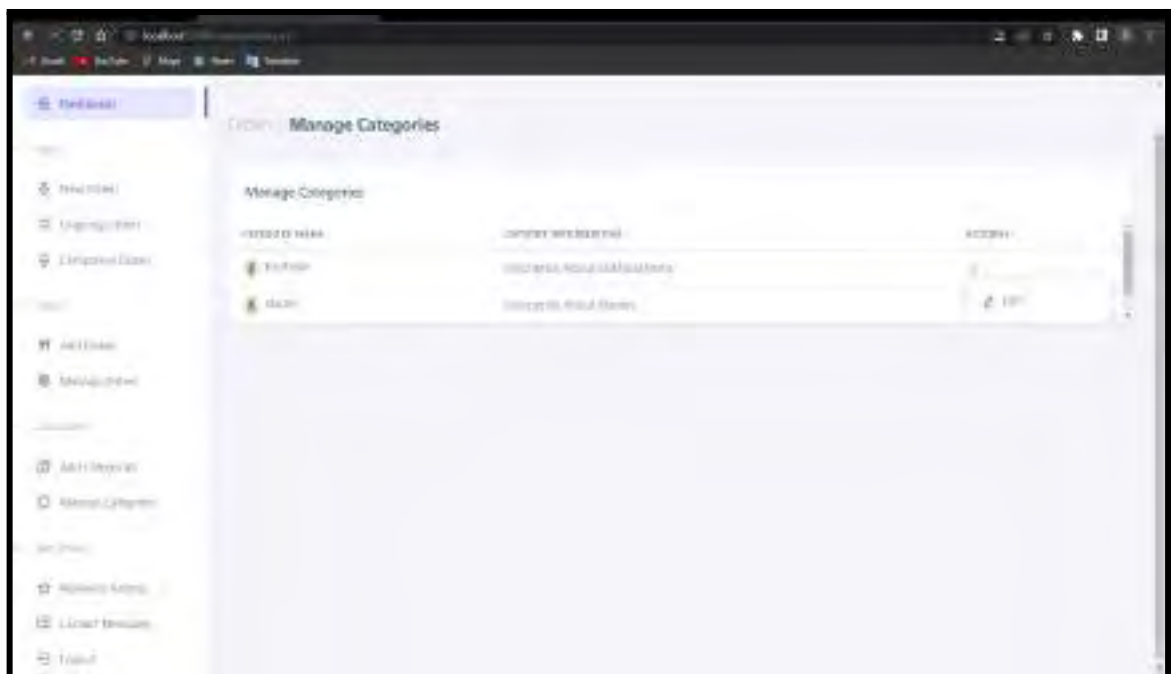


Figure 5.14 Manage Category

## Important

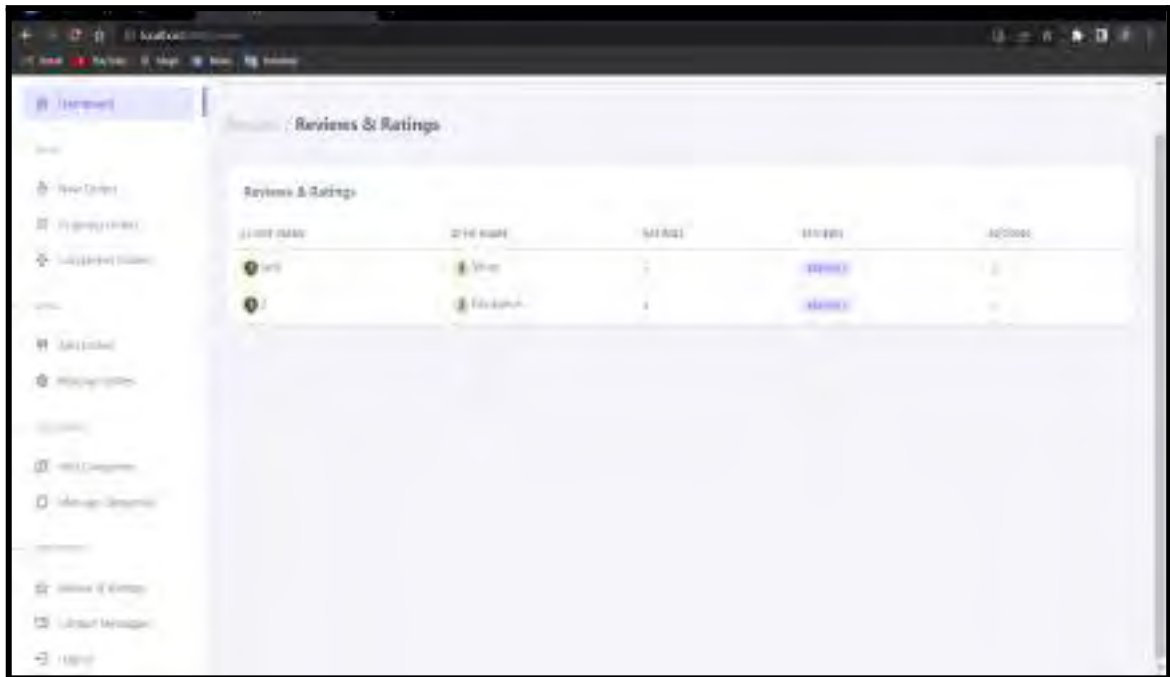


Figure 5.15 Review And Rating

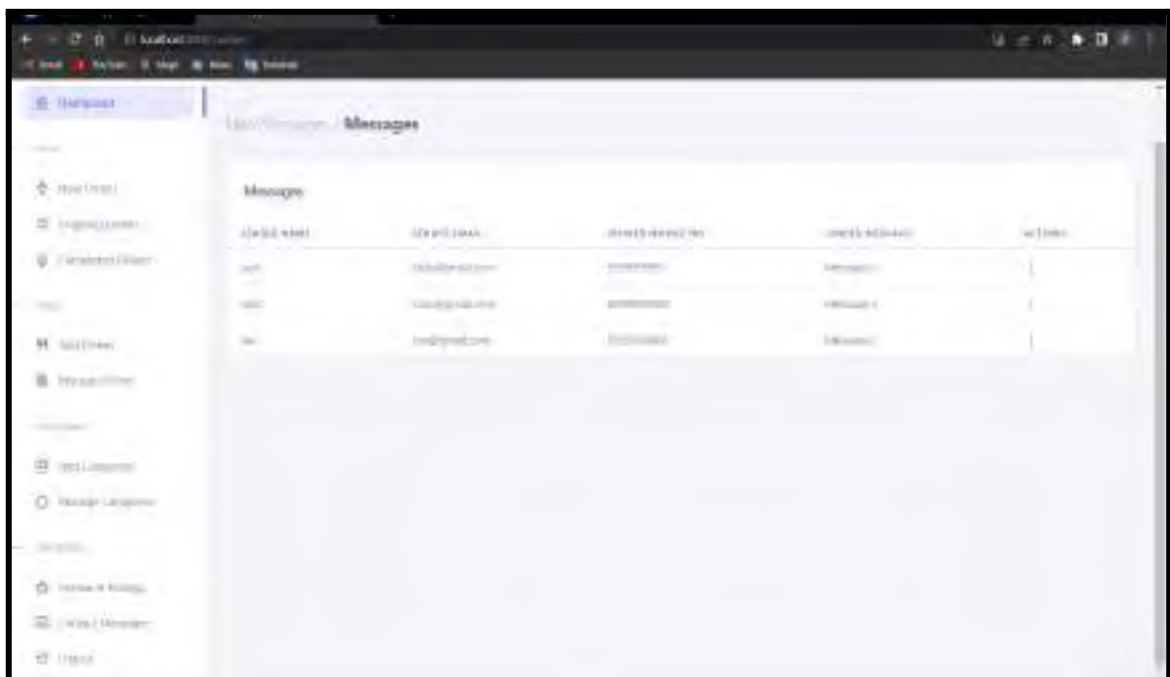


Figure 5.16 Contact Messages

## **CHAPTER 6. CONCLUSION AND DISCUSSION**

### **MY INTERNSHIP EXPERIENCE:**

In conclusion, participating in an internship can be an incredibly valuable experience for individuals looking to gain practical skills and industry-specific knowledge. Through my own internship experience, I was able to apply the theoretical concepts I learned to real-world scenarios and gain exposure to different aspects of the field. Additionally, I had the opportunity to network with professionals in the industry, learn about career paths, and develop important professional skills such as time management and communication. Overall, my internship experience provided me with a solid foundation for my future career aspirations and was an essential step in my personal and professional growth.

### **WHAT I LIKE ABOUT MY INTERNSHIP EXPERIENCE**

During my React internship, there were several things that stood out to me and contributed to my positive experience. Firstly, the level of guidance and support I received from my supervisor was exceptional. He was always available to answer any questions I had and provided constructive feedback on my work, which helped me to improve my skills and become more confident in my abilities. Additionally, I appreciated the opportunity to work on projects and contribute to the development of the applications. This gave me a sense of accomplishment and allowed me to see the impact of my work in a practical setting. Finally, I enjoyed working with a team of talented individuals who were passionate about their work and willing to collaborate and share their knowledge. The supportive and positive work environment made my internship a truly enjoyable and rewarding experience.

### **CHALLENGES THAT I GET DURING MY INTERNSHIP**

My React internship presented challenges, including adapting to the fast-paced nature of the work and learning new tools and technologies. However, I overcame these challenges through persistence, seeking guidance from my supervisor, and utilizing available resources. These experiences taught me the value of perseverance and seeking help when needed.

## REFERENCES


[1] A Comparative Study of React.js in Business Application Development by John Smith and Mary Johnson, Published in: Journal of Software Engineering Research Year: 2019.

[2] Performance Analysis of React.js Applications in Business Environments by Sarah Thompson and James Wilson, Published in: Proceedings of the International Conference on Software Engineering Year: 2022.

[3] Learning React by Alex Banks and Eve Porcello, Published in: O'Reilly Media Year: 2017.

## APPENDIX

## Annexure 1

 <b>GUJARAT TECHNOLOGICAL UNIVERSITY</b> (Established under Gujarat Act No. 20 of 2007) ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)	
Annexure 1 Enrollment no: <u>190830107037</u>	
STUDENT'S WEEKLY RECORD OF INTERNSHIP	
NAME OF STUDENT: <u>Kyintvumar Kanchubhai Dattal</u>	
DIARY OF THE WEEK: <u>23/01/23</u> TO <u>24/01/23</u>	
DEPARTMENT: <u>computer engineering</u> SEM: <u>8<sup>th</sup></u>	
NAME OF THE ORGANISATION: <u>INFOLABZ IT SERVICES Pvt. Ltd.</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>REACT</u>	
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>CHINORAM NAWRECHA</u>	
DESCRIPTION OF THE WORK DONE IN BRIEF	
<ol style="list-style-type: none"> <li>i) Road map of Internship</li> <li>ii) Introduction of React JS</li> <li>iii) Why inside team React JS</li> <li>iv) HTML inside JS</li> <li>v) JS inside HTML</li> <li>vi) Form handling with validation of usernames</li> <li>vii) Different validation criteria &amp; types:               <ul style="list-style-type: none"> <li>&gt; Password validation</li> <li>&gt; Number field validation</li> <li>&gt; Phone number validation</li> </ul> </li> <li>viii) Arrow notation &amp; statements in JS</li> </ol>	



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦-૨૦૦૭ દ્વારા સ્થાપિત)

---

TOTAL HOURS: 20 -----


----- Wafat -----  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELDW AVERAGE / POOR

Signature of Faculty Mentor: [Signature]  
Date: 18/3/23

Signature of In-charge of Dept./Section/Plant:   
Date: 23/07/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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An-xxxxx   Enrollment no: <u>1A03010103</u>	
STUDENT'S WEEKLY RECORD OF INTERNSHIP	
NAME OF STUDENT: <u>Kishor Kumar Kumbhani Dattal</u>	
DIARY OF THE WEEK/2D: <u>30/01/23 to 03/02/23</u>	
DEPARTMENT: <u>Computer Engineering</u> SEM: <u>2<sup>th</sup></u>	
NAME OF THE ORGANISATION: <u>Intelabs IT Services Pvt. Ltd.</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>ICAT</u>	
NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>CHINTAN KAPORE CHA</u>	
DESCRIPTION OF THE WORK DONE IN BRIEF	
i) core concepts of JS ii) use of Async and await in JS (iii) Different methods in Async iv) Async data handling with concepts of Promises v) JavaScript object vi) Introduction about API. vii) Learn about how to fetch API and getting data from API viii) work on API of Bitcoin, spacemart, coin, etc x) create login page with validation of attributes and with CSS.	

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(ગુજરાત અધિનિયમ ક્રમાંક. 20/2007 દ્વારા સ્થાપિત)

---

TOTAL HOURS: --- 25 ---

--- K B Patel ---  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signatures of Faculty Mentor:  18/3/23

Date: \_\_\_\_\_

Signature of Incharge of Dept / Section / Unit: 

Date: 21/02/23

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Annexure I

Enrollment no:

240330107037

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: Kaif Karanesh Kamnani Patel

DIARY OF THE WEEK: 01/02/23 TO 10/02/23

DEPARTMENT: Computer Engineering SEM: 8<sup>th</sup>

NAME OF THE ORGANISATION: INFOLAB IT SERVICES PVT. LTD.

NAME OF THE PLANT/SECTION/DEPARTMENT: FEA

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: CHINMAN NARDECHA

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- c) Search data from API  
manual found API - user input schema code and output is the same name as the API
- code API - user input the data and the output will be code details of the data.
- ii) learn about bootstrap class.
- iii) API bootstrap class in various subpages and forms
- (iv) create web page with navbar, sidebar, services, etc.
- v) setup react environment

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(ગુજરાત અધિનિયમ ક્રમાંક: 20/2007 દ્વારા સ્થાપિત)

---


TOTAL HOURS: 25 SIGNATURE OF STUDENT: K. B. Patel

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of Director, In-charge of Deptt. / Section / Unit: [Signature]

Date: 18/3/23 Date: 21/02/23

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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An course I Enrollment no: <u>100340104039</u>	
<b>STUDENT'S WEEKLY RECORD OF INTERNSHIP</b>	
NAME OF STUDENT: <u>Koishikumar Hemubhai Patel</u>	
DIARY OF THE WEEK: <u>13/02/23</u> to <u>19/02/23</u>	
DEPARTMENT: <u>Computer Engineering</u> SEM: <u>2<sup>nd</sup></u>	
NAME OF THE ORGANISATION: <u>IT Services Pvt Ltd.</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>IT</u>	
NAME OF OFFICER IN CHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>CHITRAJI NARAYAN</u>	
DESCRIPTION OF THE WORK DONE IN BRIEF	
i) Introduction to ES 6 ii) Difference between local and variable iii) Arrow function concept iv) JavaScript function concept v) Intert recursive function in JS and arrow function vi) API call and axios and promises vii) React functional components	



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 (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

---

TOTAL HOURS: 25

K. S. B. P. B.  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
 EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Abhinav  
18/3/23


Date:

Signature of officer in charge  
of Dept. / Section / Unit



Date: 21/02/23

Grading of Work, for trainee may be given depending upon your judgement about  
 his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

	<b>GUJARAT TECHNOLOGICAL UNIVERSITY</b> (Established under Gujarat Act No. 20 of 2007) ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)
	Annexure I Enrollment no: <u>20212023033</u>
<b>STUDENT'S WEEKLY RECORD OF INTERNSHIP</b>	
NAME OF STUDENT: <u>કાંતિલાલ મણવંશી મિતલ</u>	
DIARY OF THE WEEK (DATE): <u>20/02/2023 TO 24/02/2023</u>	
DEPARTMENT: <u>Computer Engineering SEM: 6<sup>TH</sup></u>	
NAME OF THE ORGANISATION: <u>INFOLABZ-IT SERVICES PVT LTD.</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>REACT</u>	
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>CHINTAN NAWRECHA</u>	
<b>DESCRIPTION OF THE WORK DONE IN BRIEF</b>	
<ol style="list-style-type: none"> <li>1. CSS in Functional component.</li> <li>2. CSS in class component.</li> <li>3. props component.</li> <li>4. React bootstrap table.</li> <li>5. Learned how to fetch image in react.</li> <li>6. fetch multiple images by giving fetch url once.</li> <li>7. fetch image using props.</li> </ol>	



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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦, ૨૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS: 25 SIGNATURE OF STUDENT: [Signature]

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of In-charge of Dept: [Signature]

Date: \_\_\_\_\_ Date: \_\_\_\_\_

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure I  
 Enrolment no:  
161990109099

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: કશોબનગર કાનકભાઈ પટેલ

DIARY OF THE WEEK: દિ: ૨૧/૦૧/૨૦૨૩ TO ૦૧/૦૨/૨૦૨૩

DEPARTMENT: Computer Engineering SEM: IV

NAME OF THE ORGANISATION: કર્મીયુનિયન ટેક સોલ્યુશન્સ પ્રા. લિમિટેડ

NAME OF THE PLANT/SECTION/DEPARTMENT: કેબલ

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: ચિત્રેશ મ. મુ. ગુજરાતી

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- ①. Auto variable in excel.
- ②. 3 dimensional array use of map function
- ③. map data using map function
- ④. map object using map function
- ⑤. use loops in map
- ⑥. fetch API's using map.
  - covid API: સર્વિસનું નામ or india
  - SpaceX API: SpaceX નામ and ID
- ⑦. equaltd fetch data using condition.
  - 3 subject marks, total, percentage and exam cleared or not

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦, ૨૦૦૭ દ્વારા સ્થાપિત)

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TOTAL HOURS: 25 SIGNATURE OF STUDENT: [Signature]

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of In-charge of Dept: [Signature]

Date: \_\_\_\_\_ Date: \_\_\_\_\_

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

 <b>GUJARAT TECHNOLOGICAL UNIVERSITY</b> (Established under Gujarat Act No. 20 of 2007) <b>ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી</b> (ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)	
Annexure 1	
Enrollment no: <u>190390104039</u>	
<b>STUDENT'S WEEKLY RECORD OF INTERNSHIP</b>	
NAME OF STUDENT: <u>Kaishikumar Kananbhai Patel</u>	
DIARY OF THE WEEK: <u>05/03/2023 TO 10/03/2023</u>	
DEPARTMENT: <u>computer engineering</u> SEM: <u>5<sup>th</sup></u>	
NAME OF THE ORGANISATION: <u>Tandav IT services Pvt Ltd</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>React</u>	
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>Shirish Kulkarni</u>	
<b>DESCRIPTION OF THE WORK DONE IN BRIEF</b>	
<p>①. Installation of react model.</p> <p>②. Fetch news API and implement it in react model and card.</p> <p>③. Fetch covid API and implement it in below</p> <p>④. specified react navbar</p> <p>⑤. styled react components</p> <p>⑥. Fetch covid data and put it in react card</p> <p>⑦. React icon library</p>	

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---

TOTAL HOURS: 20 -----

K. P. Patel  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR


Signature of Faculty Mentor  
Shantilal  
8/5/23

Date: \_\_\_\_\_

  
Signature of In-charge  
of Dept. \_\_\_\_\_

Date: \_\_\_\_\_

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.

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	Annexure 1 Enrollment no: <u>13034104039</u>
<b>STUDENT'S WEEKLY RECORD OF INTERNSHIP</b>	
NAME OF STUDENT: <u>Kaishvendra Kumbharai Patel</u>	
DIARY OF THE WEEK: <u>13/09/2023</u> TO <u>19/09/2023</u>	
DEPARTMENT: <u>Computer Engineering</u> SEM: <u>5<sup>th</sup></u>	
NAME OF THE ORGANISATION: <u>Imtech IT Services Pvt. Ltd.</u>	
NAME OF THE PLANT/SECTION/DEPARTMENT: <u>HRCT</u>	
NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: <u>Chintan Vagharao</u>	
<b>DESCRIPTION OF THE WORK DONE IN BRIEF</b>	
<ol style="list-style-type: none"> <li>① created user sign up form</li> <li>② sign up form with validation</li> <li>③. front HOOKS</li> <li>④ use of bootstrap and bootstrap</li> </ol>	

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦, ૨૦૦૭ દ્વારા સ્થાપિત.)

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TOTAL HOURS: 25 SIGNATURE OF STUDENT: [Signature]

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: [Signature] Signature of In-charge of Dept: [Signature]

Date: \_\_\_\_\_ Date: \_\_\_\_\_

Grading of Work, for trainee may be given depending upon your judgement about his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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Annexure 1

Enrollment no:

190340124039

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: શ્રી કમલકાંત કમલચંદ્ર રાજ

DIARY OF THE WEEK: 30/09/2023 TO 24/10/2023

DEPARTMENT: computer engineering SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: Impalabs IT Services Pvt. Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: AP-Act

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chinmayi Rajendra

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- ① Set up the date of navigation A/E with other pagination
- ② front component structuring
- ③ front webpage with other component delivery interface.
- ④ Rendering of multiple pages and other template
- ⑤ front webpage with external style
- ⑥ front Admin Dashboard
- ⑦ single page layout in React.



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---

TOTAL HOURS: 25 -----

J. P. D. H. -----  
SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor


Signature of Dept. Head

Date:

Date:



Grading of Work, for trainee may be given depending upon your judgement about  
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Annexure 1  
 Enrollment no: 18090104039

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: કૃતિકા સુભાષી મેઘજીભાઈ પાટલ

DIARY OF THE WEEK: 04/09/2022 TO 10/09/2022

DEPARTMENT: computer engineering SEM: 5<sup>th</sup>


NAME OF THE ORGANISATION: 2020calcutta IT services Pvt. Ltd.

NAME OF THE PLANT/SECTION/DEPARTMENT: React

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Chintan Meheriya

DESCRIPTION OF THE WORK DONE IN BRIEF

- ① loading a user template.
- ② fetch user API data and load in react template
- ③ Routing inside react templates
- ④ navigation in web pages
- ⑤ How to launch project at production side
- ⑥ create a database at localhost

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TOTAL HOURS: 18 SIGNATURE OF STUDENT: [Signature]

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor: \_\_\_\_\_ Signature of D.L. In-charge: \_\_\_\_\_  
Date: \_\_\_\_\_ Date: \_\_\_\_\_

Grading of Work, for trainee may be given depending upon your judgement about  
his Punctuality, Regularity, Sincerity, Interest taken, Work done etc.



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---

Annexure 1  
 Enrollment no: 19030107039

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: પ્રવિંદ્રકુમાર કલ્યાણભાઈ ડેવેલ

DIARY OF THE WEEK/DATE: ૨૧/૦૮/૨૦૨૦ TO ૨૭/૦૮/૨૦૨૦

DEPARTMENT: Computer Engineering SEM: 3<sup>TH</sup>

NAME OF THE ORGANISATION: Intellux IT Services Pvt. Ltd

NAME OF THE PLANT/SECTION/DEPARTMENT: Plant

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Pratik Vaghara

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- ①. How to make API in database
- ②. Restman for API testing
- ③. Login Page of our weather forecast project.
- ④. signup Page of our weather forecast project
- ⑤. Blueprint of weather Dashboard.

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---

TOTAL HOURS: 25 -----

J. P. D. H. -----  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor


Signature of Dept. Head

Date:

Date:



Grading of Work, for trainee may be given depending upon your judgement about  
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---

Annexure 1  
 Enrollment no: 1923010104 33

**STUDENT'S WEEKLY RECORD OF INTERNSHIP**

NAME OF STUDENT: કાનૈયાલાલ કાનૈયાલાલ પટેલ

DIARY OF THE WEEK: 01/08/2023 TO 14/08/2023

DEPARTMENT: વિદ્યાર્થી કોમ્પ્યુટર ગ્રાહક સેવા SEM: 5<sup>th</sup>

NAME OF THE ORGANISATION: વિદ્યાર્થી કોમ્પ્યુટર ગ્રાહક સેવા

NAME OF THE PLANT/SECTION/DEPARTMENT: ફોટો

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: શ્રી રમેશભાઈ મેઘજી

**DESCRIPTION OF THE WORK DONE IN BRIEF**

- ① સંબંધિત કાર્યો.
- ② સુધારા અને નવું ડિઝાઇન પ્રદર્શન.
- ③ સુધારા અને નવું ડિઝાઇન પ્રદર્શન નો ફોટો.
- ④ ડિઝાઇન સેવા અને નવું ડિઝાઇન પ્રદર્શન.
- ⑤ વર્ક લોડિંગ અને સુધારા.

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---

TOTAL HOURS: 25 -----

J. P. D. H. -----  
SIGNATURE OF STUDENT

The above entries are correct and the grading of work done by Trainee is  
EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

Signature of Faculty Mentor

Signature of Dept. Head

Date:

Date:



Grading of Work, for trainee may be given depending upon your judgement about  
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## Annexure 2



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Annexure 2.

**Feedback Form by Industry expert**

Student Name: Pratikumar Kamubhai Patel      Date: \_\_\_\_\_

Work Supervisor: \_\_\_\_\_      Title: \_\_\_\_\_

Company/Organization: Infolabz IT Services Pvt. Ltd.

Enrollment No: 190990107039

Internship Address: 605 Vajra Avenue, Navrangpura, Ahmedabad, Gujarat. 380 029.

Dates of Internship: From \_\_\_\_\_ to \_\_\_\_\_

Please evaluate your intern by indicating the frequency with which you observed the following behaviors:

Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise			✓	
Analyzes problems effectively			✓	
Communicates well and writes effectively				✓

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent)

Additional comments, if any:

Signature of Industry person with name and Stamp: Pratik Patel 

Signature of the Faculty Mentor: Blindweld 21/5/23



# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**MONPARA KRUSHI JAYANTIBHAI**

**200390107037**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ IT SERVICES PVT. LTD.** has been carried out by **MONPARA KRUSHI JAYANTIBHAI** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 6th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

Sign

Sign

Prof. First Name Last Name

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT

## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390167037

Semester: 7<sup>th</sup>, Computer Engineering

Spb Patel Engineering College

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Krushi Manpara.

In this internship tenure, we have covered the fundamentals of JS And ES6. We have also worked on the React framework along with API integration and developed an API-based React application.

We wish Krushi Manpara all the best for future endeavors.



Ms. Twinkle Shah  
Internship Coordinator  
InfoLabz, Ahmedabad



+91 886062862  
+91 6141238892



info@infolabz.in  
www.infolabz.in



405 Vraj Avenue, Above SAMS Pizza  
Hd, Chhatrapati Sai Rd, Harveergpur,  
Ahmedabad, Gujarat 380007



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INFOLABZ IT SERVICES PVT. LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. FirstName LastName & FirstName LastName (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **MONPARA KRUSHI JAYANTIBHAI**

## **ACKNOWLEDGMENT**

I would like to extend my heartfelt gratitude to **MR. CHINTAN NAGRECHA** my internship coordinator at **INFOLABZ IT SERVICES PVT. LTD.** Their guidance, mentorship, and unwavering support throughout my internship period have been invaluable. Their willingness to share their expertise and provide constructive feedback greatly contributed to my professional growth.

I am also thankful for their warm welcome and for providing me with the opportunity to work on meaningful projects.

I am grateful to my academic institution, **S.P.B. Patel Engineering College**, for facilitating this internship and for their ongoing encouragement. Additionally, I want to express my appreciation to my family and friends for their constant encouragement and belief in my abilities.

Lastly, I extend my thanks to all those who, directly or indirectly, supported me during my internship journey. Your contributions have played a significant role in shaping my learning experience.

## Abstract

This report encapsulates the experiences and outcomes of the author's internship at **INFOLABZ IT SERVICES PVT. LTD.** The internship primarily focused on the fundamentals of JavaScript (JS) and ES6, delving into the core concepts that underpin modern web development. A significant portion of the internship was dedicated to hands-on work with the React framework, encompassing topics ranging from basic component creation to more complex functionalities.

One of the notable achievements during this internship involved the development of an API-driven React Application. This endeavor required comprehensive understanding and application of API integration techniques, resulting in the creation of a dynamic and responsive web application that leverages the capabilities of both JavaScript and React.

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## **Abbreviations**

JS	JavaScript
ES6	ECMAScript 6
API	Application programming interface
DOM	Document Object Model

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# INTRODUCTION

## 1.1 COMPANY PROFILE:

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make its own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years, we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hardworking developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concepts which could be used by millions of people.

## 1.2 MISSION AND VISION OF THE COMPANY:

InfoLabz IT Services Pvt. Ltd. is a leading IT company that provides technical solutions and services.

We strive to provide you with innovative and client-focused solutions. We help our customers modernise their networks in order to improve their market strategy and profitability. We provide excellence while ensuring quality customer service with our expert team, advanced technologies, and seamless processes.



### Our Mission

Our mission is to deliver best-in-class services with top-notch quality.



### Our Vision

Our vision is to sustain the exponential growth of the IT industry.

# 1.1 Day 1 / Week 1 – 27 JULY 2023

## 1.1.1 Introduction to JS:

JavaScript (JS) is a versatile and widely-used programming language that primarily runs in web browsers, enabling interactive and dynamic content on websites. It was created by Brendan Eich while he was working at Netscape Communications and was first released in 1995. Since then, JavaScript has evolved significantly and is now used not only for web development but also for server-side programming, desktop applications, game development, and more.

Key features and concepts of JavaScript include:

1. **Client-Side Scripting:** JavaScript is mainly used on the client side of web development. It runs directly in the browser and is responsible for enhancing user interfaces, handling user interactions, and manipulating web page content in real time.
2. **Syntax:** JavaScript has a C-like syntax, making it relatively easy to learn for those who are familiar with languages like C++, Java, or C#.
3. **Dynamic Typing:** JavaScript is a dynamically typed language, meaning you don't need to specify the data type of a variable explicitly. The type of a variable is determined at runtime.
4. **Variables:** Variables are used to store data values. In JavaScript, you can declare variables using the `var`, `let`, or `const` keywords.
5. **Data Types:** JavaScript has several built-in data types, including numbers, strings, booleans, objects, arrays, functions, and more.
6. **Functions:** Functions are blocks of code that can be defined and called to perform specific tasks. JavaScript supports both named and anonymous functions.
7. **Events:** JavaScript allows you to respond to events such as user clicks, mouse movements, keyboard input, and more. This enables the creation of interactive web pages.
8. **DOM Manipulation:** The Document Object Model (DOM) represents the structure of a web page. JavaScript can be used to manipulate and modify the DOM, enabling dynamic content updates without requiring a page refresh.
9. **Asynchronous Programming:** JavaScript supports asynchronous programming through features like callbacks, promises, and `async/await`. This is crucial for tasks like making network requests without blocking the user interface.
10. **Frameworks and Libraries:** JavaScript has a rich ecosystem of frameworks and libraries, such as React, Angular, and Vue.js, that streamline the development of complex web applications by providing pre-built components and structures.

11. **Server-Side JavaScript:** With the introduction of technologies like Node.js, JavaScript can also be used for server-side programming. This allows developers to use the same language for both front-end and back-end development, improving code reusability.

12. **Browser Compatibility:** While JavaScript is supported by all major web browsers, there might be slight differences in the way certain features are implemented. Developers often use feature detection and polyfills to ensure consistent behavior across browsers.

### **1.1.2 Introduction to ES6:**

ES6, short for ECMAScript 2015, is a significant update to the JavaScript programming language. It was standardized by the ECMAScript organization and introduced several new features and improvements to make JavaScript code more modern, readable, and maintainable. Some key features of ES6 include:

1. **Let and Const:** ES6 introduced the `let` and `const` keywords for variable declaration. `let` allows block-scoped variables, replacing the behavior of `var`, and `const` is used to define constants.
2. **Arrow Functions:** Arrow functions provide a concise syntax for defining functions. They also have a lexical `this`, making them useful for certain coding patterns.
3. **Template Literals:** Template literals allow embedding expressions within strings using backticks (```), improving readability and enabling multiline strings.
4. **Enhanced Object Literals:** ES6 offers shorthand syntax for defining object properties and methods within object literals. It also supports computed property names.
5. **Destructuring Assignment:** Destructuring allows you to extract values from arrays or objects in a more concise way, making assignments and function parameters more intuitive.
6. **Spread and Rest Operators:** The spread operator (`...`) is used to split array elements or object properties, while the rest operator gathers multiple arguments into arrays or objects.
7. **Default Parameters:** ES6 allows you to set default values for function parameters, simplifying function calls and handling missing arguments.

ES6's features significantly improved the JavaScript language, enhancing its readability, maintainability, and expressiveness. While not all browsers supported ES6 features initially, many modern browsers and JavaScript environments have since adopted these enhancements, making ES6 widely used in modern web development.

### 1.1.3 Objects:

In JavaScript, an object is a fundamental data type that allows you to group together related data and functionality in a structured manner. Objects are composed of key-value pairs, where the keys are strings (also called properties) that uniquely identify the values (also called property values) associated with them.

Example:

```
const person = {
  firstName: "KRUSHI",
  lastName: "MONPARA",
  age: 21,
  isStudent: false,
  greet: function () {
    console.log(`Hello, my name is ${this.firstName}
${this.lastName}.`);
  }
};
// Accessing object properties
console.log(person.firstName);
console.log(person.age);
// Calling object method
person.greet();
```

Output:

```
KRUSHI
21
Hello, my name is KRUSHI MONPARA.
```

## 2.1 Day 2 / Week 1 – 28 JULY 2023

### 2.1.1 JS Functions & Arrow Functions:

#### JavaScript Functions:

A function in JavaScript is a block of reusable code that performs a specific task or set of tasks. Functions allow you to organize your code, avoid repetition, and encapsulate logic into manageable units. In JavaScript, functions are first-class citizens, meaning they can be assigned to variables, passed as arguments to other functions, and returned from functions.

Example:

```
// Defining a function named "add" that takes two parameters
function add(a, b) {
    return a + b; // Returns the sum of the two parameters
}
// Using the "add" function
const result = add(5, 7); // Calling the function with arguments
5 and 7
console.log(result);
```

Output: 12

#### Arrow Functions (ES6):

An arrow function in JavaScript is a concise way to write functions, introduced in ECMAScript 6 (ES6). Arrow functions provide a more compact syntax for defining functions compared to the traditional function declaration syntax. They are especially useful for short, inline functions and for maintaining a consistent value of the 'this' keyword.

Example:

```
// Traditional function declaration
function multiply(a, b) {
    return a * b;
}
// Arrow function
const divide = (a, b) => a / b;

// Using the functions
console.log(multiply(3, 4));
console.log(divide(10, 2));
```



Output:

12

5

### 2.1.2 Async Function:

An async function in JavaScript is a special type of function that allows you to work with asynchronous operations in a more readable and sequential manner. It's introduced with the `async` keyword and can contain the `'await'` keyword, which pauses the function's execution until a Promise is resolved. This makes dealing with asynchronous code, like fetching data from APIs or reading files, more intuitive and easier to manage.

Example:

```
async function fetchDate() {
  try {
    const response = await
fetch(`https://data.covid19india.org/data.json`);
    const data = await response.json();
    return data.cases_time_series;
  } catch (error) {
    console.error("Error fetching data:", error);
    return null;
  }
}
```

### 2.1.3 Bitcoin API:

In this section, we explore how to retrieve Bitcoin price data from a public API and present it in a tabular format. The provided JavaScript code demonstrates the process of making an API request, processing the response, and displaying the data in a table.

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-
scale=1.0">
  <title>Bitcoin Price</title>
</head>
<body>
```

```

<script>
  async function fetchBitcoinPrice() {
    try {
      const response = await
fetch("https://api.coingecko.com/api/v3/simple/price?ids=bitcoin&
vs_currencies=usd");
      const data = await response.json();
      return data;
    } catch (error) {
      console.error("Error fetching Bitcoin price:",
error);
      return null;
    }
  }
  const fetchData = async () => {
    const bitcoinData = await fetchBitcoinPrice();
    if (bitcoinData) {
      const table = document.createElement("table");
      const tableHeader = table.createTHead();
      const headerRow = tableHeader.insertRow();
      const headerCell1 = headerRow.insertCell(0);
      const headerCell2 = headerRow.insertCell(1);
      headerCell1.innerHTML = "Currency";
      headerCell2.innerHTML = "Price (USD)";
      const tableBody = table.createTBody();
      const dataRow = tableBody.insertRow();
      const dataCell1 = dataRow.insertCell(0);
      const dataCell2 = dataRow.insertCell(1);
      dataCell1.innerHTML = "Bitcoin";
      dataCell2.innerHTML =
`$$${bitcoinData.bitcoin.usd}`;
      document.body.appendChild(table);
    } else {
      console.log("Data fetch failed.");
    }
  };
  fetchData();
</script>
</body>
</html>

```

## 3.1 Day 3 / Week 1 – 31 JULY 2023

### 3.1.1 Covid API – Data fetching and mapping:

In this section, we delve into the process of fetching COVID-19 data from a public API and subsequently mapping and presenting it in a meaningful format. The provided JavaScript code illustrates the steps involved in making an API request, processing the response, and displaying the relevant data.

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-
scale=1.0">
  <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstr
ap.min.css">
  <style>
    /* Add custom styles for the table */
    body {
      background-color: #f8f9fa;
      padding: 20px;
    }
    .table-container {
      max-width: 800px;
      margin: 0 auto;
    }
    .table-container table {
      width: 100%;
    }
  </style>
  <title>COVID-19 Data</title>
</head>
<body>
  <div class="table-container">
    <!-- Table structure with Bootstrap classes -->
    <table class="table table-hover">
      <thead class="thead-dark">
        <tr>
          <th scope="col">State</th>
          <th scope="col">Death</th>
          <th scope="col">Recovered</th>
        </tr>
```

```

        </thead>
        <tbody id="data"></tbody> <!-- Table body to be
populated with data -->
    </table>
</div>
<script>
    var tbody = document.getElementById("data");
    var getCovidData = async () => {
        var res = await
fetch("https://data.covid19india.org/data.json");
        var data = await res.json();
        for (let i = 0; i < data.statewise.length; i++) {
            var t = `
                <tr>
                    <td>${data.statewise[i].state}</td>
                    <td>${data.statewise[i].deaths} <span
style="color:red;">(+${data.statewise[i].deltadeaths})</span></td>
                >
                    <td>${data.statewise[i].deltarecovered} <span
style="color:green;">(+${data.statewise[i].deltarecovered})</span>
                </td>
                </tr>
            `;
            tbody.innerHTML += t;
        }
    };
    getCovidData();
</script>
</body>
</html>

```

### 3.1.2 USER INPUT 1 : JS Pop Up Boxes:

JavaScript provides three types of pop-up dialog boxes that allow you to interact with the user: `alert`, `confirm`, and `prompt`. Each of these boxes serves a different purpose and provides various options for communication. Here's an explanation of each type with examples:

#### 1. Alert Box:

An `alert` dialog box is used to display a simple message to the user. It only has one option an OK button to dismiss the dialog. It's often used to display information or notifications.

Example:

```
alert("Hello, this is an alert!");
```

## 2. Prompt Box:

A `prompt` dialog box is used when you want the user to input some data. It displays a message, an input field for the user's response, and OK and Cancel buttons. It returns the text entered by the user or `null` if the user clicked Cancel.

Example:

```
var name = prompt("Please enter your name:");
if (name) {
    console.log("Hello, " + name);
} else {
    console.log("No name entered");
}
```

## 3. Confirm Box:

A `confirm` dialog box is used when you want the user to confirm or cancel an action. It has two options – OK and Cancel buttons. It returns a boolean value indicating whether the user clicked OK (`true`) or Cancel (`false`).

Example:

```
var result = confirm("Do you want to proceed?");
if (result) {
    console.log("User clicked OK");
} else {
    console.log("User clicked Cancel");
}
```

### 3.1.3 USER INPUT 2: Form to Variable:

Capturing user input is a fundamental aspect of interactive web applications. Forms provide a structured and organized way to collect data from users. This section explores how to create an HTML form and use JavaScript to capture and store user input in variables.

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-
scale=1.0">
  <title>User Input Form</title>
</head>
<body>
  <form id="userInputForm">
    <label for="name">Name:</label>
    <input type="text" id="name" required>
    <br>
    <label for="email">Email:</label>
    <input type="email" id="email" required>
    <br>
    <button type="button"
onclick="storeUserInput()">Submit</button>
  </form>
  <script>
    function storeUserInput() {
      var name = document.getElementById("name").value;
      var email = document.getElementById("email").value;

      var userData = {
        name: name,
        email: email
      };

      console.log("User Data:", userData);
    }
  </script>
</body>
</html>
```

## 4.1 Day 4 / Week 1 – 01 AUGUST 2023

### 4.1.1 Form to table:

Displaying user input in a table is a common way to present collected data in an organized and easily readable format. In this section, we'll explore how to take user input from a form and dynamically populate a table using JavaScript.

Example:

```
<html>
<body>
  <h1 style="text-align: center; margin-top:30px">Enter Your
  Details</h1>
  <form>
    <div class="form-group">
      <label for="inputName4">Name</label>
      <input type="text" class="form-control"
  id="inputName4"
  placeholder="Name" />
    </div>
    <div class="form-row">
      <div class="form-group col-md-6">
        <label for="inputEmail4">Email</label>
        <input type="email" class="form-control"
  id="inputEmail4" placeholder="Email" />
      </div>
      <div class="form-group col-md-6">
        <label for="Phone">Phone</label>
        <input type="number" class="form-control"
  id="Phone" placeholder="Phone Number" />
      </div>
    </div>
    <div class="form-group">
      <label for="inputAddress">Address</label>
      <textarea type="text" class="form-control"
  id="inputAddress" placeholder="Address"></textarea>
    </div>
    <div class="form-row">
      <div class="col-auto col-md">
        <label class="mr-sm-2"
  for="inlineFormCustomSelect">City</label>
        <select class="custom-select mr-sm-2"
  id="inlineFormCustomSelect">
          <option selected>Choose...</option>
          <option value="Surat">Surat</option>
          <option value="Ahmedabad">Ahmedabad</option>
        </select>
      </div>
    </div>
  </form>
</body>
</html>
```

```

        <option value="Mahesana">Mahesana</option>
    </select>
</div>
<div class="form-group col-md-6">
    <legend class="col-form-label col-sm-2
pt0">Gender</legend>
    <div class="pt-2 pl-3">
        <div class="form-check form-check-inline">
            <input class="form-check-input"
type="radio" name="inlineRadioOptions" id="inlineRadio1"
            value="Male" />
            <label class="form-check-label"
for="inlineRadio1">Male</label>
        </div>
        <div class="form-check form-check-inline">
            <input class="form-check-input"
type="radio" name="inlineRadioOptions" id="inlineRadio2"
            value="Female" />
            <label class="form-check-label"
for="inlineRadio2">Female</label>
        </div>
        <div class="form-check form-check-inline">
            <input class="form-check-input"
type="radio" name="inlineRadioOptions" id="inlineRadio3"
            value="Other" />
            <label class="form-check-label"
for="inlineRadio2">Other</label>
        </div>
    </div>
</div>
<button type="submit" class="btn btn-primary"
onclick="formToTable(); return false;">
    Submit
</button>
</form>
<br /><br />
<h1 style="text-align: center">This is Form to Table
Info</h1>
<table class="table table-striped table-hover">
    <thead>
        <tr>
            <th scope="col">Name</th>
            <th scope="col">Email</th>
            <th scope="col">Phone</th>
            <th scope="col">Address</th>
            <th scope="col">Gender</th>
            <th scope="col">City</th>
        </tr>
    </thead>
</table>

```



```

        </tr>
    </thead>
    <tbody id="tabledata"></tbody>
</table>
</body>
<script>
    const tableData = document.getElementById("tabledata");
    const formToTable = () => {
        const name = document.getElementById("inputName4").value;
        const email =
document.getElementById("inputEmail4").value;
        const phone = document.getElementById("Phone").value;
        const address =
document.getElementById("inputAddress").value;
        const city =
document.getElementById("inlineFormCustomSelect").value;
        const gender = document.querySelector(
            'input[name="inlineRadioOptions"]:checked').value;
        const t = `<tr>
            <td>${name}</td>
            <td>${email}</td>
            <td>${phone}</td>
            <td>${address}</td>
            <td>${gender}</td>
            <td>${city}</td>
        </tr>
        `;
        tableData.innerHTML += t;
    };
</script>
</html>

```

### 4.1.2 JS Arrays:

JavaScript arrays are fundamental data structures used to store and manage collections of data items. They provide a powerful way to organize related values into a single entity.

Example:

```
// Creating an array of numbers
const numbers = [1, 2, 3, 4, 5];

// Accessing array elements using indexes
console.log(numbers[0]); // Output: 1 (first element)
console.log(numbers[2]); // Output: 3 (third element)

// Modifying array elements
numbers[1] = 10; // Changing the second element to 10
console.log(numbers); // Output: [1, 10, 3, 4, 5]

// Array length
console.log(numbers.length); // Output: 5 (number of elements in
the array)

// Adding elements to the end of the array
numbers.push(6); // Adds 6 to the end of the array
console.log(numbers); // Output: [1, 10, 3, 4, 5, 6]

// Removing elements from the end of the array
numbers.pop(); // Removes the last element (6)
console.log(numbers); // Output: [1, 10, 3, 4, 5]
```

## 5.1 Day 5 / Week 1 – 02 AUGUST 2023

### 5.1.1 Covid Data Search:

The COVID Data Check web application is designed to facilitate users in obtaining COVID-19 data for a specific date. By utilizing JavaScript, HTML, and the Fetch API, the application fetches data from the COVID-19 India Data API and presents it in an organized manner. This report outlines the key components and functionalities of the application.

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-
scale=1.0" />
  <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.1.3/dist/css/boots
trap.min.css"
  integrity="sha384-
MCw98/SFnGE8fJT3GXwEOngsV7Zt27NXFoaoApmYm81iuXoPkFOJwJ8ERdknLPMO"
crossorigin="anonymous" />
  <title>COVID DATA CHECK</title>
</head>
<style>
  .container {
    text-align: center;
    margin-top: 50px;
  }
  .table-container {
    max-width: 800px;
    margin: 0 auto;
    display: none;
  }
  #msg {
    color: red;
    font-weight: bold;
  }
</style>
<body>
  <div class="container">
    <h1>COVID-19 Data Check</h1>
    <form method="POST" onsubmit="return dateOfCases();">
      <div class="form-group">
        <label for="Date">Enter Date:</label>
```

```

        <input type="text" class="form-control" id="date"
placeholder="YYYY-MM-DD" />
    </div>
    <button type="submit" class="btn btn-primary">Check
Data</button>
</form>
<div class="table-container">
    <h2>Number Of New Cases And Deaths</h2>
    <p id="msg"></p>
    <table class="table table-hover">
        <thead class="thead-dark">
            <tr>
                <th scope="col">New Cases</th>
                <th scope="col">Death</th>
            </tr>
        </thead>
        <tbody id="result"></tbody>
    </table>
</div>
</div>
<script>
    const msg = document.getElementById("msg");
    async function fetchDate() {
        try {
            const response = await fetch(
                `https://data.covid19india.org/data.json`
            );
            const data = await response.json();
            return data.cases_time_series;
        } catch (error) {
            console.error("Error fetching data:", error);
            return null;
        }
    }
    async function dateOfCases() {
        event.preventDefault();
        const dateInp =
document.getElementById("date").value;
        if (dateInp == "") {
            msg.innerHTML = "Please enter a valid date.";
            document.querySelector(".table-
container").style.display = "none";
            return;
        } else {
            const d = await fetchDate();
            const result = document.getElementById("result");
            let dataFound = false;

```

```

for (let i = 0; i < d.length; i++) {
  if (dateInp === d[i].date) {
    const t = `
      <tr>
        <td>${d[i].dailyconfirmed}</td>
        <td>${d[i].dailydeceased}</td>
      </tr>
    `;
    result.innerHTML = t;
    document.querySelector(".table-
container").style.display = "block";
    msg.innerHTML = "";
    dataFound = true;
    break;
  }
}
if (!dataFound) {
  msg.innerHTML = "Data not found for the
entered date.";
  document.querySelector(".table-
container").style.display = "none";
  result.innerHTML = "";
}
}
}
</script>
</body>
</html>

```

## 5.1.2 Mutual Fund API:

The Mutual Fund API web application is designed to enable users to retrieve details about mutual fund schemes by entering their respective scheme codes. Leveraging JavaScript, HTML, and the Fetch API, the application connects to the API and presents relevant scheme names to the user.

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-
scale=1.0" />
  <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.1.3/dist/css/boots
trap.min.css"
  integrity="sha384-
MCw98/SFnGE8fJT3GXwEOngsV7Zt27NXFoaoApmYm81iuXoPkFOJwJ8ERdknLPMO"
crossorigin="anonymous" />
  <title>Mutual Fund Scheme Lookup</title>
</head>
<style>
  body {
    background-color: #f8f9fa;
  }
  .container {
    max-width: 600px;
    margin: 100px auto;
    padding: 20px;
    background-color: #ffffff;
    border-radius: 10px;
    box-shadow: 0px 0px 10px rgba(0, 0, 0, 0.2);
  }
  h1 {
    text-align: center;
    margin-bottom: 20px;
  }
  .form-group {
    margin-bottom: 20px;
  }
  .btn-primary {
    width: 100%;
  }
  #msg {
```

```

        text-align: center;
        margin-top: 20px;
        font-size: 18px;
    }
    #msg span {
        color: red;
        font-weight: bold;
    }
</style>
<body>
    <div class="container">
        <h1>Mutual Fund Scheme Lookup</h1>
        <form method="POST" onsubmit="return mutualFund();">
            <div class="form-group">
                <label for="schemeCode">Enter Scheme Code</label>
                <input type="text" class="form-control"
id="schemeCode" placeholder="Enter here" />
            </div>
            <button type="submit" class="btn btn-primary">Find
Scheme</button>
        </form>
        <div id="msg"></div>
    </div>
    <script>
        const msg = document.getElementById("msg");
        async function fetchScheme() {
            try {
                const response = await
fetch(`https://api.mfapi.in/mf`);
                const data = await response.json();
                return data;
            } catch (error) {
                console.error("Error fetching data:", error);
                return null;
            }
        }
        async function mutualFund() {
            event.preventDefault();
            const inp =
document.getElementById("schemeCode").value;
            if (inp === "") {
                msg.innerHTML = "<span>Please enter scheme
code</span>";
            }
            return;
        }
        const d = await fetchScheme();
        let dataFound = false;

```

```
        for (let i = 0; i < d.length; i++) {
            if (d[i].schemeCode == inp) {
                msg.innerHTML = `Scheme Name:
${d[i].schemeName}`;
                dataFound = true;
                break;
            }
        }
        if (!dataFound) {
            msg.innerHTML = "<span>Scheme not found</span>";
        }
    }
</script>
</body>
</html>
```



## 6.1 Day 6 / Week 1 – 03 AUGUST 2023

### 6.1.1 Functional Components:

Functional components are JavaScript functions that return JSX (JavaScript XML), which describes the structure and content of the UI elements to be rendered. They are a concise way to define components in React. Functional components are often used for simpler UI elements, such as buttons, labels, or simple display components.

Example:

```
import React from "react";
const Greeting = (props) => {
  return (
    <div>
      <h1>Hello, {props.name}!</h1>
      <p>Welcome to our website.</p>
    </div>
  );
};
export default Greeting;
```

### 6.1.2 Class Components:

Class components are JavaScript classes that extend the React.Component class provided by the React library. They offer a more extensive range of features compared to functional components, making them suitable for managing state, handling lifecycle methods, and implementing more complex UI logic.

Example:

```
import React from "react";
import ReactDOM from "react-dom/client";
class Car extends React.Component {
  constructor() {
    super();
    this.state = { color: "Yellow" };
  }
  render() {
    return <h2>I am a {this.state.color} Car!</h2>;
  }
}
```

## 7.1 Day 7 / Week 2 – 04 AUGUST 2023

### 7.1.1 Variable Data Map:

Variable data mapping involves iterating through a collection of data and rendering corresponding UI components for each item in the collection. This technique is particularly useful when you need to display a list of items, such as posts, products, or user profiles, in a dynamic and maintainable manner.

Example:

```
import React from "react";

const UserList = () => {
  const users = [
    { id: 1, name: "Alice" },
    { id: 2, name: "Bob" },
    { id: 3, name: "Charlie" }
  ];

  return (
    <div>
      <h2>User List</h2>
      <ul>
        {users.map(user => (
          <li key={user.id}>{user.name}</li>
        ))}
      </ul>
    </div>
  );
};

export default UserList;
```

## 7.1.2 Object Map:

Object mapping entails iterating through an object's properties and rendering corresponding UI components for each property. This technique is particularly useful when you want to present key-value pairs or object attributes in a clear and organized format within your user interface.

Example:

```
import React from "react";

const UserProfile = () => {
  const user = {
    name: "Jaydeep",
    age: 26,
    occupation: "App Developer",
    location: "Bangalore",
  };

  return (
    <div>
      <h2>User Profile</h2>
      <ul>
        {Object.keys(user).map((key) => (
          <li key={key}>
            <strong>{key}</strong> {user[key]}
          </li>
        ))}
      </ul>
    </div>
  );
};

export default UserProfile;
```

## 8.1 Day 8 / Week 2 – 07 AUGUST 2023

### 8.1.1 React Props:

React Props (short for "properties") are a fundamental concept in React that allow you to pass data from a parent component to its child components. This section explores the concept of React Props and demonstrates how to use them to create dynamic and reusable components.

Example:

```
// ParentComponent.js
import React from "react";
import ChildComponent from "../ChildComponent";

const ParentComponent = () => {
  const message = "Hello i am Parent Component!";

  return (
    <div>
      <h2>Parent Component</h2>
      <ChildComponent messageProp={message} />
    </div>
  );
};

export default ParentComponent;

// ChildComponent.js
import React from "react";

const ChildComponent = (props) => {
  return (
    <div>
      <h3>Child Component</h3>
      <p>Received message: {props.messageProp}</p>
    </div>
  );
};

export default ChildComponent;
```

## 8.1.2 React Bootstrap:

React Bootstrap is a library that provides a collection of pre-styled components and responsive design elements built on top of Bootstrap. It enables developers to create modern and professional-looking user interfaces with ease, leveraging the flexibility of React's component-based architecture.

- Install React Bootstrap using npm:

```
npm install react-bootstrap bootstrap
```

- Import the required components:

```
import React from 'react';
```

```
import { Button, Navbar, Form, FormControl } from 'react-bootstrap';
```

- Use React Bootstrap components in your JSX code:

```
const App = () => {  
  return (  
    <div>  
      <Navbar bg="dark" variant="dark">  
        <Navbar.Brand href="#">My App</Navbar.Brand>  
        <Form inline>  
          <FormControl type="text" placeholder="Search" className="mr-sm-2" />  
          <Button variant="outline-info">Search</Button>  
        </Form>  
      </Navbar>  
    </div>  
  );  
};
```

## 9.1 Day 9 / Week 2 – 08 AUGUST 2023

### 9.1.1 React Hooks: useEffect and useState:

#### 1. useState:

useState is a Hook that lets you add state to your functional components. It returns a pair of values: the current state and a function to update that state.

Example:

```
import React, { useState } from "react";

const Counter = () => {
  const [count, setCount] = useState(0);

  const increment = () => {
    setCount(count + 1);
  };

  return (
    <div>
      <h2>Counter</h2>
      <p>Count: {count}</p>
      <button onClick={increment}>Increment</button>
    </div>
  );
};

export default Counter;
```

#### 2. useEffect:

useEffect is a Hook that adds side-effects to functional components. It's used to perform tasks such as data fetching, DOM manipulation, and more, after the component has rendered.

Example:

```
import React, { useState, useEffect } from "react";

const DataFetching = () => {
  const [data, setData] = useState([]);

  useEffect(() => {
```

```

        fetch("https://jsonplaceholder.typicode.com/posts")
          .then((response) => response.json())
          .then((data) => setData(data));
    }, []);

    return (
      <div>
        <h2>Data Fetching</h2>
        <ul>
          {data.map((post) => (
            <li key={post.id}>{post.title}</li>
          ))}
        </ul>
      </div>
    );
  };
};

export default DataFetching;

```

### 9.1.2 API data fetch with react:

In this section, we'll explore how to fetch data from the Inshorts API and display it using React. The provided code showcases a component named Inshortsapi that retrieves news articles from the API and renders them using React Bootstrap components.

Example:

```

import { Button, Card, Col, Container, Row } from "react-
bootstrap";
import "./App.css";
import "../node_modules/bootstrap/dist/css/bootstrap.min.css";
import { useEffect, useState } from "react";

const Inshortsapi = () => {
  const [data, setData] = useState([]);

  const apiFetch = async () => {
    const res = await fetch(
      "https://inshortsapi.vercel.app/news?category=sports"
    );
    const result = await res.json();

    setData(result.data);
  };
};

```

```

useEffect(() => {
  apiFetch();
}, []);

return (
  <Container>
    <h1>Latest Sports News</h1>
    <Row xs={1} md={3} className="mt-2 g-2">
      {data.map((item, index) => {
        return (
          <Col className="container-fluid mt-4"
            key={index}>
            <Card style={{ width: "20rem" }}>
              <Card.Img
                variant="top"
                src={item.imageUrl}
                style={{
                  objectFit: "cover",
                  aspectRatio: "1/1",
                }}
              />
              <Card.Body>
                <Card.Title>{item.title}</Card
              .Title>
                <Card.Text>{item.description}
              </Card.Text>
                <br></br>
                <footer
              className="blockquote-footer">{item.date}</footer>
                <Button variant="primary"
              href={item.url} target="_blank">
                  Read More
                </Button>
              </Card.Body>
            </Card>
          </Col>
        );
      })}
    </Row>
  </Container>
);
};

export default Inshortsapi;

```



## 10.1 Day 10 / Week 2 – 09 AUGUST 2023

### 10.1.1 API BASED REAL TIME NEWS WEB APPLICATION:

The API-based real-time news web application leverages React, a popular JavaScript library, to fetch and display news articles from an external API. This application provides users with up-to-date news content on their chosen topics.

Example:

```
import React, { useEffect, useState } from "react";
import "./NewsCallApi.css";
import { NavLink } from "react-bootstrap";

const NewsCallApi = () => {
  const [data, setData] = useState([]);

  const apiFetch = async () => {
    const res = await fetch(
      "https://inshorts.me/news/trending?offset=0&limit=21"
    );
    const result = await res.json();

    setData(result.data.articles);
  };

  useEffect(() => {
    apiFetch();
  }, []);

  return (
    <>
      <div className="container py-4">
        <h1 className="h1 text-center" id="pageHeaderTitle">
          Trending news
        </h1>

        {data?.map((item, index) => {
          return (
            <article className="postcard dark blue"
              key={index}>
              <img
                className="postcard__img"
                src={item.imageUrl}
                alt="Image_Title"
              />
            </article>
          );
        })}
      </div>
    </>
  );
};
```

```

        <div className="postcard__text">
          <h1 className="postcard__title blue">
            <NavLink href={item.sourceUrl}
target="_blank">
              <div>{item.title}</div>
            </NavLink>
          </h1>
          <h5>
            <div>{item.subtitle}</div>
          </h5>
          <div className="postcard__subtitle small">
            <div>{item.categoryNames}</div>
          </div>
          <div className="postcard__bar"></div>
          <div className="postcard__preview-
txt">{item.content}</div>
        </div>
      </article>
    );
  }
}
</div>
</>
);
};

export default NewsCallApi;

```

## References

- [1] R. E. Ziemer and W. H. Tranter, Principles of Communications, 7th ed. Hoboken, NJ: Wiley, 2015. [Online]. Available: <https://ebookcentral.proquest.com/lib/vu/reader.cation?docID=5106516&ppg=1>
- [2] J. D. Bellamy et al., Computer Telephony Integration. New York: Wiley, 2010.

## Appendix

### Offer Letter:



**INFOLABZ IT SERVICES PVT. LTD.**  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IoT

Date: 15-07-2023

Subject: Regarding Summer Internship at INFOLABZ IT SERVICES PVT. LTD.  
Internship Domain: Dynamic Web Page Designing Using React

Dear Khashi Monpara,

In reference to your application we would like to congratulate you on being selected for internship with InfoLabz IT Services Pvt. Ltd. based at Ahmedabad. Your internship is scheduled to start from 27 July 2023 for a period of 15 days.

During this internship, the concentration will be on helping you understand logical concepts with their practicality and implications to help you connect your classroom knowledge to industry standards. Your internship will include orientation and focus primarily on learning and developing new skills and gaining a deeper understanding of concepts through hands-on application of the knowledge.

We will be happy to guide you to learn new skills which are extremely helpful in professional standard.



Ms. Twinkle Shah  
Internship Coordinator  
infolabz, Ahmedabad

---

 +91 886662662  
+91 8141236662

 info@infolabz.in  
www.infolabz.in

 405 Vraj Ajantra, Above SAMIS Plaza  
7th, Commerce Soc Rd, Thaparwadi,  
Ahmedabad, Gujarat 380008

# **INTERNSHIP AT CREART SOLUTIONS PVT LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

*Maheshwari Pratham Dhanji Bhai*

**200390107021**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**August, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report **CreArt Solutions PVT LTD.** submitted along with the project entitled **Internship at CreArt Solutions PVT LTD.** has been carried out by **Maheshwari Pratham Dhanji Bhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2023-24.

Sign

Sign

Prof. Chetan Chauhan

Prof. Akshay Kansara

Internal Guide

Head of Department

## Company Certificate

# INTERNSHIP COMPLETION LETTER



Date: 10<sup>th</sup> August 2023

This is to certify that

Mr/Ms. PRATHAM MAHESHWARI  
Enrollment No - 200390107021  
College : SAFFRONY INSTITUTE OF TECHNOLOGY

has successfully completed the 15 days of summer Internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at  
CreArt Solutions, Ahmedabad.

We wish him/her all the best for his future endeavours.



Krishnamohan Gupta  
Director

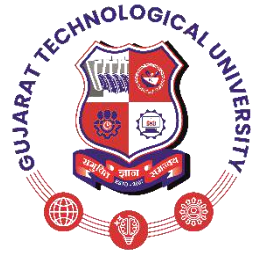
**CreArt Solutions PVT LTD.**

302, Heritage Horizon, Opp Hotel Dier Corporate, C.O Road,  
Ahmedabad, Gujarat, India - 380009  
www.creat.in | info@creat.in | **Office Location:** INDIA | USA | UK



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

**S.P.B. Patel Engineering College, Mehsana**



**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at CreArt Solutions PVT LTD.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Chetan Chauhan & Alkesh kaba (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Maheshwari Pratham**

\_\_\_\_\_



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## **ACKNOWLEDGMENT**

In this review, I would like to extend my heartfelt acknowledgments to all those who have made my online internship a valuable and enriching experience.

First and foremost, I am immensely grateful to Alkesh Kaba for their unwavering guidance and mentorship throughout this internship. Their expertise, constructive feedback, and willingness to share insights have been instrumental in shaping my understanding and skills.

I would also like to thank the entire CreArt Solutions PVT LTD. team for their warm welcome and constant support. The collaborative environment and open discussions allowed me to immerse myself in real-world projects and gain practical exposure.

My gratitude extends to my fellow interns who made this journey even more enjoyable. Our teamwork, brainstorming sessions, and shared learning significantly enhanced my internship experience.

Furthermore, I express my appreciation to Sublime Text for providing essential resources and tools that facilitated my tasks and learning during the internship.

Lastly, I am indebted to my family and friends for their encouragement and understanding throughout this remote internship period.

In conclusion, I am honored to have had the opportunity to be a part of this internship, and the collective efforts of everyone mentioned above have contributed immensely to my growth and learning.

Thank you all for your support.

## **Abstract**

This report contains the work done by the author during his internship at *CreArt Solutions PVT LTD*. This internship report provides an overview of practical learning during a Python Django web development internship. Focused on hands-on experience, the report details the exploration of Django's components and their application in projects like Notice Hub Web App. The internship underscored the importance of translating theory into practical skills, showcasing the ability to create dynamic web applications.

# Chapter 1: Introduction to the industry

## 1.1 Company Profile

CreArt is a privately owned venture of IT Solutions and IT Consultants formed in 2013. We always aspire to create a resistant future. We believe in bringing Business, People and Technology together in the way forward. CreArt is focused on rigorous development and comprehensive quality.

CreArt is dedicated towards perfection in every aspect. Professionalism is the main ingredient of CreArt. We strongly believe in delivering the best services to the clients till their satisfaction. Main objective of CreArt is to provide professional , qualitative , innovative and accessible services in every possible form.



*Figure 1 CreArt Logo*

## **Chapter 2: Introduction to the project**

### **2.1 Project summary**

The Django Notice Hub Web App is a dynamic platform designed to efficiently manage and disseminate notices within an organization or community. Built using the Django framework, the app offers user-friendly features for both administrators and users. Administrators can seamlessly create, edit, and categorize notices, while users can easily access and search for relevant information. The app employs Django's authentication system to ensure secure access and offers an intuitive user interface for a streamlined experience. With its emphasis on simplicity and effectiveness, the Django Notice Hub Web App serves as a valuable tool for optimizing internal communication and information sharing.

### **2.2 Project features**

It contains features such as notice creation ,modification and updation. It also shows the date and time when notice was published on the web-app and also shows the date and time of updated notice by the administration. Admin can edit the notice when requires and also it has a feature of deleting multiple notices from the interface. We can add user and generate password for them to acces admin portal. We can see recent actions taken into the site such as notice creation ,updation or deletion. There is a feature of a changing password as well for the admin.

### **2.3 Project technology**

The Notice Hub Web App is developed using the Django framework, which serves as the foundational technology for building the entire application. Django, a high-level Python web framework, provides a robust and efficient environment for creating dynamic web applications. Its core features, such as the Model-View-Controller (MVC) architecture, object-relational mapping (ORM), and built-in user authentication system, enable the seamless development of complex applications like the Notice Hub. Additionally, Django's support for templating, database management, security measures, and URL routing contributes to the app's user-friendly interface, scalability, and overall performance.

## Chapter 3: Notice hub web-app

### 3.1 Interface of the web-app

This is the landing page of the notice hub web-app which shows the latest notices uploaded by the administrator and also shows the date and time of creation and updation as well.



Figure 2 User Interface of Noticehub

### 3.2 Login page of the notice hub

This is the login page for the admin to access the backend of the notice hub where user can login via his credentials such as username and password.



*Figure 3 Login Page of Admin*



### 3.3 Admin panel of the notice hub

This is an admin panel of the notice hub web-app where admin can see recent action taken by the administrator and it can also add notices to the interface via here. Admin can also perform certain task such as authorization and authentication of the user and groups and admin can also change his password and also log out from here.



Figure 4 Admin panel

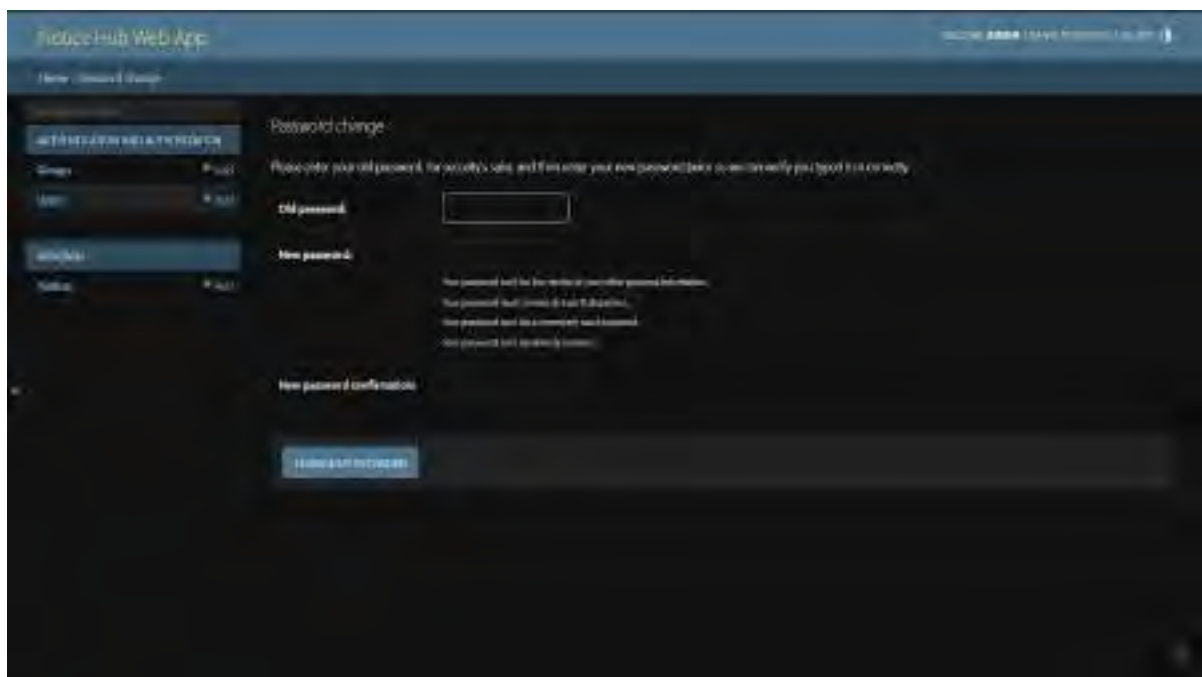


Figure 5 Password Change Page

### 3.4 Notice management

This is the page where admin can add notices with the respective subject and description of the notices , also admin has a option for the saving the notice and save and add another notice or save and continue editing the notice. And admin can also see all the created notice on the platform and see the changes or made the changes as well. If user want to delete multiple notices at a time that also can be done here on this page.

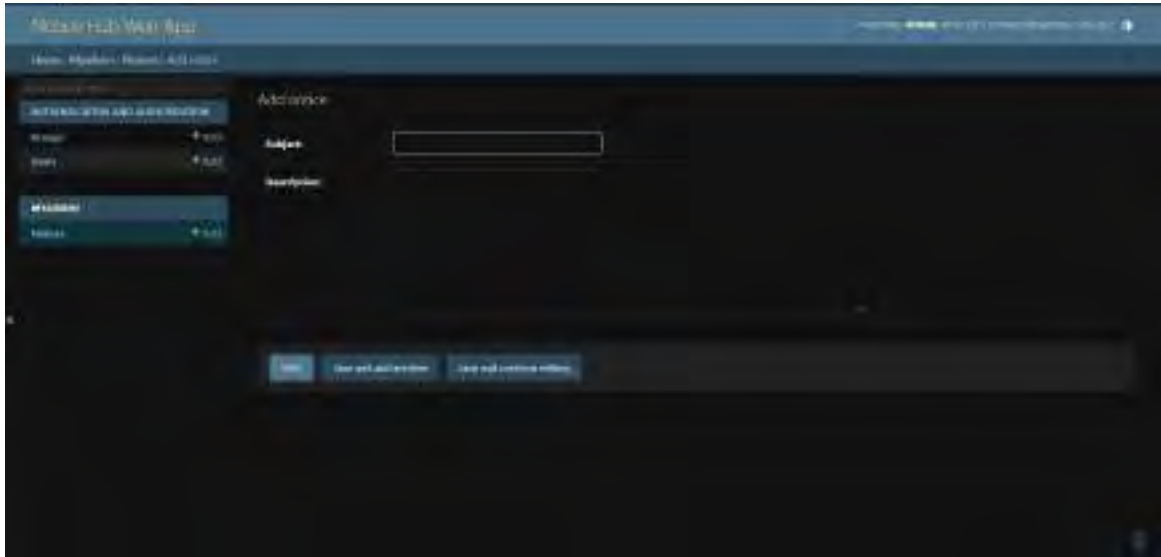


Figure 6 Notice Management Page

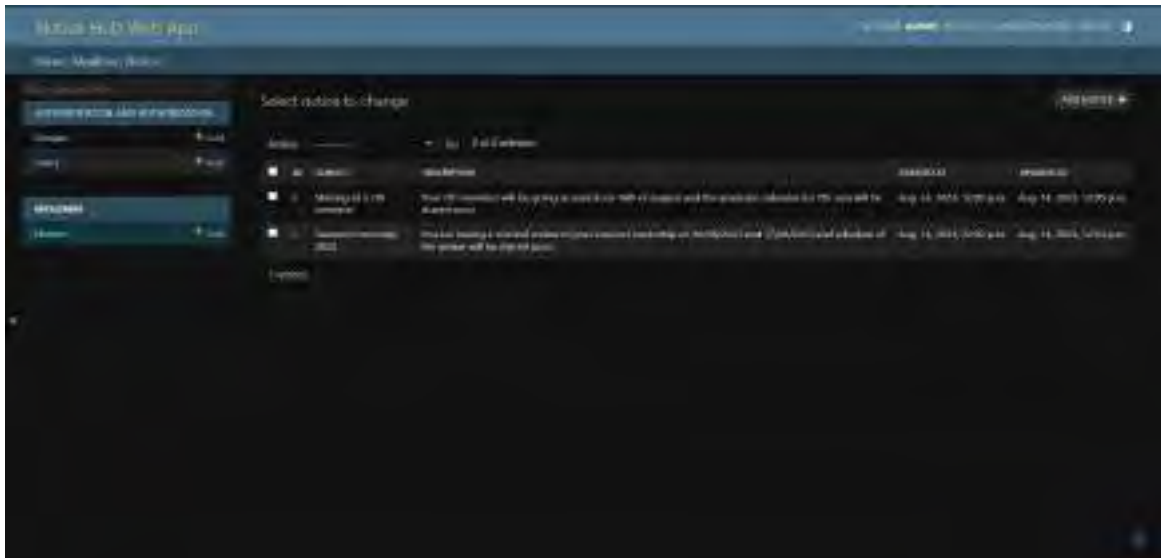
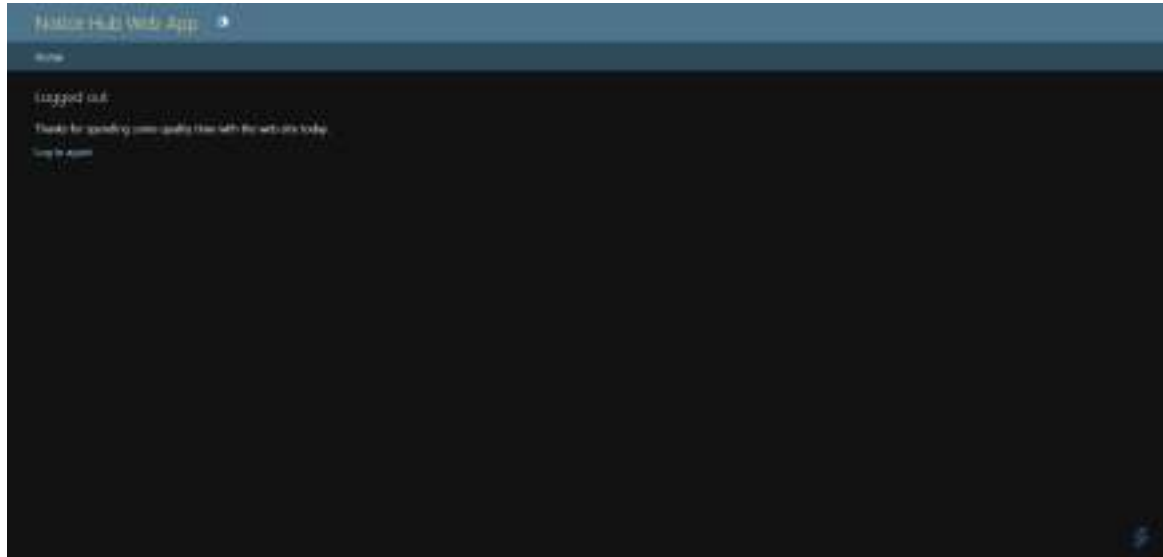


Figure 7 Notice Display Page

### 3.5 Logout page

After clicking onto logout user will redirected to this page and here there is a option of login again if admin want to.



*Figure 8 Logout Page*

## **Conclusion**

In conclusion, my time at Django NoticeHub during the internship has been a valuable learning experience in web development using Django. I've gained a strong understanding of building websites, working with databases, and collaborating with a team. The guidance I received helped me become better at solving problems and facing real-world development challenges. This internship not only improved my technical skills but also taught me how important it is to create user-friendly designs. As I move forward, I feel more confident in my abilities and excited to create meaningful web applications in the future.

# **INTERNSHIP AT YUDIZ SOLUTIONS LIMITED**

**AN INTERNSHIP REPORT**

*Submitted by*

**Maitri Hirenbhai Trivedi**

**190390107064**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**



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SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Yudiz Solutions** has been carried out by Maitri Hirenbhai Trivedi under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara  
Internal Guide

Prof. Akshay Kansara  
Head of Department

## Company Certificate



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Ahmedabad - 380014, Gujarat, INDIA  
Phone: (+91) 079 29750406  
CIN: U72900GJ2011PLC067988  
www.yudiz.com | www.yudiz.com

Date: 28<sup>th</sup> April, 2023

### To whom so ever It May Concern

This is to certify that **Ms. Maitri Trivedi** student of **Saffrony Institute of Technology** is working as a **Trainee/Intern** with our Company for the duration of six months starting from 1<sup>st</sup> February, 2023 to till date, as a **Web Development Trainee** working on the project "**Resource Management System**".

Her exposure in these areas is very good. During her tenure with us, she ably handled major responsibilities and we found her to be hardworking, creative and very productive.

We have found her to be self-starter who is motivated, duty bound, and a highly committed team player with strong conceptual knowledge.

The company will not provide any type of Source Code outside the premises. We wish her good luck for her future endeavours.

Sincerely,

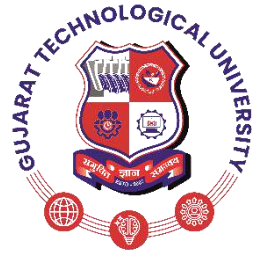


Kinjal Shah

Functional Manager



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Yudiz Solutions Limited** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Akshay Kansara & Mr. Kirtan Gajjar (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

**Maitri Hirenghai Trivedi**

Sign of Student



## **ACKNOWLEDGMENT**

I would like to express my gratitude to Yudiz Solutions for providing me with an internship opportunity. I am immensely grateful to Mr. Kirtan Gajjar and Mrs. Doli Vadiya for their invaluable support and advice that helped me to develop my skills and knowledge throughout my internship.

I also want to express my sincere gratitude to my internal guide, Prof. Akshay Kansara, for his continuous guidance during the internship. His support and encouragement were instrumental in my growth and development during this time.

I would also like to extend my thanks to all the mentors, colleagues, and fellow interns for sharing their knowledge and expertise. I appreciate the time and effort they took to teach and guide me, making the learning experience a pleasant one.

Once again, I would like to thank the staff members of Yudiz Solutions Limited for their valuable support.

Sincerely,

Maitri Hirenbbhai Trivedi (190390107064)

## **Abstract**

Industrial training is a crucial step for students looking to jumpstart their careers in new technologies or fields. Through a well-structured and executed training program, students can gain practical experience, develop important professional skills, and a deep knowledge of the latest industry practices.

At Yudiz Solutions, my internship was designed to achieve these goals by enhancing my knowledge of computer science concepts, problem-solving approaches, and training in specific technologies like HTML, CSS, Figma, JavaScript, Github, React Js, and Node Js. During my time there, I was exposed to real-world development scenarios that allowed me to gain hands-on experience. Through mentorship and collaboration with experienced professionals, I developed skills in coding that will be useful throughout my career in the software industry.

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**Fig 4.12 View Worklog..... 24**

**Fig 4.13 Delete Worklog..... 24**

## **Abbreviations**

SRP	Single Responsibility Principle
OCP	Open/Closed Principle
DIP	Dependency Inversion Principle
LSP	Liskov Substitution Principle
ISP	Interface Segregation Principle
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
JS	Java script

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## **Chapter 1. INTRODUCTION**

### **1.1 COMPANY PROFILE:**

Yudiz Solutions is a leading software development company headquartered in Gujarat, India. The company was founded in 2009 and has since expanded to include offices in the USA and Canada.

Yudiz Solutions is a leading provider of custom software solutions for clients in a variety of industries, such as healthcare, education, e-commerce, finance, and gaming. The company offers end-to-end services for web development, mobile app development, game development, UI/UX design, and digital marketing.

From its origins as a website development company, Yudiz Solutions has steadily expanded into other areas of technology, including 2D/3D game development, windows development, IoT development, AR/VR development, AI/ML solutions, and Blockchain development. The company is also expanding into new technologies, such as Metaverse, Web 3.0, and IOT-based solutions, to meet the evolving needs of its clients.

### **1.2 MISSION AND VISION OF THE COMPANY:**

#### **Consistent Growth:**

We have built a company that facilitates consistent growth for each employee, client, and the overall company in terms of monetary gains, knowledge, and solutions.

#### **Work Culture:**

We aspire to provide a conducive work environment for our employees to encourage innovation and creativity in their ideas and execution. We believe in providing a holistic approach for the team so that they can refresh their energies and reinvigorate their creativity from time to time.

#### **Carrier Satisfaction:**

We aspire to create and retain customers for the foreseeable future with effective communication and proper resolution of their issues. We extend reliable and flexible services to ensure utmost satisfaction for our end clients.

### **Societal Contribution:**

We continue to contribute to the society through several means as an expression of gratitude. We offer Industrial Training to college students while offering them exposure to various industry niches, along with blood donation camps on a periodic basis.

### **1.3 CAPACITY OF COMPANY:**

Yudiz Solutions Private Limited is an IT company that provides services in mobile app development, web development, game development, blockchain, and AI solutions. They have over 500+ employees and are based in India with offices in the USA and Australia. They have worked with clients from various industries, including healthcare, education, finance, and e-commerce. Their portfolio showcases some of the projects they have completed for their clients.



## **Chapter 2:- INTRODUCTION TO INTERNSHIP**

### **2.1 Internship Summary:**

During my internship at Yudiz Solutions, I had the opportunity to work as a Jr. Web Developer (Trainee), which was a valuable learning experience. Working with different technologies and tools during the internship has broadened my technical skills and knowledge, and it was an excellent opportunity to gain hands-on experience in the field.

In the the early stages of my internship at Yudiz Solutions, I was trained on a variety of technologies, including Object-Oriented Programming (OOPs), HTML, CSS, Figma, and JavaScript.

### **2.2 Purpose:**

The Purpose of internship is to offer students to gain practical experience in their field of study or interest. Internships also provide an opportunity to learn and work with different tools and technologies used in the industry, such as Postman for API testing or GitHub for version control. It allows interns to apply the knowledge gained from their academic studies to real-world situations, develop new skills, learning ethics.

### **2.3 Objectives:**

To become familiar with industry-standard development tools and technologies, such as HTML, CSS, JavaScript, React, Node.js. Through practical experience and guidance from experienced professionals, interns can enhance their technical skills and knowledge in web development, as well as learn about the latest trends and technologies in the field for successful carrier.

### **2.4 Scope:**

The scope for the internship role at my company was to perform the tasks that had been allotted to me before the deadline.

The things that I was allowed to do:

- Be punctual and attend all the scheduled meetings, including orientations, training sessions, and team meetings.

- Dress appropriately as per the company culture and guidelines.
- Be respectful and courteous to everyone, including supervisors, colleagues, and clients.
- Follow the company policies and guidelines related to confidentiality, security, and professional conduct.
- Communicate effectively with your supervisor and colleagues, including sharing progress reports and seeking guidance as needed.

The things that I was not allowed to do:

- Don't engage in any behaviour that violates the company's policies or the law, including harassment, discrimination, or unethical conduct.
- Don't be late or absent from work without valid reasons or prior approval from your supervisor.
- Don't engage in any unprofessional behaviour, including gossiping, being rude, or disruptive in the workplace.

## **2.5 Tools & Technologies:**

- HTML
- CSS
- Figma
- JavaScript
- React Js
- Node Js
- GitHub
- VS code
- Postman

## 2.6 INTERNSHIP PLANNING

Sr No.	Task Name	Start date	End Date
1	OOPs concept	03-02-2023	10-02-2023
2	HTML/CSS	11-02-2023	20-02-2023
3	Logical Programming	21-02-2023	28-02-2023
3	JavaScript	01-03-2023	31-03-2023
4	ReactJs	01-04-2023	05-04-2023
5	NodeJS	06-04-2023	12-04-2023
6	NodeJS	13-04-2023	01-05-2023

Table 2.1 Internship Panning Table 1

## 2.7 INTERNSHIP EFFORT AND TIME:

Sr No	Title	Starting Date	Ending Date	Hrs.
1	Week-1	02-02-2023	05-02-2023	32
2	Week-2	06-02-2023	12-02-2023	40
3	Week-3	13-02-2023	19-02-2023	40
4	Week-4	20-02-2023	26-02-2023	40
5	Week-5	27-02-2023	05-03-2023	40
6	Week-6	06-03-2023	12-03-2023	40
7	Week-7	13-03-2022	19-03-2023	40
8	Week-8	20-03-2023	26-03-2023	40
9	Week-9	27-03-2022	02-04-2023	40
10	Week-10	03-04-2023	09-04-2023	40
11	Week-11	10-04-2023	16-04-2023	40
12	Week-12	17-04-2023	23-04-2023	40

Table 2.2 Internship Effort Time 1

## CHAPTER 3: DETAILS OF WORK DONE IN THE COMPANY

### 3.1 OOPS CONCEPT:

OOPs stands for **Object-Oriented Programming**, which is a programming paradigm that represents the concept of objects that have data and associated procedures known as methods.

Object-Oriented Principles mainly include the 4 pillars that together make the OOP a very powerful concept.

1. Encapsulation
2. Abstraction
3. Inheritance
4. Polymorphism

#### 3.1.1 SOLID PRINCIPLES:

The SOLID Principles are five principles of Object-Oriented class design. These are set of design principles encourage us to create more maintainable, understandable, and flexible software.

The five principles are:

1. **Single Responsibility Principle(SRP)**
2. **Open/Closed Principle(OCP)**
3. **Liskov Substitution Principle(LSP)**
4. **Interface Segregation Principle(ISP)**
5. **Dependency Inversion Principle(DIP)**



Fig 3.1 SOLID Principle 1

**Single Responsibility Principle(SRP):**

A class should have only one reason to change. For example, a class that represents a Circle should only be responsible for calculating its area and related properties ,not for reading and writing to a file or for formatting the output.

```

class AccountService {
    public void showAccount() {
        System.out.println("Fill Details");
        System.out.println("Store Account Data");
        System.out.println("Sent Welcome Message");
    }
}

```

**Fig 3.2 Single Responsibility Principle**

**Open/Closed Principle (OCP):**

The OCP states that a class should be open for extension but closed for modification. For example, consider a system that sends notifications to users via email and SMS. Instead of hard coding these notification types, we can create an interface called "Notification" and implement two classes that extend it, one for email and another for SMS

```

public interface Notification {
    void sendNotification(String message);
}

public class EmailNotification implements Notification {
    @Override
    public void sendNotification(String message) {
        // Send email notification logic
    }
}

public class SMSNotification implements Notification {
    @Override
    public void sendNotification(String message) {
        // Send SMS notification logic
    }
}

public class NotificationHandler {
    private Notification notification;

    public NotificationHandler(Notification notification) {
        this.notification = notification;
    }

    public void send(String message) {
        notification.sendNotification(message);
    }
}

```

**Fig 3.3 Open/Closed Principle**

**Liskov Substitution Principle(LSP):**

The LSP states that a subclass should be able to substitute its parent class without affecting the correctness of the program. For example, consider a class hierarchy that includes a parent class "Animal" and two subclasses "Cat" and "Dog". We can ensure that LSP is followed by making sure that both "Cat" and "Dog" implement all the methods defined in the "Animal" class.



**Fig 3.4 Liskov Substitution Principle**

**Interface Segregation Principle(ISP):**

The ISP states that a class should not be forced to implement methods that it does not use. Consider an interface called "Vehicle" that includes methods for driving, flying, and swimming. Instead of using this large interface for all types of vehicles, we can create three separate interfaces for driving, flying, and swimming.



**Fig 3.5 Interface Segregation Principle**

**Dependency Inversion Principle(DIP):**

The DIP states that high-level modules should not depend on low-level modules. Instead, they should both depend on abstractions. For example, consider a class that depends on a database connection. Instead of creating a database connection object directly in this class, we can use dependency injection to pass the database connection object as a parameter to the class constructor. This allows us to switch between different database implementations without changing the class code.

```
public interface DatabaseConnection {
    void connect();
    void disconnect();
}

public class MySQLConnection implements DatabaseConnection {
    @Override
    public void connect() {
        // ...
    }

    @Override
    public void disconnect() {
        // ...
    }
}

public class OracleConnection implements DatabaseConnection {
    @Override
    public void connect() {
        // ...
    }

    @Override
    public void disconnect() {
        // ...
    }
}
```

Fig 3.6 Dependency Inversion Principle

```
public class DataProcessor {
    private DatabaseConnection dbConnection;

    public DataProcessor(DatabaseConnection dbConnection) {
        this.dbConnection = dbConnection;
    }

    public void processData() {
        dbConnection.connect();
        // ...
        dbConnection.disconnect();
    }
}

public class Main {
    public static void main(String[] args) {
        DatabaseConnection mysqlConnection = new MySQLConnection();
        DataProcessor dataProcessor = new DataProcessor(mysqlConnection);
        dataProcessor.processData();

        DatabaseConnection oracleConnection = new OracleConnection();
        DataProcessor dataProcessor2 = new DataProcessor(oracleConnection);
        dataProcessor2.processData();
    }
}
```

Fig 3.7 Dependency Inversion Principle

### 3.2 BASICS OF DATA STRUCTURE:

Data structures are ways of organizing and storing data in a computer so that it can be accessed and used efficiently. They define a way to arrange data in a specific format, with different operations allowed on the data. Some examples of data structures include arrays, linked lists, stacks, queues, trees, and graphs. Using the right data structure can help optimize algorithms, reduce complexity, and improve the overall performance of an application.

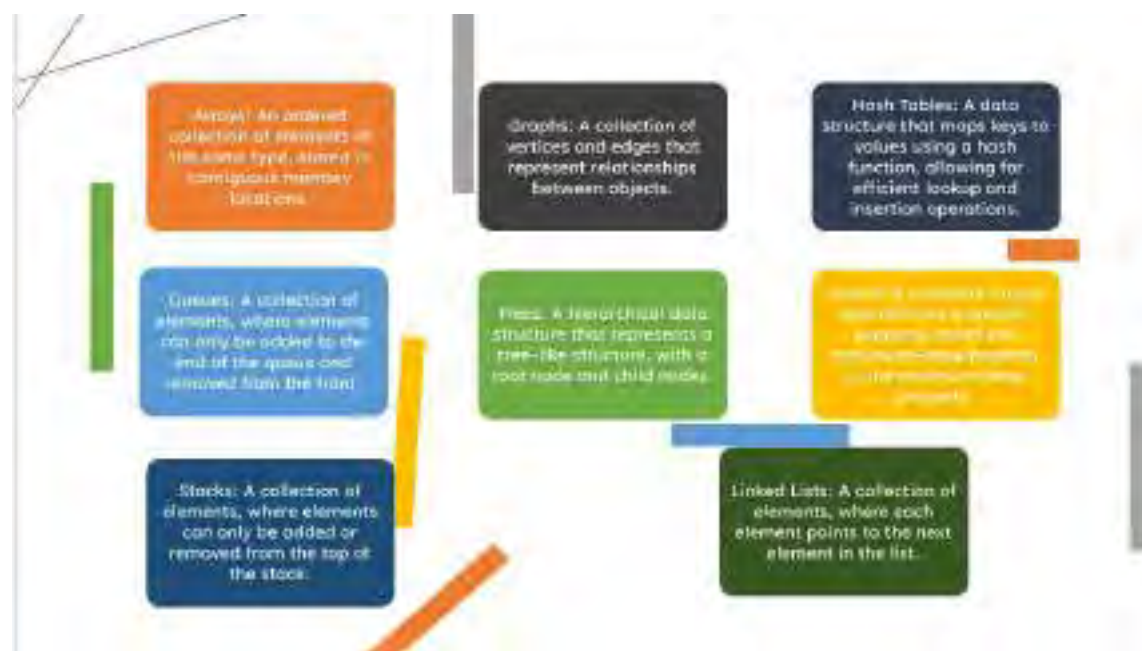


Fig 3.8 Overview Data Structure

### 3.3 HTML ,CSS & FIGMA:

#### 3.3.1 HTML:

HTML stands for Hypertext Markup Language. It is the standard markup language used to create web pages. HTML provides a means to describe the structure of text-based information in a document by using various tags and attributes to define elements such as headings, paragraphs, lists, links, images, and more.

HTML is used in with other web technologies such as CSS (Cascading Style Sheets) and JavaScript to create dynamic and interactive web pages. HTML allows developers to create structured content that can be displayed in web browsers and other devices.



### **3.3.2 CSS:**

CSS, or Cascading Style Sheets, is a language used to add style and formatting to HTML documents. Using CSS, you can control the layout of multiple web pages all at once, and make sure they have a consistent look and feel.

CSS allows you to define styles for HTML elements, such as colors, fonts, layout, and more. It also allows you to create responsive designs, which adapt to different screen sizes and devices.

### **3.3.3 FIGMA:**

Figma is a design and prototyping tool used for creating user interfaces, websites, and mobile applications. It is primarily used by designers, UX/UI designers, and product teams. With Figma, multiple designers and team members can work on the same project simultaneously, making it easier to collaborate on designs and maintain consistency across a project

Figma is becoming increasingly popular in the design industry due to its ease of use, collaborative capabilities, and wide range of features.

Some of the main features of Figma include:

- Collaboration and sharing tools for teams to work together in real-time
- Prototyping tools to create interactive designs and test user experiences
- Plugins and integrations with other design tools and platforms
- Version control and design history tracking to easily manage changes and iterations of a design.

#### **3.3.3.1 Task Implementation:**

- **User Registration Form:**

The image shows a web form titled "STUDENT REGISTRATION FORM" with a purple background. The form contains the following fields and options:

- FIRST NAME: Text input field with "Li" entered.
- LASTNAME: Text input field with "li" entered.
- DATE OF BIRTH: Three dropdown menus for Day, Month, and Year.
- EMAIL ID: Text input field with "li.li@gmail.com" entered.
- MOBILE NUMBER: Text input field with "9876543210" entered. A note "(10 Digits Number)" is present.
- PASSWORD: Text input field with "123456" entered.
- GENDER: Radio buttons for Male and Female.
- CITY: Text input field with "Ajmer/India" entered.
- PIN CODE: Text input field with "388001" entered.
- STATE: Text input field with "Gujarat" entered.
- COUNTRY: Text input field with "India" entered.
- ADDRESS: Text area with "12/111, 2nd apartment, sector 101" entered.
- HOBBIES: Checkboxes for Reading, Singing, Dancing, and Swimming.
- DEGREE/APPLY FOR: Radio buttons for Bachelors, B.Tech, M.Tech, MCA, and M.E.
- A "Submit" button is located at the bottom center.

Fig 3.9 User Registration Form

- **Create Webpage using HTML & CSS:**



Fig 3.10 Webpage using HTML & CSS

### 3.4 JAVASCRIPT:

JavaScript is a client-side language, which means that it is executed on the user's web browser. This allows developers to create dynamic and interactive web pages that can respond to user input in real-time. JavaScript is used for a variety of tasks, including form validation, creating animations.

Some of the key features of JavaScript include its ability to manipulate the Document Object Model (DOM), which is the structure of a web page, and its support for functional

programming. JavaScript also includes a number of built-in objects and functions that allow developers to easily perform common tasks, such as working with arrays and strings.

Some popular JavaScript libraries and frameworks include React, Angular, and Vue.js. These libraries and frameworks provide additional functionality and help to simplify common web development tasks, making it easier for developers to create powerful and responsive web applications.

There are many topics covered in the JavaScript some of these are as shown below:

### 3.4.1 CALLBACK:

Callback function is a function that is passed as an argument to another function, and is executed after some operation has been completed. The callback function is typically used to perform some action on the result of the operation, or to handle errors that may occur during the operation. Callbacks are commonly used in asynchronous programming, where a function needs to wait for some operation to complete before continuing execution.

- Write a function that takes two numbers and a callback function which perform addition as arguments, and returns the result of applying the callback function to the two numbers.

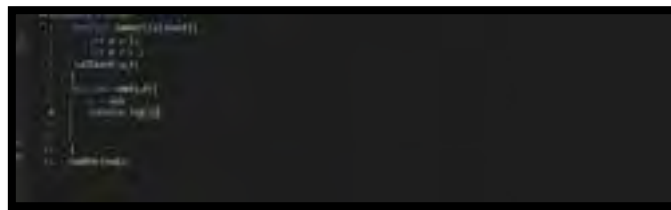


Fig 3.11 Callback Example

- Write a function that takes an array and a callback function to check even number as arguments, and returns a new array with only the elements of the original array that satisfy the callback function.

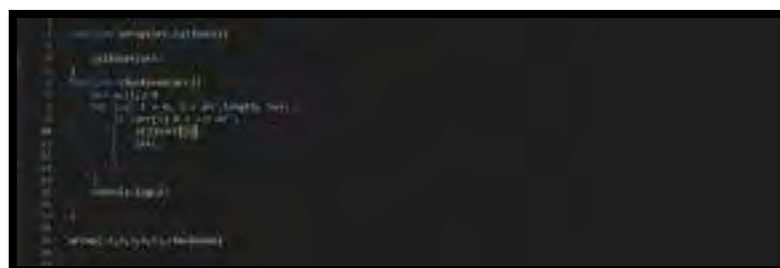


Fig 3.12 Callback Example

### 3.4.2 PROMISE:

Promise is an object representing the eventual completion or failure of an asynchronous operation and its resulting value. Essentially, a Promise allows us to handle asynchronous operations, such as fetching data from a server or processing a large file, without blocking the main execution thread.

A Promise has three states:

1. Pending: The initial state; the Promise is neither fulfilled nor rejected.
2. Fulfilled: Meaning that the operation was completed successfully, and the Promise now has a resulting value.
3. Rejected: Meaning that the operation failed, and the Promise now has a reason for the failure.

Create a demo with promises which involves chaining of promises



Fig 3.13 Promise example

### 3.4.3: REGULAR EXPRESSION:

Task: create regex and validate Mobile number

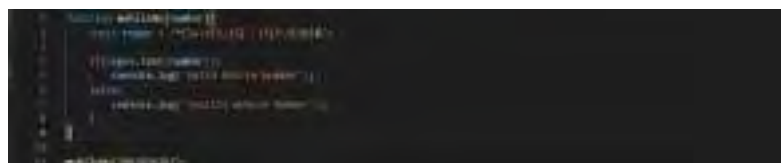


Fig 3.14 Regular Expression

- Implementing a Product Inventory System:



**Fig 3.15 Product inventory System**

### **3.5 REACT JS:**

React is a JavaScript library that is used for building user interfaces for web applications. It was developed by Facebook and is now maintained by a large open-source community. React is a component-based library, which means that it allows developers to create reusable UI components that can be combined to build complex and interactive user interfaces.

React uses a virtual DOM (Document Object Model) to manage the state of a webpage. The virtual DOM is a lightweight representation of the actual DOM, and it allows React to efficiently update the user interface when changes are made to the data or state of a component. This makes React fast and efficient and allows for smooth and responsive user experiences.

React is commonly used for building single-page applications (SPAs) that do not require a page refresh for each interaction. It is often used in combination with other technologies such as Node.js, Webpack, and Redux.

React has gained popularity in the web development community due to its simplicity, flexibility, and performance. Its component-based architecture makes it easy to build complex and interactive user interfaces, and its virtual DOM makes it fast and efficient. React also has a large and active community of developers who contribute to its development and provide support and resources for other developers.

Overall, react is a powerful and popular for building modern web applications and user

interfaces. Its ease of use, flexibility, and performance make it an ideal choice for developers who want to build fast, efficient, and responsive user interfaces.

### 3.5.1 Props and Children:

Props is the mainly used for the data passing from one component to another. It is important topic while working with ReactJs and mainly while pass the data from one component to another.

```
return (
  <div className="flex flex-wrap">
    {StudentData.map((e) => {
      return (
        <div key={e.Enroll} className="w-max mx-auto">
          <College />
          <UserImage link={e.Image}/>
          <UserInfo name={e.Name} dep={e.Department} enroll={e.Enroll} dob={e.DOB}/>
        </div>
      );
    })}
  </div>
);
```

Fig 3.16 Pass data as Props

```
return (
  <div className="flex flex-wrap">
    {StudentData.map((e) => {
      return (
        <div key={e.Enroll} className="w-max mx-auto">
          <College />
          <UserImage >{e.Image}</UserImage>
          <UserInfo>{"name": e.Name, "dep": e.Department, "enroll": e.Enroll, "dob": e.DOB}</UserInfo>
        </div>
      );
    })}
  </div>
);
```

Fig 3.17 Pass data as Children

## 3.6 NODE JS

Node.js is a JavaScript runtime built on Chrome's V8 JavaScript engine. It allows developers to run JavaScript on the server-side, which means that they can create web applications using a single language for both the client and server-side.

Node.js provides an event-driven, non-blocking I/O model that makes it lightweight and efficient. This means that Node.js is able to handle a large number of simultaneous connections with high throughput and low latency.

### 3.6.1 Task Implementation

- Create a json file which will have all the users in it. Create an api route that inserts user in users.json and another route for list users. Create an api route which will serve the json file of users and a middleware that checks if an api key passed or not, if passed then only serve the file.

```

1 const http = require('http');
2 const { readFileSync, writeFileSync } = require('fs');
3
4 const server = http.createServer((req, res) => {
5   if (req.url === '/adduser' && req.method === 'POST') {
6     const body = readFileSync(req, 'utf8');
7     const { name, email } = JSON.parse(body);
8     writeFileSync('users.json', JSON.stringify({ name, email }, null, 2));
9   }
10
11   if (req.url === '/listusers') && req.method === 'GET') {
12     const users = readFileSync('users.json', 'utf8');
13     res.writeHead(200, { 'Content-Type': 'application/json' });
14     res.end(JSON.stringify(JSON.parse(users)));
15   }
16
17   res.writeHead(404, { 'Content-Type': 'text/plain' });
18   res.end('Not Found');
19 });
20
21 server.listen(3000, () => {
22   console.log('Server running on port 3000');
23 });

```

Fig 3.18 Create server and api route



Fig 3.19 send request and pass api key

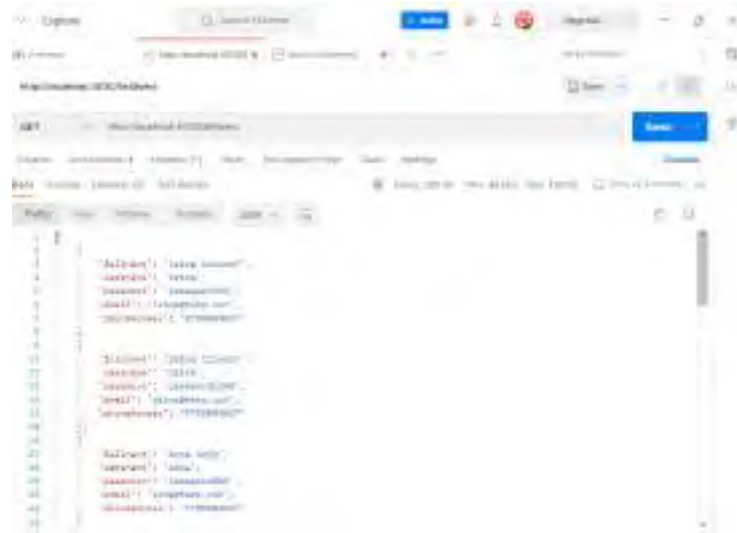


Fig 3.20 Route listUsers

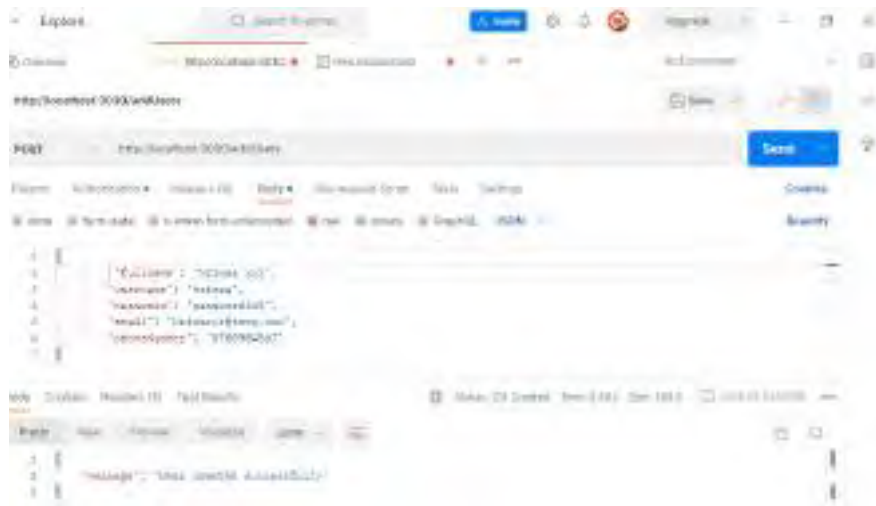


Fig 3.21 Route addUsers

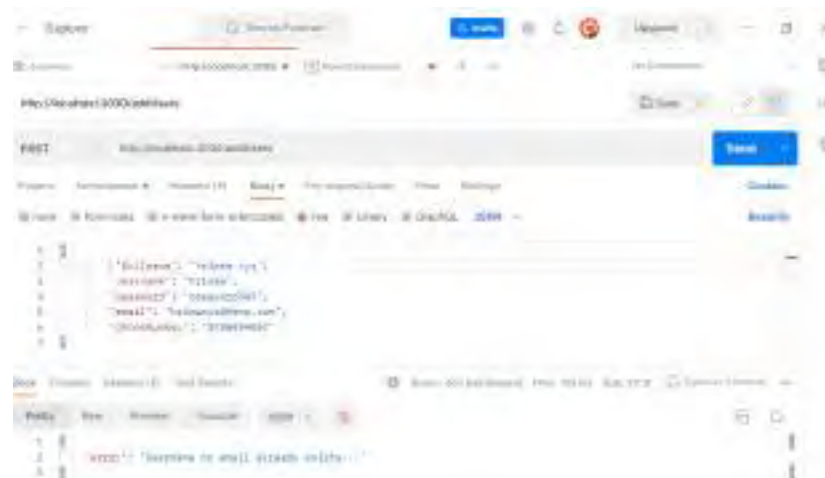


Fig 3.22 Using middleware



## CHAPTER 4: PROJECT

**Project Title:** Resource Management System

**Project Definition:**

The Resource Management System is a web application that allows users to manage their resources, such as employees, department and projects, in an efficient and organized manner.

**Project Abstract:**

Resource Management System is a modern, web-based platform that efficiently manages employee details, projects, department and ongoing work using technologies such as React.js, Node.js, and MongoDB. It provides a user-friendly interface for creating, updating, and deleting employee and project information, assigning tasks to employees, and monitoring ongoing work. Resource Management System offers efficient and scalable solutions to enhance resource allocation processes, improve project efficiency, and achieve better outcomes.

**My Role in Resource Management System:**

The project is made up of multiple purpose-specific modules, each serving a specific purpose. In this, I have worked on two modules, which are Employee Management and Worklog.

**1. Employee Management System:**

This module enables users to add, update, and delete employee information. Users can view employee details such as name, email, job title, and department. Also, User can search by name, department, and search by availability.



Fig 4.1 Employee Management



Fig 4.2 Search by name

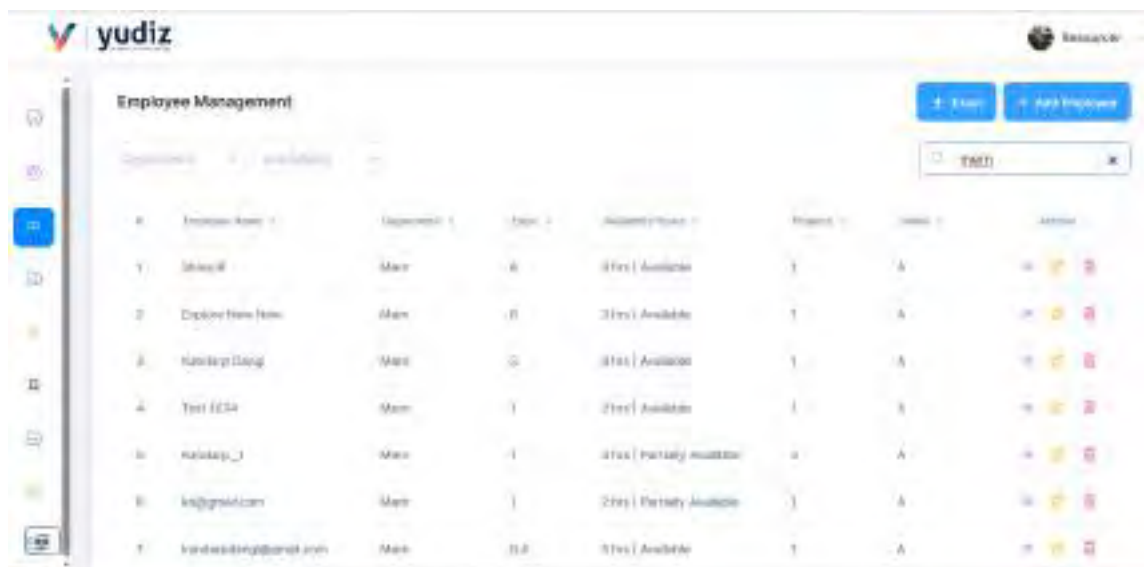


Fig 4.3 Search by department



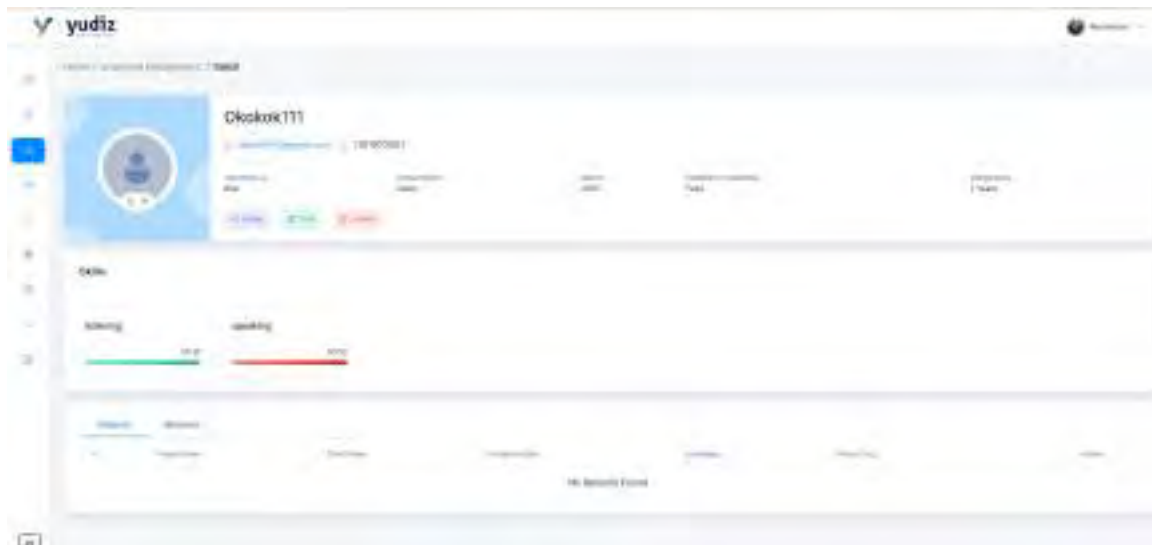
Fig 4.4 Search by department using drop



Fig 4.5 Search by Availability using dropdown



Fig 4.6 Add new Employee



**Fig 4.6 View Employee details**



**Fig 4.7 add skills of employee and current**

## **2. Worklog:**

The Worklog module in Resource Management System allows users to keep track of the work done by employees on various projects. The Worklog module in Resource Management System allows users to keep track of the work done by employees on various projects. Users can add new worklogs along with a brief description and the number of hours spent on the work. The module provides a user-friendly interface to view all worklogs and filter them based on employee or project. The Worklog module enables project managers to monitor the progress of ongoing work, analyse employee performance, optimize resource allocation and improve project efficiency.

The screenshot shows the 'Work Log' section of the Yudit application. At the top, there are buttons for 'Filter' and 'Reset Filter'. Below these, there is a dropdown menu for 'All Project' and a search input field. The main area contains a table with the following columns: Project, Task, Start, End, and Status. The table lists several worklog entries with their respective details.

Project	Task	Start	End	Status
Project 1	Task 1	2023-01-01	2023-01-02	Completed
Project 2	Task 2	2023-01-03	2023-01-04	In Progress
Project 3	Task 3	2023-01-05	2023-01-06	Pending
Project 4	Task 4	2023-01-07	2023-01-08	Completed
Project 5	Task 5	2023-01-09	2023-01-10	In Progress
Project 6	Task 6	2023-01-11	2023-01-12	Pending
Project 7	Task 7	2023-01-13	2023-01-14	Completed
Project 8	Task 8	2023-01-15	2023-01-16	In Progress
Project 9	Task 9	2023-01-17	2023-01-18	Pending
Project 10	Task 10	2023-01-19	2023-01-20	Completed

Fig 4.8 Worklog

This screenshot shows the 'Work Log' section with a dropdown menu open under the 'All Project' filter. The dropdown menu lists several project names, including 'All projects', 'Project 1', 'Project 2', 'Project 3', 'Project 4', 'Project 5', 'Project 6', 'Project 7', 'Project 8', 'Project 9', and 'Project 10'. The 'Project 1' option is highlighted in blue.

Fig 4.9 Filter by Project

This screenshot shows the 'Work Log' section with a date filter applied. The 'All Project' dropdown is set to 'All projects' and the date filter is set to '01/01/2023'. The table below shows only the worklog entries for that specific date.

Project	Task	Start	End	Status
Project 1	Task 1	2023-01-01	2023-01-02	Completed
Project 2	Task 2	2023-01-03	2023-01-04	In Progress

Fig 4.10 Filter by date



Fig 4.11 Add Worklog



Fig 4.12 View Worklog

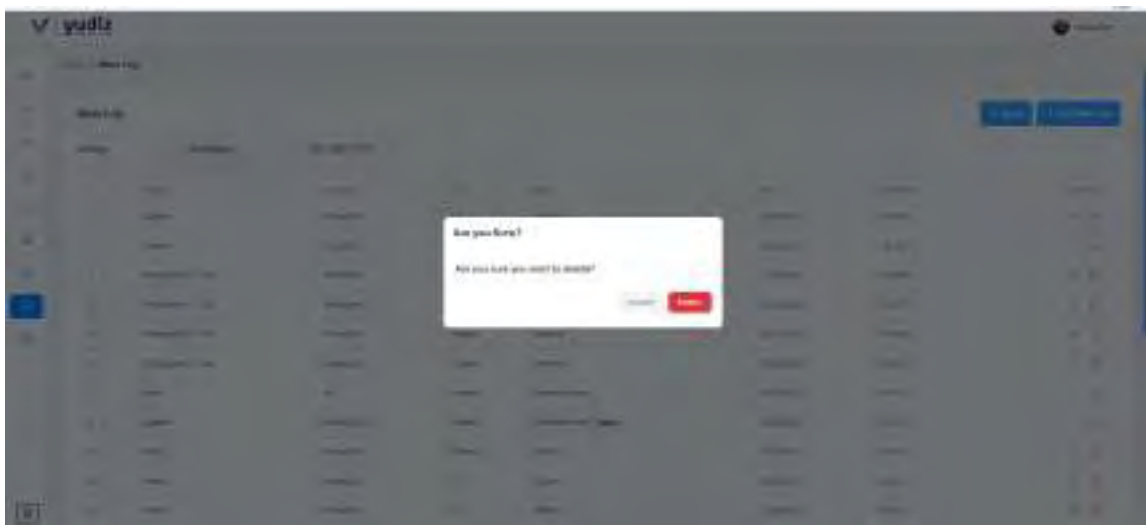


Fig 4.13 Delete Worklog

## **Chapter 5 CONCLUSION AND DISCUSSION**

### **Internship Conclusion:**

During the internship, I learned about importance of professionalism including effective communication and project management in a professional environment and able to work closely with team members to ensure the project was completed efficiently and within the given timeline. I also gained a significant amount of practical knowledge during my internship.

Additionally, I gained knowledge and practical experience in web development technologies such as HTML, CSS, JavaScript, and React.js, Node JS. I also learned how to use various tools and software such as GitHub, VS Code, and Postman for development and testing purposes.

# **INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Maulik Mangukiya**

**200390107007**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**May, 2023**





## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at INFOLABZ** has been carried out by **Maulik Mangukiya** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 7th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof.

Prof.

Internal Guide

Head of Department



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at INFOLABZ** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Chintan Nagrecha (Director of Infolabz)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Maulik Mangukiya**

# Company Certificate



INFOLABZ IT SERVICES PVT. LTD.  
WEB DEVELOPMENT | APP DEVELOPMENT | DATA SCIENCE | IOT



## COMPLETION CERTIFICATE OF SUMMER INTERNSHIP

Date: 12-08-2023

Enrollment: 200390107007  
Semester: 7<sup>th</sup>, Computer Engineering  
S. P. B Patel Engineering College

To whom it may concern,

We are delighted to provide this certificate for the successful completion of the requirements and work performed during the two-week free internship (27 July 2023 to 10 August 2023) by Maulik Mangrkiya.

In this internship tenure, we have covered the fundamentals of Data Analytics and Machine Learning. In the data analytics part, we have worked on API data and covered the basics of analysis using pandas and data visualization using matplotlib. In machine learning, we have implemented elementary regression models.

We wish Maulik Mangrkiya all the best for future endeavors.



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Ahmedabad, Gujarat 380015

## **COMPANY PROFILE**

Established in 2016, incorporation with our parent IT company, INFOLABZ IT SERVICES PVT. LTD. has managed to make its own position in IT Sector. We are involved in Web Development, App Development, Progressive Web Application Development, IOT solutions, Graphics & Designing, Digital Marketing, Domain & Hosting services, SMS services etc.

In the span of seven years, we have managed to deliver all projects on time with utmost accuracy to our clients across the globe. We have dedicated teams of experienced and hard-working developers. Our developers who are always willing to take new challenges and looking forward to learn new things, are heart of this company.

Our objective is to sustain with exponential growth in IT industry. Our mission is to deliver the best with top notch quality every quarter and vision is to develop a product with one of its kind concepts which could be used by millions of people.

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# Week 1

27 JULY 2023

- **Basics of Data Analytics, Type of Data:**

Data Analytics is one of the most important and helpful factors for business growth. Data analytics is the process of examining, cleaning, transforming, and interpreting data to discover meaningful insights, draw conclusions, and support decision-making. We can do analysis on any data using python libraries like numpy and pandas. Analyzed data can be visualized by matplotlib. Data Analysis is useful for decision making and machine learning model development. We will develop a machine learning model using some data to predict important parameters.

Types of Data:

- Structured Data: This type of data is highly organized and follows a specific format. Examples include sales data, customer information, and financial records.
- Unstructured Data: Unstructured data does not have a specific format and is often more complex. It includes text-heavy content like social media posts, emails, customer reviews and images, audio files, and video footage.
- Semi-Structured Data: This type of data lies between structured and unstructured data. Examples include JSON files, XML files, and certain types of logs.

- **Dictionary:**

- In Python, a dictionary is a built-in data type that stores key-value pairs. It's also known as an associative array or a hash map in other programming languages. Dictionaries are mutable, unordered collections, meaning the order of elements is not guaranteed, and they allow for fast retrieval of values based on their associated keys.
- Dictionaries are widely used in Python for various purposes, such as



storing configuration settings, representing JSON data, and efficiently storing and retrieving data based on unique identifiers (keys).

- Key : Value pair - To access value, a key is required.

# Creating a dictionary:

```
mydata = {"ahmedabad": [{"date": "25 July 2023", "cases": 25},  
                {"date": "26 July 2023", "cases": 35},  
                {"date": "27 July 2023", "cases": 45}],  
         "surat": [200, 210, 0],  
         "rajkot": 300}
```

## ● **Concept of API:**

- The concept of an API (Application Programming Interface) revolves around providing a set of rules, protocols, and tools that allow different software applications to communicate and interact with each other. An API (Application Programming Interface) serves as a bridge between different software applications, enabling them to interact and exchange information seamlessly.
- In an offline context, a dictionary in Python functions as a basic API, allowing data organization through key-value pairs. In a live scenario, JSON (JavaScript Object Notation) often serves as the format for APIs, such as exemplified by a data.json file.
- When utilizing APIs, a loop iterates through keys rather than values, as keys serve as identifiers for accessing corresponding values, illustrating the crucial role of keys in information retrieval.

Example:

```
import requests  
url = requests.get("https://data.covid19india.org/data.json")  
mydata = url.json()  
print(mydata)
```

- **Requests Package:**

- This package is indeed a powerful tool for making HTTP requests and interacting with web services. The requests library in Python is a third-party package that simplifies the process of sending HTTP requests and handling their responses. It abstracts the complexities of making HTTP connections and provides a clean, human-readable interface for working with web services. With the requests library, developers can easily perform tasks like fetching data from web APIs, submitting form data, downloading files, and more.

Example:

```
# Create my dictionary
mydata = {'financials': [{"date": "25 July 2021", "revenue": 25},
                      {"date": "26 July 2021", "revenue": 30},
                      {"date": "27 July 2021", "revenue": 45}],
         "users": 1000,
         "likes": 200}

# Import the libraries
import requests

# Building the GET Request
url = requests.get('https://data.covid19india.org/data.json')

# Fetching the content into json data structure
mydata = url.json()

# Printing the data
print(mydata)
```

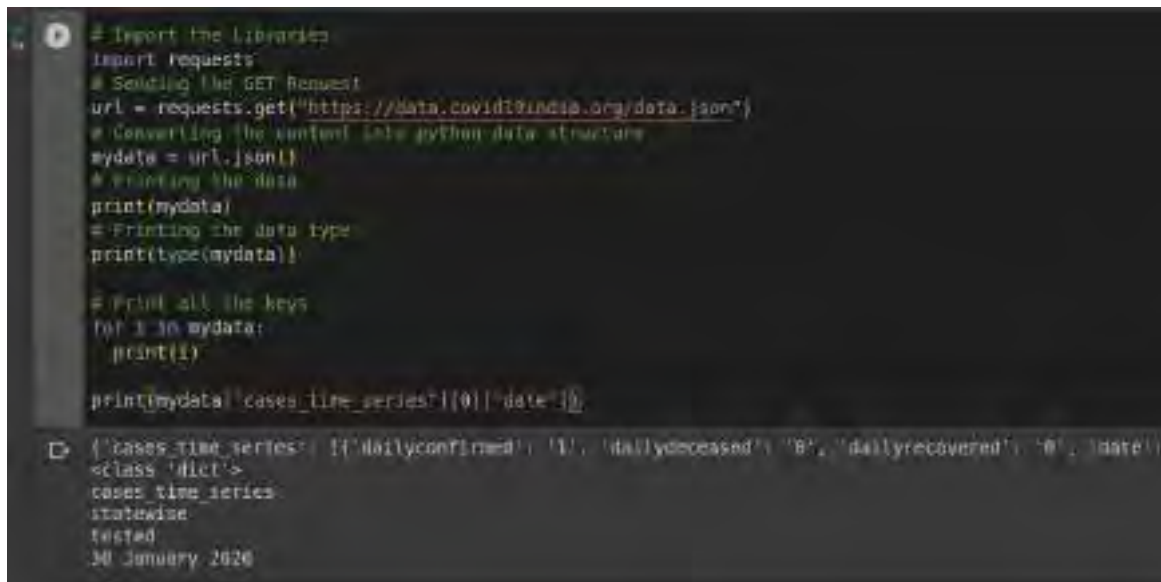
Fig 1.1 Requests package example

## Week 1

### 28 JULY 2023

- **API Handling:**

**Covid API:** There are various APIs that provide COVID-19 related data, such as cases, deaths, recoveries, and vaccination statistics. One popular source is the COVID-19 Data API provided by Johns Hopkins University. You can use the requests library to make requests to the API and process the received data.



```
# Import the Libraries
import requests
# Sending the GET Request
url = requests.get("https://data.covid19india.org/data.json")
# Converting the content into python data structure
mydata = url.json()
# Printing the data
print(mydata)
# Printing the data type
print(type(mydata))

# Print all the keys
for i in mydata:
    print(i)

print(mydata['cases_time_series'][0]['date'])
```

```
{'cases_time_series': [{'dailyconfirmed': '1', 'dailydeceased': '8', 'dailyrecovered': '0', 'date': '30 January 2020'}]}
```

```
<class 'dict'>
cases_time_series
statewise
tested
30 January 2020
```

Fig 1.2 Covid API Example

**ISRO API:** The Indian Space Research Organization (ISRO) provides APIs to access information about their missions, satellites, and other space-related data. The exact endpoints and details may vary, so it's important to refer to ISRO's official API documentation.

```

@ISRO
# Import the Libraries
import requests
# Sending the GET Request
url = requests.get("https://isro.vercel.app/api/spacecrafts")
# Converting the content into python data structure
mydata = url.json()
# Printing the data
print(mydata)
# Printing the data type
print(type(mydata))

# Print all the keys
for i in mydata:
    print(i)

# Print the Space Crafts
print(mydata["spacecrafts"][0]["name"])

{'spacecrafts': [{'id': 1, 'name': 'Aryabhata'}, {'id': 2, 'name': 'Bhaskara-1'}],
<class 'dict'>
spacecrafts
Aryabhata

```

Fig 1.3 ISRO API Example

**Bitcoin API:** Bitcoin Price Index (BPI) API provides information about the current price of Bitcoin in various currencies. Your code retrieves data from the API and interacts with the returned JSON data.

```

# BITCOIN
# Import the Libraries
import requests
# Sending the GET Request
url = requests.get("https://api.coindesk.com/v1/bpi/currentprice.json")
# Converting the content into python data structure
mydata = url.json()
# Printing the data
print(mydata)
# Printing the data type
print(type(mydata))

# Print all the keys
for i in mydata:
    print(i)

# Print live Price in USD
print(mydata["bpi"]["USD"]["rate"])

{'time': {'updated': 'Aug-16, 2023 02:29:06 UTC', 'updatedISO': '2023-08-16T02:29:06+00:00'},
<class 'dict'>
time
disclaimer
charName
bpi
29,222.4242

```

Fig 1.4 Bitcoin API Example

**Mutual Fund API:** Depending on the structure of the data returned by the Mutual Fund API, you can extract and manipulate the information you're interested in. This could involve iterating through lists of mutual funds, Scheme name, extracting their names, Scheme code, or other relevant details.

```
# MUTUAL FUND
# Import the Libraries
import requests
# Sending the GET Request
url = requests.get("https://api.mfapi.in/mf")
# Converting the content into python data structure
mydata = url.json()

# Print live Price in USD
print(mydata[0]["schemeCode"])
```

100027

Fig 1.5 Mutual Fund API Example

- **API Search:** The process of searching for APIs programmatically using Python, with fetching COVID-19 data from a specific API URL and determining the highest number of daily confirmed cases along with the corresponding date.

```
- 2: The highest number of daily confirmed cases

# Import the Libraries
import requests
# Sending the GET Request
url = requests.get("https://data.covid19india.org/data.json")
# Converting the content into python data structure
mydata = url.json()
max_cases = 0
max_date = ""

for i in mydata["cases-time-series"]:
    cases = int(i["dailyconfirmed"])
    if cases > max_cases:
        max_cases = cases
        max_date = i["date"]

# Print Daily Cases
print("The maximum daily confirmed cases is:" + str(max_cases)
      + " and The date is: " + max_date)
```

The maximum daily confirmed cases is:414289 and The date is: 6 May 2021

Fig 1.6 API search Example

# Week 1

## 31 JULY 2023

- **Data Visualization using Matplotlib:**

- Data visualization using Matplotlib is a fundamental skill in data analysis and presentation. Matplotlib is a popular Python library that provides a wide range of tools for creating static, interactive, and animated visualizations.
- Matplotlib is a popular Python library for creating various types of data visualizations, such as line charts, bar charts, scatter plots, histograms, and more. It provides a flexible and powerful way to visualize data and is widely used for exploratory data analysis and presentation of results.
- Support for Various Plot Types: Matplotlib supports a wide range of plot types, including line plots, scatter plots, bar charts, histograms, pie charts, 3D plots, and more.
- Customization: Users can extensively customize visual elements such as colours, markers, line styles, titles, axes labels, legends, and more to create polished and informative visualizations.
- Multiple Backends: Matplotlib can generate plots in various formats, including PNG, PDF, SVG, and interactive formats for web applications. It also supports rendering plots in different GUI environments.
- Integration with NumPy: Matplotlib works seamlessly with NumPy arrays, making it easy to visualize data from numerical computations.
- Subplots and Layouts: Matplotlib allows you to create multiple plots within a single figure using subplots. You can customize the arrangement and layout of subplots.

- **Bar Plot:**

```
03  # Import the Libraries
import matplotlib
from matplotlib import pyplot as plt

cities = ['Ahmedabad', 'Surat', 'Rajkot']
cases = [275, 195, 75]

# Print Daily Cases Bar-Graph
plt.bar(cities, cases, color='b')
plt.xlabel('Cities')
plt.ylabel('Covid Cases')
plt.title('GUJARAT COVID CASES')
plt.show()
```

**Output:**

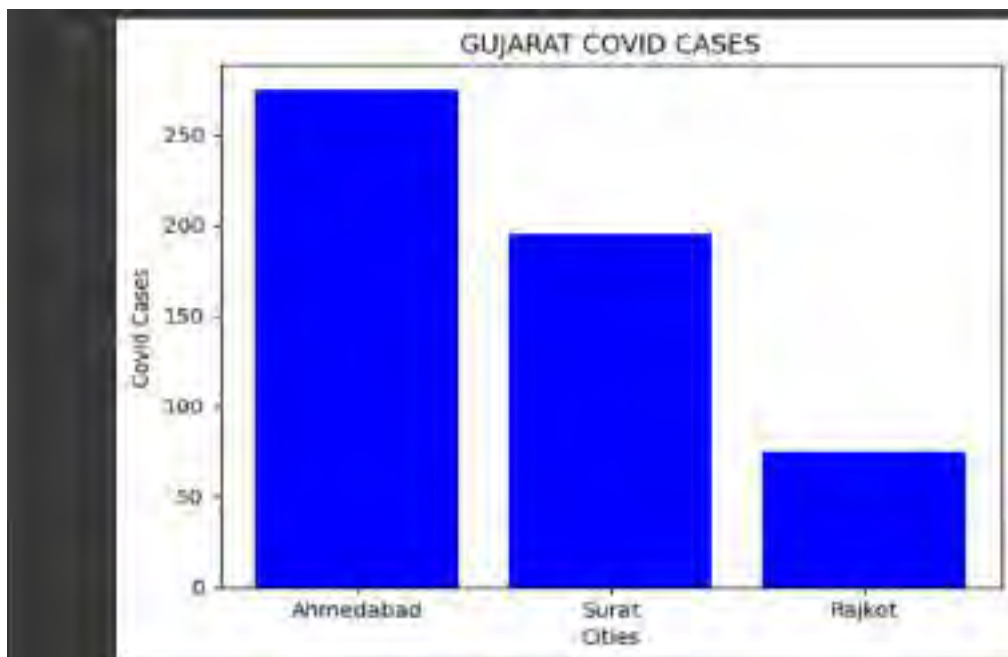


Fig 1.7 Bar Plot example

- **Pie Chart:**

```
# Import the Libraries
from matplotlib import pyplot as plt

branches = ['CE', 'IT', 'CS', 'EC', 'CIVIL', 'AUTO']
seats = [200, 175, 130, 15, 40, 18]

# Print Pie Chart
plt.pie(seats, labels=branches, shadow=True, autopct='%1.0f%%',
        explode=(0.2, 0, 0, 0, 0, 0))
plt.show()
```

**Output:**

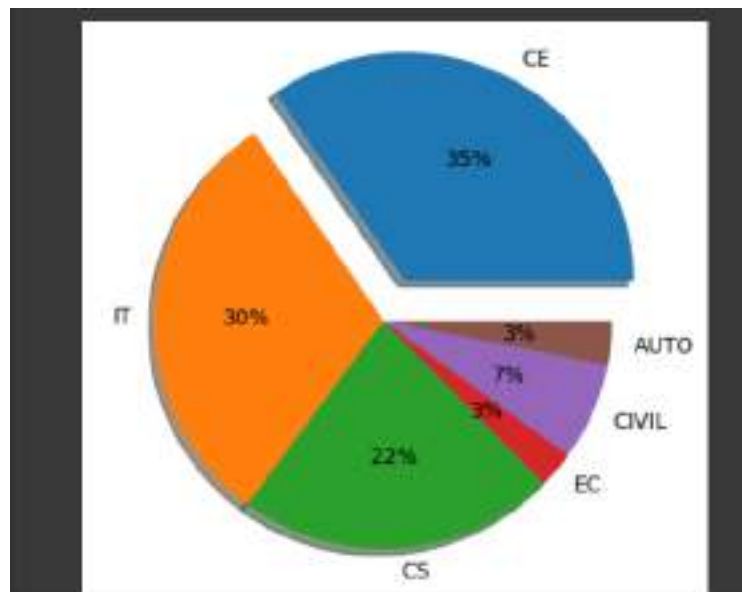


Fig 1.8 Pie Chart example



- **Scatter Plot:**

```
# Import the Libraries
from matplotlib import pyplot as plt

dhoni = [15,75,20,65,99]
rohit = [22,7,45,19,35]
kohli = [2,85,13,75,4]
matches = [1,2,3,4,5]

# Print Scatter Plot
plt.scatter(matches, dhoni, label='Dhoni')
plt.scatter(matches, rohit, label='Rohit')
plt.scatter(matches, kohli, label='Kohli')

plt.legend()
plt.show()
```

**Output:**

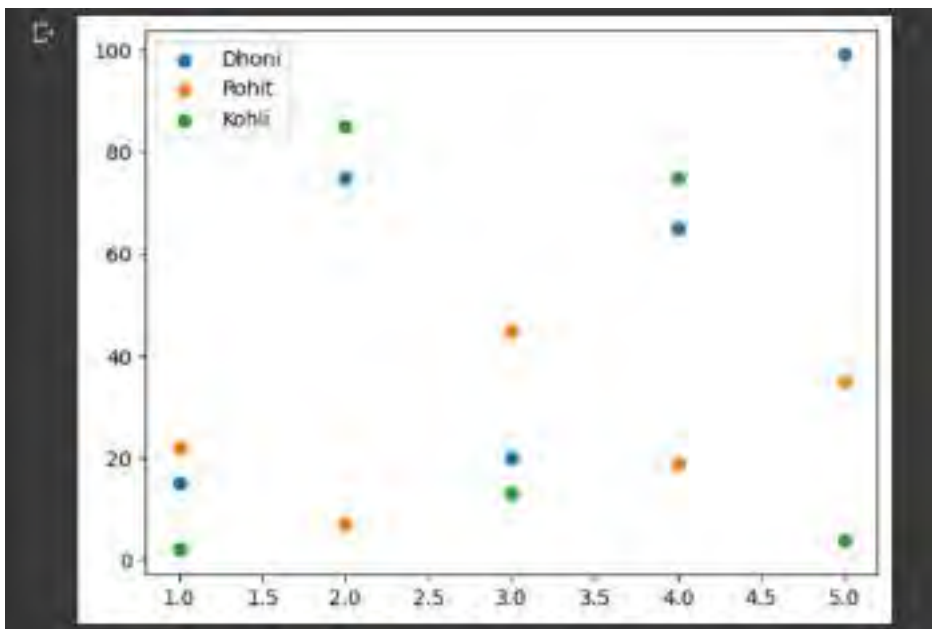


Fig 1.9 Scatter Plot example

# Week 1

## 1 AUGUST 2023

- **Data Visualization:**

- Data visualization is the representation of data in graphical or visual formats to help people understand and interpret information more easily.
- Visualizations enable you to explore patterns, trends, relationships, and insights that might not be immediately obvious in raw data. Effective data visualization is a crucial aspect of data analysis, communication, and decision-making across various fields.
- Python offers several powerful libraries for data visualization, and two of the most commonly used ones are Matplotlib and Seaborn.

- **API Data Visualization:**

- API data visualization involves fetching data from APIs (Application Programming Interfaces) and then using visualization libraries to create graphical representations that provide insights into the data.
- This process allows you to dynamically retrieve and display information from external sources, which is particularly useful for displaying real-time or frequently updated data. Here's a general outline of how to perform API data visualization:

1. Choose an API:

Select an API that provides the data you want to visualize. This could be data related to weather, stock prices, social media posts, COVID-19 statistics, or any other domain-specific information.

2. Retrieve Data from the API:

Use a library like requests in Python to send HTTP requests to the API's endpoints and retrieve the data. This may involve sending parameters to specify the type of data you're interested in.

3. Process Data:

Once you receive the data from the API, process it into a format suitable for visualization. This might involve transforming the data, aggregating it, or extracting relevant fields.

4. Choose a Visualization Library:

Select a suitable data visualization library such as Matplotlib, Seaborn, Plotly, or any other library that fits your needs and provides the type of visualizations you want to create.

5. Create Visualizations:

Use the chosen library to create the desired visualizations. Depending on the nature of the data, you might create line charts, bar charts, pie charts, maps, heatmaps, or other types of plots.

6. Display the Visualizations:

Show the visualizations on your preferred platform. This could be in a Jupyter Notebook, a web application, a desktop application, or any other environment that supports the chosen visualization library.

## Example:

```
# From COVID API : generate horizontal bargraph. state vs totalconfirmed
# Import the Libraries
import requests
from matplotlib import pyplot as plt

# Sending the GET Request
url = requests.get("https://data.covid19india.org/data.json")
mydata = url.json()

state = []
confirmed = []

for i in range(0, len(mydata['statewise'])):
    state.append(mydata['statewise'][i]['state'])
    confirmed.append(mydata['statewise'][i]['confirmed'])

# Print Bar-Graph horizontal
plt.figure(figsize=(10, 8))
bars = plt.barh(state, confirmed, color='skyblue')
plt.title('COVID-19 Confirmed Cases by State in India', fontsize=16)
plt.xlabel('Total Confirmed Cases', fontsize=14)
plt.ylabel('State', fontsize=14)

# Format numbers on the x axis with comma for better readability
plt.gca().get_xaxis().set_major_formatter(plt.FuncFormatter(lambda x, loc: '{:,}'.format(int(x))))

# Prevents the labels from being cut off
plt.tight_layout()
plt.show()
```

## Output:

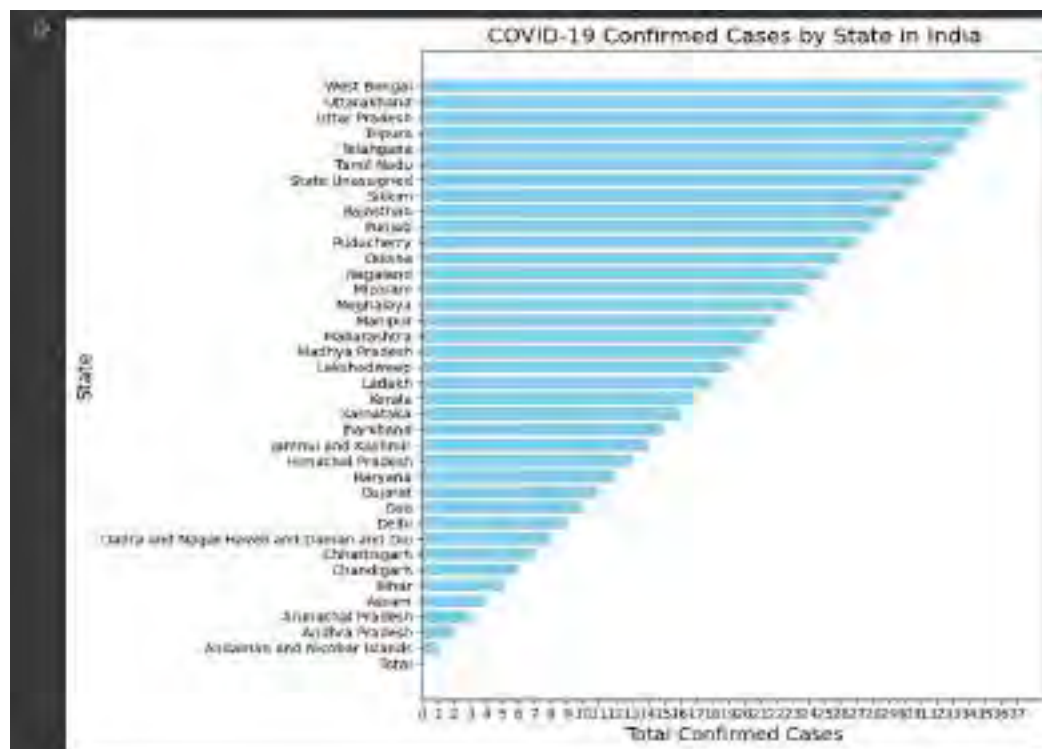


Fig 1.10 API - Data Visualization example

## Week 1

2 AUGUST 2023

### Assignment 1

- **INSHORTS NEWS API:**

<https://inshortsapi.vercel.app/news?category=all>

1) How many main keys are there in this API? Extract and print all keys.

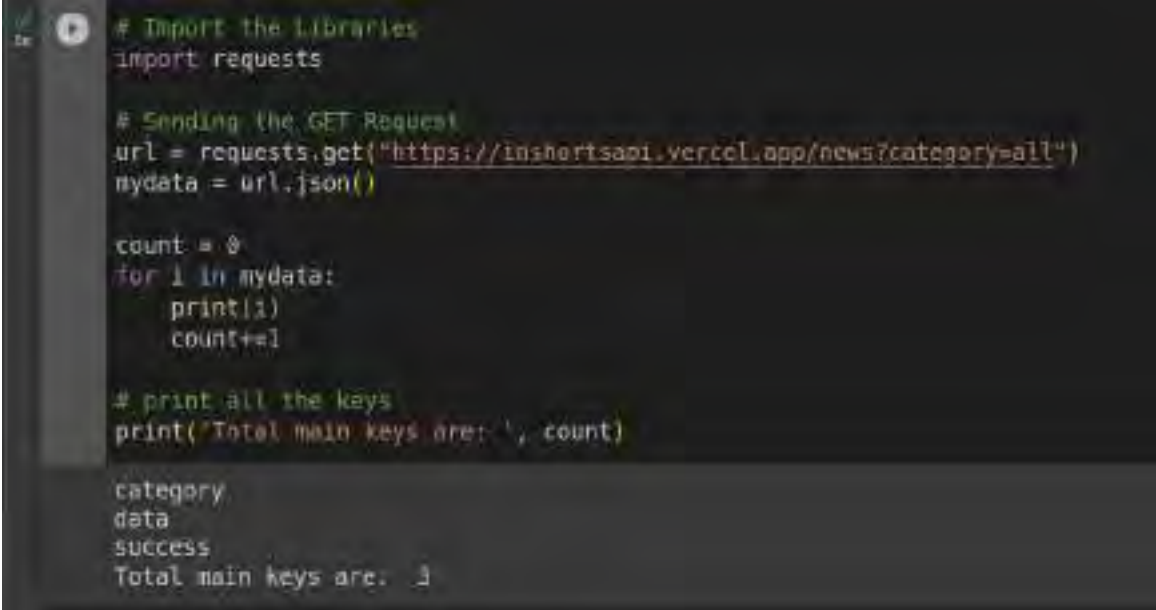
2) How much news is available in this API?

3) Print all news in the below format.

1. News content , Author: AUTHOR NAME, DATE: Date of news

2. News content , Author: AUTHOR NAME, DATE: Date of news

3. News content , Author: AUTHOR NAME, DATE: Date of news .



```
# Import the Libraries
import requests

# Sending the GET Request
url = requests.get("https://inshortsapi.vercel.app/news?category=all")
mydata = url.json()

count = 0
for i in mydata:
    print(i)
    count+=1

# print all the keys
print("Total main keys are: ", count)

category
data
success
Total main keys are: 3
```

Fig 1.11

```

# Import the Libraries
import requests
# Sending the GET Request
url = requests.get("https://inshortsapi.vercel.app/news?category=all")
mydata = url.json()

count=0
for j in range(0, len(mydata['data'])):
    count = count + 1

# print all news
print("Total Count =",count)

for i in range(0, len(mydata['data'])):
    print("News content:", mydata['data'][i]['content'],
          ", Author:", mydata['data'][i]['author'],
          ", Date:", mydata['data'][i]['date'])

```

**Total Count = 9**  
 News content: Israel archaeologists excavating an area near Kiryat Gat's industrial zone  
 , Author: Daisy Howke , Date: Tuesday, 15 August, 2023  
 News content: Adani Green Energy's subsidiary Adani Energy has filed an appeal before the  
 News content: On India's 77th Independence Day, Shah Rukh Khan changed his profile picture  
 News content: UK PM Rishi Sunak on Tuesday attended a 'Ram Katha' event being conducted by  
 News content: Jasprit Bumrah will become 11th cricketer to lead India in T20I cricket war  
 News content: Experts, including Ravi Shastri, Saandeep Patil and MSK Prasad, have predict  
 News content: Saudi Arabian club Al-Hilal has bought Brazilian forward from PSG for a fee  
 News content: Actor Varun Puri said his grandfather Amrish Puri told him how lakhs of p  
 , Author: Kaneshwari , Date: Tuesday, 15 August, 2023  
 News content: The Indian Medical Association, India's largest body of doctors, has oppose

Fig 1.12

- **API Data Visualization:**

API: <https://isro.vercel.app/api/spacecrafts>

API: [https://isro.vercel.app/api/customer\\_satellites](https://isro.vercel.app/api/customer_satellites)

```
# Import the Libraries
import requests
import numpy as np
from matplotlib import pyplot as plt

# Sending the GET Request
url = requests.get("https://isro.vercel.app/api/spacecrafts")
mydata = url.json()

url = requests.get("https://isro.vercel.app/api/customer_satellites")
data = url.json()

count = len(mydata["spacecrafts"])
print("Domestic:", count)

num = len(data["customer_satellites"])
print("Foreign customer:", num)

y = np.array([count, num])
mylabels = ["Domestic", "Foreign customer"]

# Print Pie Chart
plt.pie(y, labels = mylabels, autopct='%1.0f%%')
plt.show()

Domestic: 112
```

- TRY TO GENERATE PIE CHART INDICATING PERCENTAGE OF ISRO'S OWN SPACECRAFTS VS CUSTOMERSATELLITES FROM ABOVE API(s) FOR

## ANALYSIS OF DOMESTIC VS FOREIGN CUSTOMER INVOLVEMENT.

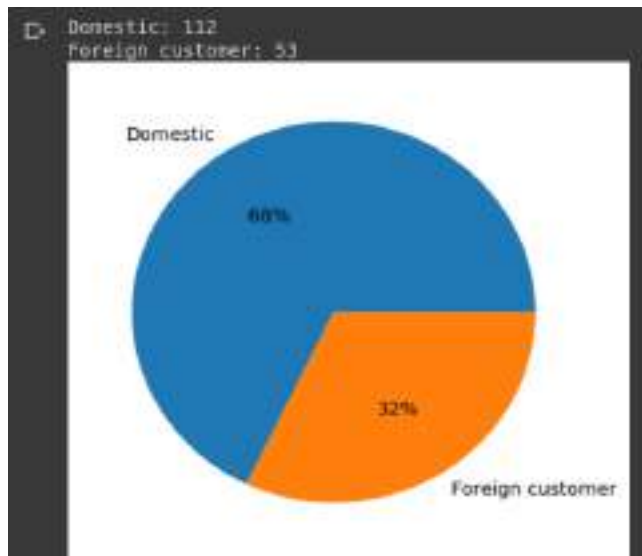


Fig 1.13

- **Dynamic API - PINCODE:**

API: <https://api.postalpincode.in/pincode/380001>

- Allow user to insert pincode
- Print name of all areas which comes under that pincode
- Pin Code entered by user shell be merged in below url's xxxxxx part.
- URL: <https://api.postalpincode.in/pincode/XXXXXX>

```
# Import the Libraries
import requests
# Sending the GET Request
pincode = input("Enter Pincode: ")
url = requests.get("https://api.postalpincode.in/pincode/"+pincode)
data = url.json()

print("Pincode: " + pincode)
print("URL: https://api.postalpincode.in/pincode/"+pincode)

for i in range(len(data[0]["PostOffice"])):
    if pincode == data[0]["PostOffice"][i]["Pincode"]:
        print(data[0]["PostOffice"][i]["Name"])

Enter Pincode: 382421
Pincode: 382421
URL: https://api.postalpincode.in/pincode/382421
Adala]
Ambapur
Khodiyar
Kudasan
Por
Sargasan
Zundal
```

Fig 1.14



## Week 2

3 August 2023

- **Pandas - Dataframe:**

- Pandas is a powerful Python library widely used for data manipulation and analysis. One of its core components is the DataFrame, which is a two-dimensional labeled data structure similar to a spreadsheet or a SQL table. DataFrames are highly versatile and provide functionalities for cleaning, transforming, analyzing, and visualizing data.

```
# Import the libraries
import numpy as np
import pandas as pd

data = np.array([[8000,10000,18000],[15000,18000,25000]])
pdata = pd.DataFrame(data, index=['RAMESH','MAHESH'], columns=[2020,2021,2022])
print(pdata)

pdata['TOTAL'] = 12*(pdata[2020]+pdata[2021]+pdata[2022])
print(pdata)

pdata[2023] = pdata[2022] + (pdata[2022]*0.30)
print(pdata)

# data stored to csv file
pdata.to_csv('filename.csv')
```

	2020	2021	2022	TOTAL	2023
RAMESH	8000	10000	18000	432000	23400.0
MAHESH	15000	18000	25000	696000	32500.0

Fig 2.1 Pandas – Dataframe example

- **Pandas - Excel:**

- Pandas is a popular Python library used for data manipulation and analysis, while Excel is a widely-used spreadsheet software developed by Microsoft. Pandas provides a powerful and flexible way to work with structured data in Python, and you can use it to read, write, and manipulate

```
1 pip install openpyxl

Collecting openpyxl
  Downloading openpyxl-3.1.2-py2.py3-none-any.whl (249 kB)
----- 250.0/250.0 kB 639.3 kB/s eta 0:00:00
Collecting et_xmlfile (from openpyxl)
  Downloading et_xmlfile-1.1.0-py3-none-any.whl (4.7 kB)
Installing collected packages: et-xmlfile, openpyxl
Successfully installed et-xmlfile-1.1.0 openpyxl-3.1.2
Note: you may need to restart the kernel to use updated packages.
```

Excel files.

```
1 import pandas as pd
2 import numpy as np
3 from matplotlib import pyplot as plt
4
5 file1data = pd.read_excel("RESULT1.xlsx")
6 print(file1data)
7 print(type(file1data))
8
9 file2data = pd.read_excel("RESULT2.xlsx")
10 print(file2data)
```

	SRNO	BRANCH	NAME	TOTAL	PERCENTAGE	PASSFAIL
0	1	CE	RAMESH	210	70	1
1	2	CE	SURESH	150	50	1
2	3	IT	MAHESH	225	75	1
3	4	IT	NARESH	180	60	1
4	5	CE	JAYESH	90	30	0

```
<class 'pandas.core.frame.DataFrame'>
```

	SRNO	BRANCH	NAME	TOTAL	PERCENTAGE	PASSFAIL
0	1	EC	RATAN	150	50	1
1	2	CE	JATAN	270	90	1
2	3	IT	KATHAN	285	95	1
3	4	EC	NAYAN	195	65	1
4	5	IT	RAMAN	165	55	1

Fig 2.2 Pandas - Excel example

- **Pandas - API to CSV:**

- Pandas is a versatile Python library that can be used to manipulate and analyze data in various formats, including CSV (Comma-Separated Values). Here's how you can work with CSV files using Pandas:

```
1 import pandas as pd
2 import requests
3
4 url = requests.get("https://data.covid19india.org/data.json")
5 mydata = url.json()
6
7 df = pd.DataFrame(mydata['cases_time_series'])
8 print(df)
9 df.to_csv('covid19.csv')
```

	dailyconfirmed	dailydeceased	dailyrecovered	date	dateymd
0	1	0	0	30 January 2020	2020-01-30
1	0	0	0	31 January 2020	2020-01-31
2	0	0	0	1 February 2020	2020-02-01
3	1	0	0	2 February 2020	2020-02-02
4	1	0	0	3 February 2020	2020-02-03
...	...	...	...	...	...
560	40081	583	42156	12 August 2021	2021-08-12
561	38761	477	35759	13 August 2021	2021-08-13
562	36135	491	37936	14 August 2021	2021-08-14
563	33245	421	35936	15 August 2021	2021-08-15
564	24692	438	36862	16 August 2021	2021-08-16
	totalconfirmed	totaldeceased	totalrecovered		
0	1	0	0		
1	1	0	0		
2	1	0	0		

Fig 2.3 Pandas – API to CSV

- **XLRD:**

- XLRD is a third-party Python library that provides the capability to read data from Excel files, specifically in the older .xls format (Excel 97-2003). It's important to note that this library is not required for reading Excel files in .xlsx format (Excel 2007 and later) as Pandas and other libraries have built-in support for .xlsx files.
- If you have Excel files in the .xls format and want to use the xlrd library to read data from them, here's a basic example:

```
1 import xlrd
2
3 xlrd.xlsx.ensure_elementtree_imported(False, None)
4 xlrd.xlsx.Element_has_iter = True
5
6 loc = {"IPL.xlsx"}
7 wb = xlrd.open_workbook(loc)
8 sheet = wb.sheet_by_index(0)
9
10 print(sheet.cell_value(0,0))
11 print(sheet.cell_value(0,2))
12 print(sheet.cell_value(3,1))
13
14 print("Total number of Rows:", sheet.nrows)
15 print("Total number of Columns:", sheet.ncols)
16 print("Total number of Matches:", sheet.nrows-1)
17
18 print("Players:")
19 for i in range(1, sheet.ncols):
20     print(sheet.cell_value(0,i))
```

```
CRICKET
RAHUL
71.0
Total number of Rows: 15
Total number of Columns: 6
Total number of Matches: 14
Players:
BUTTLER
RAHUL
DEKOCK
HARDIK
MILLER
```

## **Week 2**

**4 August 2023**

- **Introduction to Machine Learning:**

- Machine Learning (ML) is a subset of artificial intelligence (AI) that focuses on developing algorithms and models that enable computers to learn and make decisions from data without being explicitly programmed. In other words, it's about creating systems that can learn and improve from experience.
- Types of Machine Learning:
  1. Supervised Learning: In this type, the algorithm learns from labeled data, meaning it's provided with input-output pairs. The goal is to learn a mapping function that can predict outputs for new inputs.
  2. Unsupervised Learning: Here, the algorithm is given unlabeled data and tasked with finding patterns, structures, or relationships in the data. Clustering and dimensionality reduction are common tasks in unsupervised learning.
  3. Reinforcement Learning: This type involves training an agent to interact with an environment and learn by receiving feedback in the form of rewards or penalties. The agent learns optimal actions to maximize cumulative rewards.

- **Linear Model - Mathematics:**

- Linear Regression is one of the fundamental and widely used techniques in machine learning and statistics for modeling the relationship between a dependent variable and one or more independent variables. It's a type of supervised learning algorithm used for regression tasks, where the goal is to predict a continuous output value.

- In simple linear regression, you have a single independent variable (feature) and a single dependent variable. The goal is to find the best-fitting linear line (a straight line) that minimizes the squared differences between the predicted values and the actual values.

The equation of a simple linear regression model can be represented as:

$$y = mx + b$$

where:  $y$  is the dependent variable (target)

$x$  is the independent variable (feature)

$m$  is the slope of the line

$b$  is the  $y$ -intercept

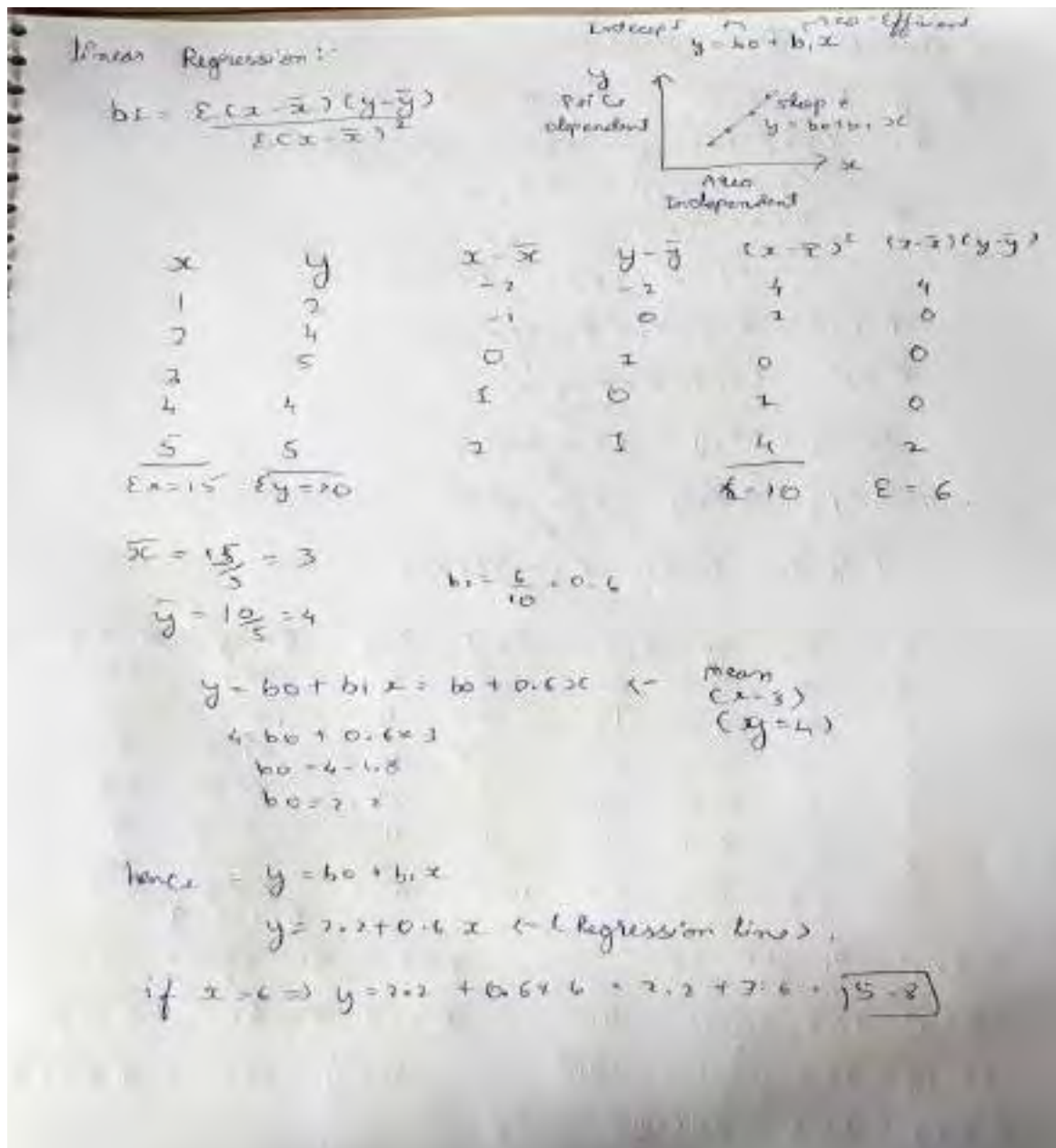


Fig 2.5 Linear Regression (LR)

- **Linear Model Implementation:**

```

1 import pandas as pd
2 from matplotlib import pyplot as plt
3 from sklearn import linear_model
4
5 df = pd.read_csv('Prices.csv')
6 print(df)
7
8 # y = 90 = (b1*x)
9 plt.scatter(df.area, df.price, color="r")
10 plt.plot(df.area, df.price, color="b")
11 plt.xlabel('Area') # Area = Independent = x
12 plt.ylabel('Price') # Price = Dependent = y
13 plt.show()
14
15 reg = linear_model.LinearRegression() # Process Model
16 reg.fit(df[['area']], df[['price']]) # Train Model
17
18 print(reg.predict([[1700]])) # x = 1700 (area)
19
20 # y = 90 = (b1*x)
21 print(reg.coef_) # b1 = Coefficient
22 print(reg.intercept_) # 90 = Intercept

```

**OUTPUT:**

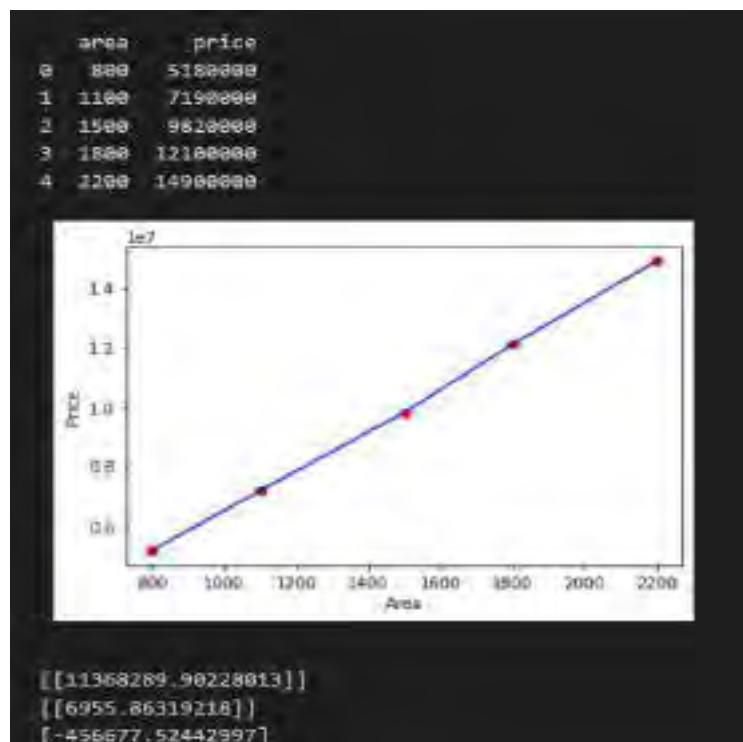


Fig 2.6 Linear Model



## Week 2

7 August 2023

- **Multiple Linear Model: Mathematics:**

- In multiple linear regression, you have multiple independent variables. The equation of a multiple linear regression model can be represented as:

$$y = b_0 + b_1 \cdot x_1 + b_2 \cdot x_2 + \dots + b_n \cdot x_n$$

where:  $y$  is the dependent variable (target)

$x_1, x_2, \dots, x_n$  are the independent variables (features)

$b_0, b_1, b_2, \dots, b_n$  are the coefficient

Multiple Linear Regression

$$a = \bar{y} - b_1 \bar{x}_1 - b_2 \bar{x}_2 \quad \text{If } y = b_0 + b_1 x_1 + b_2 x_2$$

$$b_1 = \frac{(E x_1^2)(E x_2 y) - (E x_1 x_2)(E x_1 y)}{(E x_1^2)(E x_2^2) - (E x_1 x_2)^2}$$

$$b_2 = \frac{(E x_2^2)(E x_1 y) - (E x_1 x_2)(E x_2 y)}{(E x_1^2)(E x_2^2) - (E x_1 x_2)^2}$$

$$E x_1^2 = E x_1 x_1 = \frac{E(x_1)(E x_1)}{N}$$

$$E x_2^2 = E x_2 x_2 = \frac{(E x_2)(E x_2)}{N}$$

$$E x_1 y = E x_1 y = \frac{(E x_1)(E y)}{N}$$

$$E x_2 y = E x_2 y = \frac{(E x_2)(E y)}{N}$$

$$E x_1 x_2 = E x_1 x_2 = \frac{(E x_1)(E x_2)}{N}$$

$x_1$	$x_2$	$y$	$x_1 x_1$	$x_2 x_2$	$x_1 y$	$x_2 y$	$x_1 x_2$
3	4	3.7	9	16	11.1	14.8	12
4	5	3.2	16	25	12.8	16	20
5	7	2.5	25	49	12.5	17.5	35
6	3	11.5	36	9	69	34.5	18
2	2	5.7	4	4	11.4	5.7	4
<u>20</u>	<u>29</u>	<u>19.6</u>	<u>90</u>	<u>148</u>	<u>45.6</u>	<u>45.6</u>	<u>99</u>

$$E x_1^2 = \frac{90}{5} = 18$$

$$E x_2^2 = \frac{148}{5} = 29.6$$

$$E x_1 y = \frac{45.6}{5} = 9.12$$

$$E x_2 y = \frac{45.6}{5} = 9.12$$

$$E x_1 x_2 = \frac{99}{5} = 19.8$$

$$E y = \frac{19.6}{5} = 3.92$$

$$E x_1 = \frac{20}{5} = 4$$

$$E x_2 = \frac{29}{5} = 5.8$$

$$b_1 = \frac{(18)(9.12) - (4)(9.12)}{(18)(29.6) - (19.8)^2} = \frac{164.16 - 36.48}{532.8 - 392.04} = \frac{127.68}{140.76} = 0.907$$

$$b_2 = \frac{(29.6)(9.12) - (19.8)(9.12)}{(18)(29.6) - (19.8)^2} = \frac{269.952 - 180.576}{140.76} = \frac{89.376}{140.76} = 0.635$$

$$a = 3.92 - 0.907(4) - 0.635(5.8) = 3.92 - 3.628 - 3.683 = -3.391$$

$$y = -3.391 + 0.907x_1 + 0.635x_2$$

Fig 2.7 Multiple Linear Regression (MLR)

- **Multiple Linear Model Implementation:**

```

1 import pandas as pd
2 from sklearn import linear_model
3
4 df = pd.read_csv('59_Startups.csv')
5 print(df)
6
7 reg = linear_model.LinearRegression() # Process model
8 reg.fit(df[['R&D Spend', 'Administration', 'Marketing Spend']], df.Profit) # Train model
9
10 ✓ 31s

```

	R&D Spend	Administration	Marketing Spend	State	Profit
0	165349.28	136897.80	471784.18	New York	192261.83
1	162597.70	151377.59	443898.53	California	191792.86
2	153441.51	101145.55	407934.54	Florida	191858.39
3	144372.41	118671.85	383199.62	New York	182981.99
4	142187.34	91391.77	366168.42	Florida	166187.94
5	131876.98	99814.71	362861.36	New York	156991.12
6	134615.46	147198.87	127716.82	California	156122.51
7	138298.13	145538.86	323876.68	Florida	155752.68
8	128542.52	148718.95	311613.28	New York	152211.77
9	121334.88	188679.17	384981.62	California	149759.96
10	181913.88	118594.11	229168.95	Florida	146121.95

```

1 print("Profit :", reg.predict([[120000, 90000, 220000]]))
2
3 X = df.iloc[:, :-1] # independent variable
4 y = df.iloc[:, -1] # dependent variable
5
6 X.head()
7
8 ✓ 0.0s

```

Profit : [150384.73608041]

	R&D Spend	Administration	Marketing Spend	State
0	165349.20	136897.80	471784.10	New York
1	162597.70	151377.59	443898.53	California
2	153441.51	101145.55	407934.54	Florida
3	144372.41	118671.85	383199.62	New York
4	142187.34	91391.77	366168.42	Florida

Fig 2.8 Multiple Linear Model

## Week 2

8 August 2023

- **Polynomial Linear Regression Model Implementation:**

- Polynomial Linear Regression is an extension of the traditional Linear Regression model where the relationship between the independent variable and the dependent variable is modeled as an nth-degree polynomial. This allows the model to capture non-linear relationships in the data.

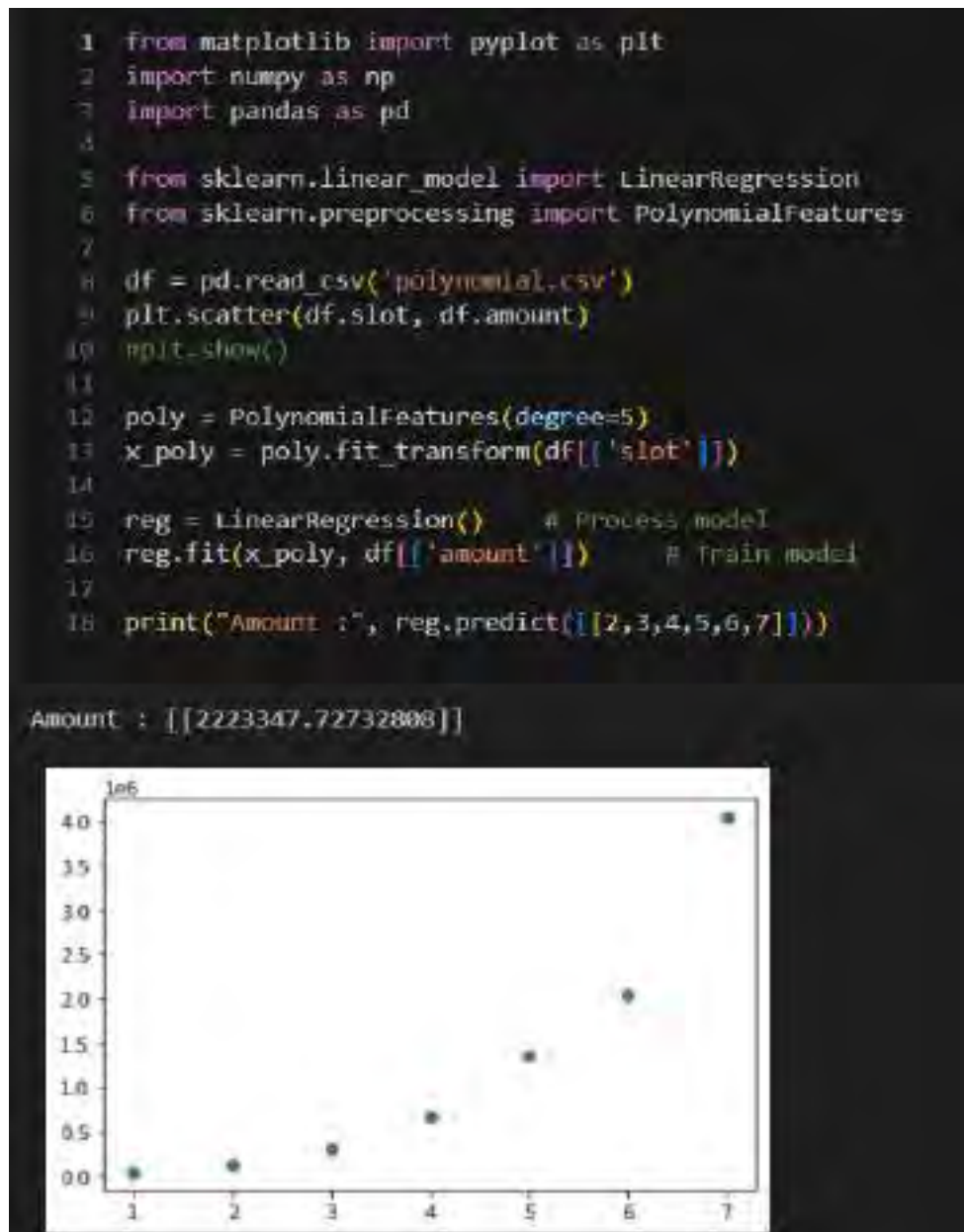


Fig 2.9 Polynomial Linear Regression

- **Image Data:**

- To work with image data using TensorFlow, NumPy, Matplotlib, OpenCV, and Keras' ImageDataGenerator. It demonstrates loading and displaying images from a directory using Python.
- Image analysis and machine learning tasks, you would need to incorporate image preprocessing, data augmentation, model creation, and training steps.

```
1 import tensorflow as tf
2 import numpy as np
3 import matplotlib.pyplot as plt
4 from tensorflow.keras.preprocessing import image
5 from tensorflow.keras.preprocessing.image import ImageDataGenerator
6 import cv2
7 import os

1 img = image.load_img("ImageData/training/laptop/15.png")
2 plt.imshow(img)
3
4 # (Image Height, Image Width, Number of Channels)
5 cv2.imread("ImageData/training/laptop/15.png").shape

(168, 300, 3)
```




Fig 2.10 Image Data

## Week 2

9 August 2023

### Assignment 2

- **Task 1: CNN Model**

- Developing Convolutional Neural Network (CNN) which could predict the images from the testing folder. Neural Network is a part of deep learning which is very much higher concept of Data Science.

**Step 1: Folder Structure:**

- Create the following folder structure:
- Imagedata:
  1. training --> laptop & mobile
  2. validation --> laptop & mobile
  3. testing --> laptop & mobile

**Step 2: Loading and Preprocessing Data**

- Load and preprocess the images:

```
1 from keras.preprocessing.image import ImageDataGenerator
2
3 # Specify the paths
4 train_data_dir = 'Imagedata/training'
5 validation_data_dir = 'Imagedata/validation'
6 test_data_dir = 'Imagedata/testing'
7
8 # Set up data generators with data augmentation for training and validation
9 train_datagen = ImageDataGenerator(
10     rescale=1.0/255,
11     rotation_range=20,
12     width_shift_range=0.2,
13     height_shift_range=0.2,
14     horizontal_flip=True
15 )
16
17 validation_datagen = ImageDataGenerator(rescale=1.0/255)
18 test_datagen = ImageDataGenerator(rescale=1.0/255)
19
20 train_generator = train_datagen.flow_from_directory(
21     train_data_dir,
22     target_size=(150, 150), # Resize images to the desired dimension
23     batch_size=32,
24     class_mode='binary' # Since we have two classes: laptop and mobile
25 )
```

```

1 from keras.models import Sequential
2 from keras.layers import Conv2D, MaxPooling2D, Flatten, Dense
3
4 model = Sequential([
5     Conv2D(32, (3, 3), activation='relu', input_shape=(150, 150, 3)),
6     MaxPooling2D(2, 2),
7     Conv2D(64, (3, 3), activation='relu'),
8     MaxPooling2D(2, 2),
9     Conv2D(128, (3, 3), activation='relu'),
10    MaxPooling2D(2, 2),
11    Flatten(),
12    Dense(128, activation='relu'),
13    Dense(1, activation='sigmoid') # Using sigmoid for binary classification
14 ])
15
16 model.compile(loss='binary_crossentropy', optimizer='adam', metrics=['accuracy'])

```

Fig 2.12 Load & Preprocess Data

### Step 3: Building the CNN Model:

- Creation of a simple CNN model using Keras:

```

26
27 validation_generator = validation_datagen.flow_from_directory(
28     validation_data_dir,
29     target_size=(150, 150),
30     batch_size=32,
31     class_mode='binary'
32 )
33
34 test_generator = test_datagen.flow_from_directory(
35     test_data_dir,
36     target_size=(150, 150),
37     batch_size=32,
38     class_mode='binary'
39 )

```

Found 100 images belonging to 2 classes.  
Found 100 images belonging to 2 classes.  
Found 100 images belonging to 2 classes.

Fig 2.13 CNN Model

#### Step 4: Training the Model:

- Train the model using the prepared generators:

```
1 history = model.fit(
2     train_generator,
3     steps_per_epoch=train_generator.samples // train_generator.batch_size,
4     epochs=10,
5     validation_data=validation_generator,
6     validation_steps=validation_generator.samples // validation_generator.batch_size
7 )

Epoch 1/10
3/3 [#####] - 7s 2s/step - loss: 1.4111 - accuracy: 0.5088 - val_loss: 0.7498 - val_accuracy: 0.518
Epoch 2/10
3/3 [#####] - 4s 1s/step - loss: 0.7183 - accuracy: 0.4983 - val_loss: 0.6814 - val_accuracy: 0.508
Epoch 3/10
3/3 [#####] - 3s 1s/step - loss: 0.6995 - accuracy: 0.5082 - val_loss: 0.7134 - val_accuracy: 0.499
Epoch 4/10
3/3 [#####] - 4s 1s/step - loss: 0.7058 - accuracy: 0.5294 - val_loss: 0.6888 - val_accuracy: 0.528
Epoch 5/10
3/3 [#####] - 4s 1s/step - loss: 0.6892 - accuracy: 0.5588 - val_loss: 0.6907 - val_accuracy: 0.538
Epoch 6/10
3/3 [#####] - 4s 1s/step - loss: 0.6843 - accuracy: 0.5184 - val_loss: 0.6775 - val_accuracy: 0.487
Epoch 7/10
3/3 [#####] - 3s 1s/step - loss: 0.6652 - accuracy: 0.5147 - val_loss: 0.6436 - val_accuracy: 0.486
Epoch 8/10
3/3 [#####] - 4s 1s/step - loss: 0.6773 - accuracy: 0.5184 - val_loss: 0.6117 - val_accuracy: 0.708
Epoch 9/10
3/3 [#####] - 3s 1s/step - loss: 0.6475 - accuracy: 0.6324 - val_loss: 0.6957 - val_accuracy: 0.708
Epoch 10/10
3/3 [#####] - 4s 2s/step - loss: 0.6715 - accuracy: 0.6724 - val_loss: 0.6497 - val_accuracy: 0.676
```

Fig 2.14 Train the model

#### Step 5: Evaluating the Model

- After training, evaluate the model's performance on the testing data:

```
1 test_loss, test_acc = model.evaluate(test_generator, steps=test_generator.samples // test_generator.batch_size)
2 print(f"Test accuracy: {test_acc}")

3/3 [#####] - 1s 263ms/step - loss: 0.6159 - accuracy: 0.6771
Test accuracy: 0.677081318451184
```

Fig 2.15 Evaluate the model

- **Task 2: OPEN CV:**

- Open Camera:

```
1 import cv2
2
3 # Open the default camera (camera index 0)
4 cap = cv2.VideoCapture(0)
5
6 while True:
7     ret, frame = cap.read() # Read a frame from the camera
8     cv2.imshow('Camera', frame) # Display the frame
9     if cv2.waitKey(1) & 0xFF == ord('q'): # Press 'q' to exit
10         break
11
12 cap.release() # Release the camera
13 cv2.destroyAllWindows() # Close all windows
```

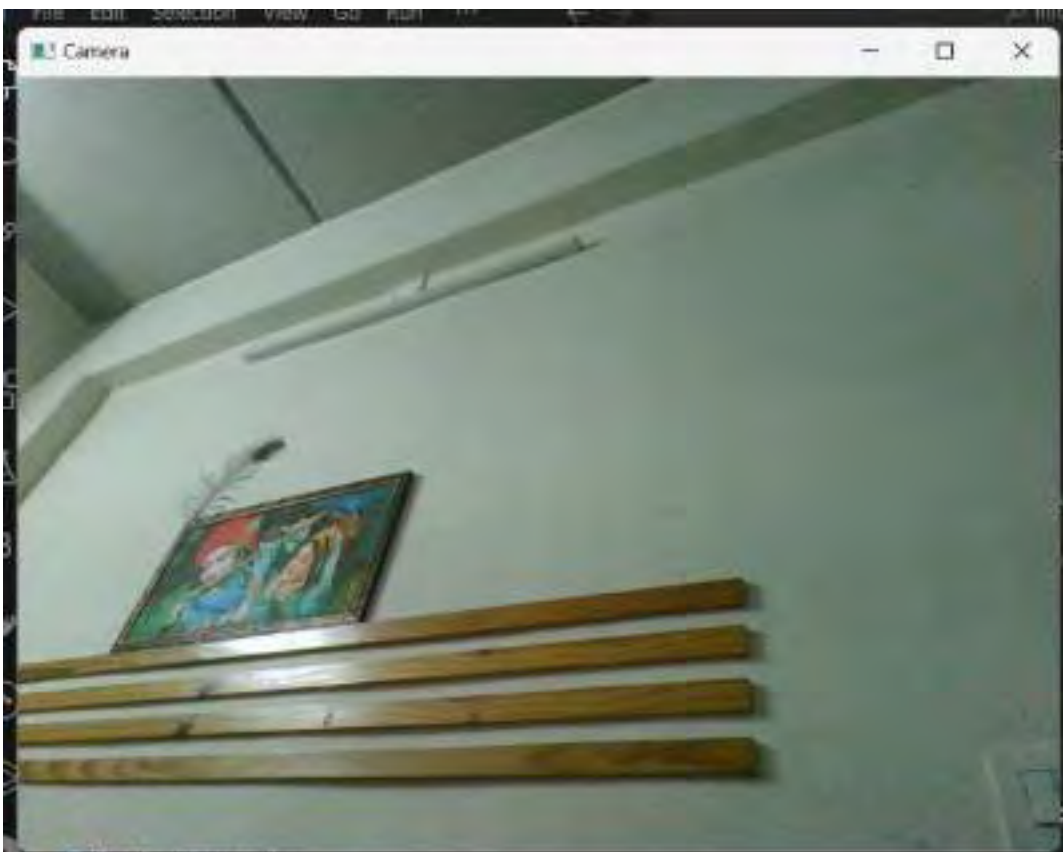


Fig 2.16 Open camera



- Open Camera in gray scale mode (black and white):

```
1 import cv2
2
3 # Open the default camera (camera index 0)
4 cap = cv2.VideoCapture(0)
5
6 while True:
7     ret, frame = cap.read() # Read a frame from the camera
8     gray_frame = cv2.cvtColor(frame, cv2.COLOR_BGR2GRAY) # Convert to gray scale
9     cv2.imshow('Gray Scale Camera', gray_frame) # Display the gray scale frame
10    if cv2.waitKey(1) & 0xFF == ord('q'): # Press 'q' to exit
11        break
12
13 cap.release() # Release the camera
14 cv2.destroyAllWindows() # Close all windows
```

Fig 2.17 Open camera in Gray Mode



- Capture image on click of key “c” while camera is open:

```
1 import cv2
2
3 # Open the default camera (camera index 0)
4 cap = cv2.VideoCapture(0)
5
6 while True:
7     ret, frame = cap.read() # Read a frame from the camera
8     cv2.imshow('Camera', frame) # Display the frame
9
10    key = cv2.waitKey(1)
11    if key & 0xFF == ord('c'): # Press 'c' to capture image
12        cv2.imwrite('captured_image.jpg', frame) # Save the captured image
13        print("Image captured!")
14
15    if key & 0xFF == ord('q'): # Press 'q' to exit
16        break
17
18 cap.release() # Release the camera
19 cv2.destroyAllWindows() # Close all windows
```

Image captured!



Fig 2.18 Captured Image

## **Week 2**

**10 August 2023**

- **Conclusion:**

In these 15 days, I've had an amazing chance to learn about data analytics and machine learning.

I got to work with experts and understand how data helps us make decisions. I did hands-on stuff like preparing data, studying it, and making models.

Working closely with experienced professionals, I've gained hands-on experience in data preprocessing, analysis, and model development. I learned different ways to analyze data and how they're used in real life. I also got to know the basics of machine learning, like teaching computers to predict things and solve hard problems.

Now I have a strong base to keep exploring data and machine learning. I'm excited to use what I've learned for future projects, as these skills are super important in our digital world.

## References

- [1] Kaggle: <https://www.kaggle.com/>
- [2] COVID API: <https://data.covid19india.org/data.json>
- [3] ISRO API: <https://isro.vercel.app/api/spacecrafts>
- [4] Bitcoin API: <https://api.coindesk.com/v1/bpi/currentprice.json>
- [5] Mutual Fund API: <https://api.mfapi.in/mf>
- [6] Inshorts News API: <https://inshortsapi.vercel.app/news?category=all>
- [7] ISRO Foreign API: [https://isro.vercel.app/api/customer\\_satellites](https://isro.vercel.app/api/customer_satellites)
- [8] Postal Pin code API: <https://api.postalpincode.in/pincode/380001>

# **INTERNSHIP AT BRAINVIRE INFOTECH PVT. LTD.**

**A PROJECT REPORT**

*Submitted by*

**Siddhpura Milan Jayeshbhai**

**190390107055**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

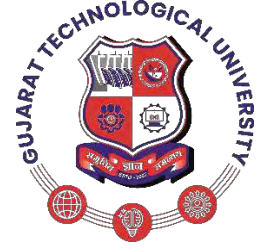


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **INTERNSHIP AT BRAINVIRE** has been carried out by **SIDDHPURA MILAN JAYESHBHAI (190390107055)** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering**, 8<sup>th</sup> Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Akshay Kansara

Prof. Akshay Kansara

Internal Guide

Head of Department



## GUJARAT TECHNOLOGICAL UNIVERSITY

**CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL  
B.E. SEMESTER VIII, ACADEMIC YEAR 2022-2023**

Date of certificate generation : 15 May 2023 (09:56:52)

This is to certify that, *Siddhpura Milan Jayeshbhai* ( Enrolment Number - 190390107055 ) working on project entitled with *Internship at Brainvire* from *Computer Engineering* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed
---------------------------	-----------

Name of Student : Siddhpura Milan Jayeshbhai

Name of Guide : Mr. Akshay Rameshchandra Kansara

Signature of Student : \_\_\_\_\_

\*Signature of Guide : \_\_\_\_\_

**Disclaimer :**

This is a computer generated copy and does not indicate that your data has been evaluated. This is the receipt that GTU has received a copy of the data that you have uploaded and submitted as your project work.

\*Guide has to sign the certificate, Only if all above activities has been Completed.



5<sup>th</sup> May, 2023

**TO WHOMSOEVER IT MAY CONCERN**

**Internship Certificate**

This is to certify that **Mr. Milan Siddhpura** has successfully completed internship from **Brainvire Infotech Pvt. Ltd.**, Ahmedabad office from **23-Jan-23 to 30-Apr-23** with demonstrating a high level of commitment, dedication, and enthusiasm throughout the duration of the internship.

During your tenure with us, he has actively participated in various projects and assignments. Also he has shown great potential and a willingness to learn and grow, and we are confident that he will continue to excel in his future endeavors.

We wish you all the best for your future endeavors and hope that the skills and experiences gained during the internship will help to achieve the career goals.

Yours faithfully,

For Brainvire Infotech Private Limited.

Hiren Raval  
(Authorized Signatory)

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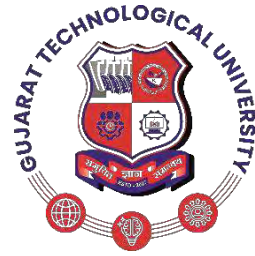
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## **DECLARATION**

I hereby declare that the Internship report submitted along with the Internship entitled **Employee management System** submitted in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering to Gujarat Technological University, Ahmedabad. is a bonafide record of original project work carried out by me at **Brainvire Infotech Pvt. Ltd.** under the supervision of External guide **Mr. Nitin Padharia** and Internal guide **Mr. Akshay Kansara** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Milan Siddhpura**

## **ACKNOWLEDGMENT**

On the successful completion of this work, I would like thanks to **Mr. Chintan Shah** (CEO, Brainvire Infotech), **Mr. Nitin Padharia** (Director), **Ms. Nidhi Suthar** (HR Department) for supporting us during the internship period. They guided us all the time and motivated us.

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I wish to express my sincere gratitude to my mentor, **Mr. Akshay Kansara**, for her enthusiasm, patience, insightful comments, helpful information, practical advice and unceasing ideas that have helped me tremendously at all times during the course of this project.

I also take this opportunity to thank all my faculties who have directly or indirectly helped in development of my project by for their kind cooperation and able guidance.

## ABSTRACT

*Employees are the backbone of any company therefore their management plays a major role in deciding the success of an organization. Employees Management Software makes it easy for the employer to keep track of all records. This software allows the administrator to edit employees, add new employees and various other features. Each employee in the database is associated with a position that can be added and edited when need arises.*

*A flexible and easy to use Employee Management software solution for small and medium sized companies provides modules for personnel information management thereby organization and companies are able to manage the crucial organization asset - people. The combination of these modules into one application assures the perfect platform for re-engineering and aligning Human Resource processes along with the organizational goals. This system brings about an easy way of maintaining the details of employees working in any organization.*

*It is simple to understand and can be used by anyone who is not even familiar with a simple employee's system. It is user friendly and just asks the user to follow step by step operations by giving easy to follow options. It is fast and can perform many operations for a company. The goal of this internship is to learn and develop our self as a corporate person. And also learn what kind of work done in a company and how to complete a project with full satisfaction of the client.*

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## **ABBREVIATIONS**

HTML	Hypertext Markup Language
HOD	Head of the Department
UML	Unified Modeling Language
CSS	Cascading Style Sheet
DBMS	Database management system
My SQL	My Structured Query Language
STS	Spring Tool Studio

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## **Chapter 1. OVERVIEW OF THE COMPANY**

### **1.1 COMPANY HISTORY:**

Founded in 2000, Brainvire Infotech Pvt. Ltd. was not a typical IT firm but rather a haven of passionate and enthusiastic individuals with innovative ideas and skill sets. Rather than incremental advancements, the technology requires revolutionary changes. Through this transformation, we want to evolve the needs of people and commerce.

Within a few years of establishment, the CEO's unstoppable entrepreneurial spirit led to undiscovered markets and regions such as outsourcing services in the United States. We are thorough professionals when it comes to crafting solutions but we also understand the importance of business and community at large.

As a small but ambitious IT company with an aim to provide information technology, digital consulting and services to partners and clients to improve the consulting, development, integration and management of business applications.

Headquartered in Dallas and offices in the USA at New York, California, Utah, UAE, Canada, Singapore and India, Brainvire has a 1500+ strong workforce of IT innovators. Our core expertise lies in Industry 4.0 technologies like Artificial Intelligence, IoT, Machine Learning, Cloud Computing, Chatbots and Blockchain.

### **1.2 DIFFERENT PRODUCT:**

Brainvire is product as well as Service based company.

- EZIytix – Managed Analytics
- Control – Retail Omni- Channel ERP
- Diamond ERP – Diamond ERP
- Inknowledge - University Management System
- Eunagi – Digital Asset Profanity

- Auro – Auro – CRM
- PowerBI Managed Analytics – Data driven report
- ALM – ALM with TFS(Administrative and management solution for mobile app)
- Cash-In-Transit – for easy cash disposal or replenishment and cash pickup and delivery.
- HRMS – HRM solution
- Multi-Vendor Marketplace – provide customers with countless product choice
- Facebook Boats – advanced tool of facebook messenger
- BvPos system – Brainvire point of sales
- Walmart Intergration – Brainvire’s Walmart integration services help ecommerce business
- Magento Amazon Integration – Boot your business revenue
- Ebay – Magento Ebay Integration ( budget friendly solution to sell your product)

### 1.3 CAPACITY OF COMPANY

<p><b>Since</b></p> <p>2000 (20 Years in Digital Transformation)</p>	<p><b>Team Size</b></p> <p>1500+ Resistant Professionals</p>	<p><b>Infrastructure</b></p> <p>More than 2,50,000 Sq. Ft. space</p>
<p><b>Presence In</b></p> <p>USA, Canada, Middle East, Singapore, India (Mumbai, Ahmedabad)</p>	<p><b>Resource Strength</b></p> <p>60% Masters in Computer Science, 30% Bachelors in Computer Science, 10% Masters in Business Administration</p>	<p><b>Quality Management</b></p> <p>ITIL, ITILv2, CMMSP</p>
<p><b>Average Age</b></p> <p>Between 25-30, Pool of young resource</p>	<p><b>Certified Scrum Masters</b></p> <p>15+</p>	<p><b>Business Dimensions</b></p> <p>20% Products, 40% Resources, 30% Fixed Cost</p>
<p><b>Clientele</b></p> <p>200+ valuable clients from 40+ countries</p>	<p><b>Proud Of</b></p> <p>Being a Digital Enabler of Fortune 500 Companies and Top Brands of Niche Scale</p>	<p><b>Websites Designed And Developed</b></p> <p>Digital 150+ Businesses</p>
<p><b>Mobile Apps Published</b></p> <p>200+ Conceptual App Development</p>	<p><b>Client Retention Ratio</b></p> <p>90%</p>	<p><b>Proven Track Record</b></p> <p>90% Client Retention with recurring business opportunities</p>
<p><b>Extensive In-House Programs</b></p> <p>Knowledge Enhancement Trainings and exposure to recent Technological Trends</p>	<p><b>Employee Attrition %</b></p> <p>5%</p>	<p><b>% Of Women Employees</b></p> <p>40%</p>

## **Chapter 2. INTRODUCTION TO PROJECT**

### **2.1 PROBLEM STATEMENT**

The current employee management system lacks crucial features necessary for efficient project management, resulting in missed deadlines, delays and decreased productivity. Project managers face challenges in keeping track of ongoing and upcoming projects, adding and approving new members to teams and forming teams based on project requirements. These issues affect the overall quality of project deliverables and employee satisfaction.

To address these problems, a new employee management system is needed with a user-friendly project list, an easy-to-use user add and approval system and a flexible project team formation tool. This new system will streamline project management, enhance productivity and improve project outcomes. With an efficient employee management system, project managers can focus on completing their projects efficiently and with greater accuracy, resulting in satisfied employees and clients.

### **2.2 PROJECT PURPOSE**

Employees are the backbone of any company therefore their management plays a major role in deciding the success of an organization. Employee Management Software makes it easy for the employer to keep track of all records. This software allows the administrator to edit employees, add new employees as well as evaluate an employee's performance. Employees can be managed efficiently without having to re type back their information in the database.

A flexible and easy to use Employee Management software solution for small and medium sized companies provides modules for personnel information management there by organization and companies are able to manage the crucial organization asset - people.

The combination of these modules into one application assures the perfect platform for re-engineering and aligning management processes along with the organizational goals. The main goal of this system is to bring about an easy way of maintaining the details of employees working in any organization. It is simple to understand and can be used by

anyone who is not even familiar with simple employee's system. It is user friendly and just asks the user to follow step by step operations by giving easy to follow options. It is fast and can perform many operations for a company.

## **2.3 PROJECT SCOPE**

The scope of this project will be limited to the following:

- **Employee profiles:**  
Employees will have access to their personal profiles and will be able to edit their details.
- **Recruitment Process:**  
The admin will add an employee and a default password and employee id will be generated. The admin will then have the ability to add an employee's information to the database.
- **Employee report:**  
Employee report contains information of the all the employee. System admin can edit the information of employee and can delete the information of employee.
- **Project report:**  
In the project report admin can add or remove the developer in the project and can see how many developer are making that report , also having the all project details like description, developers, technologies and all.

## **2.4 PROJECT OBJECTIVE**

In this world of growing technologies everything has been computerized. With large number of works opportunities, the human workforce has increased. Thus, there is a need of a system which can handle the data of such a large number of Employees. This project simplifies the task of maintaining records because of its user-friendly nature. The objective of this project is to provide a comprehensive approach towards the management of employee information. This will be done by designing and implementing an employee management system that will bring up a major paradigm shift in the way that employee information is handled.

The objectives of this system include:

- Design of a web-based employee management system to fulfill requirements such as project management, add new employees, approve user, project team and project report.
- Well-designed database to store employee information.  
A user friendly front-end for the user to interact with the system.

## **2.5 TECHNOLOGY USED**

### **2.5.1 HTML & CSS**

HTML stands for Hypertext Markup Language and it is the most widely used language to write Web Pages. As its name suggests, HTML is a markup language.

Hypertext refers to the way in which Web pages (HTML documents) are linked together. When you click a link in a Web page, you are using hypertext.

Markup Language describes how HTML works. With a markup language, you simply “mark up” a text document with tags that tell a Web browser how to structure it to display.

CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language.

It provides an additional feature to HTML. It is generally used with HTML to change the style of web pages and user interfaces. It can also be used with any kind of XML documents including plain XML, SVG.

CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications.

### **2.5.2 JAVASCRIPT**

JavaScript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages whose implementations allow client-side script to

interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities.

It is well-known for the development of web pages many non-browser environments also use it. JavaScript can be used for Client-Side developments as well as Server-Side developments.

### **2.5.2 REACTJS**

React Js is a front-end JavaScript framework developed by Facebook. To build composable user interfaces predictably and efficiently using declarative code we use React Js. It's an open-source and component-based framework responsible for creating the application view layer. React Js follows the Model View Controller (MVC) architecture and the view layer is accountable for handling mobile and web apps. React is famous for building single-page applications and mobile apps.

Building Components of React - Components, State, Props and Keys. Components are the heart and soul of React Js Components (like JavaScript functions) let you split the UI into independent, reusable pieces and think about each piece in isolation.

Components are building blocks of any React application. Every component has its structures, APIs and methods.

### **2.5.3 NODEJS**

Node Js (Node) is an open source, cross-platform runtime environment for executing JavaScript code. Node Js is used extensively for server-side programming, making it possible for developers to use JavaScript for client-side and server-side code without needing to learn an additional language. Node Js is sometimes referred to as a programming language or software development framework but neither is true it strictly a JavaScript runtime.

Node incorporates the V8 JavaScript engine, the same one used in Google Chrome and other browsers. It is written in C++ and can run on macOS, Linux, Windows and other systems. The engine parses and executes JavaScript code. It can operate independently of a browser environment either embedded in a C++ application or implemented as a standalone program. The V8 engine compiles JavaScript internally using just-in-time (JIT) processes to speed up execution

### **2.5.4 EXPRESSJS**

Express JS also provides middleware functionality which allows developers to define a series of functions that are executed sequentially for every incoming request. Middleware functions can be used to perform tasks such as authentication, request validation, logging and error handling. The middleware system is modular, allowing developers to reuse and combine middleware functions as needed.

In addition, Express JS provides a set of built-in templates for rendering HTML pages, making it easy to generate dynamic content for web applications. It also supports a wide range of third-party templating engines, such as EJS, Pug and Handlebars.

Another key feature of Express JS is its support for middleware and plugins. The framework has a large ecosystem of third-party middleware and plugins that developers can use to extend the functionality of their applications. This includes middleware for parsing request bodies, handling cookies and working with databases.

### **2.5.5 MONGODB**

MongoDB the most popular NoSQL database is an open-source document-oriented database. The term 'NoSQL' means 'non-relational'. It means that MongoDB isn't based on the table-like relational database structure but provides an altogether different mechanism for storage and retrieval of data. This format of storage is called BSON (similar to JSON format).

SQL databases store data in tabular format. This data is stored in a predefined data model which is not very much flexible for today's real-world highly growing applications. Modern applications are more networked, social and interactive than ever. Applications are storing more and more data and are accessing it at higher rates.

Relational Database Management System (RDBMS) is not the correct choice when it comes to handling big data by the virtue of their design since they are not horizontally scalable. If the database runs on a single server, then it will reach a scaling limit. NoSQL databases are more scalable and provide superior performance. MongoDB is such a NoSQL database that scales by adding more and more servers and increases productivity with its flexible document model.



## 2.6 ADVANTAGES

This system is expected to be user friendly and will offer easy access to data as well as services such as online employee details adding, deleting and editing, also features like leave management, salary report, etc.

Other advantages are listed as follows: -

- Provides computerized system for maintaining records
- It is more efficient & reliable
- Less time consuming and easy to use
- Avoid human errors and efforts for maintaining daily data
- Avoid data manipulation
- Avoid data inconsistency and redundancy
- Less paper use and removal of redundancy.
- Less prone to errors.
- The whole system is interactive.

## 2.7 INTERNSHIP PLANNING

<b>Week 1</b>	Understood the basic of linux and used tool like ubuntu,centos.
<b>Week 2</b>	Practice on Linux and Perform some commands to do operation on files by commandprompt
<b>Week 3</b>	Starting the HTML and learn tags and also practice on it and at last created web page by using tags.
<b>Week 4</b>	In this week we practice on CSS and giving some test in that we have sample page and we created same.
<b>Week 5</b>	Understood the JavaScript and some concept like Operators & Expressions,loops.
<b>Week 6</b>	Learn Exception handling, Try( ),Catch( ), async/await, inheritance.
<b>Week 7</b>	Understood the SQL, and use postgresql to perform SQL Queries.

<b>Week 8</b>	In this week we perform sql queries and create table, perform some operators.
<b>Week 9</b>	Understood the python and start from the basics so in this week the condition , loops concept we used.
<b>Week 10</b>	Continue with the python in that we used filter and map concept with the class and async/await function.
<b>Week 11</b>	Starting the oops concept with programming with the abstract method
<b>Week 12</b>	Understood the Bootstrap and learn some features like grid, button and all.

## **Chapter 3. RESEARCH AND ANALYSIS**

### **3.1 SIMILAR SYSTEM**

#### **3.1.1 Reviews on topics related to the project**

A HRMS refers to the systems and processes at the intersection between human resource management (HRM) and information technology. It merges HRM as a discipline and in particular it's basic HR activities and processes with the information technology field whereas the programming of data processing systems evolved into standardized routines and packages of enterprise resource planning (ERP) software.

An organization or company with a very large number of employees manages a greater volume of data. This activity can be daunting without a more sophisticated tool to store and retrieve data. The various levels of sophistication can be examined by looking at the evolutionary aspects of the technology. These aspects can be characterized into four stages of development paper-based systems, early personal computer (pc) technology, electronic databases and web-based technology. The benefits of automation are becoming widely known to hr and other areas of the business. The focus has shifted to automating as many transactions as possible to achieve effectiveness and efficiencies. Some of the similar systems are listed below: -

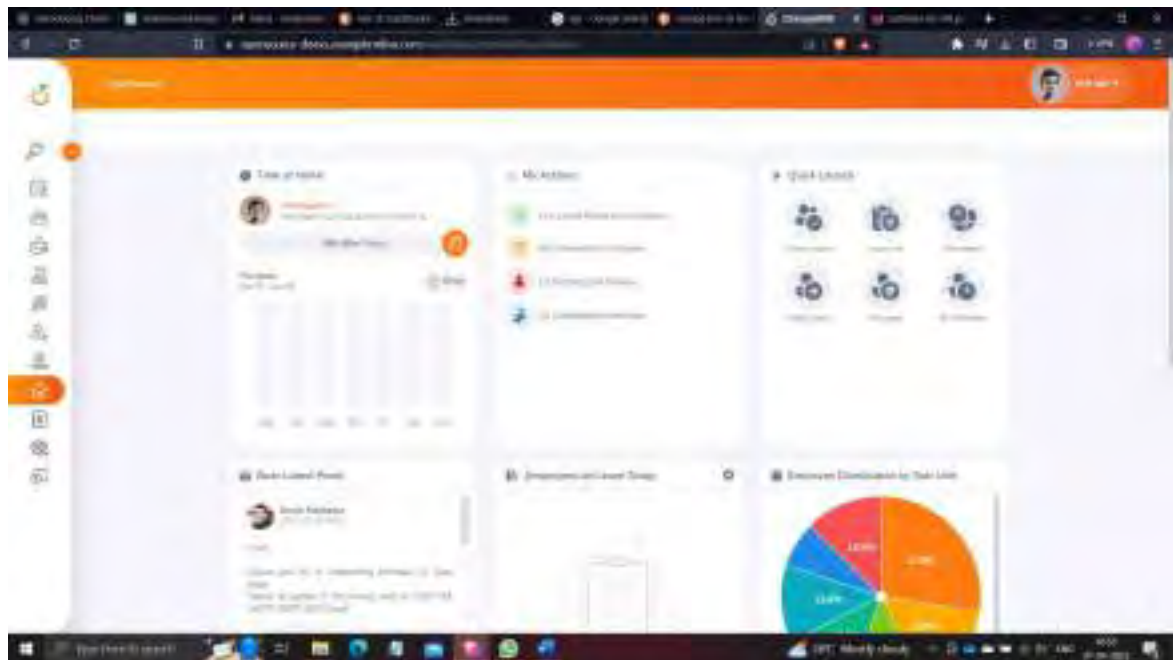
- OrangeHRM
- SimpleHRM
- Waypoint HR

#### **OrangeHRM**

OrangeHRM is a powerhouse human resources tool that any small or midsize business can benefit from using. With OrangeHRM, you have options You can download and install the system on your own hardware or you can purchase a hosted solution. To get prices for the hosted solution, you have to contact them from their Request a Quote page.

Orange HRM's features include fully modular, addons (e.g., benefits, employee self-service, training, budget, job and salary history, etc.) for purchase, all standard HR functions (employees, leave, benefits, performance, etc.) and more.

The installation is fairly straight-forward. With a self-extracting Windows installer or full-source installations for Windows, Mac, and Linux, you can get OrangeHRM up and running on nearly every platform. If you don't have the hardware or the skills to set up Orange onsite, you can request a quote for a hosted instance of OrangeHRM. You can also purchase support plans and customizations.



**Figure 3.1 Snapshot of OrnageHRM**

### **SimpleHRM**

SimpleHRM offers an open-source version of its professional platform. This version offers time management and it can be installed on either a WAMP (Windows Apache MySQL PHP) or LAMP (Linux Apache MySQL PHP).

Once installed SimpleHRM offers every feature you need to solidify your HRM department employee information, leave management, attendance management, travel management, expense management, benefit management and task reporting.

SimpleHRM allows you to assign a CV to an employee and define eligibility for re-hire. Each major module offers plenty of granular control and the user interface is well laid out.

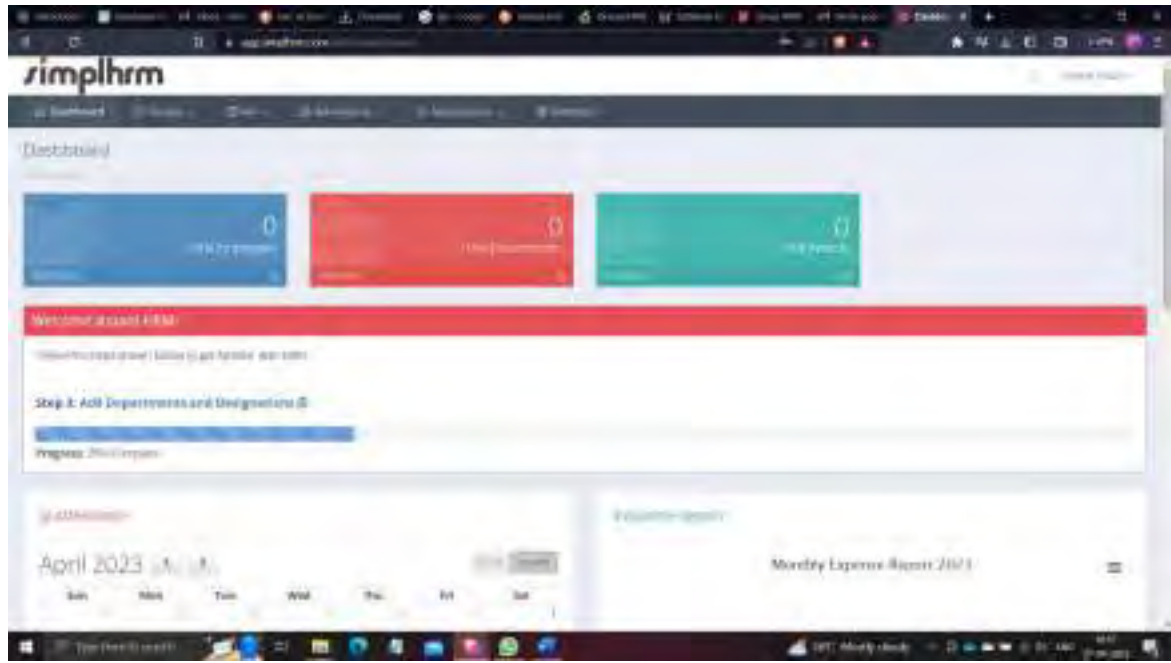


Figure 3.2 Snapshot of SimpleHRM

## Zoho CRM

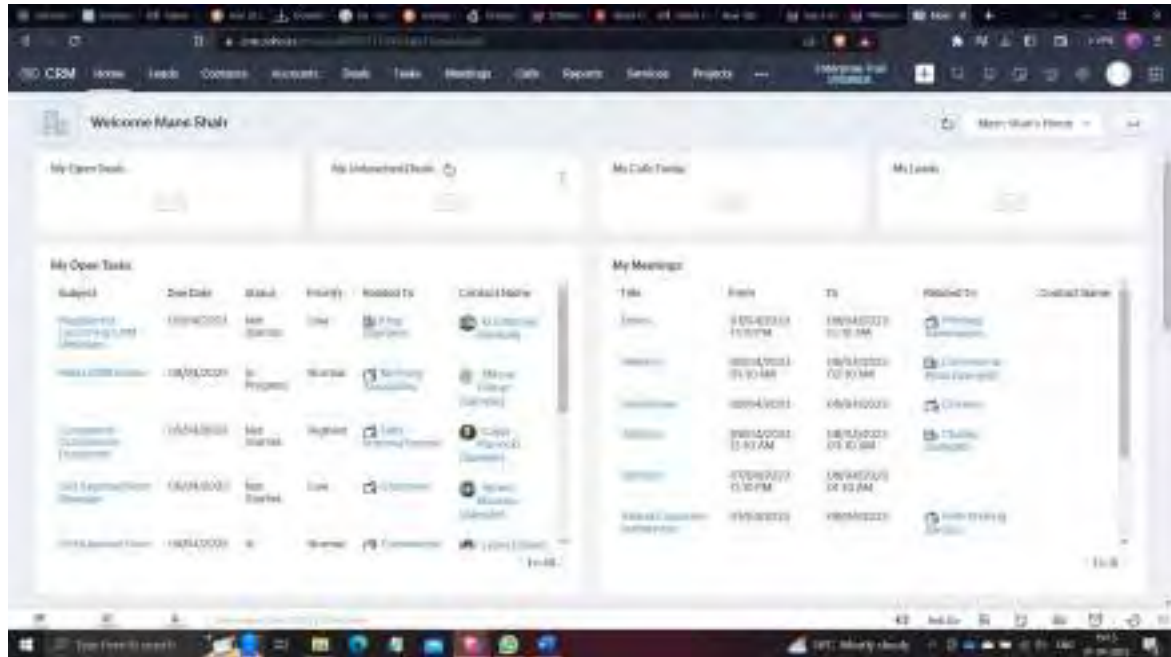
Zoho CRM is a cloud-based customer relationship management (CRM) software that helps businesses to manage their customer data, automate sales and marketing processes and improve customer engagement. Here are some details about Zoho CRM:

Features:

- Contact and lead management
- Marketing automation
- Customer support and service
- Analytics and reporting
- Mobile app for iOS and Android

**Benefits:**

Helps businesses to streamline their sales and marketing processes, provides a complete view of customer interactions and engagement. Offers real-time insights and analytics to make informed business decisions. Enables teams to collaborate and work together efficiently. Integrates with other Zoho apps and third-party tools for a seamless experience



**Figure 3.3 Snapshot of ZohoCRM**

## 3.2 SYSTEM ANALYSIS

### 3.2.1 Use case analysis

A use case defines a goal-oriented set of interactions between external users and the system under consideration or development. Thus, a Use Case Scenario is a description that illustrates step by step how a user is intending to use a system essentially capturing the system behavior from the user's point of view. In order to create relevant use cases for the system the following actors for the system have been identified:

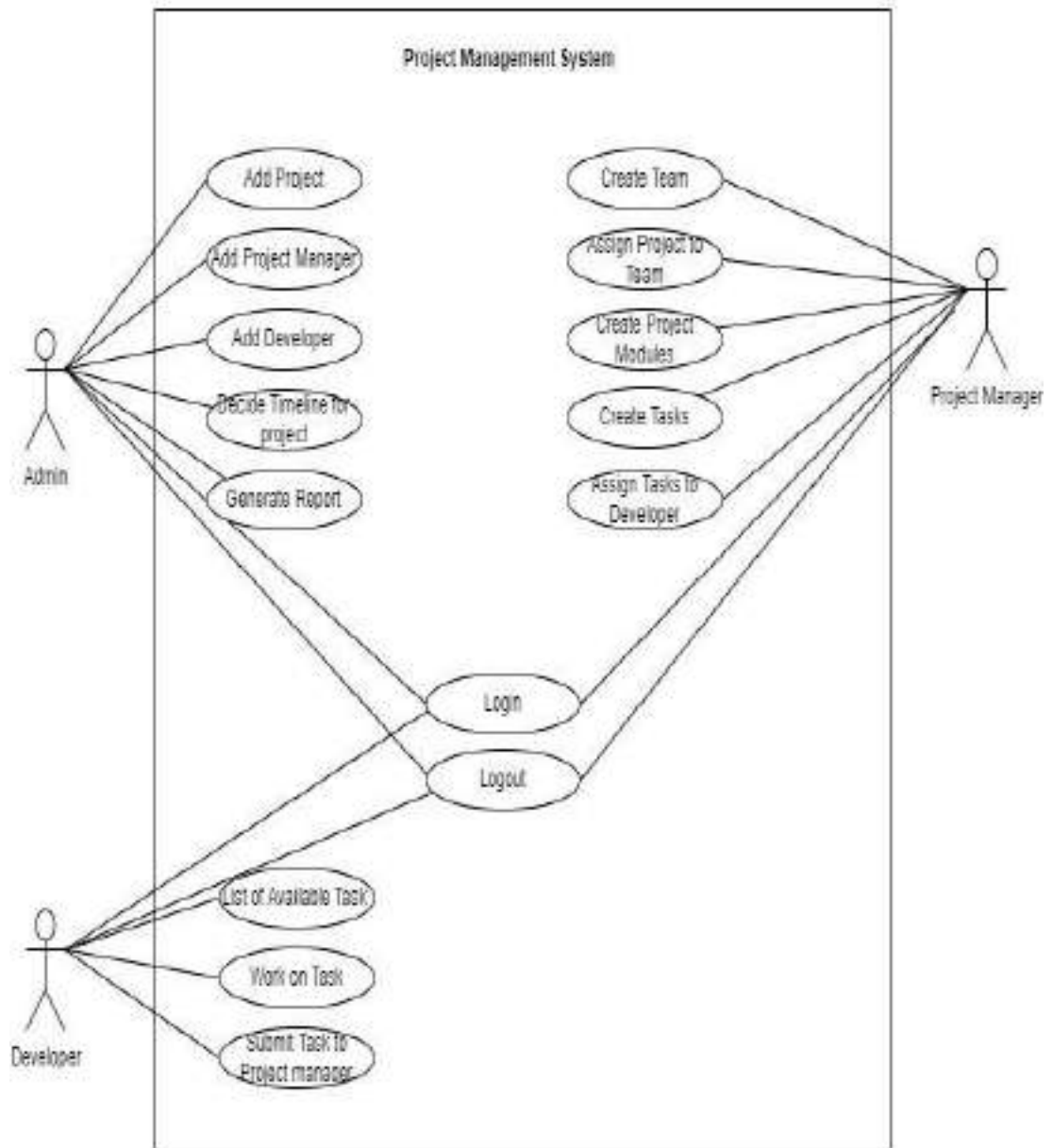
- Admin
- Manager

- Employee

## Use Cases and their Description

<b>Actor</b>	<b>Features</b>	<b>Description</b>
Employee	ATE Details	Employee will be able to see which directory they have access.
Manager	Directory	Can see who created and who have access.
Manager	Employee	Manager can check which employee are under them.
Admin	Check Employee	Can check which employee is active/inactive.
Admin	Role to employee	Can give to role to employee like they will be employee or manager.
Admin	Employee work under	Decide which employee will work under which manager.

**Table 3.1 Actors, Use Case and their Description**

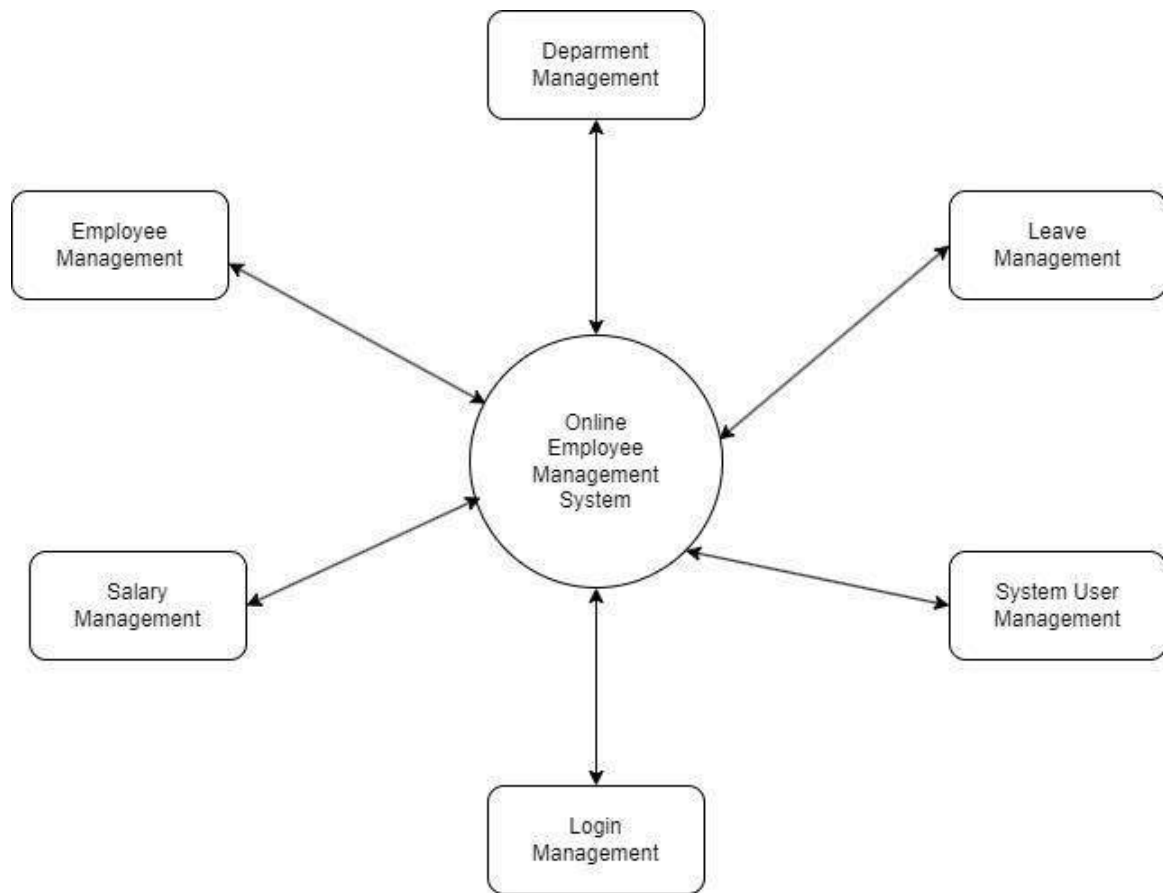


**Figure 3.4 General Use Case**



### 3.3 DFD DIAGRAM

#### 3.3.1 ZERO LEVEL DATA FLOW DIAGRAM

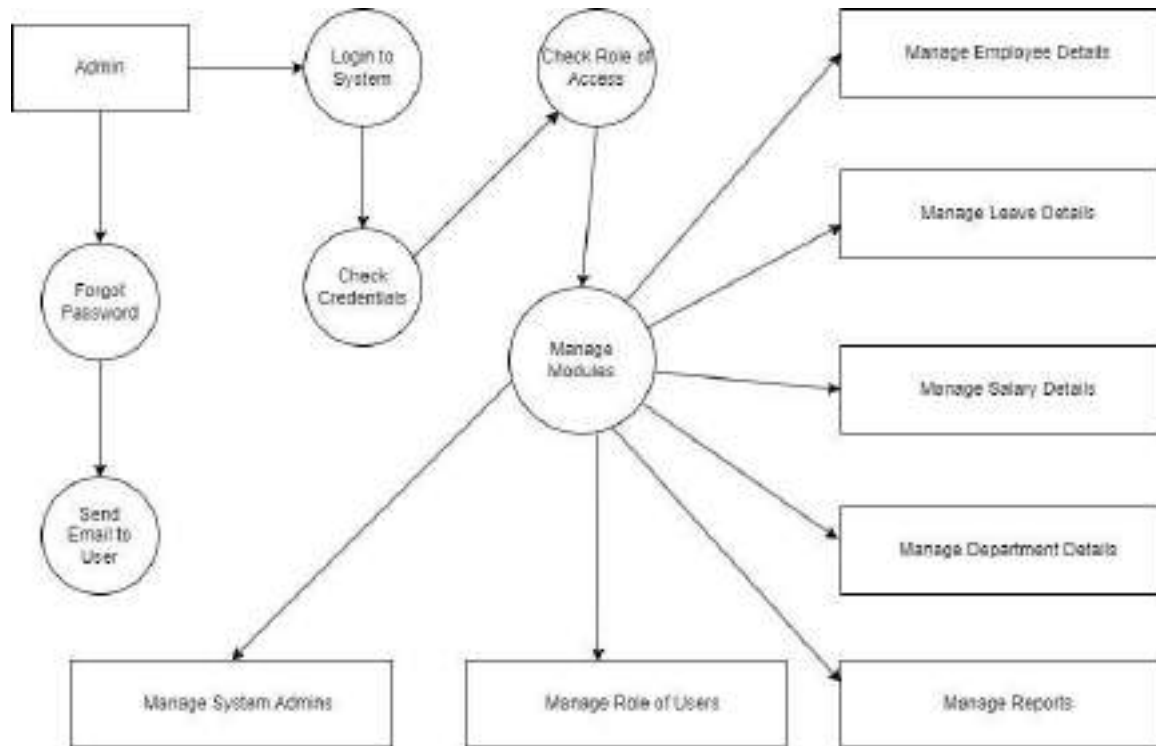


**Figure 3.5 Zero Level Data Flow Diagram**

This is the Zero Level DFD of Online Employee Management System where we have elaborated the high-level process of Employee Management. It's a basic overview of the whole Online Employee Management System or process being analyzed or modeled.

It's designed to be an at-a-glance view of Department, Leave and Login to the system as a single level process, with its relationship to external entities of Employee, Department and Designation.

### 3.3.2 FIRST LEVEL DATA FLOW DIAGRAM



**Figure 3.6 First Level Data Flow Diagram**

DFD Level 1 then goes one step deeper into parts of Level 0 of Employee Management. It may require more functionalities of Employee Management to reach the necessary level of detail about the Employee Management functioning. Zero Level DFD of Online Employee Management System shows how the system is divided into sub-systems(processes). The First Level DFD contains more details of Attendance, Salary, Leave, Department, Employee and further details.

### 3.4 Data Dictionary

<b>Project Name:</b> Employee Management System		<b>Table Name:</b> Role		
<b>Primary key:</b> roleId		<b>Foreign key:</b>		
<b>Table Description:</b> This table is for description about role				
<b>Table Structure</b>				
Field Name	Data Type	Size	Constrains	Description
roleId	ObjectId	20	Primary key	This field contains role identity.
roleName	String	20	Not null	This field contains role Name.

[Table 3.6.1 role table]

<b>Project Name:</b> Employee Management System		<b>Table Name:</b> User		
<b>Primary key:</b> userId		<b>Foreign key:</b> roleId		
<b>Table Description:</b> This table is for description about user				
<b>Table Structure</b>				
Field Name	Data Type	Size	Constrains	Description
userId	ObjectId	20	Primary key	This field contains user identity.
firstName	String	30	Not null	This field contains user Name.
email	String	30	Not null	This field contains user email.
password	String	30	Not null	This field contains user password.
roleId	ObjectId	20	Foreign key	This field contains identity of role.

[Table 3.6.2 user table]

<b>Project Name :</b> Employee Management System		<b>Table Name :</b> Project		
<b>Primary key:</b> projectId		<b>Foreign key :</b>		
<b>Table Description :</b> This table is for description about project				
<b>Table Structure</b>				
Field Name	Data Type	Size	Constrains	Description
projectId	ObjectId	20	Primary key	This field contains project identity.
title	String	30	Not null	This field contains project title.
description	String	500		This field contains project description.
technology	String	100	Not null	This field contains project technology.
estimatedHours	ObjectId	20	Not null	This field contains project estimatedHours.
startDate	Date		Not null	This field contains project startDate.
completionDate	Date		Not null	This field contains project completionDate.

[Table 3.6.3 project table]

<b>Project Name :</b> Employee Management System		<b>Table Name :</b> Project_team		
<b>Primary key:</b> project_team_id		<b>Foreign key :</b> projectId, userId		
<b>Table Description :</b> This table is for description about project_team				
<b>Table Structure</b>				
Field Name	Data Type	Size	Constrains	Description
Project_team_id	ObjectId	20	Primary key	This field contains project_team identity.
projectId	ObjectId	20	Foreign key	This field contains identity of project.

userId	ObjectId	20	Foreign key	This field contains identity of user.
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[Table3.6.4 project\_team table]

<b>Project Name :</b> Employee Management System		<b>Table Name :</b> Status		
<b>Primary key:</b> statusId		<b>Foreign key :</b>		
<b>Table Description :</b> This table is for description about status				
<b>Table Structure</b>				
Field Name	Data Type	Size	Constrains	Description
statusId	ObjectId	20	Primary key	This field contains status identity.
statusName	String	20	Not null	This field contains status Name.

[Table 3.6.5 status table]

<b>Project Name :</b> Employee Management System		<b>Table Name :</b> Priority		
<b>Primary key:</b> priorityId		<b>Foreign key :</b>		
<b>Table Description :</b> This table is for description about status				
<b>Table Structure</b>				
Field Name	Data Type	Size	Constrains	Description
priorityId	ObjectId	20	Primary key	This field contains priority identity.
priorityName	String	20	Not null	This field contains priority Name.

[Table 3.6.6 priority table]

<b>Project Name:</b> Employee Management System		<b>Table Name:</b> Project_module		
<b>Primary key:</b> project_module_id		<b>Foreign key:</b> projectId, statusId		
<b>Table Description:</b> This table is for description about project_module				
<b>Table Structure</b>				
Field Name	Data Type	Size	Constrains	Description
project_module_id	ObjectId	20	Primary key	This field contains project_module identity.
projectId	ObjectId	20	Foreign key	This field contains identity of project.
moduleName	String	30	Not null	This field contains project_module moduleName.
Description	String	500		This field contains project_module description.
estimatedHours	ObjectId	20	Not null	This field contains project_module estimatedHours.
statusId	ObjectId		Foreign key	This field contains identity of status.
startDate	Date		Not null	This field contains project_module startDate.

[Table3.6.7 project\_module table]

<b>Project Name:</b> Employee Management System		<b>Table Name:</b> task		
<b>Primary key:</b> taskId		<b>Foreign key:</b> project_module_id, projectId, statusId		
<b>Table Description:</b> This table is for description about task				
<b>Table Structure</b>				
Field Name	Data Type	Size	Constrains	Description
taskId	ObjectId	20	Primary key	This field contains task identity.
Project_module_id	ObjectId	20	Foreign key	This field contains identity of project_module.
projectId	String	20	Foreign key	This field contains identity of project.
title	String	30	Not null	This field contains task title.
priority	ObjectId	30	Foreign Key	This field contains identity of task priority.
description	String	500		This field contains task description.
statusId	ObjectId	20	Foreign key	This field contains identity of statusId.
totalMinutes	ObjectId	9	Not null	This field contains task totalMinutes.

[Table 3.6.8 task table]

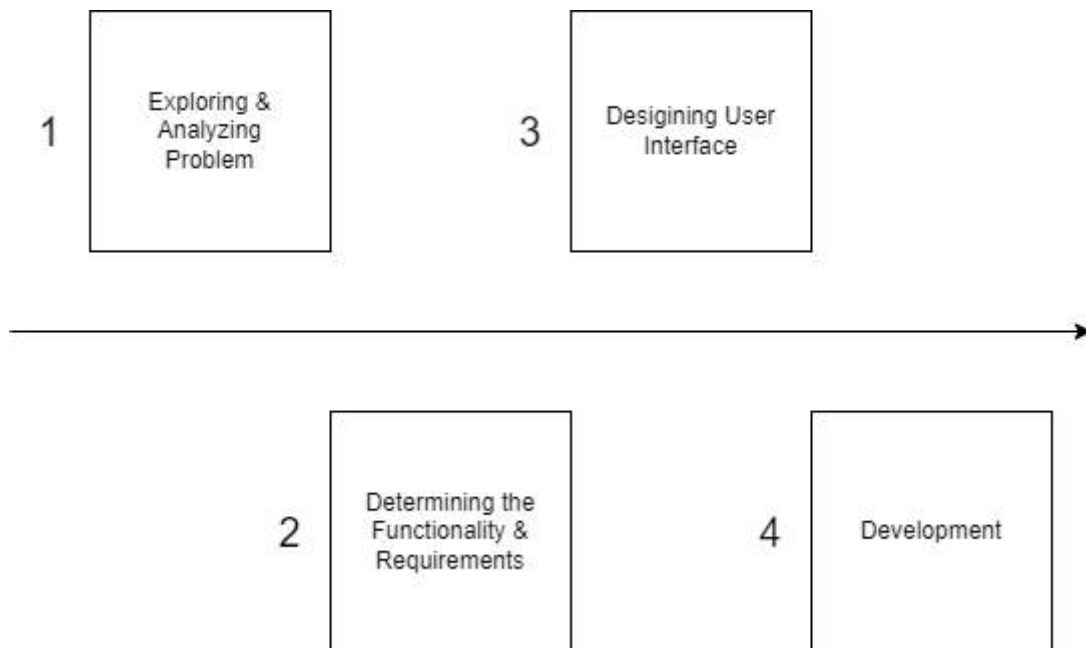
<b>Project Name :</b> Employee Management System		<b>Table Name :</b> User_task		
<b>Primary key:</b> user_task_id		<b>Foreign key :</b> userId, taskId		
<b>Table Description :</b> This table is for description about user_task				
<b>Table Structure</b>				
<b>Field Name</b>	<b>Data Type</b>	<b>Size</b>	<b>Constrains</b>	<b>Description</b>
user_task_id	ObjectId	20	Primary key	This field contains user_task_id identity.
userId	ObjectId	20	Foreign key	This field contains identity of user.
taskId	ObjectId	20	Foreign key	This field contains identity of task.

[Table 3.6.9 user\_task table]



## Chapter 4. PROJECT DESIGN PHASE

### 4.1 PROJECT FLOW



**Figure 4.1 Project Flow**

This is the process we've throughout the entire project. Firstly, exploring and analyzing the problem how to overcome the ordinary management system. To get rid of ordinary management system.

Second step is to determine the functionality and requirements of the project So, we've determined the functions for this project like employee personal information, department management, leave management, salary report etc.

Third step is to designing the UI. So, we've designed the entire interface using html, CSS, bootstrap and JavaScript..

Fourth step is the development of the project. We have developed project using React Js, Node Js, MongoDB.

## **4.2 SYSTEM DESIGN**

### **4.2.1 Input Design**

Input is any data or instructions entered into the memory of a computer. Two types of input are data and instructions. Data is a collection of unorganized items that can include words, numbers, pictures, sounds and video. A computer processes data into information, which is organized, meaningful and useful. Instructions can be in the form of programs, commands, or user responses. A program is a series of instructions that tells a computer how to perform the tasks necessary to process data into information. A command is an instruction given to a computer program. A user response is an instruction you issue to the computer by responding to a question posed by a computer program. Any hardware component that allows entering data, programs, commands and user responses into a computer is an input device.

### **4.2.2 Output Design**

Output design involves specifying how production of on-screen reports and paper-based reports will occur. Output may occur to database or file for storing information entered or also for use by other systems. Output is data that has been processed into a useful form called information. Four types of output are text, graphics, audio and video. Text consists of characters (letters, numbers, punctuation marks or any other symbol requiring one byte of computer storage space) that are used to create words, sentences and paragraphs. Graphics are digital representations of non-text information such as drawings, charts, photographs and animation (a series of still images in rapid sequence that gives the illusion of motion). Audio is music, speech or any other sound. Video consists of images played back at speeds to provide the appearance of full motion. An output device is any Computer component capable of conveying information to a user. Audio is music, speech or any other sound. Video consists of images played back at speeds to provide the appearance of full motion.

### 4.2.3 Module Design

To make this software handier and more feasible to the user we have divided it into few different modules and they are as follows:

- Login module
- Register module
- Admin module
- Manager module
- Employee module
- Add new employee module
- Update employee module
- Show employee module

Login module:

It is used for logging in the employee details manager. It is used for verifying the user. Once the user authenticated, they can access the system.

Registration module:

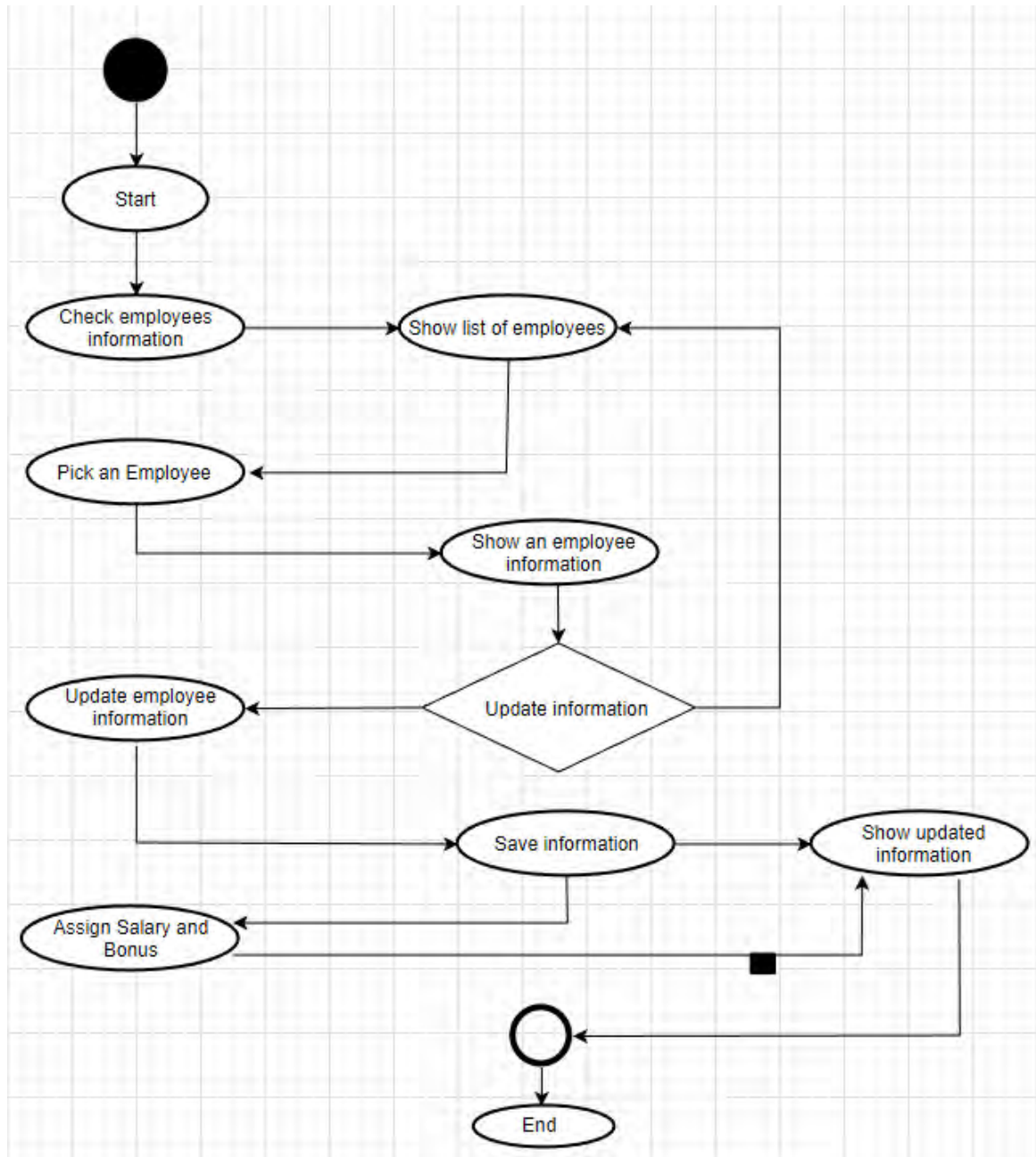
New user can register in order to use the full features of this system.

User module:

It is used for adding new user and for updating existing customers. It is used for storing new user as well as for updating the customer's details. The module is very useful to find the number of users who registered.

Add Employee module:

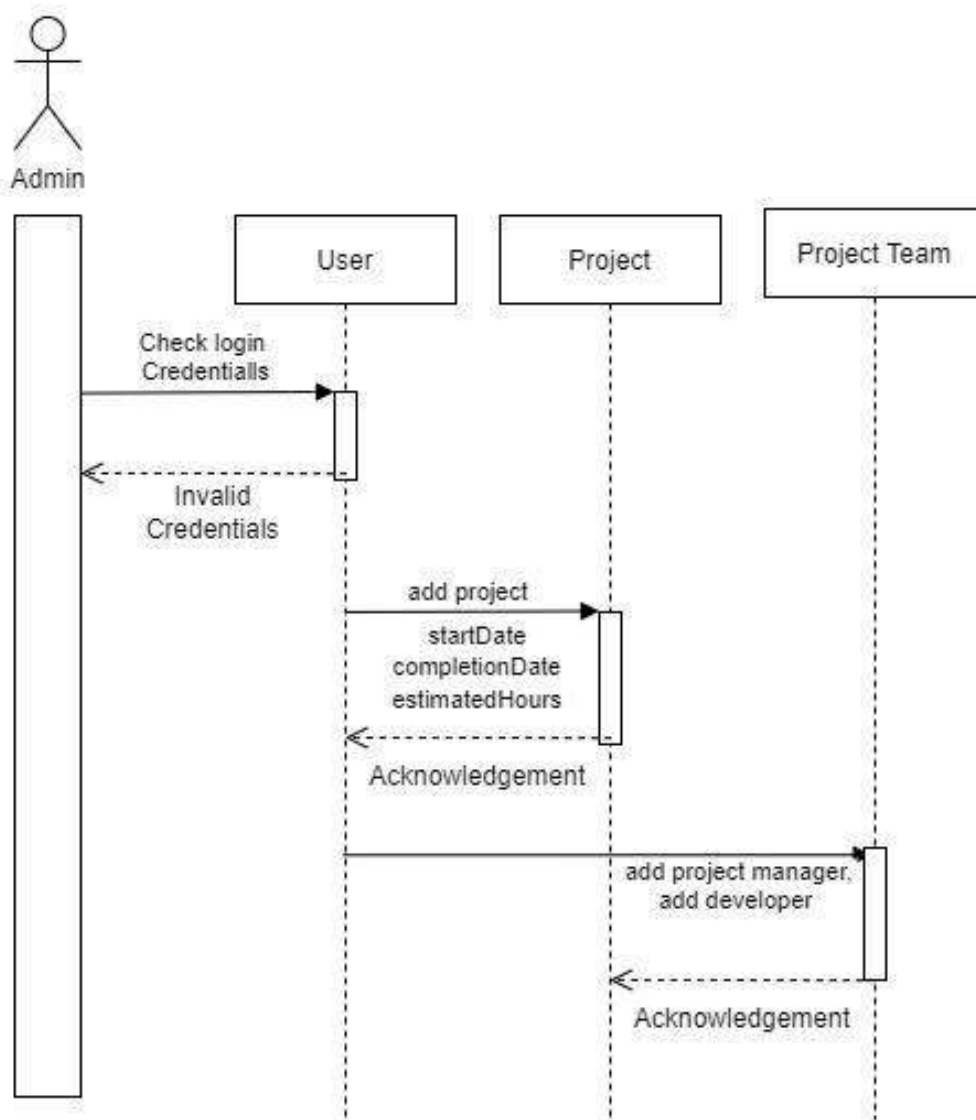
It is used for adding new employee and for viewing, editing and deleting existing employees. It is used for searching items in this system. Here the admin has the privileges to search items in this system. Employee details are stored with their name. When a particular module is being liked by people, that particular module will be shown to user.



**Figure 4.2 System Activity Diagram**

#### 4.2.4 Sequence Diagram

1. The admin has list of managers and also list of employees.
2. The admin can approve the new employee request.
3. Employee can also send the request to manager.
4. Manager have list of sub-employees.
5. Manager have to manage directories requests.



**Figure 4.3 Sequence Diagram**

### 4.3 INTERFACE DESIGN

The web application was created with the following design considerations in mind:

- **Consistent.** The website should have a similar look and feel on every page. Every page should have the same header/logo, heading style, fonts, navigations etc.
- **Efficient and easy to maintain.** This refers to the fact that there is need to separate content from layout so that you can easily change your page design without editing every page on the site.
- **Layout.** The layout of each page should have a good contrast between the text and background area. This helps considerably with visibility as it will be difficult to read the text if it is almost the same color as the background. Monitor size should also be taken into consideration.
- **Easy to navigate and use.** Users should not have a hard time trying to navigate the site. Navigation links should be consistent and clearly labeled. All navigation links should also be working properly and should point to the intended page/site.
- **Browser compatible.** When designing the site consider different browser environments. Extensive testing should be done on each page in all the major browsers and the design changed appropriately to cater for all.
- **Visually appealing.** The use of color, text, fonts and graphics should be carefully considered and used to ensure that the site is visually appealing to its visitors.
- **Speed.** The performance of a website is mostly rated by its up time and downtime. These terms refer to the amount of time it takes the site to respond to requests. Graphics should be kept to a minimum to allow the site to load faster. The pages on the site should load within an acceptable time e.g., under 10seconds.

## Chapter 5. IMPLEMENTATION

### 5.1 DESCRIPTION OF SYSTEM

The developed system encompasses various activities associated with managing employee information. The main functionalities available in this system are:

- Maintaining employee profiles
- Role Details
- Work efficiency

### 5.2 TECHNICAL DETAILS OF IMPLEMENTED SYSTEM

#### 5.2.1 Model View Controller architecture (MVC)

In the implementation, as shown in figure 5.1, the whole application is broken down into a series of top-level components which may be referred to as tasks, actions, functions, operations or transactions (that's user transactions, not database transactions), each of which is may be related to a Use Case. Each transaction component references a single Controller, one or more models, and usually a single view. Some components do not have a view as they are called from other components in order to perform a service and once this service has been completed, they return control to the calling component.

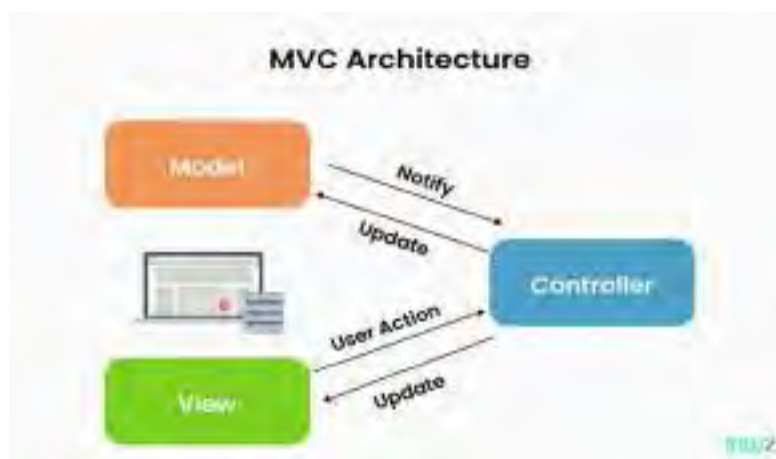
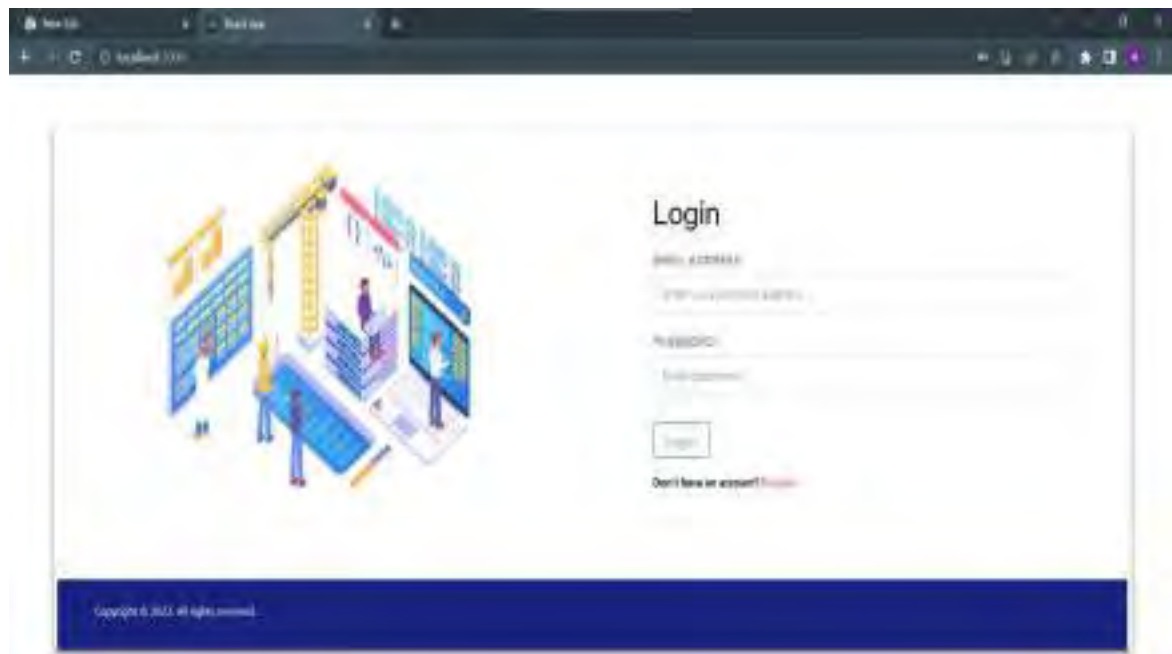


Figure 5.1 MVC Architecture

### 5.3 SYSTEM INSTALLATION

The system was developed and tested on a laptop computer running Windows 10, with the STS tools. In order for the Web application to be accessible via the Internet it will have to be installed on a Web Server having Node Js installed. The suitable operating system for the web server will be Linux as it is more stable and less prone to virus but a windows-based platform will equally do the job just as well. A suitable domain name will have to be chosen and registered in order for the web application to be accessed via URL and hosting and administration fees paid to the web hosting company of choice either annually or monthly depending on the package and terms agreed upon. The web application will be accessible via most of the popular web browsers on the market. A suitable web browser e.g. Chrome will have to be installed on the client machine wishing to access the web application.

### 5.4 OUTPUT OF DEVLOPED SYSTEM



**Figure 5.2 Home Page of the website& Login Page**



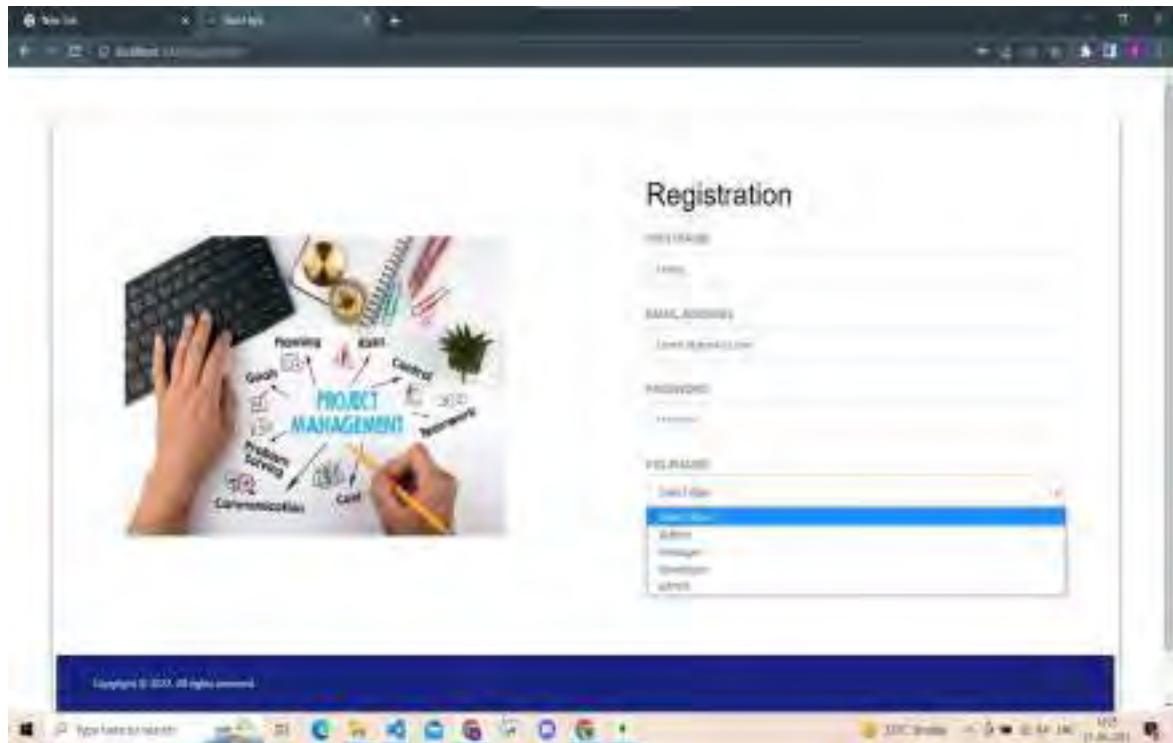


Figure 5.3 Registration Page of the website

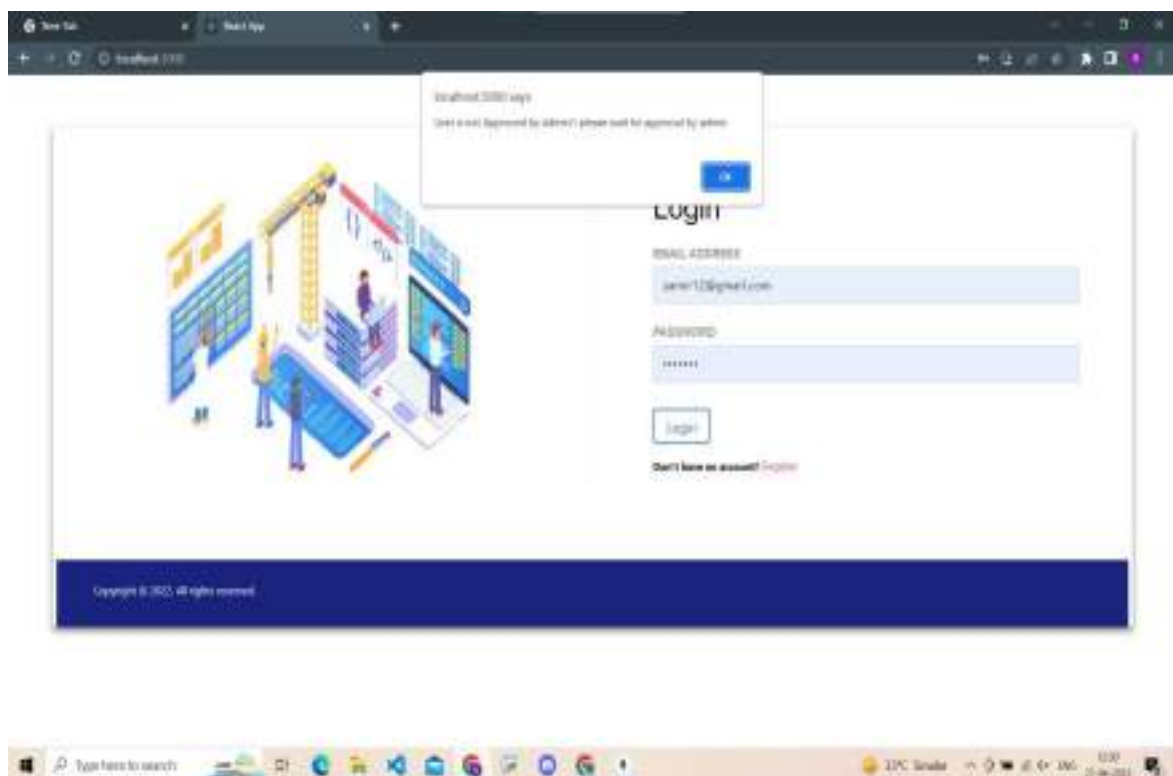


Figure 5.4 New User Login Without Approval

### 5.4.1 Admin

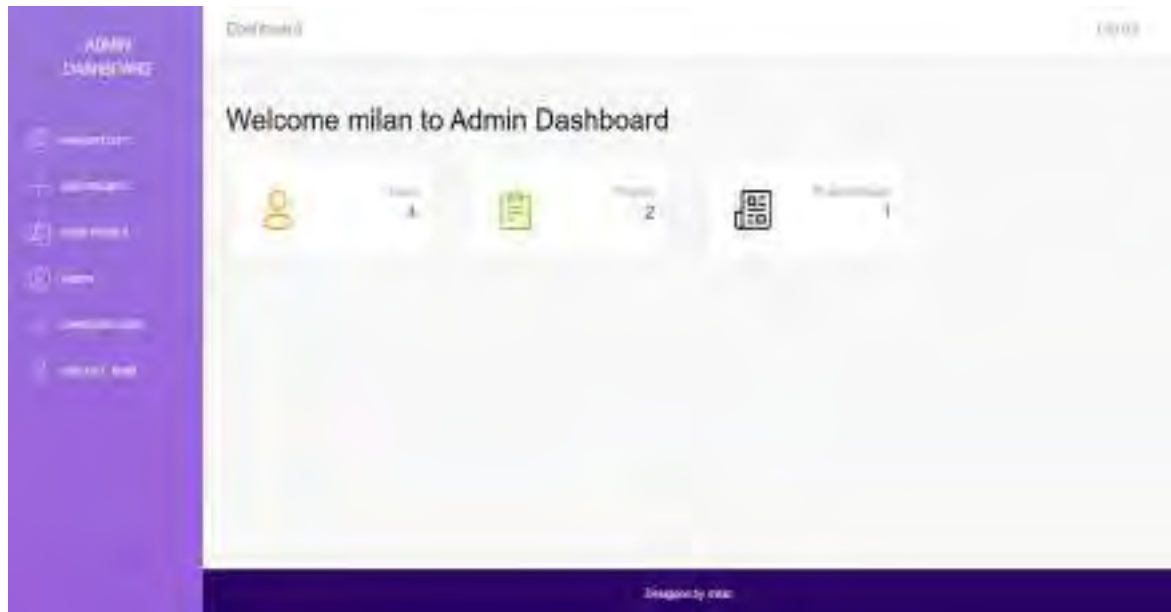


Figure 5.5 Admin Dashboard

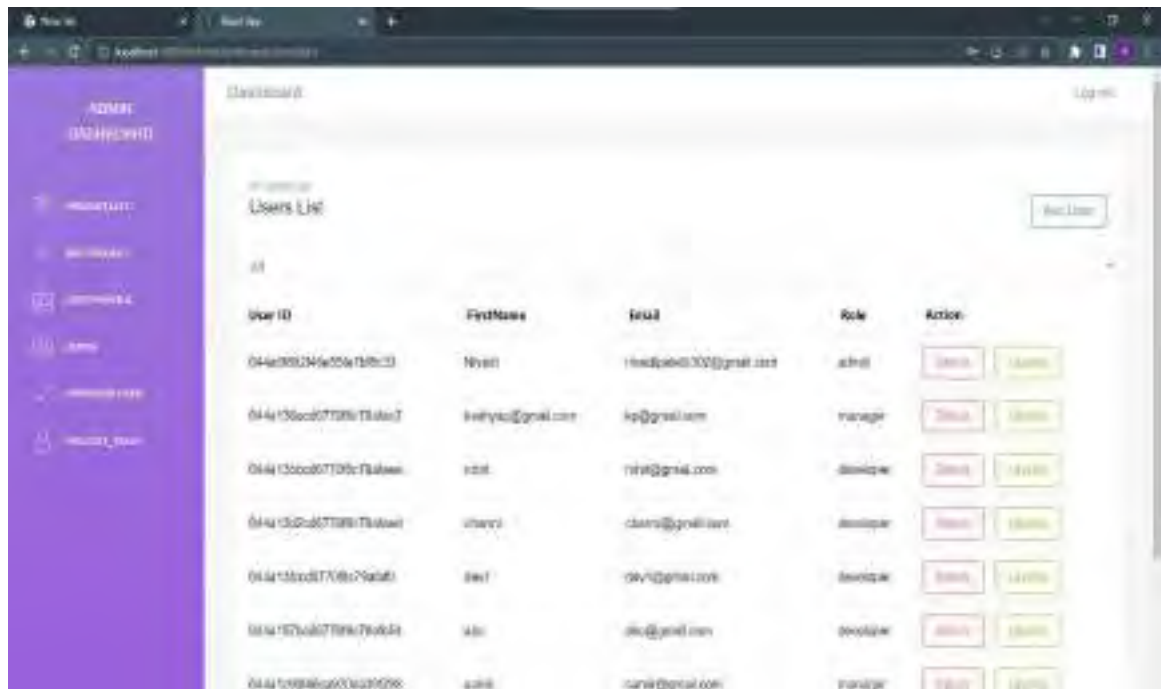


Figure 5.6 Active Employee List

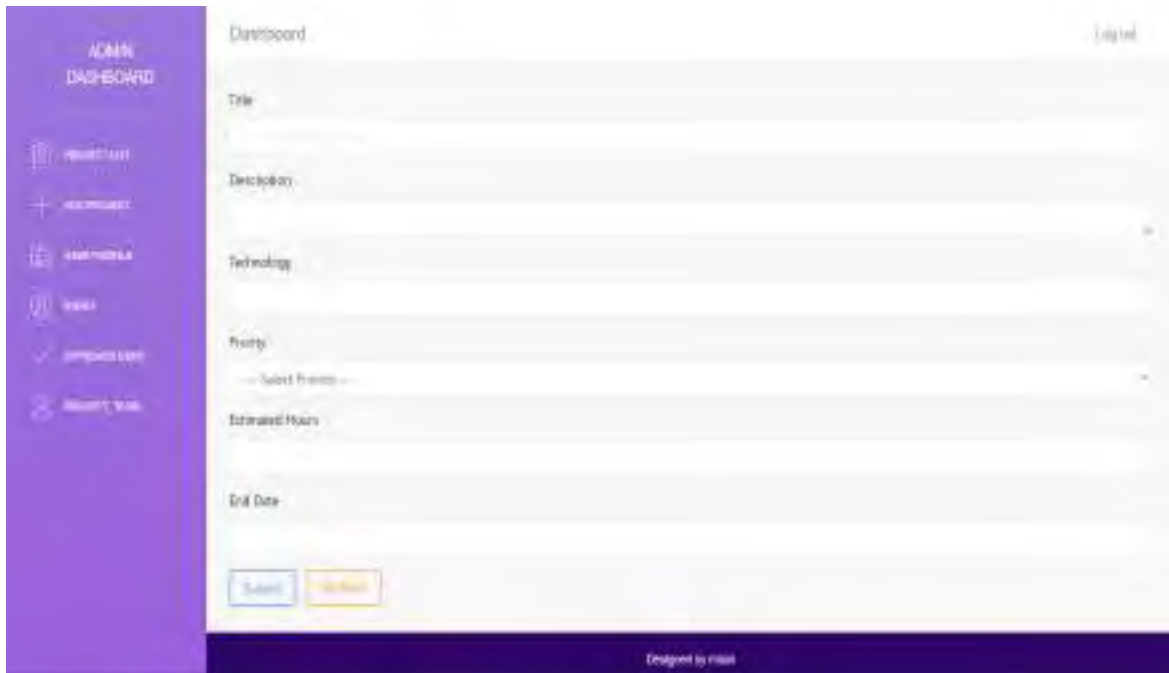


Figure 5.7 Add Project

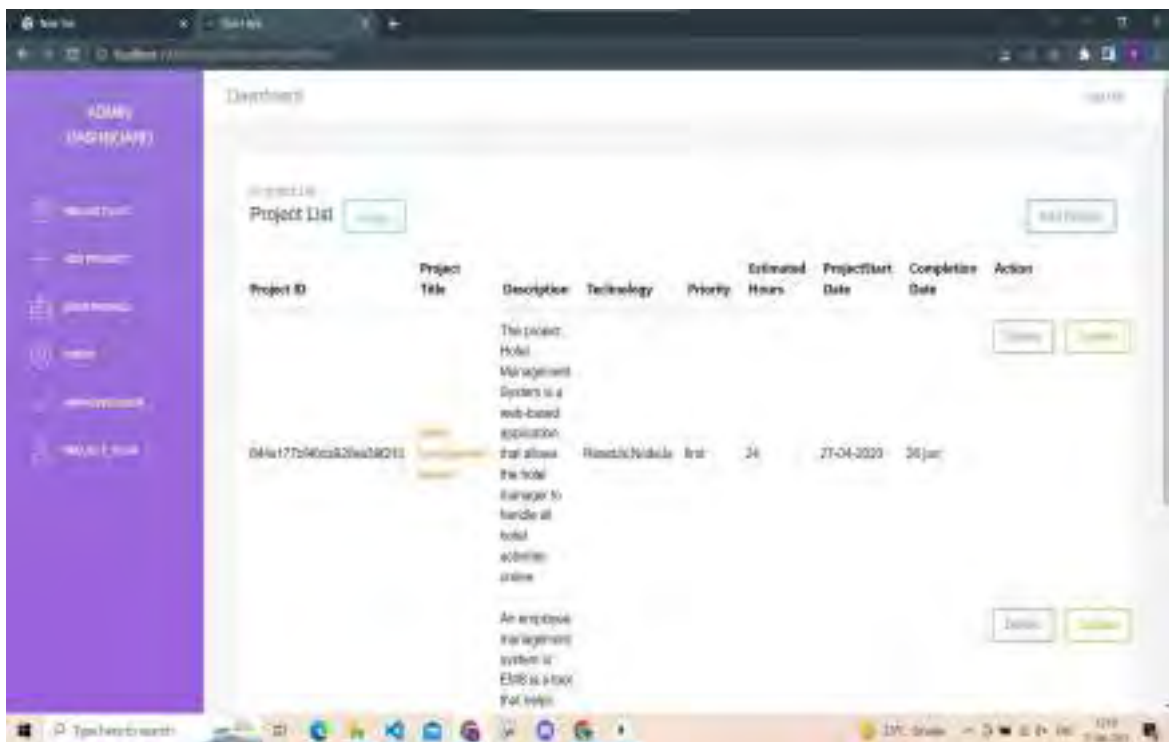


Figure 5.8 Project List

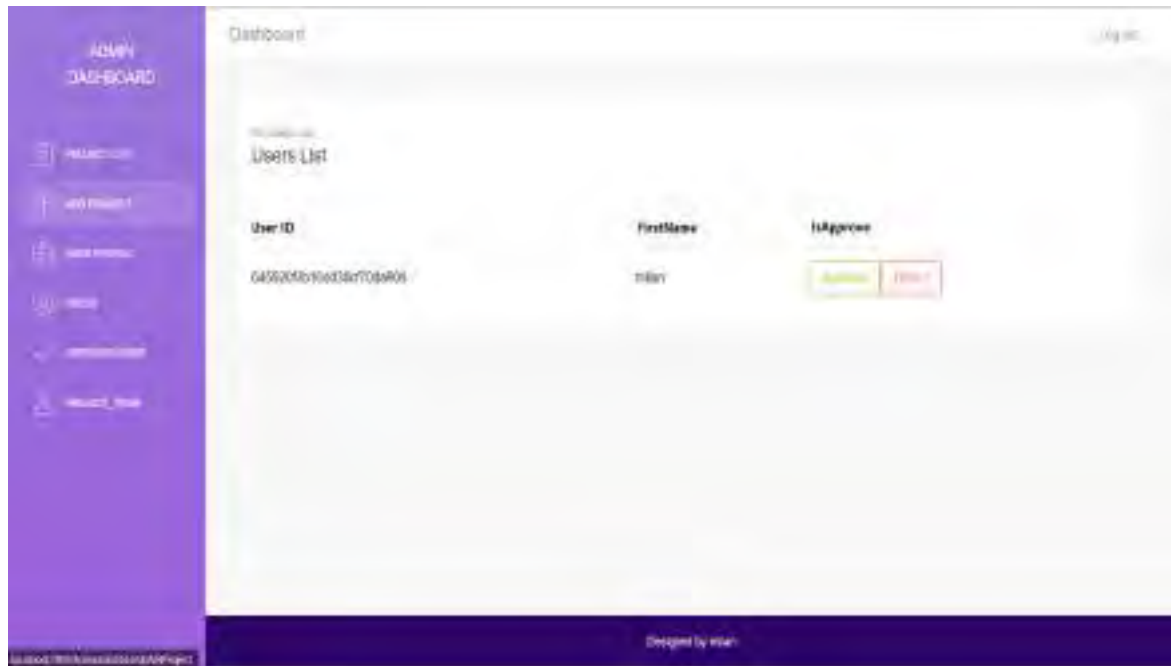


Figure 5.9 User Approvement

### 5.4.2 Project Manager

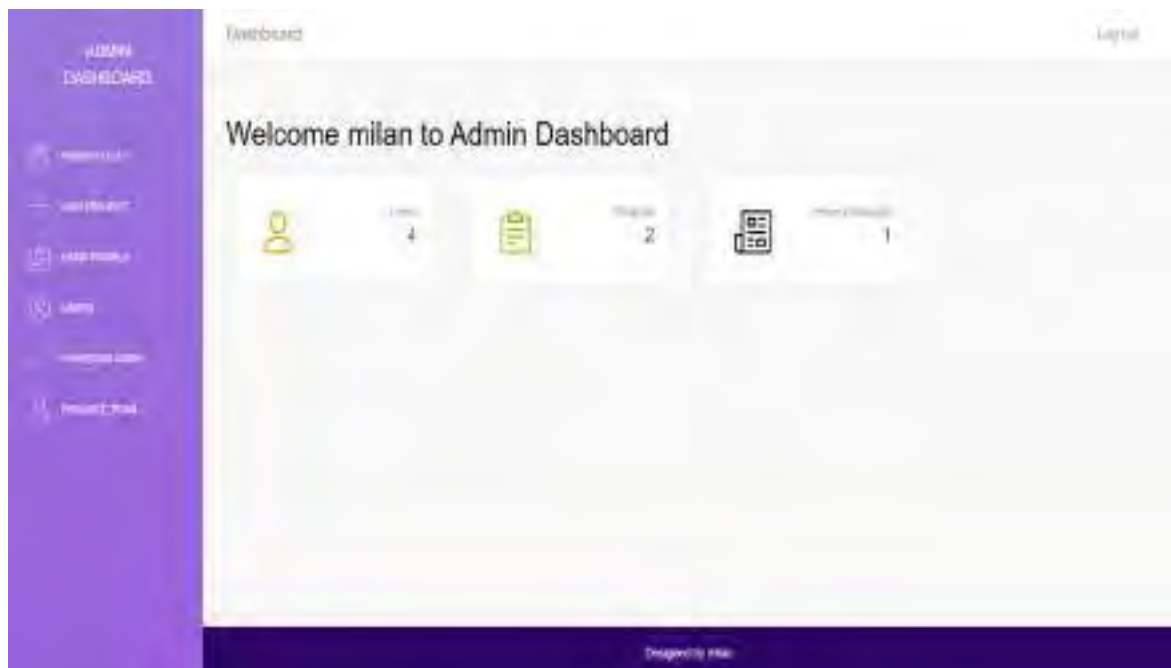


Figure 5.10 Project Manager Dashboard

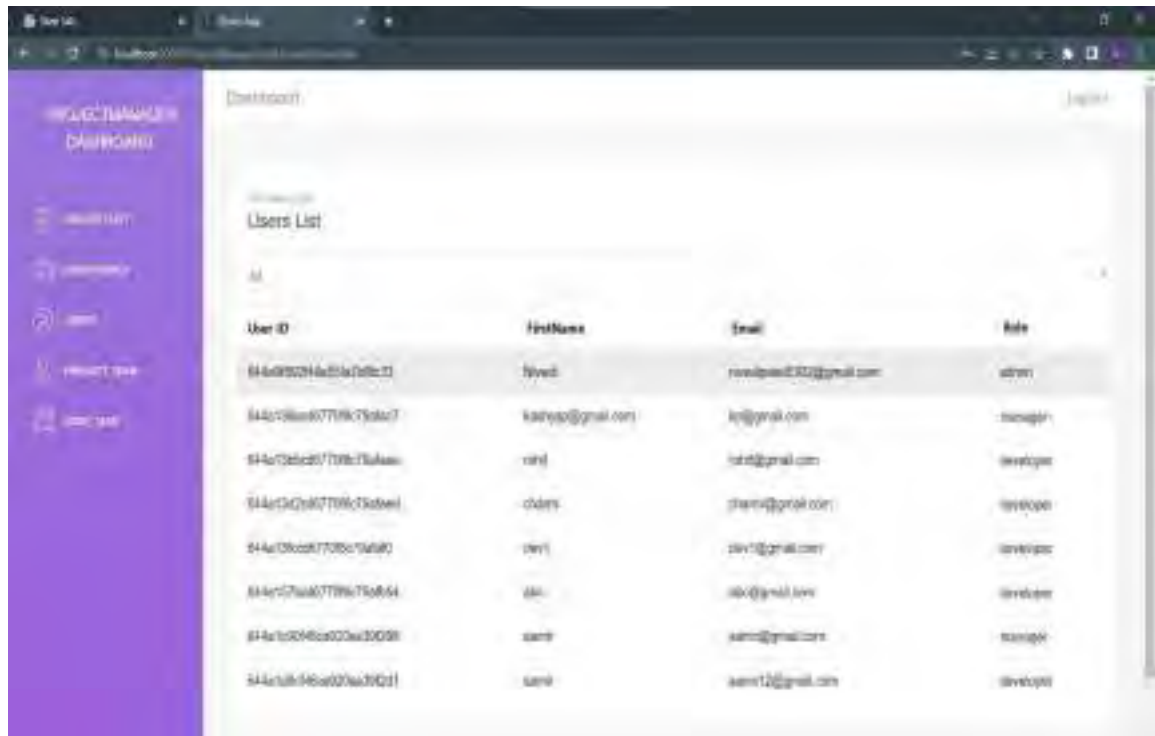


Figure 5.11 User List

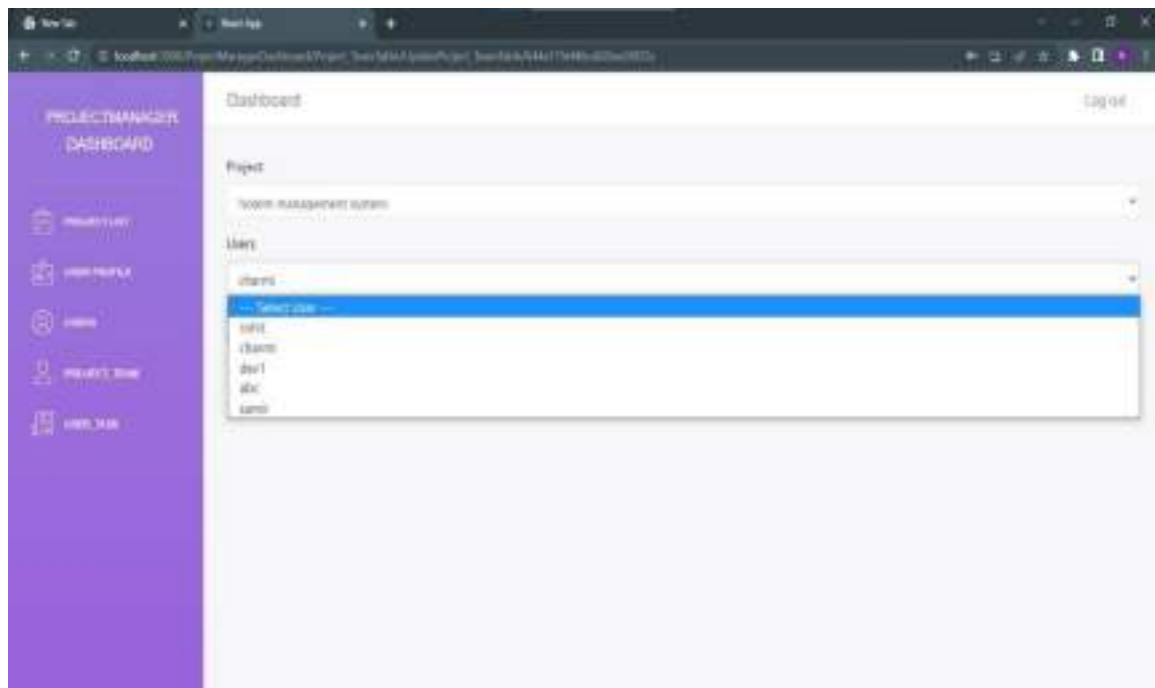


Figure 5.12 Add Developer into the Project

### 5.4.3 Developer

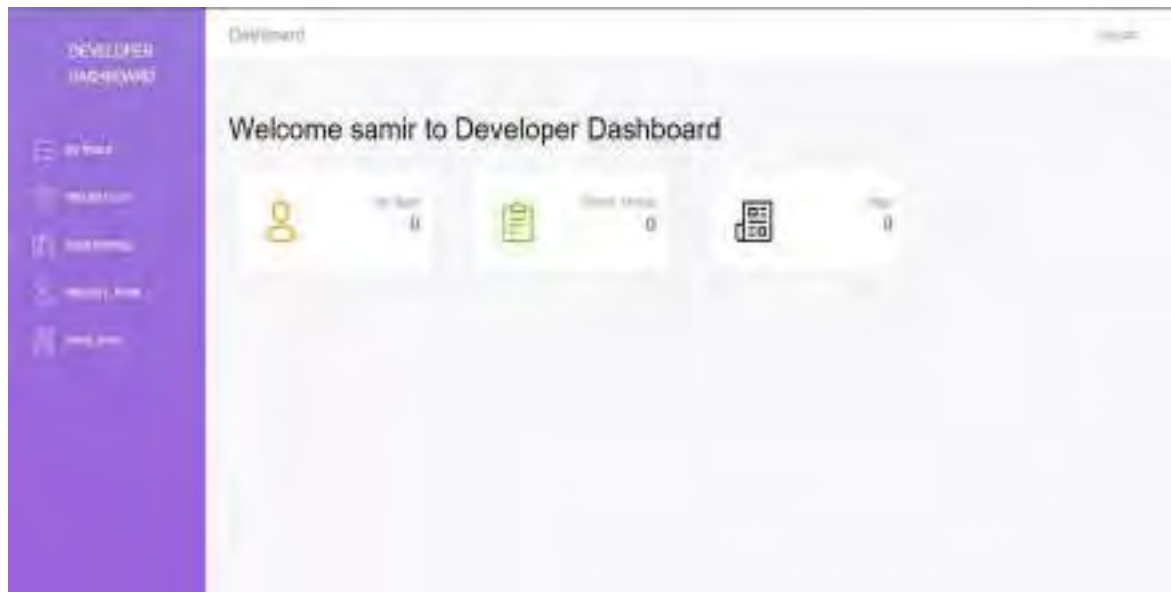
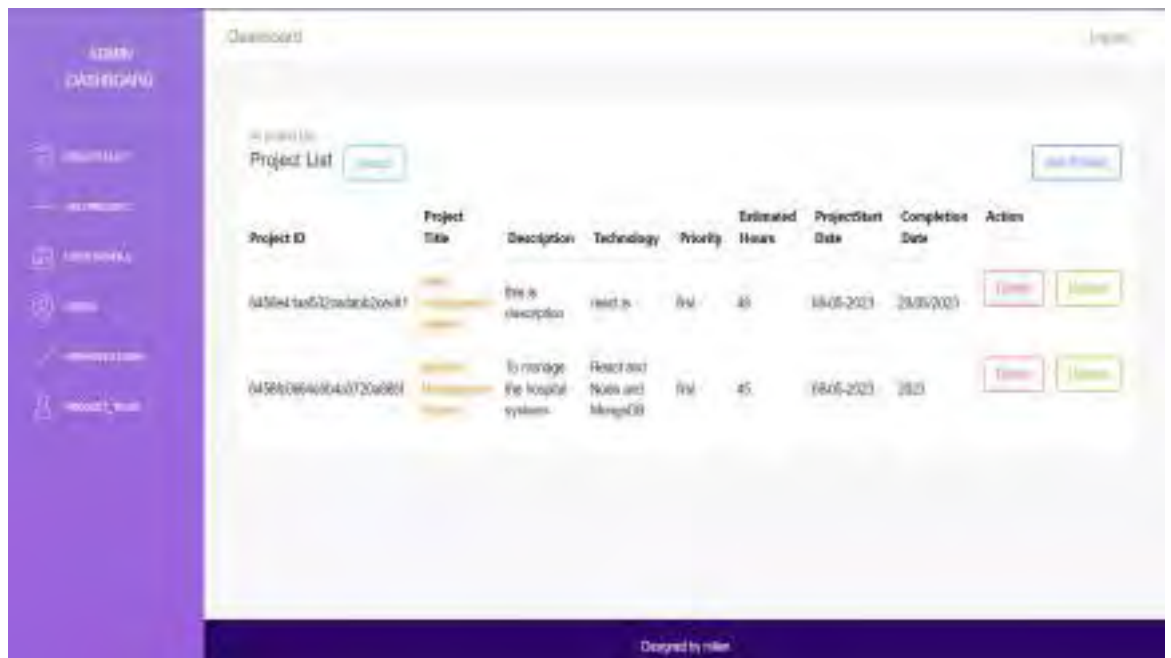


Figure 5.13 Developer Dashboard

Figure 5.14 Project List



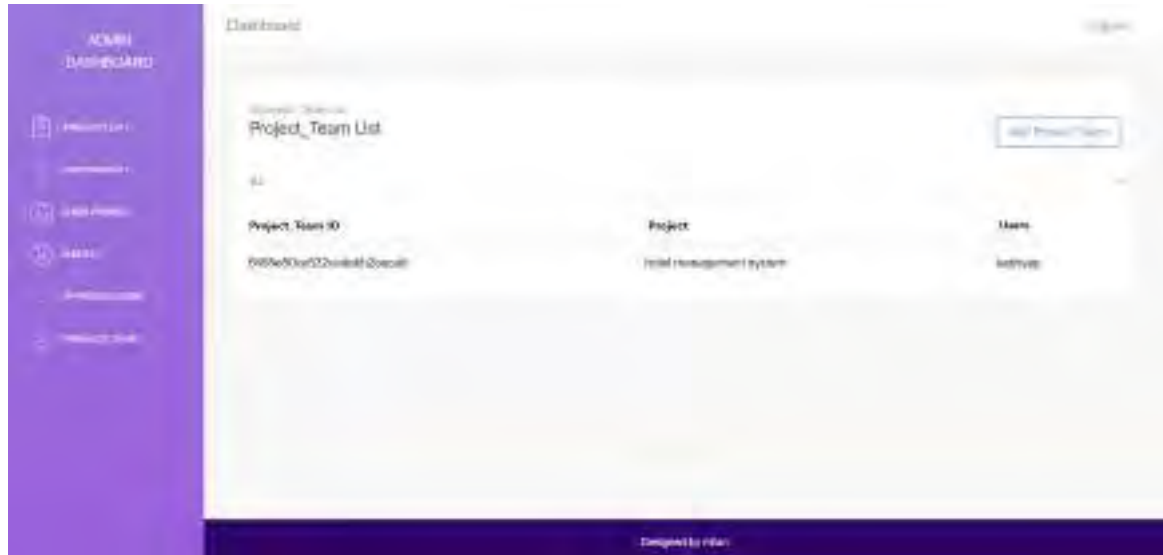


Figure 5.15 Team List

## Chapter 6. TESTING

### 6.1 TESTING PLAN

- Planning is the most important phase in software testing.
- The level of planning involved in a project determines the success level of the project.
- A project may fail without a complete Test Plan. Test planning is particularly important in large software system development.
- A Test Plan can be defined as a document describing the scope, approach, resources, and schedule of intended Testing activities.

### 6.2 TESTING STRATEGY

- The testing strategy followed by the company is unique in its own way.
- The developer first takes signup the UNIT Testing.
- Then the Integration testing is conducted to check the over functionality of the system.
- Then the Validation Testing is performed once the whole project is done. Alpha and Beta testing are done once by the testing team and the clients respectively.
- Then the over System testing is done and after that Acceptance testing is done.



Fig 6.2 Testing Strategy



## 6.3 TESTING METHODS

### Unit Testing:

- Unit testing involves the testing of each unit or an individual component of the software application.
- A unit is a single testable part of a software system and tested during the development phase of the application software.
- Software testing methods are divided into white and black-box testing.
- 1. Black Box Testing - Whether the particular class meets the requirements mentioned in the specification.
- 2. White Box Testing - The tester looks inside that class and checks if there is error in the code which is not found while testing the class as a black box.

### Integration Testing:

- **Integration testing** tests integration or interfaces between components, interactions to different parts of the system such as an operating system, file system and hardware or interfaces between systems.
- Integration testing is done by a specific integration tester or test team.
- Integration testing follows two approach known as 'Top Down' approach and 'Bottom Up' approach as shown in the image below:
- User Interface Testing - Testing is done by moving through each and every menu item in the interface either in top-down manner or bottom-up manner.
- Interaction Testing - When the system performs data processing, Interaction between various classes is tested.

### Validation Testing:

- For Validation Testing stage, we have performed functional test cases and the results are compared in the form of actual and expected outcomes.
- The testing proved that the Validation was compliant with the requirements as specified in the Use Case and SRS (Software Requirement Specification).

- Integration of forms Designing, Login, Admin Management & Rights were tested and found to be successful.

### **System Testing:**

- System Testing is carried out on the whole system in the context of either system requirement specifications or functional requirement specifications or in the context of both.
- System testing tests the design and behavior of the system and also the expectations of the customer.
- It is performed to test the system beyond the bounds mentioned in the software requirements specification (SRS).

### **Acceptance Testing:**

- Acceptance testing is formal testing based on user requirements and function processing. It determines whether the software is conforming specified requirements and user requirements or not.
- It is conducted as a kind of Black Box testing where the number of required users involved testing the acceptance level of the system. It is the fourth and last level of software testing.

## **6.4 TEST CASE**

- Exhaustive testing of almost any non-trivial system is impractical due to the fact that domain of input values to most practical software systems is either extremely large or infinite.
- Therefore we must design an optimal test suite that is of reasonable size and can uncover as many errors in system as possible.
- The test cases to consider in the project are:
  - Easy to understand and anyone can execute it.
  - Separate authentication for both the front end as well as back end.
  - Testing individual module according to requirement.
  - Privacy to the admin as well as the user who becomes the part of System.

## **Chapter 7. LEARNING FROM INTERNSHIP**

From the internship I am not just learning about technical things. But also I achieved soft skills and the learn how to behave in corporate world with some challenges, task and some non technical things like event organization, team work in a project , some softwares like Filmora, Premier Pro, Clip Champ, etc. than we meet every field's expert to know the role and work regarding every department.

During my internship at Brainvire Infotech Pvt. Ltd., I had the opportunity to work with experienced professionals and gain valuable insights into the software development industry. As a software development company offering services such as web and mobile app development and digital marketing, I was excited to learn about their workflow and methodologies.

Throughout the internship, I was assigned to various task where I was able to contribute to developing new ideas. This hands-on experience was invaluable in helping me to develop my technical skills and understand how real-world projects are managed in a professional setting.

I also participated in team meetings and brainstorming sessions, which gave me a better understanding of the dynamic and fast-paced environment of the company. These experiences helped me develop a more comprehensive perspective on the industry and I enjoyed learning about the latest technologies and industry practices.

Overall, my internship at Brainvire Infotech Pvt. Ltd. was a great learning experience that exposed me to the inner workings of the software development industry. I was able to network with professionals in the field and gained practical experience that I can apply to my future career.

## **Chapter 8. CONCLUSION & FUTURE WORK**

### **8.1 CONCLUSION**

The employee management system project was a comprehensive software development initiative that aimed to manage personnel data for a company. The project followed the standard software development process, which included requirements gathering, design, implementation, testing and deployment. During the project, we have put particular emphasis on meeting the user requirements and ensuring that the system's features, including the integration with a payroll system, the ability to manage active/inactive user status and details management, were implemented successfully.

One of the key highlights of the project was the successful integration of the system with a payroll system. This integration provided a seamless process for calculating and managing employee compensation, which was a critical requirement for the company. Additionally, the ability to manage active/inactive user status and details management ensured that the system was comprehensive and provided complete control over employee data.

The user interface of the system was designed to be user-friendly and intuitive, making it easy for users to navigate and use the system. We have paid particular attention to ensuring that the interface was easy to understand and use, even for novice users.

In conclusion, the employee management system project was a success, achieving its goal of managing personnel data, including payroll, active/inactive user status. The project followed the standard software development process and the system's features were implemented successfully and met user requirements. The system's user interface was user-friendly and the project was a valuable learning experience for us. The completed system is expected to help the company in maintaining accurate personnel data and improving overall efficiency.

## **8.2 FUTUREWORK**

### **8.2.1 Task Management System**

The employee management system could be expanded to include a task management module that allows managers to assign tasks to employees, set deadlines and track progress. This would help ensure that projects are completed on time and that employees are working on the right tasks.

### **8.2.2 Attendance System**

The attendance system could be improved by adding features such as facial recognition, geolocation tracking, and biometric authentication. This would increase the accuracy and security of the attendance system and reduce the potential for fraud or errors.

### **8.2.3 Leave Management System**

The leave management system could be improved by adding features such as geolocation tracking and biometric authentication. This would increase the accuracy and security of the leave management system and reduce the potential for fraud or errors.

### **8.2.4 Mail Alert Notification**

The employee management system could be enhanced with a mail alert notification system that sends automatic notifications to employees and managers when important events occur, such as when a new task is assigned, when a deadline is approaching, or when a performance review is due. This would help ensure that everyone is aware of what's going on and can stay on top of their responsibilities.

### **8.2.5 Performance management**

The performance management module could be expanded to include more features, such as 360-degree feedback, goal tracking, and career development planning. This would help employees and managers to have more productive conversations about performance and career growth, and to create more meaningful and actionable development plans.

### **8.2.5 Mobile Access**

To improve mobile access, the employee management system could be developed as a mobile app that allows employees and managers to access the system from their mobile devices. The app could include features such as push notifications, mobile time tracking, and mobile task management. This would help employees and managers to stay connected and productive even when they're on the go.

## REFERENCES

1. <https://stackoverflow.com/>
2. <https://www.youtube.com/>
3. <https://www.google.com/>
4. <https://www.w3schools.com/java/>
5. <https://opensource-demo.orangehrmlive.com/web/index.php/auth/login>
6. <https://www.waypointhr.com/>
7. <https://simplhrm.com/>
8. <https://www.npmjs.com/>
9. <https://nodejs.org/en>
10. <https://expressjs.com/>
11. <https://legacy.reactjs.org/>
12. <https://www.mongodb.com/blog/post/mongodb-going-world-tour>

# **INTERNSHIP AT ARISHTI INFO LABS PVT. LTD.**

## **AN INTERNSHIP REPORT**

*Submitted by*

**Miren Ashokkumar Prajapati**

**190390107048**

*In partial fulfillment for the award of the degree of*

## **BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



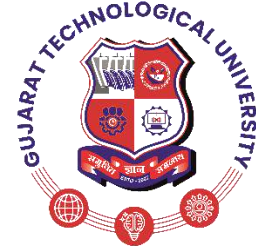
**Gujarat Technological University, Ahmedabad**

**May, 2023**





**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at ARISHTI INFO LABS PVT. LTD.** has been carried out by **Miren Ashokkumar Prajapati** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Shubhangi Chaturvedi

Prof. Akshay Kansara

Internal Guide

Head of Department

## Company Certificate



ARISHTI INFO LABS

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✉ [contact@arishti.com](mailto:contact@arishti.com)


☎ +91-7990 285 133

Date: May 10, 2023

Mr. Miren Prajapati

To Whomever It May Concern

This is to certify that **Mr. Miren Prajapati**, student of **S.P.B Patel Engineering College** is working as a Software Developer Intern with **Arishti Info Labs Pvt. Ltd.** He is working under the guidance of Senior Developer Mr. Milan Vadher on CVE database. He completed his 3 months on 10<sup>th</sup> of May 2023, out of 6 months of internship.

  
Milan Vadher  
Guide Signature  
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B.E. SEMESTER VIII ACADEMIC YEAR 2022-2023

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Internship Project Report	Completed
---------------------------	-----------

Name of Student : Prajapati Miren Ashokkumar

Name of Guide : Mrs. Shobangi Gunerveh

Signature of Student: \_\_\_\_\_

\*Signature of Guide: \_\_\_\_\_

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## **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Arishti Info Labs Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Shubhangi Chaturvedi & Mr. Milan Vadher (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Miren Ashokkumar Prajapati**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

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## **Abstract**

*This report contains the work done by the author during his internship at **Arishti Info Labs Pvt. Ltd.** It shows the work the author did in the company during his internship period. In the report, the author explains what he learned during this internship period.*

*In First chapter, the author gives introduction of his company and its mission and vision. In Second chapter, the author discusses about the Hands-on project which he did in his starting of the Internship. The author gives brief about the technology he used and explains his project implementation.*

*In Third chapter, the author discusses about the side project assigned to him by the company. The author gives brief about the concepts involved in it, the technology used and the project implementation. The last chapter consists of the main project which author is currently working upon i.e. CVE Database. The author gives brief about the concepts involved in it and the project implementation.*

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## **Abbreviations**

CPE	Common Platform Enumeration
CVE	Common Vulnerabilities and Exposures
CVSS	Common Vulnerability Scoring System
CWE	Common Weakness Enumeration
NVD	National Vulnerability Database
QA	Quality Assurance
QC	Quality Control
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
VoIP	Voice over Internet Protocol

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## **Chapter 1. INTRODUCTION**

### **1.1 COMPANY PROFILE**

Arishti is the Sanskrit name meaning ‘Safety’ or ‘Security’. It is a Startup registered under the companies act, 2013, founded on March, 2020 by Mr. Hardik Tarpara and Mr. Ronak Sutariya. It is headquartered in Adalaj, Gandhinagar.

Its expertise is mainly in the field of Industrial Control System (ICS), Supervisory Control and Data Acquisition (SCADA), Operational Technology (OT) and Cyber Security. It is recognized by Startup India, an initiative of Government of India. It is felicitated by Hon. Railways and Information Technology Minister of Government of India Shri Ashwini Vaishnaw at National Forensics Sciences University (NFSU). It has become the most trusted ICS and SCADA security partners to numerous industries to protect large-scale OT networks with expertise in cyber security risk assessment and management strategies.

### **1.2 MISSION AND VISION OF THE COMPANY**

Arishti Info Labs is working for safeguarding Industrial Civilizations from cyber-attacks. It provides solutions for mission-critical and cyber security issues in Industrial environment.

## Chapter 2. .NET MVC PROJECT

### 2.1 INTRODUCTION

.NET is a free, cross-platform, open-source developer platform for building many kinds of applications. .NET is built on a high-performance runtime that is used in production by many high-scale apps. Some of the apps are listed below:

#### I. **Cloud apps**

- Cloud native apps
- Console apps
- Serverless functions in the cloud
- Web apps, web APIs, and microservices

#### II. **Cross-platform client apps**

- Desktop apps
- Games
- Mobile apps

#### III. **Windows apps**

- Windows Desktop apps
  - Windows Forms
  - Windows WPF
  - Universal Windows Platform (UWP)
- Windows services

#### IV. **Other app types**

- Machine learning
- Internet of Things (IoT)

It has the following features:

- Asynchronous code
- Attributes
- Reflection
- Code analyzers

- Delegates and lambdas
- Events
- Exceptions
- Garbage collection
- Generic types
- LINQ (Language Integrated Query).
- Parallel programming
- Type inference - C#, F#, Visual Basic.
- Type system
- Unsafe code

## 2.2 .NET MVC

MVC stands for Model, View and Controller. Models are Classes that stand in for the app's data. To enforce business rules for that data, the model classes make use of validation logic. Model objects often access and save model state in a database. In this project, a Movie model updates or offers view-ready movie data by retrieving it from a database. A database is updated with the new data.

Views are the elements that make up the user interface (UI) of the app. This UI typically shows the model data. Controllers are classes that respond to requests from browsers, retrieve model data, and invoke view templates with response calls.

In an MVC app, the view only displays information. The controller handles and responds to user input and interaction. For example, the controller handles URL segments and query-string values, and passes these values to the model. The model might use these values to query the database.

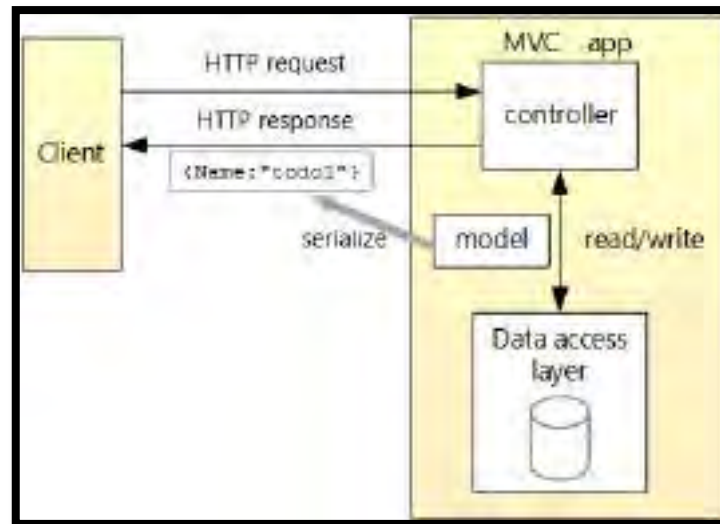


Figure 2.1: MVC Architecture Courtesy of learn.microsoft.com

Models, Views, and Controllers are the three main groupings of components that make up an app according to the MVC architectural pattern. The separation of concerns is facilitated by this pattern: The view is where the UI logic belongs. The controller is where input logic belongs. The model needs to include business logic. This division makes it possible to focus on one component of the implementation at a time without affecting the code of another, which makes it easier to manage complexity when developing an app. You could, for instance, work on the view code independently of the business logic code. I am able to learn these ideas while putting this project into practice.

## 2.3 GIT

Git is a distributed version control system that monitors changes made to any set of computer files. It is typically used to coordinate the work of programmers who are working together to build source code for software. Speed, data integrity, and support for distributed, non-linear processes (thousands of simultaneous branches executing on several computers) are some of its main objectives.

Linus Torvalds created Git for the Linux kernel's development in 2005; other kernel engineers helped with its early development. Junio Hamano has been the core maintainer since 2005. Every Git directory on every device is a full-fledged repository with entire history and full version-tracking capabilities, independent of network connectivity or a central server, just like most other distributed version control systems and unlike most

client-server systems. Git is open-source, free software that is offered under the GPL-2.0 license alone.

## 2.4 MICROSOFT SQL SERVER

Microsoft created the relational database management system known as Microsoft SQL Server. It is a software product known as a database server, and its main job is to store and retrieve data as needed by other software applications. These apps may run on the same computer or on a different machine connected to a network (including the Internet). Microsoft offers at least a dozen different editions of SQL Server that are targeted at various clienteles and can handle workloads ranging from modest single-machine programs to sizable Internet-facing programs with several concurrent users.

## 2.5 PROJECT IMPLEMENTATION

This section describes the implementation of .NET MVC in the form of a Movie App. The purpose of this project was to gain some hands on experience of the .NET framework. On the Home page, we are able see the welcome message and on the top left corner, there is a section called Movie App as shown below:



Figure 2.2: Home Page

On clicking that, we will be redirected to the 'Index' page of the App. Under the heading Index, there is an option for creating a new record for a movie data. Upon clicking it, we will be redirected to the 'Create' page. The Index page contains already created records for



the movies. At the end of each record, three options are provided i.e. Edit, Details and Delete. The case when there are too many records, we can filter the required records by Genre and/or Title as shown in the Index page.



Figure 2.3: Index Page

At Create page as shown in Figure 2.4, we are able to see four fields i.e. Title, Release Date, Genre and Price. After filling the details in the fields, click on the save button and we will be redirected to the Index page and the newly created record will reflect there.



Figure 2.4: Create Page

On clicking the Edit option of any record in the Index page, we are redirected to the 'Edit' page from where we can change the value(s) of the desired field of the existing record as shown in Figure 2.5.



Figure 2.5: Edit Page

If we want to see the details of any movie record, then we can select the Details option of that specific record and we will be redirected to the 'Details' page as shown in Figure 2.6. This will show only the stored data and we won't be able to make any changes in that from the details page.

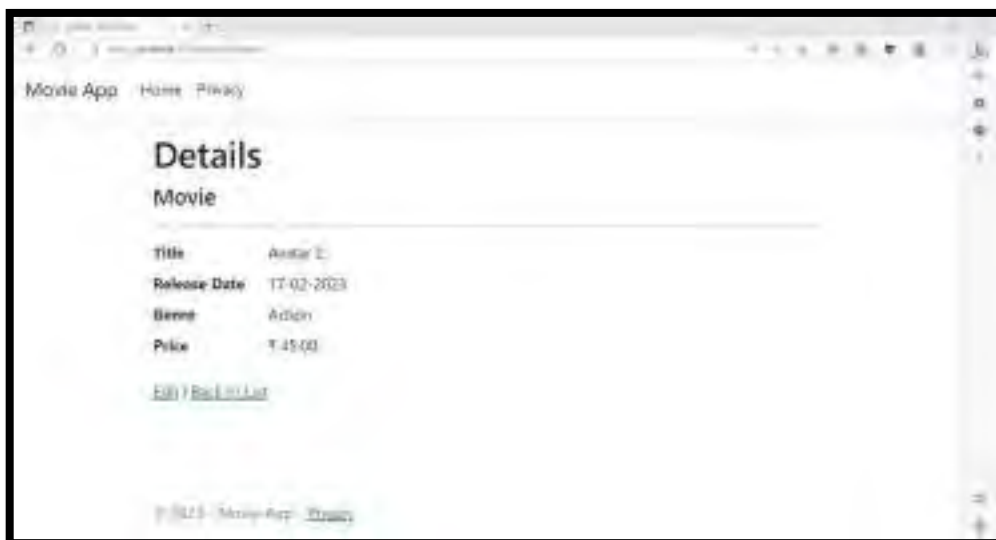


Figure 2.6: Details Page

If we want to delete any record, then we have to select the Delete option of the specific record from the Index page. Upon clicking it, we are redirected to the 'Delete' page which shows the details of the record and asks for the final decision as shown in the Figure 2.7. After hitting the delete button, we are redirected to the Index page and the record is deleted from the list.

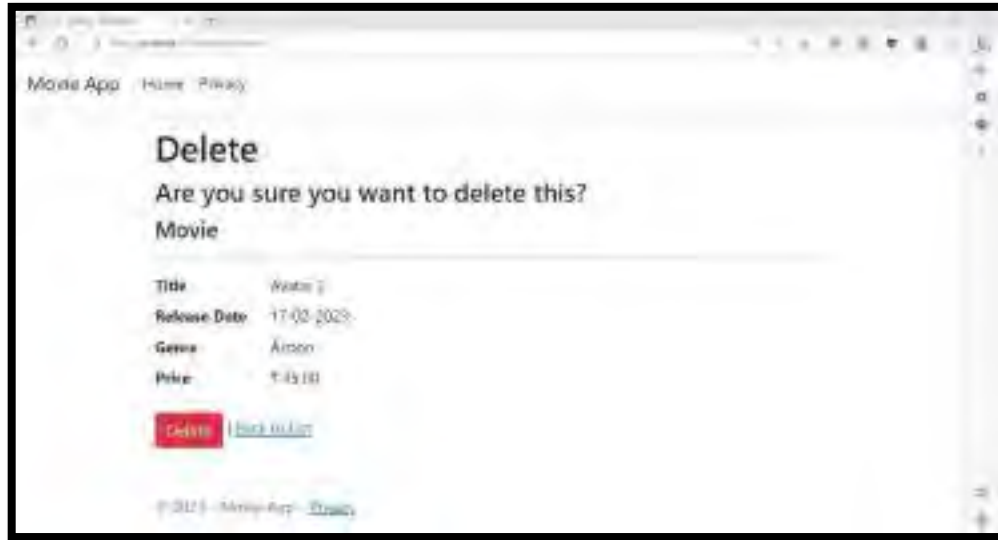


Figure 2.7: Delete Page

## 2.6 LEARNING

Upon completion of this project, I was able to learn the MVC Architecture using .NET C#. I was able to explore how Models are storing/retrieving the data to/from the database, how Views are working to take Input from the users and show the output to the users and how Controllers are functioning to handle the user's request and providing response to the user's request.

## Chapter 3. AUDIO CAPTURE

### 3.1 INTRODUCTION

This is the Proof of Concept (POC) created for a Research Scholar at National Forensic Sciences University. The concept behind this is to capture the Audio Communications through Internet held between two persons through TShark using Python. The Python Script for performing this was provided and I had to create an MVC for the same so that users can interact with the system and extract Audio communications from the live network traffic or from the pcap file. This project was implementing using Django Framework.

A network protocol analyzer is called TShark. It allows you to either display a decoded version of the packets to standard output or save them to a file. You may also read packets from a previously saved capture file. The native file format of TShark is pcapng, which is also the format adopted by Wireshark and a number of other programs.

The API that is frequently used to record packet measurements is called PCAP (short for Packet Capture). Because PCAP files can record multilayer traffic data, including packets coming from the data link layer all the way up to the application layer, they are particularly useful. The program you use probably generates PCAP files if you want to perform network packet analysis.

Voice over Internet Protocol (VoIP) makes audio communication over the Internet possible. VoIP, often known as IP telephony, is a technique and collection of technologies for delivering voice conversations and multimedia sessions over IP networks, including the Internet.

## 3.2 FRAMEWORK USED

This project is implemented using Django Framework. Django is a free and open-source, Python-based web framework that follows the model–template–views (MTV) architectural pattern. It is maintained by the Django Software Foundation (DSF), an independent organization established in the US as a 501(c)(3) non-profit.

Django's main objective is to make it simpler to create intricate, database-driven websites. The framework places an emphasis on the principles of don't repeat yourself, minimum coupling, rapid development, and the "pluggability" of components. Everywhere, including in settings, files, and data models, Python is used. Additionally, Django offers a customizable administrative create, read, update, and delete interface that is dynamically generated by introspection. Django is used by some well-known websites, including Nextdoor, Clubhouse, Mozilla, Instagram, and Disqus.

Models are Classes that stand in for the app's data. To enforce business rules for that data, the model classes make use of validation logic. Model objects often access and save model state in a database.

The elements that display the user interface (UI) of the program are called templates. This UI typically shows the model data. Views are classes that respond to requests from the browser, get model data, and invoke templates that do so.

### 3.3 PROJECT IMPLEMENTATION

The flow of the project implementation is shown in the flow chart below:

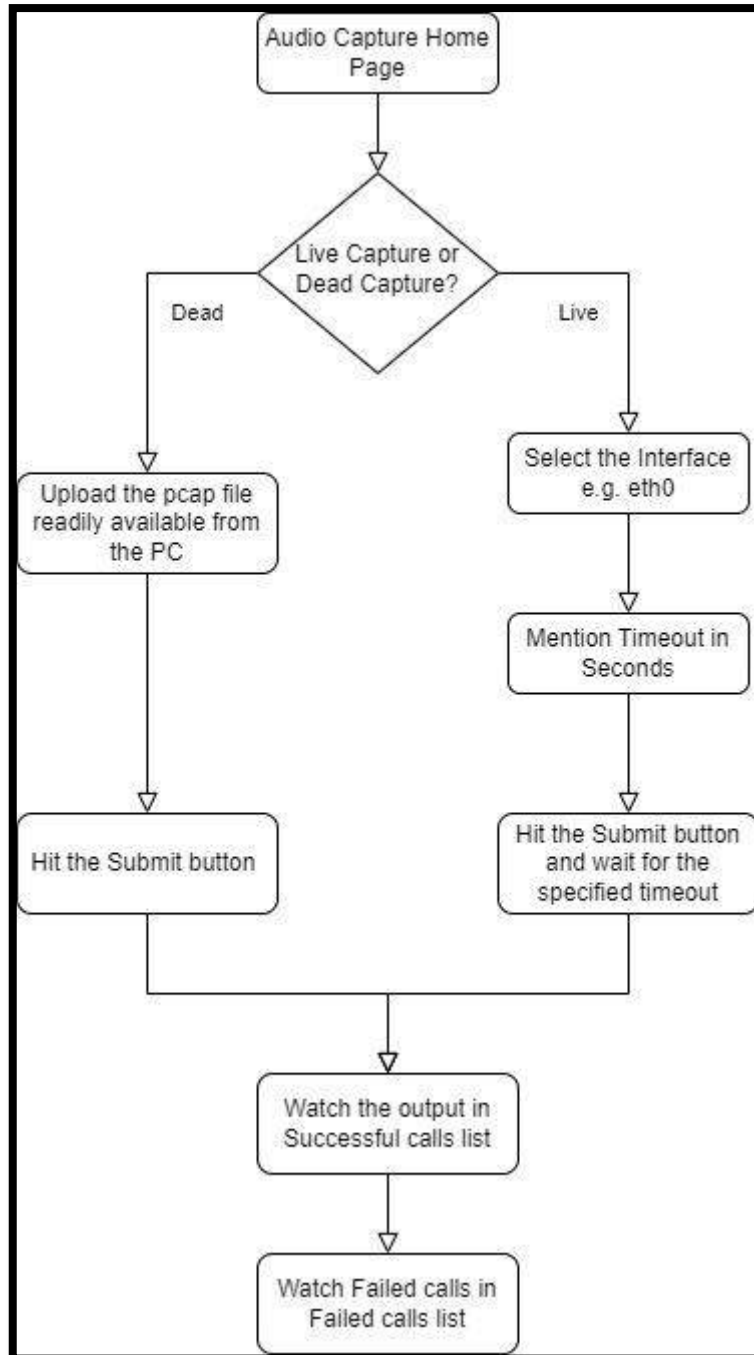


Figure 3.1: Flow of the Project

The same flow is elaborated using the UI figures. The Home page provides two options for the audio capture i.e. Live capture and Dead capture as shown in Figure 3.2. If we want to capture the ongoing communications on the Internet, we opt for the Live capture. If we have pcap files containing captured data packets and we want to extract audio communications from that file if it contains data packets of the audio communications, we opt for the Dead capture option.



Figure 3.2: Home Page

Once we enter inside the Live capture option, we are redirected to the Live Capture page. Inside that page, we have to first choose a network interface from which the system will capture the ongoing traffic packets e.g., eth0. The second option asks for the timeout in seconds. The system will capture the data packets from the selected interface for the specified seconds. The page is shown in Figure 3.3.



Figure 3.3: Live Capture Page

Here in the figure above, the interface wlp1s0 is selected as an interface and timeout of 60 seconds is given. On hitting the Submit button, the process of live capturing starts. We remain on the same page for the specified timeout (For our example, 60 seconds). Once the timeout is ended, we are redirected to the Successful calls page as shown in Figure 3.4. The page shows the list of records each specifies the audio sent from the sender to the receiver. Each record contains Source IP, Destination IP, Source Port, Destination Port and the Audio communication sent from the sender to the receiver.



Figure 3.4: Successful Calls List Page



On hitting the play button, we are able to listen the Audio stored inside that audio file. There are three buttons provided in this page. The Home button redirects to the Home page, Form button redirects to the Live Capture page and Failed Calls button redirects to the Failed Calls List page shown in the Figure 3.5. The page shows the list of failed calls representing the communication between two parties was not established. Each record shows the Source IP and Destination IP which specifies that the source was not able to send the audio to the destination. This page also contains three buttons. Home and Form buttons are the same as Successful Calls List page and Successful Calls button redirects to the page shown previously in Figure 3.4.

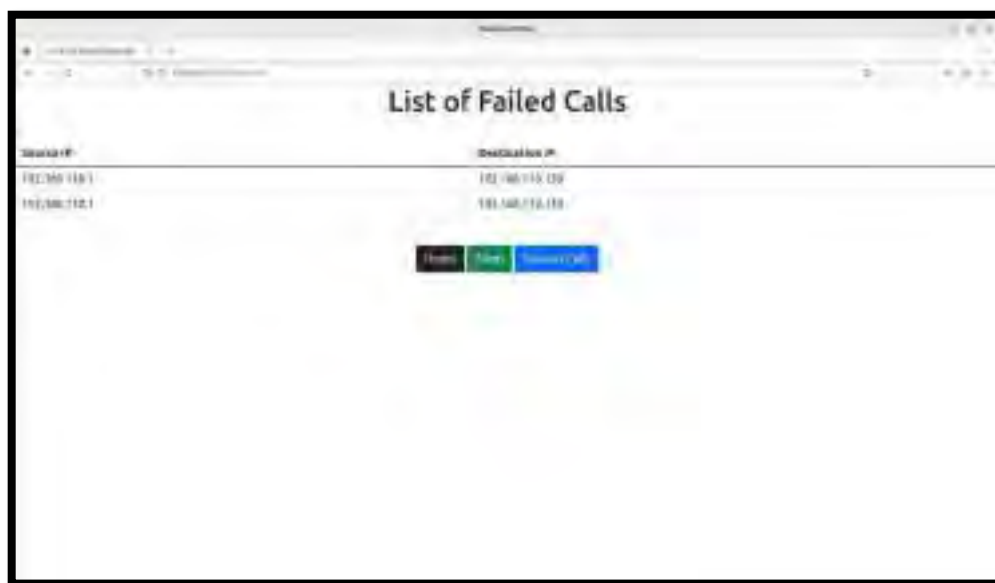


Figure 3.5: Failed Calls List Page

Coming to the second option for data capture i.e. Dead capture in the Home page, by selecting that option, we are redirected to the Dead Capture page as shown in Figure 3.6. It provides the Browse option through which we can upload the pcap file from our computer. When we hit the Submit button after uploading the pcap file, the system extracts the data packets and provides the audio communications from those packets if they contain such data. After hitting the submit button, we are redirected to the Successful Calls List page as shown previously. In the Dead Capture page, we can shift directly to successful calls list, failed calls list and Home page by clicking on the respective buttons.



Figure 3.6: Dead Capture Page

### 3.4 LEARNING

Upon completion of this project, I have learnt the MVT architecture of Django Framework and got more experience in MVC architecture development. I also learnt about TShark for packet capturing from the network traffic.

## **Chapter 4. COMMON VULNERABILITIES AND EXPOSURES**

### **4.1 INTRODUCTION**

Common Vulnerabilities and Exposures (CVE) is a list of information security flaws that have been made publicly known. A reference approach for publicly known information security vulnerabilities and exposures is offered by the Common Vulnerabilities and Exposures (CVE) system. The US National Cyber Security Division of the US Department of Homeland Security provides money for the US National Cyber Security FFRDC, which is run by The MITRE Corporation and is responsible for system maintenance. In September 1999, the system was formally made available to the general public.

CVE is used by the Security Content Automation Protocol (SCAP), and CVE IDs can be found in both the US National Vulnerability Database and MITRE's system.

A vulnerability is a flaw in a piece of software that can be exploited to obtain access to resources they shouldn't be able to. A vulnerability could be used by hackers to acquire credit card details from software that processes credit cards, for instance, which is supposed to prevent individuals from reading the credit card numbers it processes. It is challenging to discuss a single vulnerability because there are numerous software products, some of which have numerous weaknesses. Each vulnerability has a unique name thanks to the CVE Identifiers, so people can discuss certain problems using those names.

According to MITRE Corporation's documentation, CVE Identifiers—also known as "CVE names," "CVE numbers," "CVE-IDs," and "CVEs"—are distinct, widespread identifiers for known information-security flaws in publicly accessible software packages. In the past, CVE identifiers held the status of "candidate" ("CAN-") before they could be promoted to entries ("CVE-"). This practice, however, was discontinued in 2005, and all identifiers are now given CVE designations. A CVE may be incorrectly assigned to a problem that is not a security vulnerability or that duplicates an existing entry, hence its assignment does not guarantee that it will become an official CVE entry.

A CVE Numbering Authority (CNA) is responsible for assigning CVEs. Although a few vendors had previously performed CNA duties, the name and designation were not established until February 1, 2005. The three main ways that CVE numbers are assigned are:

- The MITRE Corporation serves as both the primary CNA and editor.
- Various CNAs (such as Microsoft, Oracle, HP, Red Hat, etc.) assign CVE IDs to their own products.
- For products not covered by other CNAs, a third-party coordinator like the CERT Coordination Centre may assign CVE numbers.

It is beneficial to obtain a CVE number as soon as possible when looking into a vulnerability or suspected vulnerability. Due to issues that are embargoed (the CVE number has been assigned, but the issue has not yet been made public), or in situations where the entry is not researched and written up by MITRE due to resource issues, CVE numbers may not appear in the MITRE or NVD CVE databases for some time (days, weeks, months, or even years). Early CVE candidature has the advantage that the CVE number can be used in all future correspondence. Red Hat and GitHub both provide information on how to obtain CVE identifiers for problems with open-source projects.

CVEs are for software that has been made available to the general public; if it is widely used, this can encompass betas and other pre-release versions. Commercial software falls under the "publicly released" category, but CVEs are typically not assigned to custom-made, non-distributed software. Additionally, CVEs are not assigned to services (such as a Web-based email provider) for flaws discovered in the service (such as an XSS vulnerability) unless the problem exists in an underlying software product that is widely distributed.

## 4.2 CVE DATA FIELDS

The typical CVE is provided in the JSON format from the NVD as shown below:

```
{
  "cve": {
    "id": "CVE-1999-0095",
    "sourceIdentifier": "cve@mitre.org",
    "published": "1988-10-01T04:00:00.000",
    "lastModified": "2019-06-11T20:29:00.263",
    "vulnStatus": "Modified",
    "descriptions": [
      {
        "lang": "en",
        "value": "The debug command in Sendmail is enabled, allowing attackers
to execute commands as root."
      },
      {
        "lang": "es",
        "value": "El comando de depuración de Sendmail está activado,
permitiendo a atacantes ejecutar comandos como root."
      }
    ]
  }
}
```

```
],
"metrics": {
  "cvssMetricV2": [
    {
      "source": "nvd@nist.gov",
      "type": "Primary",
      "cvssData": {
        "version": "2.0",
        "vectorString": "AV:N\\AC:L\\Au:N\\C:C\\I:C\\A:C",
        "accessVector": "NETWORK",
        "accessComplexity": "LOW",
        "authentication": "NONE",
        "confidentialityImpact": "COMPLETE",
        "integrityImpact": "COMPLETE",
        "availabilityImpact": "COMPLETE",
        "baseScore": 10.0
      },
      "baseSeverity": "HIGH",
      "exploitabilityScore": 10.0,
      "impactScore": 10.0,
      "acInsufInfo": false,
      "obtainAllPrivilege": true,
      "obtainUserPrivilege": false,
      "obtainOtherPrivilege": false,
      "userInteractionRequired": false
    }
  ]
},
"weaknesses": [
  {
    "source": "nvd@nist.gov",
    "type": "Primary",
    "description": [
      {
        "lang": "en",
        "value": "NVD-CWE-Other"
      }
    ]
  }
]
},
"configurations": [
  {
    "nodes": [
      {
        "operator": "OR",
        "negate": false,
        "cpeMatch": [
          {
            "vulnerable": true,
            "criteria":
"\"cpe:2.3:a:eric_allman:sendmail:5.58:*:*:*:*:*:*\"",
            "matchCriteriaId": "1D07F493-9C8D-44A4-8652-F28B46CBA27C"
          }
        ]
      }
    ]
  }
]
},
"references": [
  {
    "url": "http://seclists.org/fulldisclosure/2019/Jun/16",
    "source": "cve@mitre.org"
  },
  {
```

```

        "url": "http://www.openwall.com/lists/oss-
security/2019/06/05/4",
        "source": "cve@mitre.org"
    },
    {
        "url": "http://www.openwall.com/lists/oss-
security/2019/06/06/1",
        "source": "cve@mitre.org"
    },
    {
        "url": "http://www.securityfocus.com/bid/1",
        "source": "cve@mitre.org"
    }
]
}
}

```

It comprises of the following data fields:

- i. **ID:** It is a unique identifier which uniquely identifies every CVE (e.g. CVE-1999-0095).
- ii. **Source Identifier:** It contains the source from where it is published (e.g. cve@mitre.org).
- iii. **Published:** It represents the Date and Time when it was published (e.g. 2011-03-16T22:55:04.153).
- iv. **Last Modified:** It represents the latest Date and Time when it was modified (e.g. 2018-10-09T19:29:45.953).
- v. **Status:** It represents the status of the CVE (e.g. Modified).
- vi. **Descriptions:** It represents the description of the vulnerability which is identified in one or more languages (e.g. Directory traversal vulnerability in nhttpd (aka Nostromo webserver) before 1.9.4 allows remote attackers to execute arbitrary programs or read arbitrary files via a `..%2f` (encoded dot dot slash) in a URI.)
- vii. **Metrics:** It shows CVSS Metric version 2.0 and/or CVSS Metric version 3.0 and/or CVSS Metric version 3.1 (CVSS is discussed in section 4.4).
- viii. **Weaknesses:** It shows one or more weaknesses which triggers this specific vulnerability (CWE is discussed in section 4.3).
- ix. **Configurations:** It shows the list of Platforms (Hardware or Software) in which the mentioned vulnerability occurred (CPE is discussed in section 4.5).
- x. **References:** It provides the reference URLs along with their sources which provides information about the specific CVE.

### 4.3 COMMON WEAKNESS ENUMERATION

Common software and hardware weakness types that affect security are included in the Common Weakness Enumeration (CWE), a community-developed database. A "weakness" is a defect in a piece of software, firmware, hardware, or service that, in certain situations, might help to introduce vulnerabilities. These flaws can be recognized and discussed in terms of CWEs using the CWE List and its related classification taxonomy.

CWE's primary objective is to prevent vulnerabilities at their source by instructing software and hardware architects, designers, programmers, and acquirers on how to avoid the most frequent errors before goods are delivered. It is aimed at both the development and security practitioner groups. In the end, the adoption of CWE aids in the prevention of the kinds of security flaws that have plagued the hardware and software sectors and endangered businesses.

CWE enables security experts and engineers to:

- Identify and communicate software and hardware flaws in a universal language.
- Look for flaws in current hardware and software products.
- Examine how well tools that tackle these weaknesses are covered.
- Use a consistent baseline norm to help with efforts to identify, mitigate, and prevent weaknesses.
- Prevent hardware and software flaws before deployment.

Examples of Software weaknesses:

- Buffer overflows, format strings etc.
- Structure and validity problems
- Common special element manipulations
- Channel and path errors
- Handler errors
- User interface errors
- Path name traversal and equivalence errors
- Authentication errors
- Resource management errors
- Insufficient verification of data
- Code evaluation and injection

- Randomness and predictability

Examples of Hardware weaknesses:

- Core and compute issues typically associated with CPUs, graphics, vision, AI, FPGA and uControllers
- Privilege separation and access control issues related to identity and policy, shared resources, locking controls, registers and other features and mechanisms
- Power, clock and reset concerns related to voltage, electrical current, temperature, clock control and state saving/restoring

#### 4.4 COMMON VULNERABILITY SCORING SYSTEM

The Common Vulnerability Scoring System (CVSS) is a framework used to assess the severity of security vulnerabilities in computer systems or networks. It is a standard system that provides a quantitative way to measure the impact of a vulnerability on a system, based on several factors such as the nature of the vulnerability, its potential impact, and the ease with which it can be exploited.

The CVSS assigns a score to each vulnerability, which ranges from 0 to 10. A higher score indicates a more severe vulnerability, and it allows security professionals and organizations to prioritize their efforts and resources to address the most critical vulnerabilities first.

The CVSS framework takes into account the following three metrics:

- Base metrics:** These metrics describe the fundamental characteristics of a vulnerability, such as its exploitability, impact, and affected components.
- Temporal metrics:** These metrics describe the characteristics of a vulnerability that may change over time, such as the availability of a patch or the existence of an exploit.
- Environmental metrics:** These metrics describe the characteristics of a vulnerability that are specific to a particular environment, such as the complexity of the system or the criticality of the affected data.

The CVSS is widely used in the security industry as a standard way to evaluate and compare vulnerabilities. It enables security professionals to communicate and prioritize security risks more effectively, which ultimately helps to improve the overall security posture of an organization.



## 4.5 COMMON PLATFORM ENUMERATION

Common Platform Enumeration (CPE) is a structured naming scheme for identifying hardware and software products, versions, and editions. It provides a standardized way of describing a particular product or version, which enables easier and more accurate communication and comparison of product information across different organizations and systems.

The CPE naming convention consists of three components:

- i. **The product name or vendor name:** This component identifies the product or vendor name of the hardware or software. For example, "Microsoft" or "Apache."
- ii. **The product version:** This component identifies the version of the product. For example, "Windows 10" or "Apache HTTP Server 2.4.18."
- iii. **The product edition:** This component identifies the specific edition or variant of the product. For example, "Windows 10 Professional" or "Apache HTTP Server 2.4.18 for Windows."

The CPE standard provides a common language for describing software and hardware products and their associated attributes, such as security vulnerabilities, configuration settings, and patch levels. This enables organizations to better manage their IT assets and security posture by identifying and tracking vulnerabilities and configuration issues across their systems. The CPE standard is maintained by the National Institute of Standards and Technology (NIST) and is widely used by government agencies, security researchers, and industry stakeholders.

CPE is an open standard that was developed by the National Institute of Standards and Technology (NIST) as part of the Common Vulnerabilities and Exposures (CVE) program. The goal of CPE is to provide a standardized way to identify hardware and software products, versions, and editions, to help organizations better manage their IT assets and security risks.

CPE is used in various security-related processes, such as vulnerability management, patch management, and configuration management. For example, a security analyst might use CPE to identify which systems in their organization are vulnerable to a particular security flaw, or a system administrator might use CPE to ensure that all systems are running the same version and edition of a particular software product.

CPE names are organized in a hierarchical format, with each level separated by a colon (:). The top-level component of a CPE name identifies the vendor name or product name, the second-

level component identifies the product version, and the third-level component identifies the product edition. For example, a CPE name for a specific version of the Apache HTTP Server might look like this: `cpe:/a:apache:http_server:2.4.18` and in general the CPE follows this format, maintained by NIST:

```
cpe:<cpe_version>:<part>:<vendor>:<product>:<version>:<update>:<edition>:<language>:  
<sw_edition>:<target_sw>:<target_hw>:<other>
```

In addition to its use in vulnerability management and other security-related processes, CPE is also used in other contexts, such as software licensing and inventory management. It is supported by various software tools and services, including vulnerability scanners, asset management tools, and software repositories. Overall, CPE is an important standard for identifying and managing IT assets and security risks, and it has become a widely adopted industry standard for this purpose.

## 4.6 PURPOSE

The purpose behind the CVEs is to create our own database containing such vulnerabilities in order to check those for the platforms inside the environment where it is deployed.

## 4.7 IMPLEMENTATION

The CVE project is implemented in .NET Core. The implementation contains the logic of fetching the CVEs from the cloud and storing those inside our database. Cloud provides us the CVEs into JSON format, then they are converted in the appropriate types and stored inside the database.

Other than this, Number of APIs are being created for fetching specific CVEs, CPEs, CWEs, CVSSes, References, Sources and Statuses. Each CVE contains its corresponding CPEs, CWEs, CVSSes, References, Sources and Status. Each CPE contains its corresponding CVEs and Sources. Each CWE contains its corresponding CVEs and each CVSS contains its corresponding CVE. The project is still ongoing and further modifications are being performed according to the need and situations.

### 4.7.1 CVE

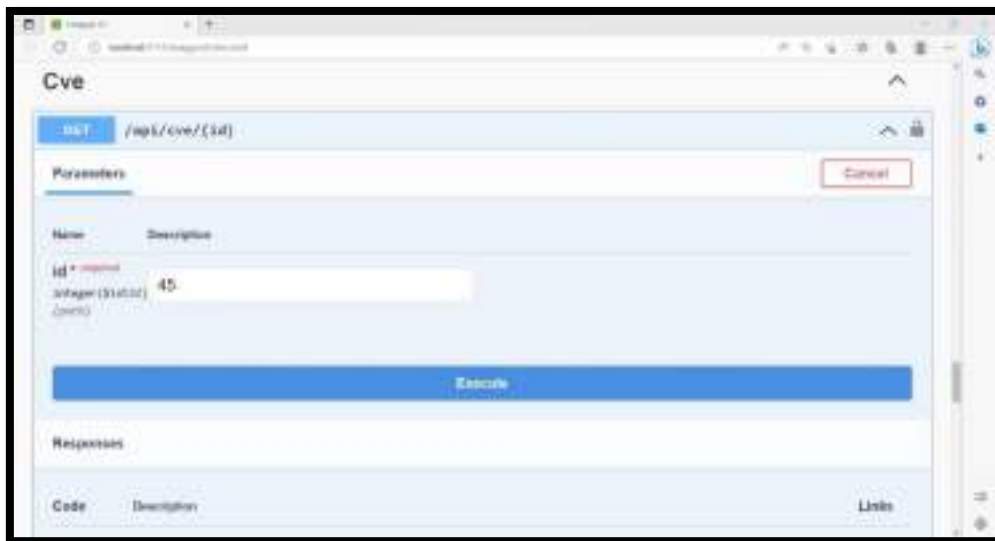


Figure 4.1: CVE Search using ID

Figure 4.1 shows CVE search using ID API which accepts ID as input parameter and returns the CVE which has the given ID. In the figure above, ID 45 is provided. In the response, the API returns CVE whose ID is 45 as shown in the figure below. Each CVE contains ID, CVE ID, Status ID, Source ID, Description, Publishing date and time, Last modified date and time, Its Status, Source from which it is published, CPEs, CWEs, CVSSes and References related to that particular CVE.



Figure 4.2: CVE of specified ID



The data structure provided in this API is the same as the previous API. The only difference is the Input parameters which they accept.

Last API of CVE is the CVE Change History. Upon calling this API, it will add, update or delete the related CPEs, CWEs, CVSSes of the CVEs stored inside the database. The data regarding this is fetched from the cloud. Upon completion of this process, the response will return the number of CVEs which were checked inside the database for any modifications specified above.

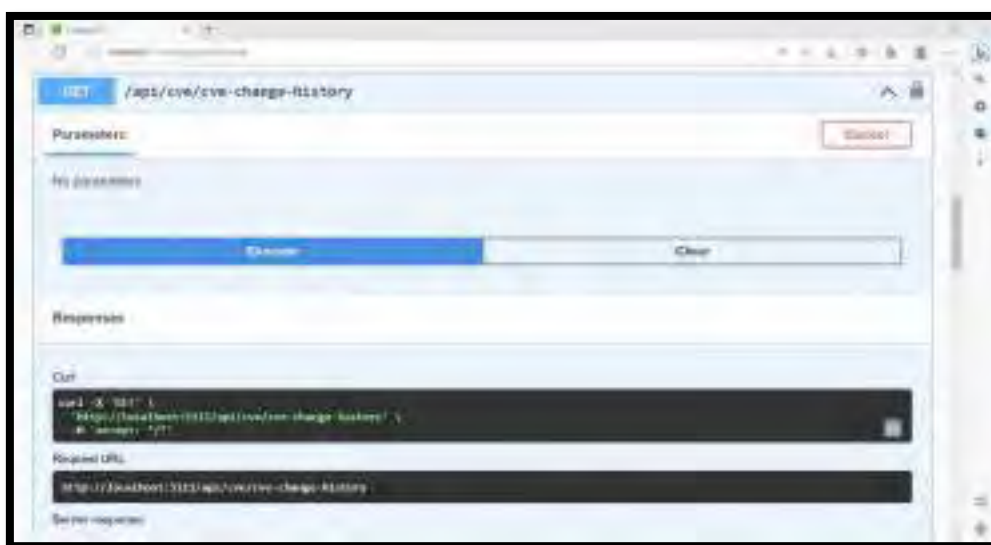


Figure 4.5: CVE Change History API



Figure 4.6: CVE Change History API Response

The API response shows the number of CVEs (49 in the example above) which the API request received from the NIST cloud for the specified timeline. Those CVEs are checked inside the database. If the CVEs are found inside the database, then the modification process on those CVEs are performed. This is how this API works.

#### 4.7.2 CVSS

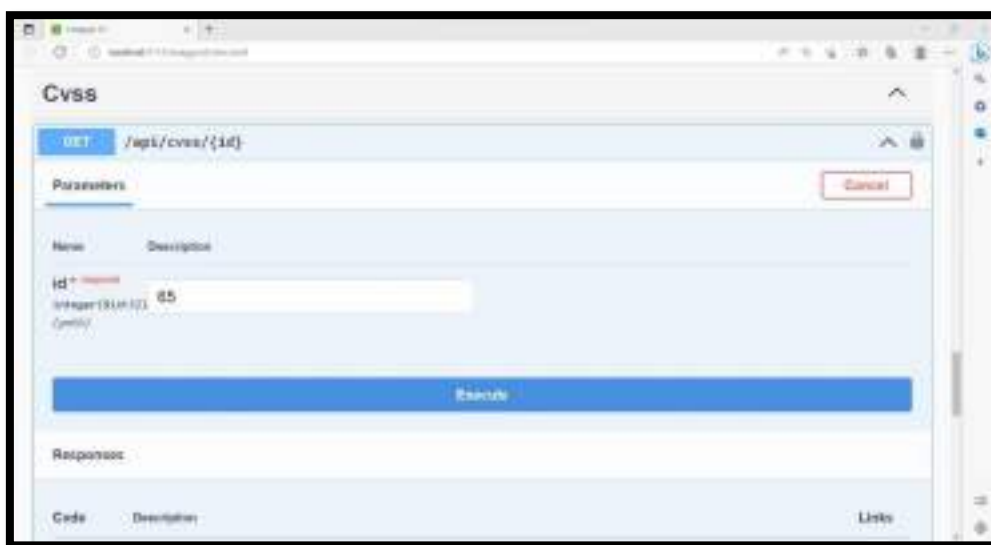


Figure 4.7: CVSS Search using ID

Figure 4.7 shows CVSS search using ID API which accepts ID as input parameter and returns the CVSS which has the given ID. In the figure above, ID 65 is provided. In the response, the API returns CVSS whose ID is 65 as shown in the figure below. Each CVSS contains ID, Source ID, Type, Version, Vector string, Attack vector, Attack complexity, Privileges required, User interaction, Scope, Confidentiality impact, Integrity impact, Availability impact, Base score, Base severity, Exploitability score, Impact score, AcInsufInfo, Obtain all privilege, Obtain user privilege, Obtain other privilege, User interaction required, Source and its corresponding CVE(s).



Figure 4.8: CVSS of specified ID

Another API provides the CVSS search facility using parameters other than ID such as Version, Vector string, Base score, Exploitability score and Impact score. We can provide the information for one or more parameters. If one or more fields are filled, then CVSSes are filtered based on those field values. Otherwise, CVSSes from the starting of the database are shown in their stored order. In the example given below, '8' is given in the Base score and '2' is given in the Exploitability score fields.



Figure 4.9: CVSS Search using Fields

Upon executing the API, the response contains all the CVSSes which have Base score greater than or equal to '8' and Exploitability score greater than or equal to '2' as shown in the figure below.

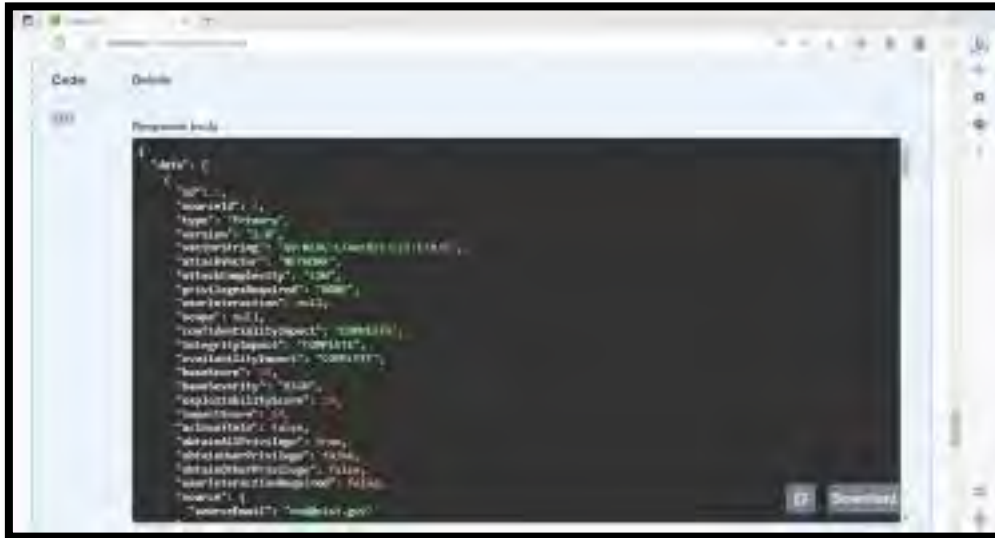


Figure 4.10: Filtered CVSSes based upon the Fields' values

The data structure provided in this API is the same as the previous API. The only difference is the Input parameters which they accept.

### 4.7.3 CPE

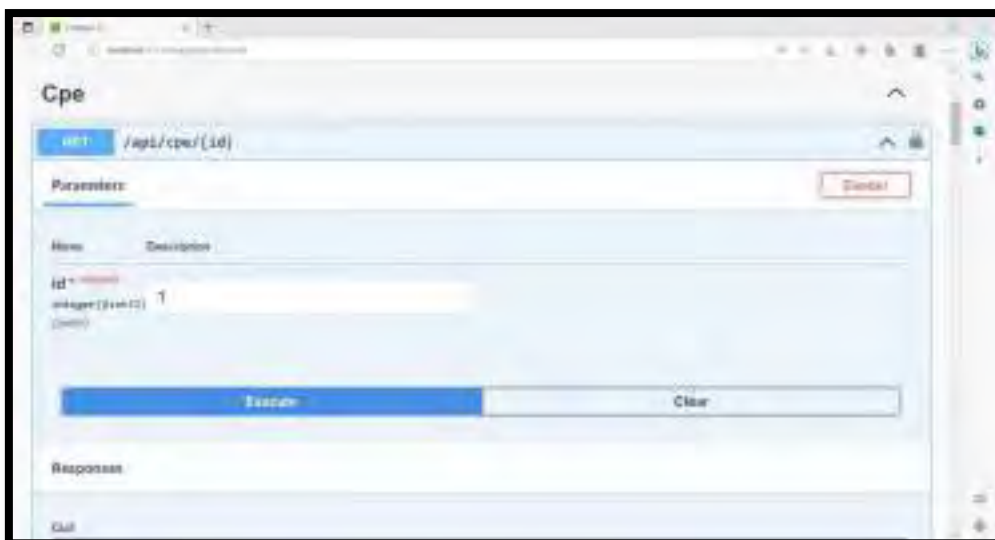


Figure 4.11: CPE Search using ID



Figure 4.11 shows CPE search using ID API which accepts ID as input parameter and returns the CPE which has the given ID. In the figure above, ID 1 is provided. In the response, the API returns CPE whose ID is 1 as shown in the figure below. Each CPE contains ID, Deprecated, CPE name, CPE name ID, Titles, Published at, Updated at, CPE deprecated by ID and its corresponding CVE(s).

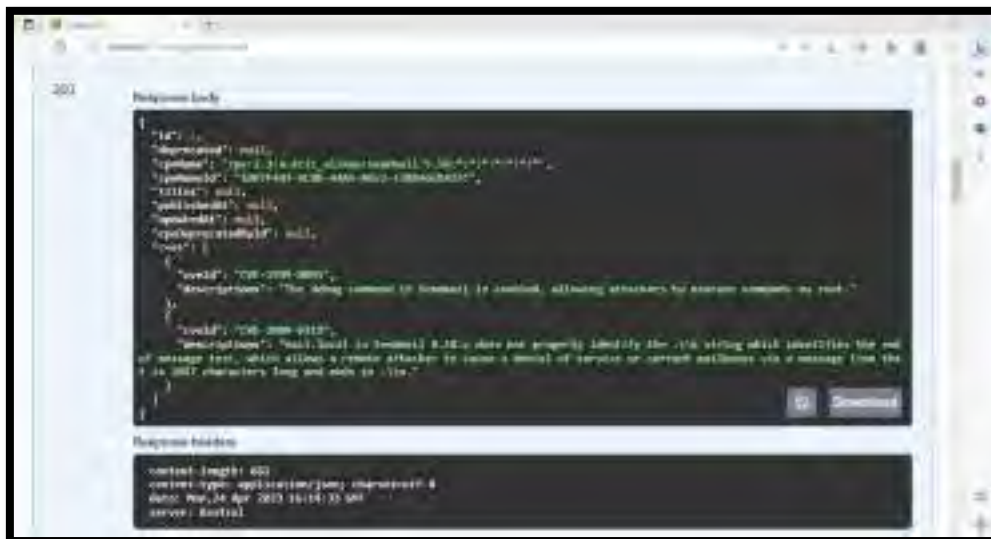


Figure 4.12: CPE of specified ID

Another API provides the CPE search facility using parameters other than ID such as CPE name and CPE name ID. We can provide the information for one or more parameters. If one or more fields are filled, then CPEs are filtered based on those field values. Otherwise, CPEs from the starting of the database are shown in their stored order. In the example given below, 'microsoft' is given in the CPE name field.



Figure 4.13: CPE Search using Fields

Upon executing the API, the response contains all the CPEs which have 'microsoft' in their CPE names as shown in the figure below.

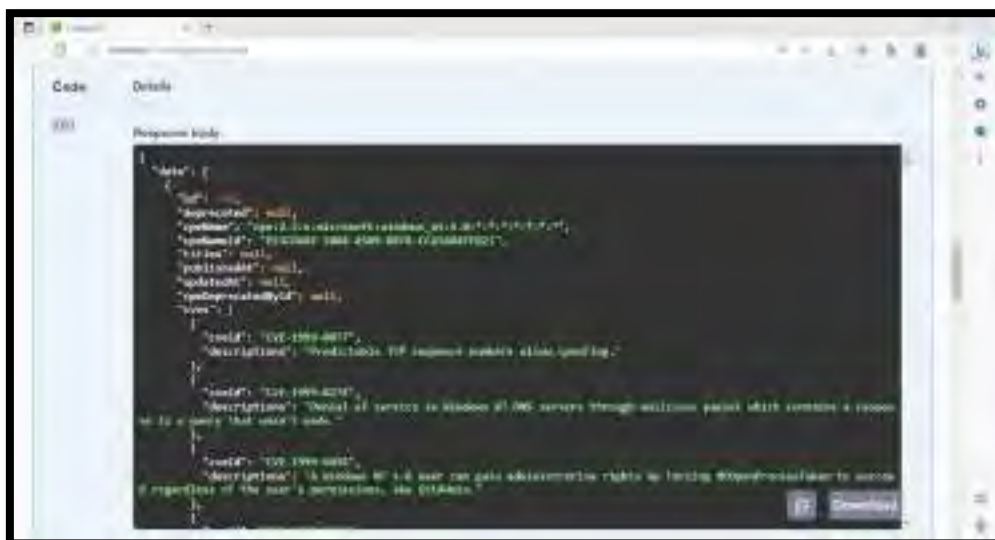


Figure 4.14: Filtered CPEs based upon the Fields' values

The data structure provided in this API is the same as the previous API. The only difference is the Input parameters which they accept.

#### 4.7.4 CWE

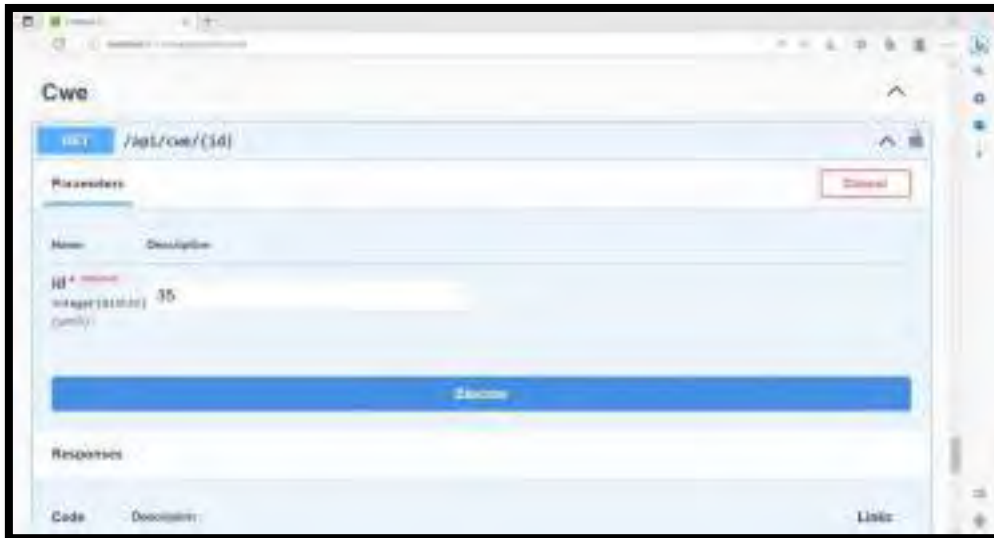


Figure 4.15: CWE Search using ID

Figure 4.15 shows CWE search using ID API which accepts ID as input parameter and returns the CWE which has the given ID. In the figure above, ID 35 is provided. In the response, the API returns CWE whose ID is 35 as shown in the figure below. Each CWE contains ID, Source ID, Type, Value, Source and its corresponding CVE(s).

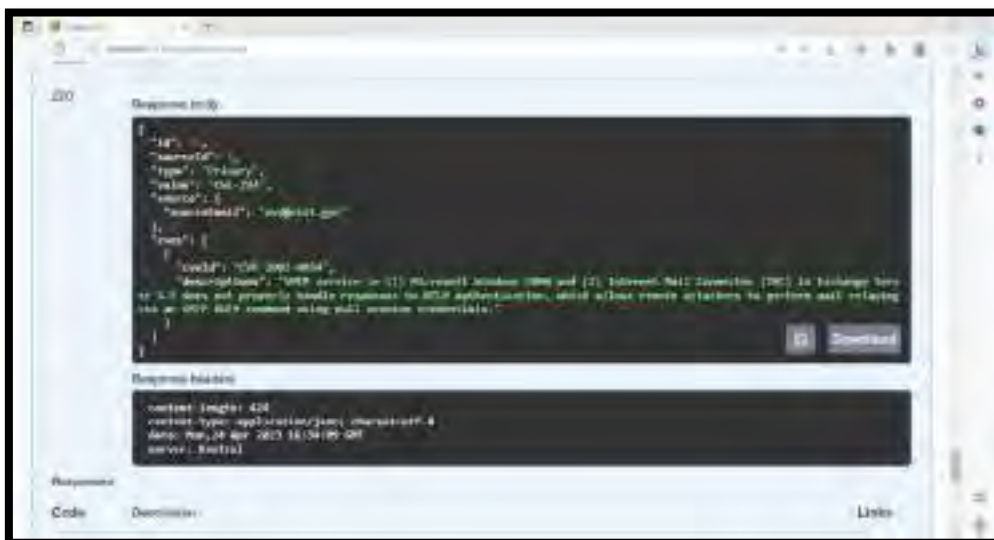


Figure 4.16: CWE of specified ID

Another API provides the CWE search facility using parameter other than ID such as Value. We can provide the information for this parameter. If it is filled, then CWEs are filtered based

on that field value. Otherwise, CWEs from the starting of the database are shown in their stored order. In the example given below, 'cwe-134' is given in the Value field.

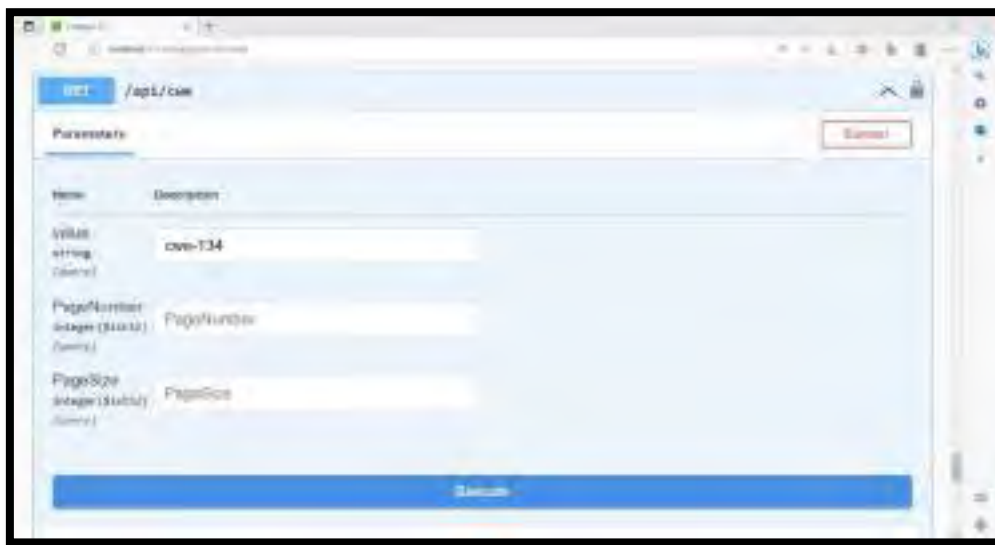


Figure 4.17: CWE Search using Value Field

Upon executing the API, the response contains all the CWEs which have 'cwe-134' in their Values as shown in the figure below.

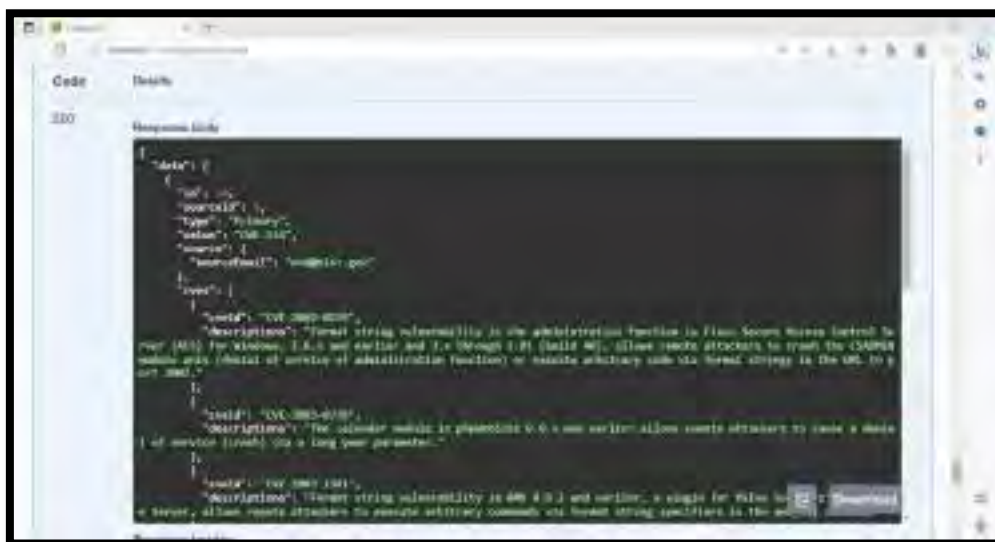


Figure 4.18: Filtered CWEs based upon the Value Field

The data structure provided in this API is the same as the previous API. The only difference is the Input parameters which they accept.

### 4.7.5 Reference

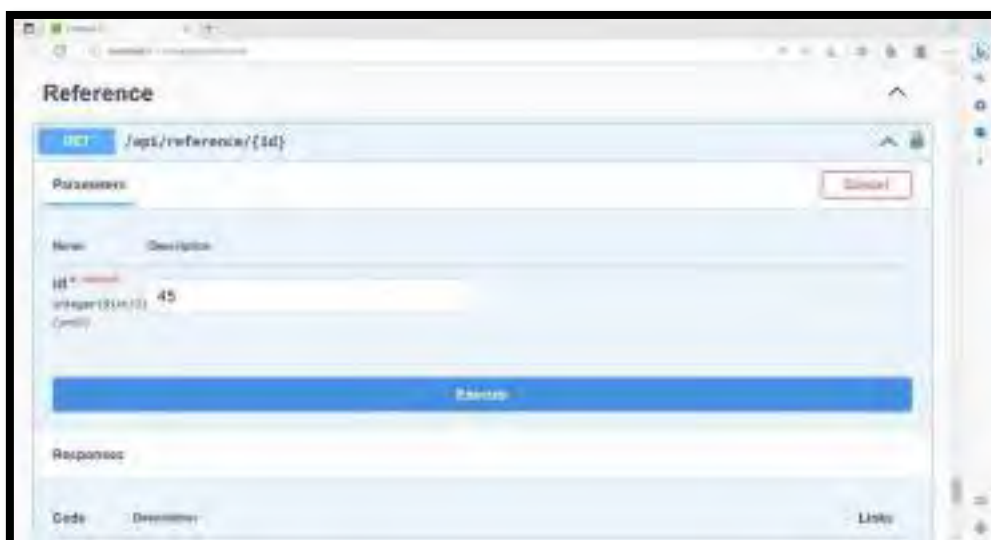


Figure 4.19: Reference Search using ID

Figure 4.19 shows Reference search using ID API which accepts ID as input parameter and returns the Reference which has the given ID. In the figure above, ID 45 is provided. In the response, the API returns the Reference whose ID is 45 as shown in the figure below. Each Reference contains ID, URL, Tags, Source ID, Source and its corresponding CVE(s).

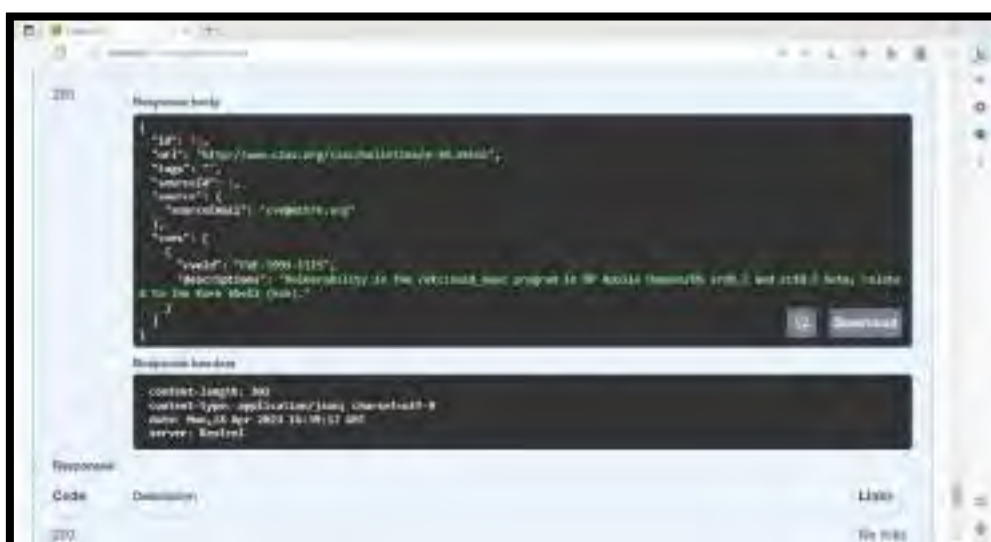


Figure 4.20: Reference of specified ID

Another API provides the Reference search facility using parameters other than ID such as URL and Tags. We can provide the information for one or more parameters. If one or more fields are filled, then References are filtered based on those field values. Otherwise, References

from the starting of the database are shown in their stored order. In the example given below, 'mitre.org' is given in the URL field.



Figure 4.21: Reference Search using Fields

Upon executing the API, the response contains all the References which have 'mitre.org' in their URLs as shown in the figure below.

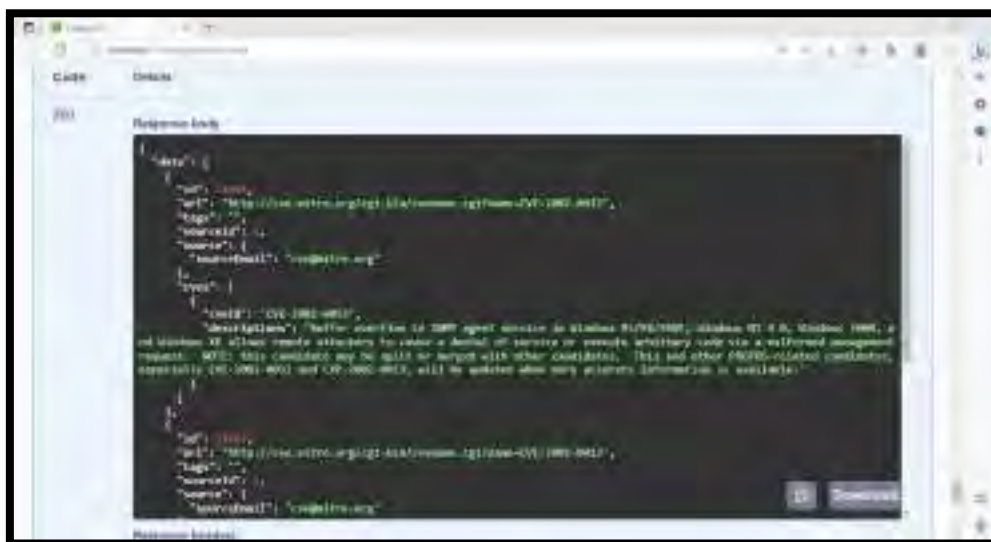


Figure 4.22: Filtered References based upon the Fields' values

The data structure provided in this API is the same as the previous API. The only difference is the Input parameters which they accept.

### 4.7.6 Source

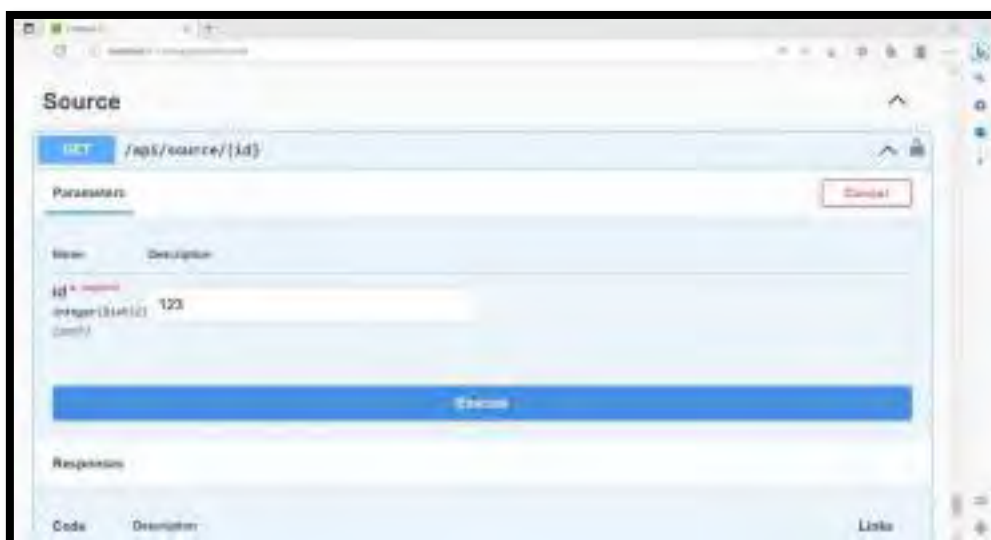


Figure 4.23: Source Search using ID

Figure 4.23 shows Source search using ID API which accepts ID as input parameter and returns the Source which has the given ID. In the figure above, ID 123 is provided. In the response, the API returns the Source whose ID is 123 as shown in the figure below. Each Source contains ID, Name, Contact email, Source email, V3 acceptance level description, V3 acceptance level last modified, CWE acceptance level description, CWE acceptance level last modified, V2 acceptance level description, V2 acceptance level last modified, Created at, Updated at and its corresponding CVE(s).

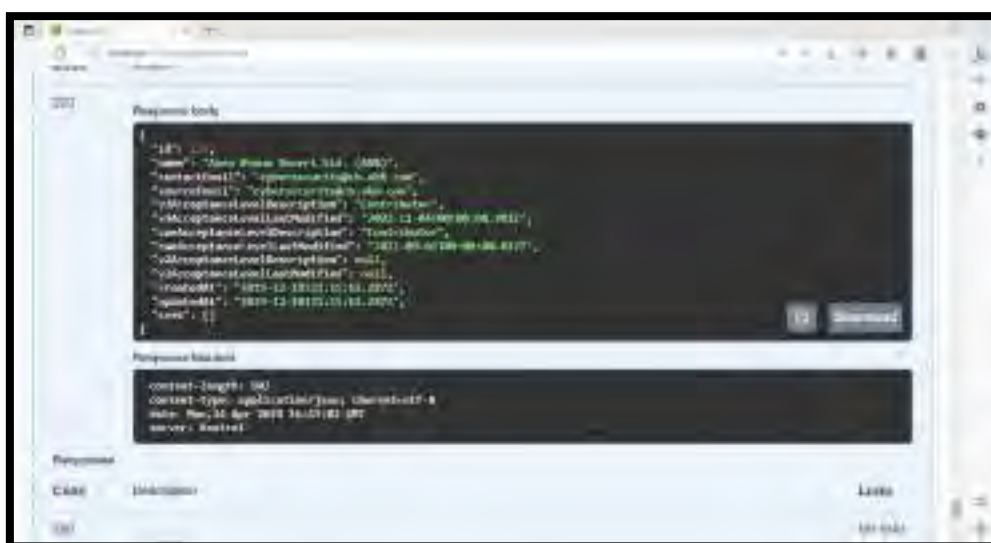


Figure 4.24: Source of specified ID

Another API provides the Source search facility using parameters other than ID such as Contact email, Source email and Name. We can provide the information for one or more parameters. If one or more fields are filled, then Sources are filtered based on those field values. Otherwise, Sources from the starting of the database are shown in their stored order. In the example given below, 'red hat' is given in the Name field.



Figure 4.25: Source Search using Fields

Upon executing the API, the response contains all the Sources which have 'red hat' in their Names as shown in the figure below.

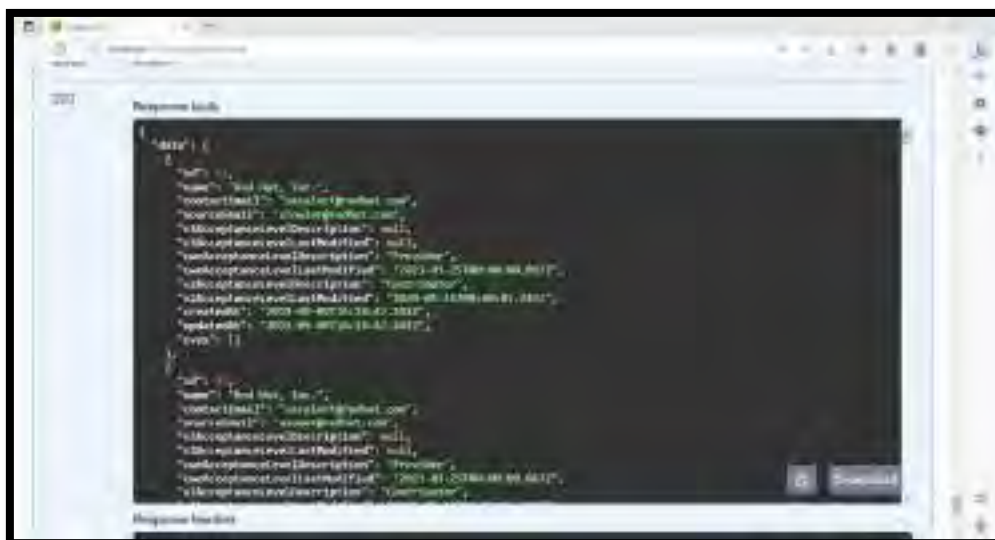


Figure 4.26: Filtered Sources based upon the Fields' values



The data structure provided in this API is the same as the previous API. The only difference is the Input parameters which they accept.

#### 4.7.7 Status

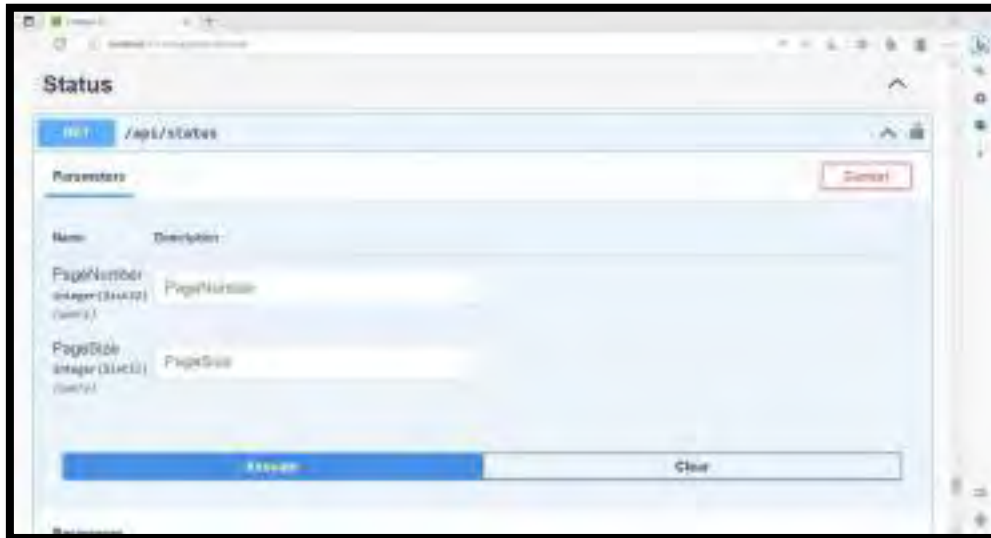


Figure 4.27: Status API

Figure 4.27 shows Status API. Since the Status values are not that much, there is no need to provide and search parameters like ID and other API specific parameters. All we need to do is to call the API and it gives all the stored statuses in the response as shown in the figure below.

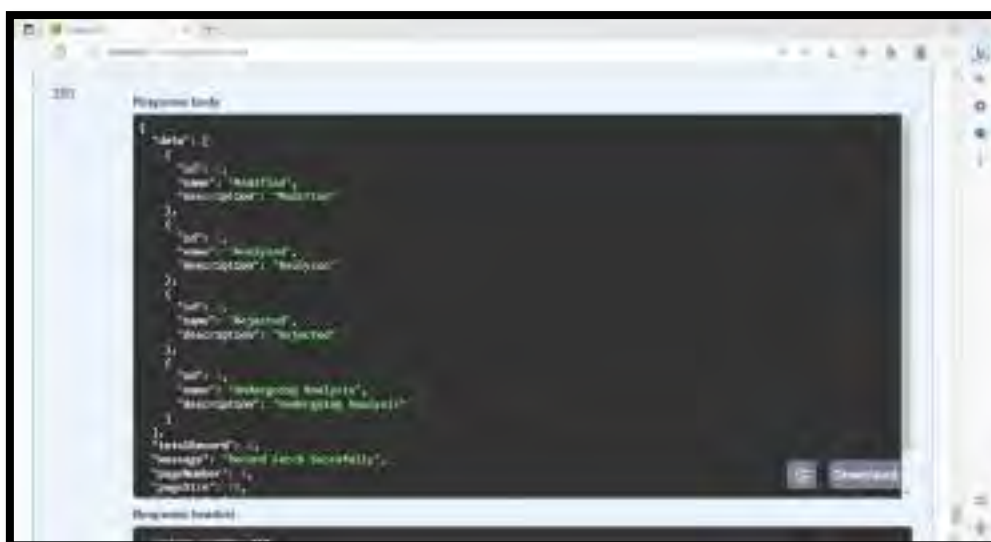


Figure 4.28: Status API Response

This completes the walkthrough of the entire project implementation which contains number of APIs for the searching facility according to the need.

## **4.8 LEARNING**

This is an ongoing project. The database creation is still in progress. During this entire process, I was able to gain more hands-on experience in .NET Core. I was also able to get hands-on experience in SQL. Currently, I am performing the role of creating the database and implementing any changes needed inside this project in my organization.

## **Chapter 5. CONCLUSION**

### **5.1 SUMMARY OF INTERNSHIP**

In this Internship, I have got the chance for the hands-on experience in technologies like Git, .NET Core, Django and SQL. I learnt using tools like Visual Studio, Visual Studio Code, SQL Server and SQL Server Management Studio. Thanks to this Internship, now I am able to work in Linux along with Windows. Because this is a startup, it gave me an opportunity to explore the unexplored ways and try to find the answers of the problems on my own. Arishti Info Labs has provided me an opportunity to work into its Live project and gave me the responsibility to work upon it to enhance and improve its functionality.

## Bibliography

### Website References:

1. [https://en.wikipedia.org/wiki/Common\\_Platform\\_Enumeration](https://en.wikipedia.org/wiki/Common_Platform_Enumeration)
2. [https://en.wikipedia.org/wiki/Common\\_Vulnerabilities\\_and\\_Exposures](https://en.wikipedia.org/wiki/Common_Vulnerabilities_and_Exposures)
3. [https://en.wikipedia.org/wiki/Common\\_Vulnerability\\_Scoring\\_System](https://en.wikipedia.org/wiki/Common_Vulnerability_Scoring_System)
4. <https://cwe.mitre.org/about/index.html>
5. [https://en.wikipedia.org/wiki/Microsoft\\_SQL\\_Server](https://en.wikipedia.org/wiki/Microsoft_SQL_Server)
6. <https://en.wikipedia.org/wiki/Git>
7. [https://en.wikipedia.org/wiki/Django\\_\(web\\_framework\)](https://en.wikipedia.org/wiki/Django_(web_framework))
8. <https://learn.microsoft.com/en-us/dotnet/core/introduction>
9. <https://learn.microsoft.com/en-us/aspnet/core/tutorials/first-mvc-app/adding-controller?view=aspnetcore-7.0&tabs=visual-studio>
10. <https://www.wireshark.org/docs/man-pages/tshark.html>

### Appendix A. Annexure-I

GUJARAT TECHNOLOGICAL UNIVERSITY  
(Established under Gujarat Act No. 26 of 1987)  
ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી  
(ગુજરાત અધિનિયમ નંબર ૨૬-૧૯૮૭)

Assessors:  
Date: 12/01/2023

**STUDENT'S WORK RECORD OF SEMESTER**

NAME OF STUDENT: Pragati Pooja Bahadranand  
 NAME OF THE INSTITUTE: S.P.B. Patel Engineering College  
 NAME OF THE DEPARTMENT: Computer Engineering  
 NAME OF THE PLACEMENT/INTERVIEW: Software Development  
 NAME OF THE ORGANIZATION: Pr. Mitra Software

DESCRIPTION OF THE WORK DONE BY STUDENT

Project about -  
 - API  
 - All the API endpoints  
 - Using external services  
 - REST API in form of JSON  
 - All the API  
 - Fully functional REST API  
 - Also in REST API

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(ગુજરાત અધિનિયમ નંબર ૨૬-૧૯૮૭)

Signature of Student: P. A. Pragati  
Date: 12/01/2023

Signature of Faculty Member: \_\_\_\_\_  
Date: \_\_\_\_\_

Signature of Head of Department: \_\_\_\_\_  
Date: \_\_\_\_\_

Signature of Assessor: \_\_\_\_\_  
Date: \_\_\_\_\_

Signature of Assessor: \_\_\_\_\_  
Date: \_\_\_\_\_

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(ગુજરાત અધિનિયમ નંબર ૨૬-૧૯૮૭)

Assessors:  
Date: 12/01/2023

**STUDENT'S WORK RECORD OF SEMESTER**

NAME OF STUDENT: Pragati Pooja Bahadranand  
 NAME OF THE INSTITUTE: S.P.B. Patel Engineering College  
 DEPARTMENT: Computer Engineering  
 NAME OF THE DEPARTMENT: Computer Engineering  
 NAME OF THE PLACEMENT/INTERVIEW: Software Development  
 NAME OF THE ORGANIZATION: Pr. Mitra Software

DESCRIPTION OF THE WORK DONE BY STUDENT

I have created my first MVC project as a basic for which requires good understanding of the knowledge about API. As per the requirement of the project, I have created the application on which, pushed the projects, developed the application and updated the application after adding some data to it.

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(ગુજરાત અધિનિયમ નંબર ૨૬-૧૯૮૭)

Signature of Student: P. A. Pragati  
Date: 12/01/2023

Signature of Faculty Member: \_\_\_\_\_  
Date: \_\_\_\_\_

Signature of Head of Department: \_\_\_\_\_  
Date: \_\_\_\_\_

Signature of Assessor: \_\_\_\_\_  
Date: \_\_\_\_\_

Signature of Assessor: \_\_\_\_\_  
Date: \_\_\_\_\_

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(જાહેરાત અન્વયે ગુજરાત અક્ટ નં. ૨૬-૨૦૦૭)

Section I  
Established on  
12/03/2008

**STUDENT'S PRACTICE SHEET OF ASSIGNMENT**

NAME OF STUDENT: Prajwal Prasad Anandharam  
 NAME OF THE NIEL: Software Development  
 DEPARTMENT: Computer Engineering SEM 8  
 NAME OF THE ORGANIZATION: Hydro Soft Labs Pvt Ltd  
 NAME OF THE PLANT OR DEPARTMENT: Software Development  
 NAME OF OFFICE IN CHARGE OF THE PLANT OR DEPARTMENT: Mr. Wilson Vaidya

DESCRIPTION OF THE WORK DONE IN NIEL

I made excel file in excel sheet and implemented the concept of 'lookup' and 'VLOOKUP'. I connected my laptop project with remote database and performed CRUD operations. I understood about 'authentication' and 'authorization'. As part I started writing the ongoing LIVE project of 'Kashik' without any use of GUI. I connected to the remote host server's database through Java Servlet. I did 'lookup' about 'Secure Sock Layer Protocol' (SSL).

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(જાહેરાત અન્વયે ગુજરાત અક્ટ નં. ૨૬-૨૦૦૭)

Section I  
Established on  
12/03/2008

**STUDENT'S PRACTICE SHEET OF ASSIGNMENT**

NAME OF STUDENT: Prajwal Prasad Anandharam  
 NAME OF THE NIEL: Software Development  
 DEPARTMENT: Computer Engineering SEM 8  
 NAME OF THE ORGANIZATION: Hydro Soft Labs Pvt Ltd  
 NAME OF THE PLANT OR DEPARTMENT: Software Development  
 NAME OF OFFICE IN CHARGE OF THE PLANT OR DEPARTMENT: Mr. Wilson Vaidya

DESCRIPTION OF THE WORK DONE IN NIEL

I made excel file in excel sheet and implemented the concept of 'lookup' and 'VLOOKUP'. I connected my laptop project with remote database and performed CRUD operations. I understood about 'authentication' and 'authorization'. As part I started writing the ongoing LIVE project of 'Kashik' without any use of GUI. I connected to the remote host server's database through Java Servlet. I did 'lookup' about 'Secure Sock Layer Protocol' (SSL).

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(જાહેરાત અન્વયે ગુજરાત અક્ટ નં. ૨૬-૨૦૦૭)

Section I  
Established on  
12/03/2008

**STUDENT'S PRACTICE SHEET OF ASSIGNMENT**

NAME OF STUDENT: Prajwal Prasad Anandharam  
 NAME OF THE NIEL: Software Development  
 DEPARTMENT: Computer Engineering SEM 8  
 NAME OF THE ORGANIZATION: Hydro Soft Labs Pvt Ltd  
 NAME OF THE PLANT OR DEPARTMENT: Software Development  
 NAME OF OFFICE IN CHARGE OF THE PLANT OR DEPARTMENT: Mr. Wilson Vaidya

DESCRIPTION OF THE WORK DONE IN NIEL

I started the console file and created the database. Then I installed AngularJS framework and linked the connection between the frontend and backend and web establishing. Then I realized that this project is supported on Windows only. But, I found valuable things in this journey. Then, as a frontend build the page for the new project which was implemented in Java and using Django framework. Hence, I updated MVC architecture of Django and REST framework for APIs. Then a number of solving project queries was done.

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(ગુજરાત અધિનિયમ નંબર ૨૦, ૨૦૦૭)

Assessment 1  
Examination on  
17/02/2023

**STUDENT'S SUBJECT RECORD OF PERFORMANCE**

SOURCE OF SUBJECT: Project: Music Addressbar  
 EXAMINATION DATE: 17/02/2023  
 DEPARTMENT: Computer Engineering sem 8  
 NAME OF THE ORGANIZATION: Autobli Toys Laks Pvt. Ltd.  
 NAME OF THE PLACEMENT COORDINATOR: Software Development  
 NAME OF THE PLACEMENT OFFICER: Dr. Mihir Vaidya

**DESCRIPTION OF THE WORK DONE BY HIM**

I have understood the project work and started on my final assignment. Then I created an API which was able to retrieve files from database then I took as task to connect and made the external structure of the project. I learn about algorithms and connected with API. Then, with doubts, I learn more. I was trying to use the manifest with file in using on the internet.

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Roll No. .... 11.....

**Signature of Student**

**Signature of Officer in Charge of Dept. / Institute / Plant**

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 NAME OF THE PLACEMENT OFFICER: Dr. Mihir Vaidya

**DESCRIPTION OF THE WORK DONE BY HIM**

In the project of songs, I have create a music feature of playing music file in the browser with correct and guidance of Allen Sir and Dr. Mihir Sir. Then, I added into the page was made, the other feature was added instead of entering music link and downloading path, the entering feature was built and it has necessary to be added in page with music which can play music. For this it had capture from, some completion of things project I was started to the project implemented in "Songs" I was started exploring its entire topic after understanding the project basically from Dr. Mihir Sir.

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સેમસ્ટર I  
Examination  
પરિક્ષાઓ

**STUDENT'S NEATLY WRITTEN RECORD OF ATTENDANCE**

NAME OF STUDENT: Poojapati Kishan Ashokbhai  
 NAME OF THE BRANCH: Computer Engineering  
 DEPARTMENT: Computer Engineering  
 NAME OF THE COLLEGE: Bhosli Tare Labs Pvt Ltd  
 NAME OF THE PLACEMENT OFFICER: Software Development  
 NAME OF THE BRANCH OFFICER OF THE PLACEMENT OFFICER: Dr. Milan Vaidya

DESCRIPTION OF THE WORK DONE IN BRIEF

I start and did hands on in our 1st sem. with Java. I started exploring OOP project. Initialized the database, used the in-study database from Oracle dealer to my local PC, examined every API present inside the project and noted down points under the guidance of Divyanshu. Then, I created a new API with a new project which sets the response from our API. I did some work explained the Django project to the lab of Mr. Divyanshu Singh. (4 month study at IITM). On the last day, I went with Divyanshu sir at IITM to look the study — conducted work.

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સેમસ્ટર I  
Examination  
પરિક્ષાઓ

**STUDENT'S NEATLY WRITTEN RECORD OF ATTENDANCE**

NAME OF STUDENT: Poojapati Kishan Ashokbhai  
 NAME OF THE BRANCH: Computer Engineering  
 DEPARTMENT: Computer Engineering  
 NAME OF THE COLLEGE: Bhosli Tare Labs Pvt Ltd  
 NAME OF THE PLACEMENT OFFICER: Software Development  
 NAME OF THE BRANCH OFFICER OF THE PLACEMENT OFFICER: Dr. Milan Vaidya

DESCRIPTION OF THE WORK DONE IN BRIEF

I have got an overview about Github Actions and Github pages. I have created my account and set some APIs, under the guidance of Divyanshu. Then, I have deployed the my own project and the project containing the my APIs on the AWS EC2 instance under the guidance and support of Divyanshu. I asked about password a bit and explored the live my project in more depth.

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સેમસ્ટર I  
Examination  
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Section 1  
Assessment in  
Computer Graphics

**STUDENT'S WORK RECORD OF ASSIGNMENT**

NAME OF STUDENT: Pragnan Meena Kshobhkar  
 NAME OF THE WORK: Implementation of ray/tracer  
 DEPARTMENT: Computer Engineering SEM V  
 NAME OF THE BRANCH: Graphical Tools Lab For IIT  
 NAME OF THE PLANNING/COORDINATOR: Software Development  
 NAME OF OFFICER IN CHARGE OF THE PLANNING/COORDINATOR: Ms. Milna Vaidya

DESCRIPTION OF THE WORK DONE IN BRIEF

I started how CIEs under single CPE are deleted and also write point on reverse-engineering. Then, I implemented the functionality to find related CIEs under services. I checked whether records inside the database are properly stored or not, for API's are working properly for storing data inside the database, redesigned the logic behind it and implemented functionality to fetch CIEs (depending) under each course and references. I also started working for generating update API logic.

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Roll No. 21 M. P. Fuyajoshi  
GUJARATI ENGINEER

If the above entries are correct and the quality of work done by Student is GOOD (VERY GOOD / GOOD / FAIR / NOT SATISFACTORY / POOR)

Signature of Faculty Member: \_\_\_\_\_  
 Date: 02/08/23

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Section 1  
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 NAME OF THE BRANCH: Graphical Tools Lab For IIT  
 NAME OF THE PLANNING/COORDINATOR: Software Development  
 NAME OF OFFICER IN CHARGE OF THE PLANNING/COORDINATOR: Ms. Milna Vaidya

DESCRIPTION OF THE WORK DONE IN BRIEF

I have created API, server, and client (Mobile) methods for CIE configurations, CSS id, class id and CSS class. I did a lot of deep study for getting the clarity of how to apply these methods. Then I have examined already implemented API Server and Client methods of reference and got various methods of CIE and have some modifications in them. All the above methods are under a single API which modifies all the database tables if applicable.

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સેમિસ્ટર I  
 ડિપ્લોમા નં. 11237067449

**STUDENT'S WEEKLY RECORD OF REPORT**

NAME OF STUDENT: Poojapati Minu Ashokkumar  
 NAME OF THE WORK: SEARCHING IN EXCEL  
 DEPARTMENT: Computer Engineering sem I  
 NAME OF THE SUPERVISOR: Asst. Prof. Jeta. Jeta. Jeta  
 NAME OF THE INSTITUTION: Software Development  
 NAME OF THE INSTITUTE OF THE PLACEMENTS: Dr. N. K. Patel

**DESCRIPTION OF THE WORK DONE IS AS FOLLOWS**

I have studied the sorting process of C++ and C#. Then I have created filter logic which provides the filtered out data according to the passed parameters. The error while calling the custom API was also resolved. Then, I have started creating the new database and using wildcard and temp, get the header names of all the sheets present in the spreadsheet, for deleting rows and cols. Then I created the logic for deleting all the data from the field with a single JSon file.

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 NAME OF THE INSTITUTION: Software Development  
 NAME OF THE INSTITUTE OF THE PLACEMENTS: Dr. N. K. Patel

**DESCRIPTION OF THE WORK DONE IS AS FOLLOWS**

I have now continued creating the database and also created a single JSon file which contains API and C#. Then, the database creation was continued from the JSon file instead of API. Then I explored LRU and LRU of DB. Then, I have explored the concepts of task processing, custom built and built-in options. Then I have started using build-in and options.

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સેમિસ્ટર I  
ટર્મિનલ નંબર: 13/02/2019

**STUDENT'S INDIVIDUAL REPORT ON A PROJECT**

NAME OF STUDENT: Fajjazi Milan Ashokkumar  
 NAME OF THE WORK: android java database  
 DEPARTMENT: Computer Engineering  
 NAME OF THE ORGANIZATION: Amul Info Lab Pvt Ltd  
 NAME OF THE PROJECT SUPERVISOR: Software Development  
 NAME OF CHIEF OFFICER OF THE ORGANIZATION: Ms. Hiren Vaidya

DESCRIPTION OF THE WORK DONE BY ME

I have got familiarized with various database queries concepts like Agency, Salary, etc. I learnt how to build and deploy the pushed code into github to my workstation. I learnt how to create queries in windows. I have shared my concept about various software and database shared with me. I learnt to create my file from the Java database with my code.

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સેમિસ્ટર I  
ટર્મિનલ નંબર: 13/02/2019

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 NAME OF THE WORK: android java database  
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 NAME OF THE ORGANIZATION: Amul Info Lab Pvt Ltd  
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DESCRIPTION OF THE WORK DONE BY ME

I explored if there is any way to store the data into csv file in order to store the data of csv into database for my purpose. The approach was not proper. I had modified the file size by decreasing csv records and it boosted the performance. We tried to switch the records to Maria DB, but failed due to its architecture. Then, by the suggestion of Milan sir, I revised new tables and modified my existing code and tested the data entries into them.

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ગુજરાત વિદ્યાપીઠ સંસ્થાના અધીનમાં

સેમિસ્ટર I  
ટર્મિનલ નંબર: 13/02/2019

**STUDENT'S INDIVIDUAL REPORT ON A PROJECT**

NAME OF STUDENT: Fajjazi Milan Ashokkumar  
 NAME OF THE WORK: android java database  
 DEPARTMENT: Computer Engineering  
 NAME OF THE ORGANIZATION: Amul Info Lab Pvt Ltd  
 NAME OF THE PROJECT SUPERVISOR: Software Development  
 NAME OF CHIEF OFFICER OF THE ORGANIZATION: Ms. Hiren Vaidya

DESCRIPTION OF THE WORK DONE BY ME

I explored if there is any way to store the data into csv file in order to store the data of csv into database for my purpose. The approach was not proper. I had modified the file size by decreasing csv records and it boosted the performance. We tried to switch the records to Maria DB, but failed due to its architecture. Then, by the suggestion of Milan sir, I revised new tables and modified my existing code and tested the data entries into them.

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(જાહેરાત નંબર 26/1987 અન્વયે સ્થાપિત)

સંસ્થા નં: 151121012008

**PLACEMENT SHEET (NAME OF STUDENT)**

NAME OF THE STUDENT: Pragnati Hiranji Adishbhosani  
IN NO OF THE STUDENT: 151121012008  
DEPARTMENT: Computer Engineering and IT  
NAME OF THE ORGANIZATION: Pragna Tech Labs Pvt Ltd  
NAME OF THE PLACE/COMPARTMENT: Software Development  
NAME OF THE CITY/TOWN/VILLAGE OR PLANTATION/INDUSTRIAL AREA: Pragna Valley

**(DESCRIPTION OF THE PROJECT IN BRIEF)**

I have updated the database schema by adding 2 new tables and 2 new columns in an existing table. Then I have tried all these tables which were empty and inserted logic which adds data into new tables along with old data in DB migration. Then I have created 2 new APIs and modified existing API. I have tested the performance and then started working on the UI using API for enhancing its functionality. I have received feedback from client and for further changes for API and all the steps of working project are clear.

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સંસ્થા નં: 151121012008


**PLACEMENT SHEET (NAME OF STUDENT)**

NAME OF THE STUDENT: \_\_\_\_\_  
IN NO OF THE STUDENT: \_\_\_\_\_  
DEPARTMENT: \_\_\_\_\_  
NAME OF THE ORGANIZATION: \_\_\_\_\_  
NAME OF THE PLACE/COMPARTMENT: \_\_\_\_\_  
NAME OF THE CITY/TOWN/VILLAGE OR PLANTATION/INDUSTRIAL AREA: \_\_\_\_\_

**(DESCRIPTION OF THE PROJECT IN BRIEF)**

I have updated the database schema by adding 2 new tables and 2 new columns in an existing table. Then I have tried all these tables which were empty and inserted logic which adds data into new tables along with old data in DB migration. Then I have created 2 new APIs and modified existing API. I have tested the performance and then started working on the UI using API for enhancing its functionality. I have received feedback from client and for further changes for API and all the steps of working project are clear.

## Appendix B. Annexure-II



**GUJARAT TECHNOLOGICAL UNIVERSITY**  
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---

Annexure 2

**Feedback Form by Industry expert**

Student Name: Prayapati Miren Ashokkumar Date: 05/05/2023

Work Supervisor: Mr. Milam Vadher Title: Senior Software Developer (Internship)

Company/Organization: Arishi Info Labs Pvt. Ltd.

Enrollment No: 190330107048

Internship Address: 407, Shivam-1, Amba Business Park, Adalaj

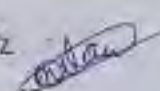
Dates of Internship: From 23/01/2023 to 10/05/2023

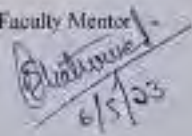
Please evaluate your intern by indicating the frequency with which you observed the following behaviors:


Parameters	Needs improvement	Satisfactory	Good	Excellent
Shows interest in work and his/her initiatives				✓
Produces high quality work and accepts responsibility				✓
Uses technical knowledge and expertise				✓
Analyzes problems effectively				✓
Communicates well and writes effectively				✓

Overall performance of student intern: (Needs improvement/ Satisfactory/Good/Excellent):

Additional comments, if any:

Signature of industry person with name and Stamp: Milam Vadher 

Signature of the Faculty Mentor:   
6/5/23



# **INTERNSHIP AT CREART SOLUTIONS**

**AN INTERNSHIP REPORT**

*Submitted by*

**MISTRI AKHIL DHARMENDRABHAI**

**200390107065**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



**Gujarat Technological University, Ahmedabad**

**August, 2023**



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at CreArt Solution** has been carried out by **Mistri Akhil Dharmendrabhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 6th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof.

Prof. Akshay Kansara

Internal Guide

Head of Department

# Company Certificate

## Joining Letter

<h1>INTERNSHIP JOINING LETTER</h1>	 <hr/> <p>Date: 27<sup>th</sup> July 2023</p>
<p><i>This is to certify that</i></p>	
<p>Mr/Ms. Akhil Mehta Enrollment No : 200390107065 College : S. R. B. Patel Engineering College</p>	
<p>has been selected for the 15 days of summer internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at <b>CreArt Solutions, Ahmedabad</b></p>	
<p>We wish him/her all the best for his future endeavours.</p>	
	
<hr/> <p><b>Krishnamohan Gupta</b> Director</p>	<p><b>CreArt Solutions PVT LTD.</b> 202, Heritage Horizon, Ops. Plot-Dev Corporate, CTG Road, Ahmedabad, Gujarat, India - 380009 www.creart.in   hello@creart.in   <b>Office Location:</b> INDIA   USA   UK</p>



# Completion Letter

## INTERNSHIP COMPLETION LETTER

Date: 10<sup>th</sup> August 2023



*This is to certify that*

Mr/Ms. AKHIL MISTRY  
Enrollment No : 200360107063  
College : S. P. B. Patel Engineering College

has successfully completed the 15 days of summer internship from 27<sup>th</sup> July 2023 to 10<sup>th</sup> August 2023 at  
CreArt Solutions, Ahmedabad.

We wish him/her all the best for his future endeavours.



Krishnamohan Gupta  
Director

**CreArt Solutions PVT LTD.**

202, Heritage Horizon, Opp Hotel Div Corporate, C.G Road,  
Ahmedabad, Gujrat, India - 380009  
[www.creat.in](http://www.creat.in) | [hello@creat.in](mailto:hello@creat.in) | **Office Locations:** INDIA | USA | UK



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship report submitted along with the Internship **at CreArt Solutions** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. & Alkesh Kaba (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

1. **Mistri Akhil Dharmendrabhai**

## **ACKNOWLEDGMENT**

My internship at CreArt solutions was a really good experience for learning skills in a professional environment. Which helped me to understand how to work in a professional environment.

In this whole internship they have provided me with professional world knowledge, with high quality teaching and detailed topics. I am glad to say that I have discovered new topics, different ways to carry out work and new skills as well.

We are so grateful to Sir Alkesh Kaba, who is senior software engineer at CreAre Solutions PVT LTD for his guidance, constant efforts and genuine support to teach us and help us to complete our internship project.

### **CreAre Solutions:**

I extend my gratitude to CreArt Solutions PVT LTD for providing me with the opportunity to intern and gain hands-on experience in real-world front-end development projects. Diverse projects have challenged me which contributed to my growth as a PHP developer.

### **Saffrony Institute of Technology:**

I am grateful to Saffrony Institute of Technology for providing me with the foundational knowledge and skills that have enabled me to contribute effectively to the frontend development projects during my internship.

This internship experience has provided me with invaluable insights into frontend development, improved my coding skills, and ignited my passion for creating dynamic and user-friendly web interfaces. The collective support and guidance from all quarters have truly been the cornerstone of my success during this journey.

Thank you.

Mistri Akhil Dharmendrabhai

Enrollment ID: 200390107065

[Date]

## **Abstract**

This report contains the work done by the author during his internship at *CreArt Solutions*. It shows the work I did in the company during my internship period. In the report, the author discusses the process of manufacturing and steps of assembly of the machines. The author also discusses the structure of the company, all the departments and their work. It also explains what the author learned during this internship period.

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## **Abbreviations**

HTML Hypertext Markup Language

CSS Cascading Style Sheets

IDE Integrated Development Environment

XAMPP X-operating system, Apache, MySQL, PHP, Perl

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Scanned copies of weekly reports duly signed by internal and external guide	
Scanned attendance sheet if any	
Any supporting documents in scanned copy	

# Chapter 1. INTRODUCTION

## 1.1 COMPANY PROFILE:



Fig 1.1 Company Logo

CreArt is a privately owned venture of IT solutions and IT consultants. It was founded in 2013. CreArt has always aspired to create a resistant future.

Main objective of CreArt is to provide professional, qualitative, innovative and accessible service in any possible form.

CreArt delivers the best services to the client's till their satisfaction. CreArt has a highly professional and highly dedicated group of experts. These professionals work in an active environment and follow best practices.

CreArt offers Internship programs. Basically, they are free or paid either online/ offline.

Website Link: <https://creart.in/>

### 1.1.1 MISSION AND VISION OF THE COMPANY:

Our internship program was conducted from 27-July-2023 to 10-August-2023. During our internship course, we were to be taught about various concepts of the PHP and Laravel Framework from very basic.

We covered different important basics which are used in every programming language. The Goals to be achieved during whole internship course were as follows:

1. Basic PHP
2. How to download Xampp and how to use it
3. PHP Laravel
4. Make Project



## **1.2 System Information**

**Tools:** Laptop, Internet, XAMPP, Visual Studio code(IDE).

**Technology:** HTML, CSS, JAVASCRIPT

## Chapter 2: Internship Program

### 2.1 Internship Program Learning.

#### 2.1.1 Week-1 Basic Introduction of PHP

❖ 27 July 2023

1. Introduction about PHP and Laravel

- PHP stands for 'Hypertext Preprocessor'.
- PHP is a server-side scripting language that can be embedded in HTML. It is mainly used in the back-end of websites. It also manages dynamic content, database, session tracking etc.
- The comments in PHP can be written with #, //, /\*..\*/.
- XAMPP is used to run PHP codes.

2. Information and Task of Internship

- Internship project- Video calling web app
- Company details.
- Certificate

❖ 28 July 2023



Fig 2.1 XAMPP Download

1. Download XAMPP and create and run the program.

- Download and install XAMPP for windows from chrome browser for run a PHP program. It provides connection to local server and database connection to PHP programs. It is required to load and run a PHP program.



Fig 2.2 XAMPP Panel

```

<!DOCTYPE html>

<html>

<body>

<h1>My first PHP page</h1>

<?php

echo "Hello World!";

?>

</body>

</html>

```

❖ 31 July 2023

1. PHP variable

- Variables are the entities that are used for storing the values. The value can be assigned to the variable in following manner:

```
$variable_name=value;
```

Ex.

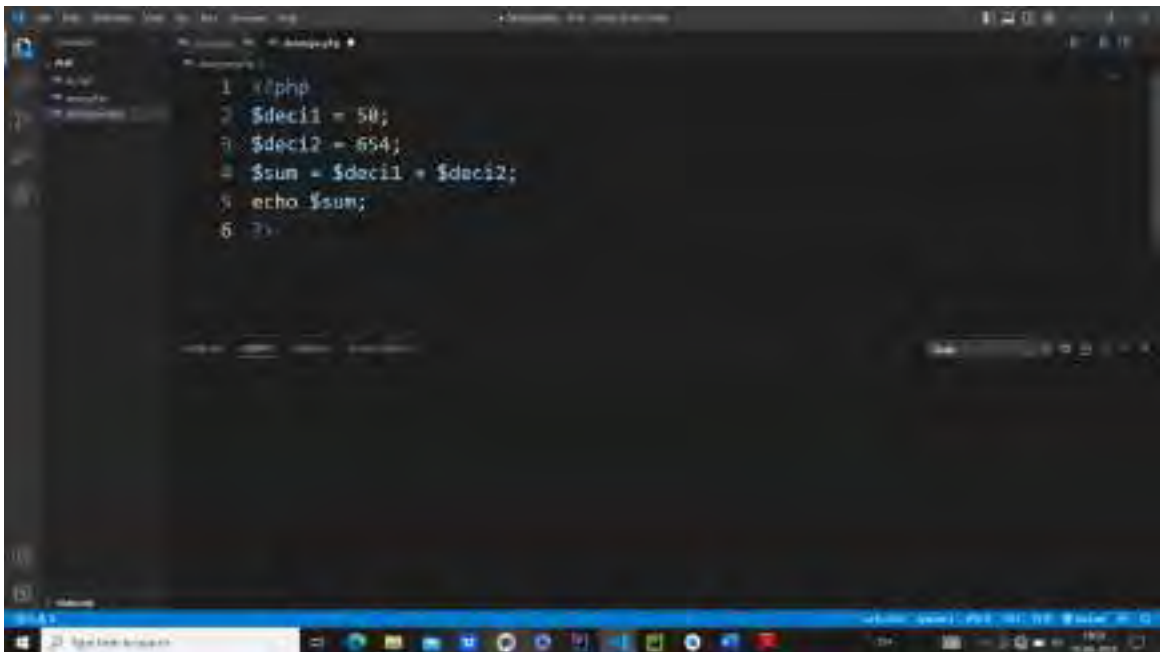
```
<?php  
$i=10;  
echo "the value of variable= $i";  
?>
```

## 2. Data type

- Data Types define the type of data a variable can store. PHP allows 4 different type of data types. Mention below.

1. Boolean
2. Integer
3. Double
4. String

The special data type is NULL



```
1 <?php  
2 $dec11 = 50;  
3 $dec12 = 554;  
4 $sum = $dec11 + $dec12;  
5 echo $sum;  
6 ?>
```

Fig 2.3 variable example

❖ 1 August 2023



Fig 2.4 Array In PHP

## 1. PHP arrays

```
1 <?php
2 $age = array("petar" => 35, "ben" => 45, "joe" => 45);
3 echo "petar is", $age["petar"], "old";
4 >|
```

Fig 2.5 Arrays example

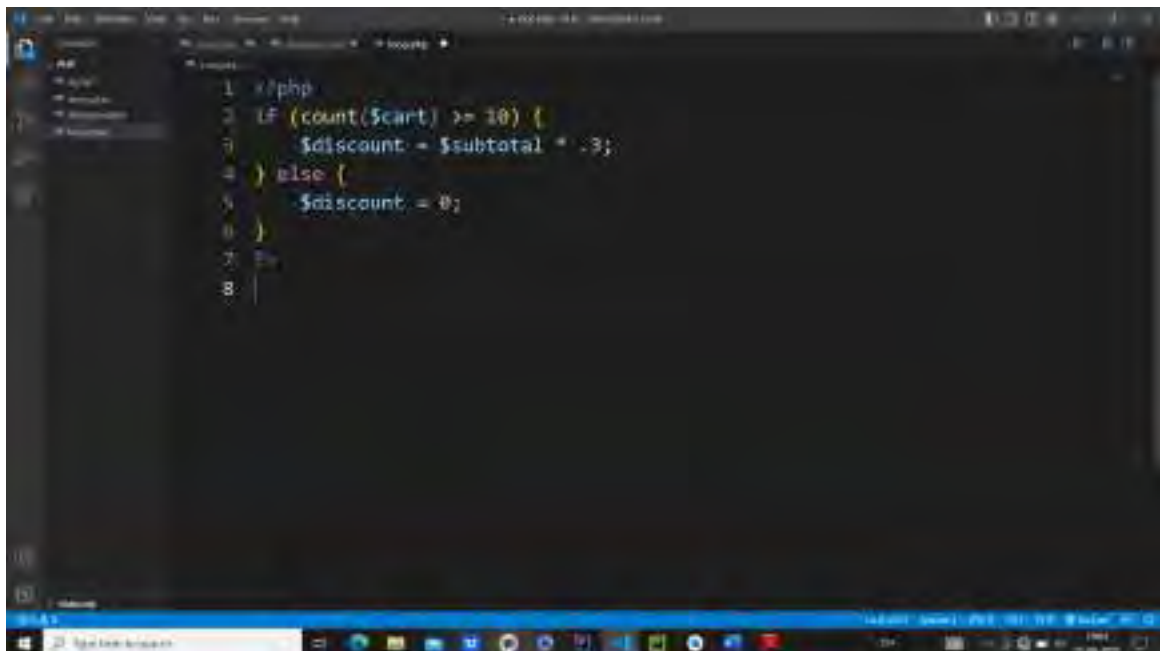
- Array is similar type of elements, each element has two parts key and value.

Array creation=\$mylist=array(10,20,30,40);

## ❖ 2 August 2023

### 1. conditional statements and loops

- Comparison operators are used in combination with the if, else, and elseif keywords to build conditional statements that control the flow of a program.
- Selection statement: if, if...else,if...elseif.

A screenshot of a code editor window showing PHP code. The code is as follows:

```
1 </php>
2 IF (count($cart) >= 10) {
3     $discount = $subtotal * .3;
4 } else {
5     $discount = 0;
6 }
7
8
```

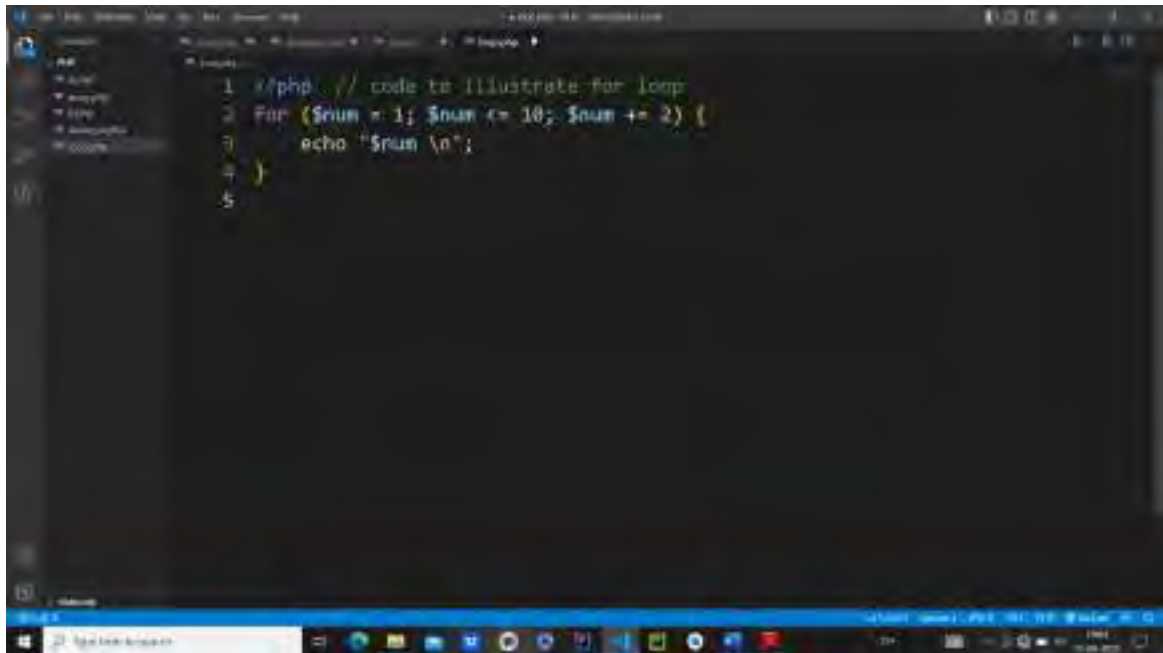
The code is displayed in a dark-themed editor with line numbers on the left. The Windows taskbar is visible at the bottom of the image.

Fig 2.6 Selection statement example

### 2. Loop Statement

- Loop in PHP is used to execute a statement or a block of statements, multiple times until and unless a specific condition is met. This helps the user to save both time and effort of writing the same code multiple times.
- for loop
- while loop

- do-while loop

A screenshot of a code editor window with a dark theme. The code is written in PHP and illustrates a for loop. The code is as follows:

```
1 //php // code to illustrate for loop
2 for ($num = 1; $num <= 10; $num += 2) {
3     echo "$num \n";
4 }
5
```

The code is displayed in a monospaced font with syntax highlighting. The editor has a sidebar on the left showing a file explorer with folders like 'src' and 'tests'. The bottom of the image shows a Windows taskbar with various application icons and the system clock.

Fig 2.7 Loop statement example

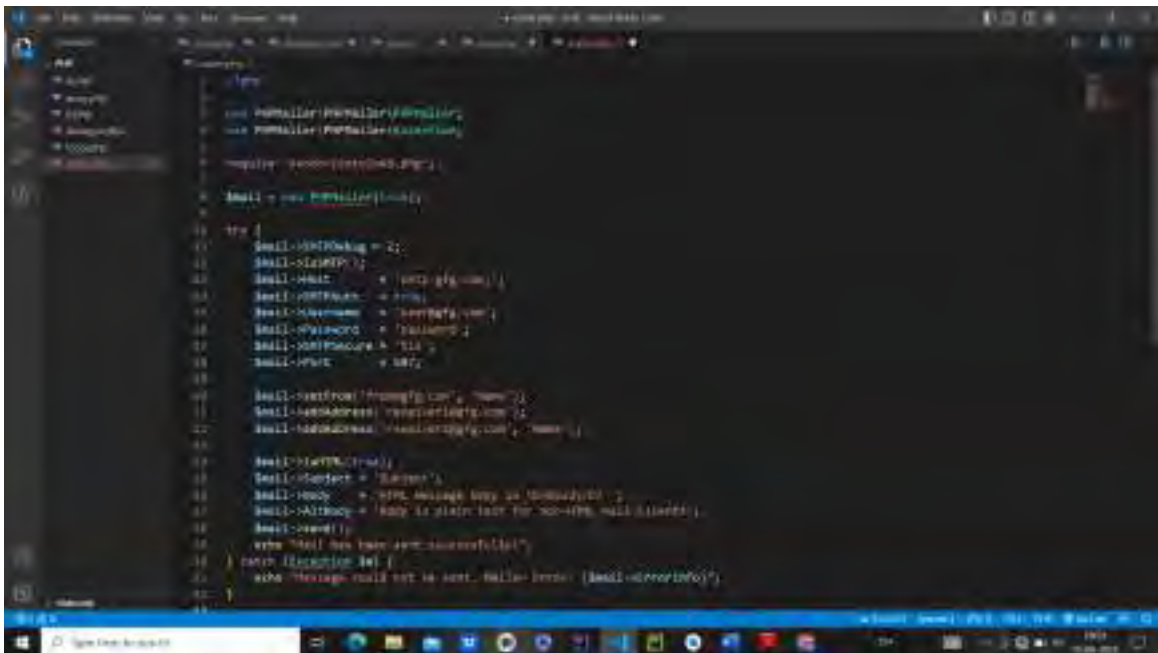
## 2.1.2 Week-2 Project and PHP Laravel

❖ 3 August 2023

### 1. introduction to PHP mailer library

- PHP Mailer is a code library to send (transport) emails safely and easily via PHP code from a web server (MUA to the MSA server).
- Sending emails directly via PHP code requires a high-level familiarity to SMTP standard protocol and related issues and vulnerabilities about Email injection for spamming. PHP Mailer simplifies the process of sending emails and it is very easy to use.
- Create a PHP Mailer class object.

```
$mail = PHPMailer();
```



```
1 use PHPMailer\PHPMailer\PHPMailer;
2 use PHPMailer\PHPMailer\Exception;
3
4 require 'vendor/autoload.php';
5
6 $mail = new PHPMailer(true);
7
8 try {
9     $mail->SMTPSecure = 'tls';
10    $mail->isSMTP();
11    $mail->Host = 'smtp.gmail.com';
12    $mail->SMTPAuth = true;
13    $mail->Username = 'test@gmail.com';
14    $mail->Password = 'password';
15    $mail->SMTPSecure = 'tls';
16    $mail->Port = 587;
17
18    $mail->setFrom('test@gmail.com', 'Name');
19    $mail->setAddress('recipient@gmail.com');
20    $mail->addAddress('recipient@gmail.com', 'Name');
21
22    $mail->isHTML(true);
23    $mail->Subject = 'Subject';
24    $mail->Body = 'HTML message body is (body.html)';
25    $mail->AltBody = 'Body is plain text for non-HTML mail client';
26    $mail->send();
27    echo "Mail has been sent successfully";
28 } catch (Exception $e) {
29     echo "Message could not be sent. Mailer Error: {$mail->ErrorInfo}";
30 }
31 }
```

Fig 2.8 PHPMailer example



## ❖ 4 August 2023

### 1. Video calling web application

- Video calling web application is where two-way or multipoint reception and transmission of audio and video signals by people in different locations for real-time communication.
- In this project we create a simple video calling web page.

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Video Calling Web App</title>
5   <link rel="stylesheet" type="text/css" href="style.css">
6   <script src="https://cdn.scaledrone.com/scaledrone.min.js"></script>
7   <script type="text/javascript" src="script.js"></script>
8 </head>
9 <body>
10  <div class="header">
11    <h1 align="center">Video Calling Web App</h1>
12  </div>
13
14  <div class="content">
15    <video class="from" id="localVideo" autoplay muted></video> |
16    <video class="to" id="remoteVideo" autoplay controls></video>
17  </div>
18
19  <div class="footer">
20    <h1 align="center">©copyright</h1>
21  </div>
22 </body>
23 </html>
```

Fig 2.9 HTML of website

### 2. Front-end Development

- HTML & CSS is used to develop the front-end side of web applications.

```

1  .header {
2      height: 100px;
3      border: 1px solid black;
4      background-color: black;
5  }
6  h1 {
7      color: white;
8  }
9  .footer {
10     height: 80px;
11     border: 1px solid black;
12     background-color: black;
13 }
14 .content {
15     height: 400px;
16     border: 1px solid black;
17 }
18 .from {
19     height: 250px;
20     width: 250px;
21     border: 1px solid black;
22     margin-top: 100px;
23     margin-left: 300px;
24     border-radius: 20px;
25     float: left;
26 }
27 .to {
28     height: 250px;
29     width: 250px;
30     border: 1px solid black;
31     margin-top: 100px;
32     margin-left: 300px;
33     border-radius: 20px;
34     float: left;
35 }

```

Fig 2.10 CSS of website

❖ 7 August 2023

1. Javascript of website

```
if (!location.hash) {
  location.hash = Math.floor(Math.random() * 0xFFFFFFFF).toString(16);
}
const roomHash = location.hash.substring(1);
const drone = new ScaleDrone('8iFajSULSQLorBFR');
const roomName = 'observable-' + roomHash;
const configuration = {
  iceServers: [{
    urls: 'stun:stun.l.google.com:19302'
  }]
};
let room;
let pc;
function onSuccess() {};
function onError(error) {
  console.error(error);
};
drone.on('open', error => {
  if (error) {
    return console.error(error);
  }
  room = drone.subscribe(roomName);
  room.on('open', error => {
    if (error) {
      onError(error);
    }
  });
  room.on('members', members => {
    console.log('MEMBERS', members);
    const isOfferer = members.length === 2;
    startWebRTC(isOfferer);
  });
});
function sendMessage(message) {
  drone.publish({
    room: roomName,
    message
  });
}
function startWebRTC(isOfferer) {
  pc = new RTCPeerConnection(configuration);
  pc.onicecandidate = event => {
    if (event.candidate) {
```

```

    sendMessage({'candidate': event.candidate});
  }
};
if (isOfferer) {
  pc.onnegotiationneeded = () => {
    pc.createOffer().then(localDescCreated).catch(onError);
  }
}
pc.onaddstream = event => {
  remoteVideo.srcObject = event.stream;
};
navigator.mediaDevices.getUserMedia({
  audio: true,
  video: true,
}).then(stream => {
  localVideo.srcObject = stream;
  pc.addStream(stream);
}, onError);
room.on('data', (message, client) => {
  if (client.id === drone.clientId) {
    return;
  }
  if (message.sdp) {
    pc.setRemoteDescription(new RTCSessionDescription(message.sdp), () => {
      if (pc.remoteDescription.type === 'offer') {
        pc.createAnswer().then(localDescCreated).catch(onError);
      }
    }, onError);
  } else if (message.candidate) {
    pc.addIceCandidate(
      new RTCIceCandidate(message.candidate), onSuccess, onError
    );
  }
});
}
function localDescCreated(desc) {
  pc.setLocalDescription(
    desc,
    () => sendMessage({'sdp': pc.localDescription}),
    onError
  );
}

```



## ❖ 9 August 2023

### 1. Introduction to Laravel and download

- Laravel is a free and open-source PHP web framework, created by Taylor Otwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern and based on Symfony.
- Laravel aims to make the development process a pleasing one for the developer without sacrificing application functionality.
- Laravel Install: [Laravel.com](https://laravel.com)
- Install Command: `composer create-project laravel/laravel example-app`



Fig 2.12 laravel logo

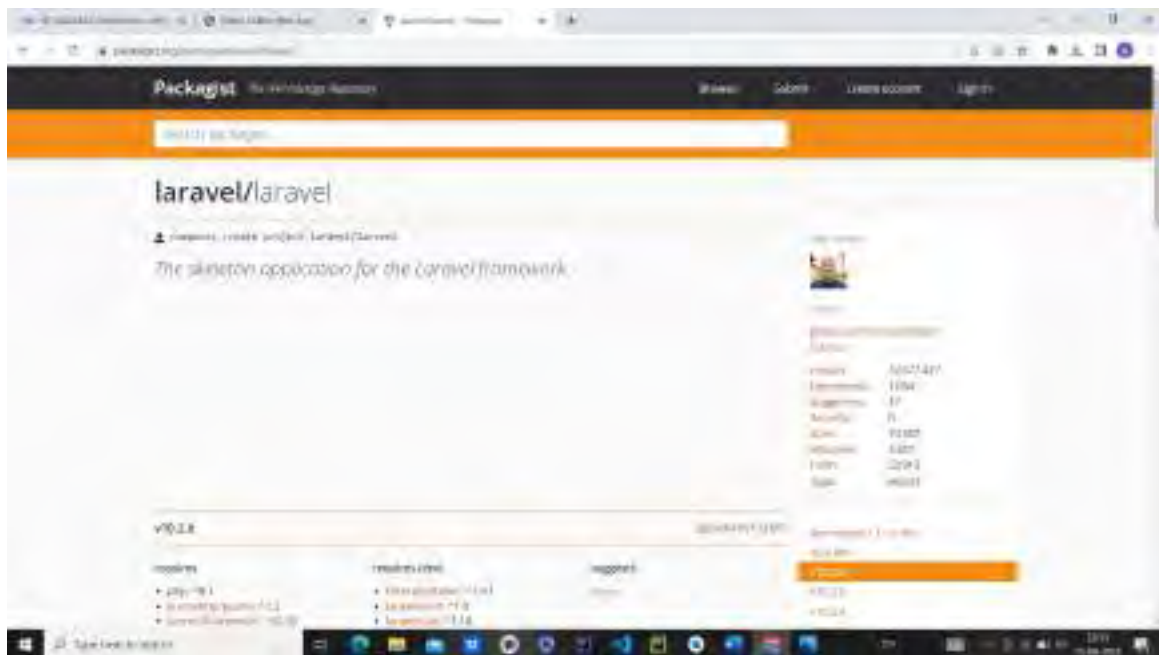


Fig 2.13 Packagist website

❖ 10 August 2023

1.Example of Laravel Framework.

```
if ($credential_no || $ssn || $passport_no || $birthdate) {  
    $workersResults1 = Worker::select()  
        ->when($credential_no, function ($query) use ($credential_no) {  
            return $query->where('credential_no', $credential_no);  
        })  
        ->when($ssn, function ($query) use ($ssn) {  
            return $query->orWhere('ssn', $ssn);  
        })  
        ->when($passport_no, function ($query) use ($passport_no) {  
            return $query->orWhere('passport_no', $passport_no);  
        })  
        ->when($birthdate, function ($query) use ($birthdate, $gender) {  
            return $query->orWhere(function ($query) use ($birthdate, $gender) {  
                $query->whereDate('birthdate', $birthdate)  
                    ->where('gender', $gender);  
            });  
        })  
        ->get();  
} else {  
    $workersResults1 = collect([]);  
}
```

Fig 2.14 Example of Laravel

## Chapter 3: Project

- In My Internship, I learned PHP and developed “Video Calling Web Application”.

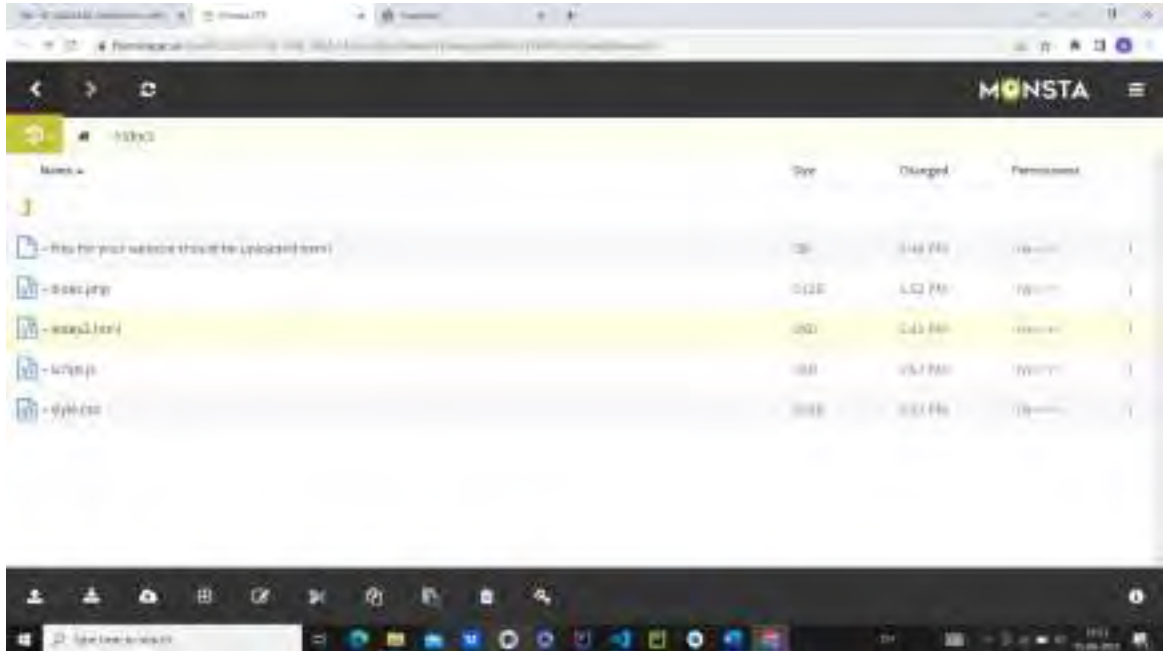


Fig 3.1 Hosting files

- add a project file into the infinity free for hosting.
- Video calling web app is a web application by which a user can do a video call to other user from different location at any time

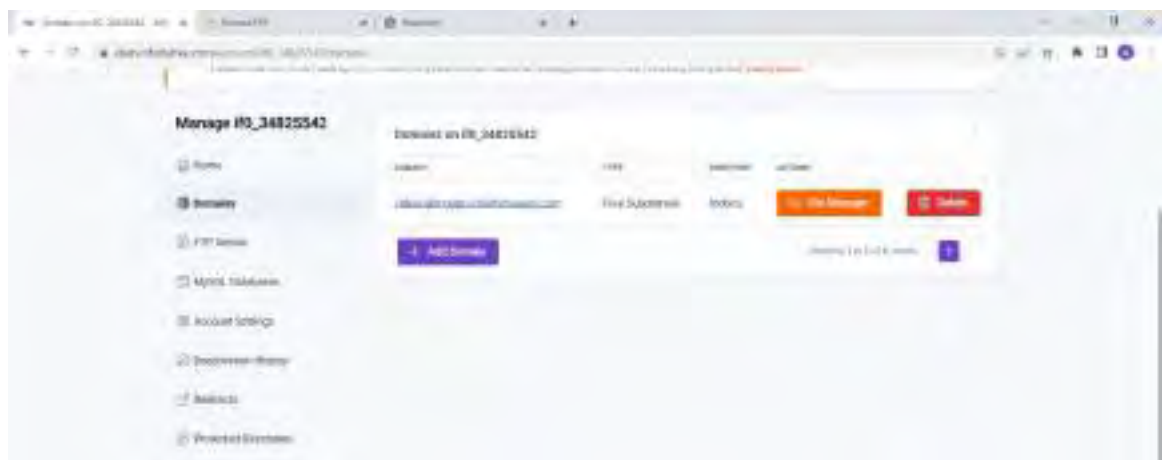


Fig 3.2 Hosting website



## Chapter 4 Conclusion

My internship in CreArt Solutions has been an excellent and rewarding experience. I can conclude that there has been a lot I've learnt from my work in the internship. I am able to develop a dynamic web-based application using PHP and Laravel Framework. It is an amazing experience to host my own website on the internet. This internship has enabled me to contribute meaningfully to PHP and has given me a glimpse into the challenges and opportunities in my career. Working in Web Development using the PHP language has increased my interest in them.



## References

- [1] [www.laravel.com](http://www.laravel.com)
- [2] [www.W3School.com](http://www.W3School.com)
- [3] [www.wikipedia.org](http://www.wikipedia.org)
- [4] [www.udemy.com](http://www.udemy.com)
- [5] [www.researchgate.net](http://www.researchgate.net)

## **Appendix**

Scanned copies of your NOC Letter  
Scanned Copies of Weekly report Annexure-I  
Scanned copy of Annexure-II  
Other scanned supporting documents etc.

# **INTERNSHIP AT YUDIZ SOLUTIONS PVT. LIMITED**

**AN INTERNSHIP REPORT**

*Submitted by*

**Mitkumar Kamleshbhai Prajapati**

**190390107049**

*In partial fulfillment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*In*

**Computer Engineering**

**S.P.B. Patel Engineering College, Mehsana**



**S.P.B. PATEL  
ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY

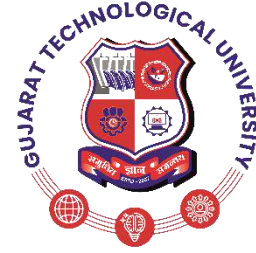


**Gujarat Technological University, Ahmedabad**

**May, 2023**



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

# **CERTIFICATE**

This is to certify that the project report submitted along with the project entitled **Internship at Yudz Solutions Pvt. Limited** has been carried out by **Mitkumar Kamleshbhai Prajapati** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Computer Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Shubhangi Chaturvedi

Prof. Akshay Kansara

Internal Guide

Head of Department

## Company Certificate



Date: 28<sup>th</sup> April, 2023

### To whom so ever It May Concern

This is to certify that **Mr. Mitkumar Prajapati** a student of **Saffrony Institute Of Technology** is working as a Trainee/Intern with our Company for the duration of six months starting from 1<sup>st</sup> February, 2023 to till date, as a **Web Development Trainee** and working on a project "**Resource Management System**".

His exposure in these areas is very good. During his tenure with us, he ably handled major responsibilities and we found him to be hardworking, creative and very productive.

We have found him to be self-starter who is motivated, duty bound, and a highly committed team player with strong conceptual knowledge.

The company will not provide any type of Source Code outside the premises. We wish him good luck for his future endeavours.

Sincerely,

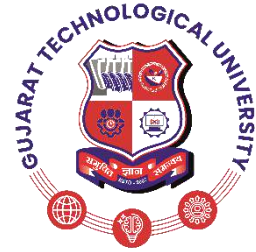


Kinjal Shah

Functional Manager- HR



**S.P.B. PATEL**  
**ENGINEERING COLLEGE**  
SAFFRONY INSTITUTE OF TECHNOLOGY



## **S.P.B. Patel Engineering College, Mehsana**

**Near Shanku's Water Park, Ahmedabad – Mehsana Highway, Linch, Gujarat**

### **DECLARATION**

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Yudiz Solutions Pvt. Limited** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Computer Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Shubhangi Chaturvedi & Kirtan Gajjar (External Guide)** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Sign of Student

**Mitkumar K . Prajapati**

\_\_\_\_\_

## **ACKNOWLEDGMENT**

It's my proud privilege to release the feelings of my gratitude to several persons who helped me directly or indirectly to conduct this internship.

First, I would like to thank **Yudiz Solution Pvt. Ltd.** for giving me the opportunity to do an internship within the organization. I express my heartfelt indebtedness and owe a deep sense of regard to my external mentor **Mr. Kirtan Gajjar**, for their sincere enlightenment and inspiration during his internship. I extend thanks to my faculty guide, **Prof. Shubhangi Chaturvedi**, for their sincere guidance during this Internship.

I am highly indebted to **Prof. Akshay Kansara** for his guidance and constant supervision as well as for providing necessary information regarding the Internship.

It's my honor to thank the **Saffrony Institute Of Technology** and **Gujarat Technological University** for providing such kind of opportunity for students to broaden their perception of how the real world works the field of Computer engineering looks like as well organizing the whole internship program and its effort to make sure that the whole internship program to achieve its desired goals.



## **Abstract**

I started my internship at Yudiz Solutions Pvt. Limited on 2<sup>nd</sup> February 2023. First 2 months there was a common training on different technologies like HTML, CSS, OOPS and JAVASCRIPT. Each day I have a session on different topics on these technologies and I have performed different tasks based on these sessions and topics.

I learned a lot while performing these tasks. Then all trainees are bifurcated into their core technologies. I am bifurcated into the MERN department. Then I learn about JQuery and React technologies and also I have performed various tasks using these technologies, one of them was a CRUD application. I learned a lot of things while performing these technologies.

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## **Chapter 1. INTRODUCTION**

### **1.1 COMPANY PROFILE:**

Yudiz Solutions is one of the top Mobile Apps Company in India for 11 yrs of experience 400+ Developers Expertise in iOS, Android, Web and Unity game development.

#### **1.1 History**

An ISO 9001:2015 certified IT development company, Yudiz is an ideal digital transformation and technology services company for your needs. Right from ideation to execution, it has consistently delivered the competitive edge in the form of robust, fore-sighted, and qualitative solutions.

Awarded as the best mobile app development company in Gujarat in 2015 by GESIA, Yudiz continues to offer exceptional all round IT services that is testimony to our top-notch offerings and commitment to excellence.

#### **1.2 Different Product:**

- Dangee Dump
- The MarcketSquawk
- Consulate Brewing Company
- The Arabic Time
- Rummy 24
- Perfect Selections
- BetandWin
- Easy Logistics
- Foodista
- Shopper's love

#### **1.2 Different department:**

- Mobile App Development
- Game Development
- UI/UX Design

- Digital Marketing
- Blockchain Development
- Artificial Intelligence

### **1.3 Technical Specifications & Tools:**

- Web Development: - PHP, Laravel, .NET, MEAN, MERN, WordPress, Magento, Shopify, Django
- Mobile App : Kotlin, Flutter
- Game Development : 2D/3D
- UI/UX : Adobe XD, Sigma

## Chapter 2 Introduction to Internship

### 2.1 Internship Summary

I started my internship at Yudiz Solutions Pvt. Limited on 2<sup>nd</sup> February 2023. First two months was a common training on different technologies Like HTML, CSS, OOPS, JAVASCRIPT. Each day i have a session on different topics on these technologies and I have performed different task based on these sessions and topics.

I learn a lot while performing these tasks. Then All trainees are bifurcated into their core technologies. I am bifurcated into php department. Then I learn about JQuery and AJAX technologies and also I have performed various task using these technologies ,one of them was CRUD application. I learn a lots of things while performing these technologies.

### 2.2 Purpose

The purpose of this internship is to learn to work in the industrial field. During this internship I made small modules for training purposes. I learned that how to work in industrial world.

### 2.3 Objective

The purpose of creating resource management project to learn crud operations and react technology to create front end part of websites.

### 2.4 Scope

In the future I work with react js technology to create different websites.

### 2.5 Technology and Literature Review

**Front End:** HTML, CSS, Bootstrap, JavaScript, React js

**Back End:** Node js, Mongodb

**Tool:** VS Code

**HTML:** - HTML, in a full hypertext markup language, a formatting system material retrieved over the Internet. Each retrieval unit is known as a Web page (from World Wide Web), and such pages frequently contain hypertext links that allow related pages to be retrieved.

**CSS:** - Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as SVG, MathML or XHTML). CSS describes how elements should be rendered on screen, on paper, in speech, or on other media.