INTERNSHIP AT BRAINVIRE INFOTECH INC.

AN INTERNSHIP REPORT

Submitted by

Angel Grisha Jose

190390116005

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 BRAINVIRE INFOTECH INC.** has been carried out by **Angel Grisha Jose** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasana Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

Brainvire
Shaping Ideas

5th May, 2023

TO WHOMSOEVER IT MAY CONCERN

Internship Certificate

This is to certify that **Ms. Angel Jose** 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, she has actively participated in various projects and assignments. Also she has shown great potential and a willingness to learn and grow, and we are confident that she will continue to excel in her 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)

DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Brainvire Infotech Inc.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasana Leela & Mr. Nitin Padharia (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

Angel Grisha Jose   _____

ACKNOWLEDGMENT

I am deeply grateful to Brainvire Infotech for providing me with the opportunity to participate in their internship program. Special thanks to Mr. Nitin Padharia and Ms. Nidhi Suthar for giving me this wonderful opportunity to grow as a professional and providing me a great start. I would like to express my sincere appreciation to the company's management and staff for their guidance, support, and encouragement throughout my internship.

I would like to thank my Head of the Department, Prof. Akshay Kansara for his constant guidance throughout my internship. I would like to thank my internal guide, Prof. Upasana Leela of Information Technology for her support and advices to get and complete internship in above said organization.

I am extremely great full to my department staff members and friends who helped me in successful completion of this internship

Once again, I would like to express my heartfelt appreciation to Brainvire Infotech for this wonderful opportunity. I am grateful for the experience and the knowledge gained, and I will carry the lessons learned with me throughout my career.

<u>Abstract</u>

This report contains the work done by the author during her internship at ***Brainvire Infotech Inc***. It shows the work she did in the company during her internship period. This internship provided an opportunity to gain hands-on experience in the dynamic field of information technology with Brainvire Infotech. As an intern, I worked closely with experienced professionals to develop my technical skills, learn about the latest technologies, and contribute to real-world projects.

During the internship, I had the chance to work on different aspects of software development such as coding, testing, and debugging. I also learned how to work with a team and communicate effectively with clients.

At Brainvire Infotech, believe in nurturing talent and providing an environment where interns can grow and develop into successful professionals. The company is committed to providing its interns with the resources and support they need to succeed.

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

XML   Extensible Markup Language

HOD   Head of the Department

UML   Unified Modeling Language

CSS   Cascading Style Sheet

DBMS   Database management system

My SQL   My Structure Query Language

BI   Business Intelligence

AJAX   Asynchronous JavaScript and XML

RIA   Rich Internet Application

CSS   Cascading Style Sheet

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Chapter 1. INTRODUCTION

1.1 COMPANY PROFILE:

Brainvire Infotech is a global information technology consulting, services, and solutions provider based in India. The company was founded in 2000 and has since grown to become a leading provider of IT services to clients around the world.

The company offers a wide range of services, including web development, mobile application development, e-commerce development, cloud computing, data analytics, and digital marketing. Brainvire Infotech specializes in delivering custom software solutions to clients in a variety of industries, including healthcare, retail, finance, and education.

With a team of over 700 employees, Brainvire Infotech has established a reputation for delivering high-quality services and solutions that are tailored to meet the unique needs of each client. The company's employees are highly skilled and experienced in the latest technologies and software development methodologies, ensuring that clients receive cutting-edge solutions that meet the highest standards of quality.

Brainvire Infotech has a strong commitment to innovation and continually invests in research and development to stay ahead of the curve in the ever-evolving world of technology. The company has received numerous awards and accolades for its innovative solutions, including recognition from Deloitte Technology Fast 50 India and Inc. 5000.

Overall, Brainvire Infotech is a trusted partner for businesses seeking to leverage the power of technology to achieve their goals. With a focus on innovation, quality, and customer satisfaction, the company is well-positioned to continue its growth and success in the years to come.

1.2 MISSION AND VISION OF THE COMPANY:

Mission:

The mission of Brainvire Infotech is to empower businesses with innovative and cost-effective technology solutions that enable them to achieve their goals and stay ahead of the

competition. The company aims to deliver high-quality services and solutions that exceed client expectations, while maintaining a strong commitment to ethics, excellence, and professionalism.

Vision:

Brainvire Infotech's vision is to become a global leader in information technology consulting, services, and solutions. The company aims to achieve this by leveraging the latest technologies, investing in research and development, and continuously improving its processes and practices to deliver maximum value to clients. Brainvire Infotech seeks to establish long-term partnerships with clients and become their trusted technology partner for years to come. Ultimately, the company's vision is to help businesses achieve success through the power of technology.

1.3 HISTORY

Brainvire Infotech is a global digital consulting and IT services company founded in 2000 by Chintan Shah. The company is headquartered in Texas, USA, with additional offices in Canada, Dubai, Singapore, and India.

The company began as a small software development firm and grew rapidly over the years, expanding its services to include web and mobile application development, enterprise resource planning (ERP) solutions, e-commerce solutions, cloud computing, artificial intelligence, blockchain, and more.

In 2014, Brainvire Infotech was recognized as one of the top 100 IT companies by Silicon India, and in 2016, it was listed as one of the top 20 most promising e-commerce solution providers by CIO Review.

Today, Brainvire Infotech serves clients across various industries, including healthcare, retail, finance, education, and more. The company has received several awards and recognitions for its innovative and high-quality solutions, including the Deloitte Technology Fast 50 India award and the Clutch Global Leader award.

1.4 SCOPE OF WORK

Brainvire Infotech is a global IT consulting and software development company that offers a wide range of services to clients across various industries. The scope of work at Brainvire Infotech includes:

1. Custom software development: Brainvire Infotech offers end-to-end software development services, including planning, design, development, testing, and maintenance. They develop custom software solutions to meet the specific needs of their clients.
2. Web development: Brainvire Infotech offers web development services, including website design and development, e-commerce development, CMS development, and website maintenance.
3. Mobile app development: Brainvire Infotech develops mobile apps for iOS and Android platforms. They offer services such as app design, development, testing, and deployment.
4. Cloud computing: Brainvire Infotech offers cloud computing services, including cloud migration, cloud infrastructure management, and cloud application development.
5. Digital marketing: Brainvire Infotech offers digital marketing services, including SEO, PPC, social media marketing, and email marketing.
6. AI and Machine Learning: Brainvire Infotech offers services in Artificial Intelligence and Machine Learning including NLP, chatbots, image and voice recognition, predictive analytics and more.
7. Blockchain: Brainvire Infotech provides blockchain services for developing smart contracts, decentralized applications (DApps), and cryptocurrency.

Overall, Brainvire Infotech offers a wide range of services that cater to the diverse needs of clients in various industries.

1.5 AWARDS & ACCREDITATIONS

1. **ISO Certification:** ISO certification is a globally recognized accreditation that verifies that a company meets international standards for quality management, environmental management, and information security management. Brainvire Infotech may have pursued ISO certification to demonstrate its commitment to delivering high-quality software solutions while minimizing its environmental impact and protecting the confidentiality, integrity, and availability of its clients' information.

2. **Clutch Awards:** Clutch is a leading B2B ratings and reviews platform that recognizes top-performing software development companies based on client feedback, market presence, and industry expertise. Brainvire Infotech may have won Clutch awards for its excellent customer service, innovative solutions, and overall performance in the software development industry.

3. **Deloitte Technology Fast 50:** The Deloitte Technology Fast 50 is a prestigious award that recognizes the fastest-growing technology companies in a given region. Brainvire Infotech may have been recognized as a Deloitte Technology Fast 50 winner for its exceptional growth and innovation in the software development industry.

4. **Stevie Awards:** The Stevie Awards are one of the most prestigious business awards in the world, recognizing excellence in a wide range of industries and categories, including technology. Brainvire Infotech may have been recognized with a Stevie Award for its outstanding performance, innovation, and customer service in the software development industry.

5. **GoodFirms:** GoodFirms is a B2B research and review platform that recognizes top-performing software development companies based on their overall performance, client feedback, and industry expertise. Brainvire Infotech may have been recognized by GoodFirms as a leading software development company for its expertise in a particular technology or industry.

1.6 INDUSTRIES WORKED ON:

1.7. GOLD PARTNERSHIP:
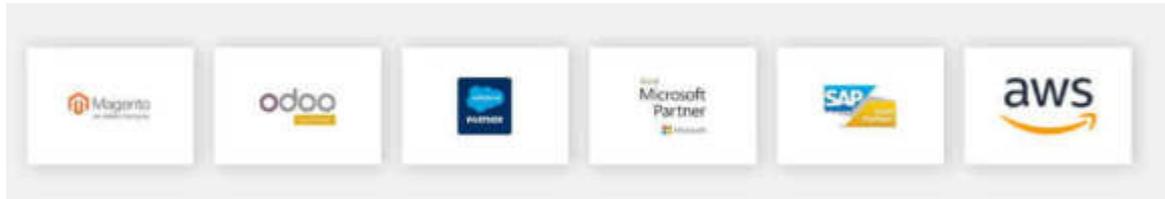
Brainvire Infotech's gold partnerships with various companies, it's worth noting that many technology companies have partner programs that recognize and reward companies for their expertise in using and implementing their products or services. Brainvire Infotech has been recognized as a gold partner by several companies, including Microsoft, Salesforce, Magento, and Odoo.

As a gold partner, Brainvire Infotech has demonstrated a high level of expertise in working with these companies' products and services. This recognition often comes with access to additional resources, support, and training from the partner companies, which can help Brainvire Infotech provide better solutions and services to their clients.

It's worth noting that partner programs can vary widely between companies, and being a gold partner with one company does not necessarily mean the same level of recognition or benefits with another company.

Chapter 2. LEARNINGS

2.1. LINUX:

Just like Windows, iOS, and Mac OS, Linux is an operating system. In fact, one of the most popular platforms on the planet, Android, is powered by the Linux operating system. An operating system is software that manages all of the hardware resources associated with your desktop or laptop. To put it simply, the operating system manages the communication between your software and your hardware. Without the operating system (OS), the software wouldn't function.

The Linux operating system comprises several different pieces:

1. **Bootloader:** The software that manages the boot process of your computer. For most users, this will simply be a splash screen that pops up and eventually goes away to boot into the operating system.

2. **Kernel:** This is the one piece of the whole that is actually called 'Linux'. The kernel is the core of the system and manages the CPU, memory, and peripheral devices. The kernel is the lowest level of the OS.

3. **Init system:** This is a sub-system that bootstraps the user space and is charged with controlling daemons. One of the most widely used systems, which also happens to be one of the most controversial. It is the init system that manages the boot process, once the initial booting is handed over from the bootloader (i.e., GRUB or GRand Unified Bootloader).

4. **Desktop environment:** This is the piece that the users actually interact with. There are many desktop environments to choose from (GNOME, Cinnamon, Mate, Pantheon, Enlightenment, KDE, Xfce, etc.). Each desktop environment includes built-in applications (such as file managers, configuration tools, web browsers, and games).

5. **Applications:** Desktop environments do not offer the full array of apps. Just like Windows and macOS, Linux offers thousands upon thousands of high-quality software titles that can be easily found and installed. Most modern Linux distributions (more on this below) include App Store-like tools that centralize and simplify application installation. For example, Ubuntu Linux has the Ubuntu Software Centre (a rebrand of GNOME Software) which allows you to quickly

search among the thousands of apps and install them from one centralized location.

2.2. HTML & CSS:

HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets) are two of the foundational technologies used to build websites and web applications.

HTML is a markup language used to create the structure and content of web pages. It uses tags to define different types of content, such as headings, paragraphs, images, links, and forms. HTML documents are interpreted by web browsers, which use the tags to render the content and display it to the user.

1. **Structure:** HTML provides a structured way to create web pages by defining the different elements that make up a page, such as headings, paragraphs, lists, images, and links.

2. **Accessibility:** HTML includes built-in support for accessibility features such as alt text for images, semantic markup for headings, and other elements that help screen readers and other assistive technologies.

3. **Compatibility:** HTML is widely supported by all modern web browsers, making it a reliable and universal language for creating web pages.

4. **Interactivity:** HTML includes interactive elements such as forms, which allow users to input data and interact with web pages.

5. **Semantic Markup:** HTML allows developers to add semantic meaning to their content by using specific tags for different types of content, which helps search engines and other web crawlers understand the content and improve search engine optimization (SEO).

CSS is a style sheet language used to define the visual style and layout of HTML documents. It allows web developers to separate the content and structure of a web page from its presentation, making it easier to create and maintain consistent styles across multiple pages.

Together, HTML and CSS form the foundation of modern web development. They are often used in conjunction with other technologies such as JavaScript and server-side programming languages like PHP or Python to create dynamic and interactive web applications.

1. **Styling:** CSS allows developers to style web pages and control the layout and appearance of HTML content.

2. **Layout Control:** CSS provides precise control over the layout of web pages, including positioning, sizing, and alignment of elements.

3. **Separation of Concerns:** CSS separates the presentation layer from the content layer, making it easier to make changes to the design of a website without affecting the content or structure.

4. **Consistency:** CSS allows developers to create consistent styles across multiple web pages and applications, improving the user experience and brand recognition.

5. **Responsiveness:** CSS includes features that allow web pages to adapt to different screen sizes and devices, making it easier to create responsive designs that look great on desktops, tablets, and smartphones.
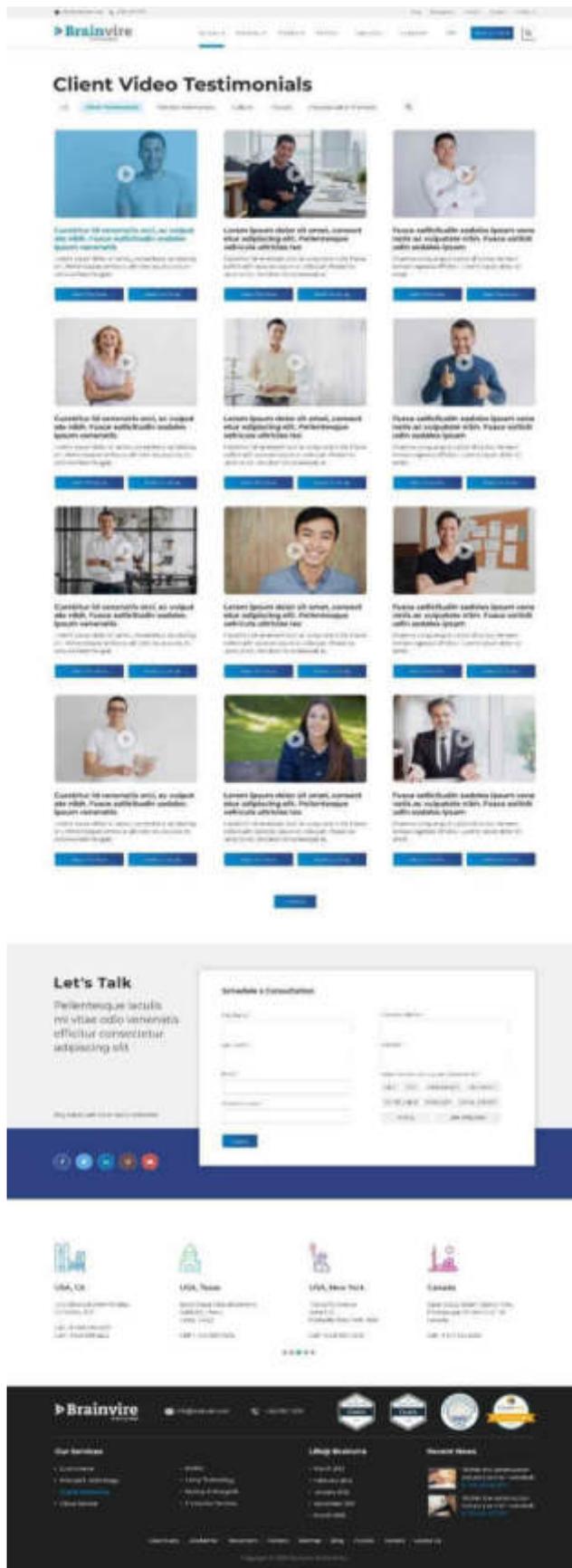
TASKS PERFORMED:

Fig. 2.1 HTML-CSS Task

2.3. JAVASCRIPT:

JavaScript (js) is a light-weight, object-oriented programming language, interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document.

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.

1. All popular web browsers support JavaScript as they provide built-in execution environments.
2. JavaScript follows the syntax and structure of the C programming language. Thus, it is a structured programming language.
3. JavaScript is a weakly typed language, where certain types are implicitly cast (depending on the operation).
4. JavaScript is an object-oriented programming language that uses prototypes rather than using classes for inheritance.
5. It is a light-weighted and interpreted language.
6. It is a case-sensitive language.
7. JavaScript is supportable in several operating systems including, Windows, macOS, etc.
8. It provides good control to the users over the web browsers.

Please input 2 numbers in the following textbox

Enter 1st number: 56

Enter 2nd number: 45

Click any one operation: Add Substract Multiply Divide

The answer is : **2520**

Enter your time:

time 08:01 🕐 greeting

Good morning
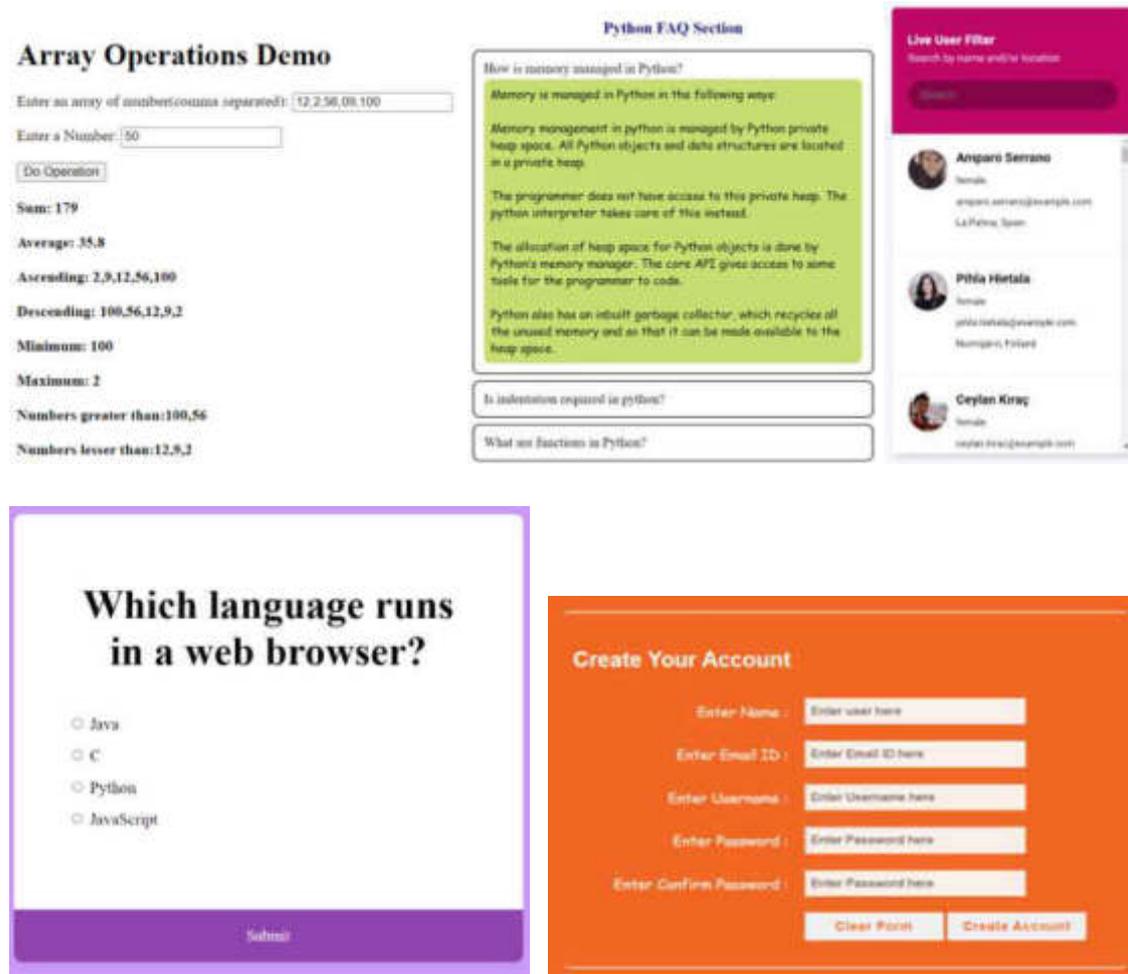
Fig. 2.2 Basic Javascript Tasks screenshots

Fig. 2.3 Advanced Javascript Task Screenshots

2.4. SQL:

MySQL is currently the most popular database management system software used for managing the relational database. It is open-source database software, which is supported by Oracle Company. It is fast, scalable, and easy to use database management system. It is commonly used in conjunction with PHP scripts.

1. MySQL is an open-source database, so you don't have to pay a single penny to use it.
2. MySQL is a very powerful program that can handle a large set of functionalities of the most expensive and powerful database packages.

3. MySQL is customizable because it is an open-source database, and the open-source GPL license facilitates programmers to modify the SQL software according to their own specific environment.

4. MySQL is quicker than other databases, so it can work well even with the large data set.

5. MySQL supports many operating systems with many languages like PHP, PERL, C, C++, JAVA, etc.

6. MySQL uses a standard form of the well-known SQL data language.

7. MySQL is very friendly with PHP, the most popular language for web development.

8. MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).

2.5. PYTHON:

Python is a high-level, interpreted programming language that is widely used for developing a variety of applications, from web development and scientific computing to data analysis and machine learning. It was first released in 1991 by Guido van Rossum and has since become one of the most popular programming languages in the world.

Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

1. **Easy to Learn and Use:** Python has a simple and easy-to-learn syntax that is readable and requires fewer lines of code compared to other programming languages. This makes it a popular choice for beginners.

2. **Open-Source:** Python is open-source and freely available, which means it can be used, modified, and distributed by anyone without any licensing fees.

3. **Cross-Platform:** Python is a cross-platform language, which means it can be used on different operating systems such as Windows, Linux, and macOS.

4. **Large Standard Library:** Python has a large standard library that provides a wide range of modules and functions for tasks such as web development, networking, data manipulation, and more.

5. **High-Level Language:** Python is a high-level language, which means it abstracts away many low-level details such as memory management, making it easier for developers to focus on the logic of their code.

6. **Dynamically Typed:** Python is a dynamically typed language, which means the data type of a variable is determined at runtime, rather than being explicitly defined in the code. This allows for more flexibility and faster development.

7. **Versatile:** Python is a versatile language that can be used for a variety of applications, including web development, scientific computing, data analysis, machine learning, and more.

2.6. GIT & GITHUB:

Git is a distributed version control system that is widely used for software development projects. It allows developers to track changes to their code, collaborate with others, and manage different versions of their codebase. GitHub, on the other hand, is a web-based platform that provides hosting for Git repositories, as well as additional features such as issue tracking, pull requests, and collaboration tools.

Here are some key features and benefits of Git:

1. **Distributed Version Control:** Git is a distributed version control system, which means that every developer has a complete copy of the codebase, including the full history of changes.

2. **Fast and Efficient:** Git is designed to be fast and efficient, even with large codebases and multiple contributors.

3. **Branching and Merging:** Git allows developers to create branches to work on different features or bug fixes, and then merge those changes back into the main codebase.

4. **Staging Area:** Git uses a staging area to allow developers to selectively choose which changes to include in a commit.

5. **Easy Collaboration:** Git allows developers to collaborate with others by sharing code changes and merging them into a shared repository.

Here are some key features and benefits of GitHub:

1.1 **Hosting:** GitHub provides web-based hosting for Git repositories, making it easy to create and manage repositories and collaborate with others.

2.1 **Issue Tracking:** GitHub provides tools for issue tracking, allowing developers to report bugs, suggest new features, and assign tasks to other team members.

3.1 **Pull Requests:** GitHub allows developers to submit pull requests to merge their changes into the main codebase, making it easy to review and discuss changes before they are merged.

4.1 **Collaboration:** GitHub provides tools for collaborating with others, such as code reviews, comments, and notifications.

Community: GitHub has a large and active community of developers, which makes it easy to find and contribute to open-source projects.

Chapter 3. EXPOSURES

3.1. DAILY PRESENTATIONS:

"*One of the best ways to enhance our presentation and communication skills is to present yourself to the stage and face it.*"

Our instructor Mr. Nitin Padharia and Mrs. Nidhi Suthar made a decision and told us to a daily presentation session by our interns. The topic should be technical and trendy. Each day, one of the interns will come and present a technical subject or topic and face off the audience and their stage fear.

This way we got to know different emerging and trendy technical topics that relate to the IT industry and how they can be beneficial to us.
We had sessions on the following topics:

Chat GPT	Data analytics
Bhar OS	AWS
Cyber Security	Robotics (IOT)
Block chain	Machine learning
DevOps	Instant Web (Without Coding, Like WordPress)
Virtual Reality	Business Communication and Public Speaking
Design Psychology	Natural Language Processing
METAVERSE	Edge Computing
Quantum Computing	Sixth Sense Technology
Ethics of Business	Virtual Assistant
software project management	Artificial intelligence
Robotic Process Automation using Blue Prism	Digital marketing
Metamorphic Robots	Deep learning
Cryptocurrency and digital currency	Technology in Cricket
Augmented Reality	Cloud computing
Search Engine Optimization (SEO)	Web Development
UPI	BCI
Neural Networks	VFX technologies
Big Data	Data visualization
Web 3.0	cloud gaming
3D Printing	5G technology and its impact

Table 3.1 List of interns and topics

Since everyone was presenting technical topics, I had been given an opportunity to present myself with my topic "Business Communication and Public Speaking" which is of my personal interest and have been working on it for many years. Mr. Nitin Padharia made it a personal request as he quickly identifies my extrovert nature and confidence and fluency in English. I made sure to add maximum flavor to the topic and shared my own personal tips and tricks to improve English, Business Communication and Public Speaking.

3.2. THE DIGITAL THEATRE:

A virtual grand event which included all the non-technical aspects of our lives which included our talents and skills like dancing, singing, poetry recitation, drama, anchoring etc. It was completely a fun experience in organizing this event and showcasing our talents apart from technical knowledge. It is also about SELF-BELIEF. In today's times, the role of all Leaders/Trainers is not just to show the path but also to induce and inject CONFIDENCE, TRUST, and HOPE among their teammates.

3.3. BRAINATHON:

Our three-day Brainathon concluded on a super-energetic and inspiring note with an appreciative prize distribution ceremony! We organized this hackathon event for our interns to fuel their creativity, innovation, and technological prowess through internal projects. And it was a roaring success indeed. With the awe-striking programs they developed, our panelists faced the tough decision of announcing the winners. Congratulations to the winners and all the teams for their enthusiastic participation. We're sure you'll rise to great heights in your journey.

3.4. TRIP TO RUSHIVAN:

Another exciting event happened during our 3 month internship period, a bonding session, a picnic to Tirupati Rushivan and we all got to know each other well and made good terms with each other and our seniors. A team picnic can be a fun and relaxing way for the team members to know each other, and build stronger relationships and trust.

3.5. EXPERT SESSIONS:

Various expert sessions were lined up during the 3 months internship tenure. Expert sessions like:

1. Odoo
2. Magento
3. IOS and Android
4. GIT and Github
5. Business Analyst
6. ReactJS and NodeJS
7. Quality Assurance

Learnings we gained-

1. New technologies: Technical presentations often introduce new technologies and tools that can be useful for solving particular problems or addressing specific challenges. By attending these presentations, you can learn about the latest advancements in your field and identify potential solutions for your own projects.
2. Best practices: Presenters may share their experiences and best practices for developing or implementing specific technologies. This can help you avoid common pitfalls and improve your own processes.
3. Industry trends: Technical presentations may provide insight into emerging trends and patterns in your industry. By understanding these trends, you can position yourself and your organization for success.
4. Networking opportunities: Attending technical presentations can be a great way to meet other professionals in your field and expand your professional network. This can lead to new opportunities for collaboration, knowledge sharing, and career advancement.

Problem-solving strategies: Technical presentations may offer strategies for solving complex technical problems, which can help you overcome challenges in your own projects.

Chapter 4. ABOUT THE PROJECT

4.1   PROJECT SUMMARY

Web based project management systems are designed to manage and store project information that are used in web-based applications. By different groups of people such as, seals department, programmers or project managers will be let by project applications a controlled access to information and automated distribution of information. The objective for collaboration has been: getting thing done faster, cheaper and better by applying their common knowledge, bringing together a selection of resources and attainments in a project. Because valid collaboration with teams improves productivity, speeds up result-making and optimizes of making a right decision, it also helps to intercept precious intellectual fortune and time. Web-based project management system can surprisingly increase performance, productivity and efficiency within an organization. Since web-based applications can be accessed through any web browser, no desktop installation or updates are required. Moreover, developers, who write great code while staying out of the way are able to use it along the distance, while they stay in geographically different place and collaboration between team still exists. Please find a short overview of the system as described in Figure 1-1 below. The aim of the Figure is to provide the background of the system conducted. The background of the system includes an introduction to the system area and the motivation behind the development and research.

4.2   AIM & OBJECTIVE

Project management is the process of planning, scheduling, resource management, requirement analysis, designing and testing to achieve project goals and objectives. Without project management it is difficult to complete projects in given time. Therefore, project management is required to remove such barriers in project development and to achieve specific goals.

The main objective of this project is to:

- To develop an online system that is systematic and comfortable
- To design the architecture of the system and its functionalities
- To setup the platform and server environment
- To test the reliability of the system

4.3   BRIEF LITERATURE REVIEW

The World Wide Web (WWW) is a platform for all the people from all around the world to gain and deliver knowledge and information. The Web is also becoming more popular because of the effectiveness in the use as an administrative and management tool in many institutions. This technology is the main key in the idea of developing an online system. In defining the structure of a web system, website programming is used to manage the behaviour of the pages while web design technique will give it a user-friendly interface. The complete programmed web pages will be presented on to client

by hosting it on a web server, which will allow them to be transferred to any web browser as requested by client, via HTTP [1]. In the meantime, there are some elements needs to be considered in developing an online system.

4.4   PROBLEM DEFINITION

Web based project management systems are designed to manage and store project information used as web-based applications. By different groups of people such as, seals department, programmers or project managers will be let by project applications a controlled access to information and automated distribution of information. The objective for collaboration has been: getting thing done faster, cheaper and better by applying their common knowledge, bringing together a selection of resources and attainments in a project. Valid collaboration with teams improves productivity, speeds up result-making and optimizes of making a right decision, it also helps to intercept precious intellectual fortune and time.
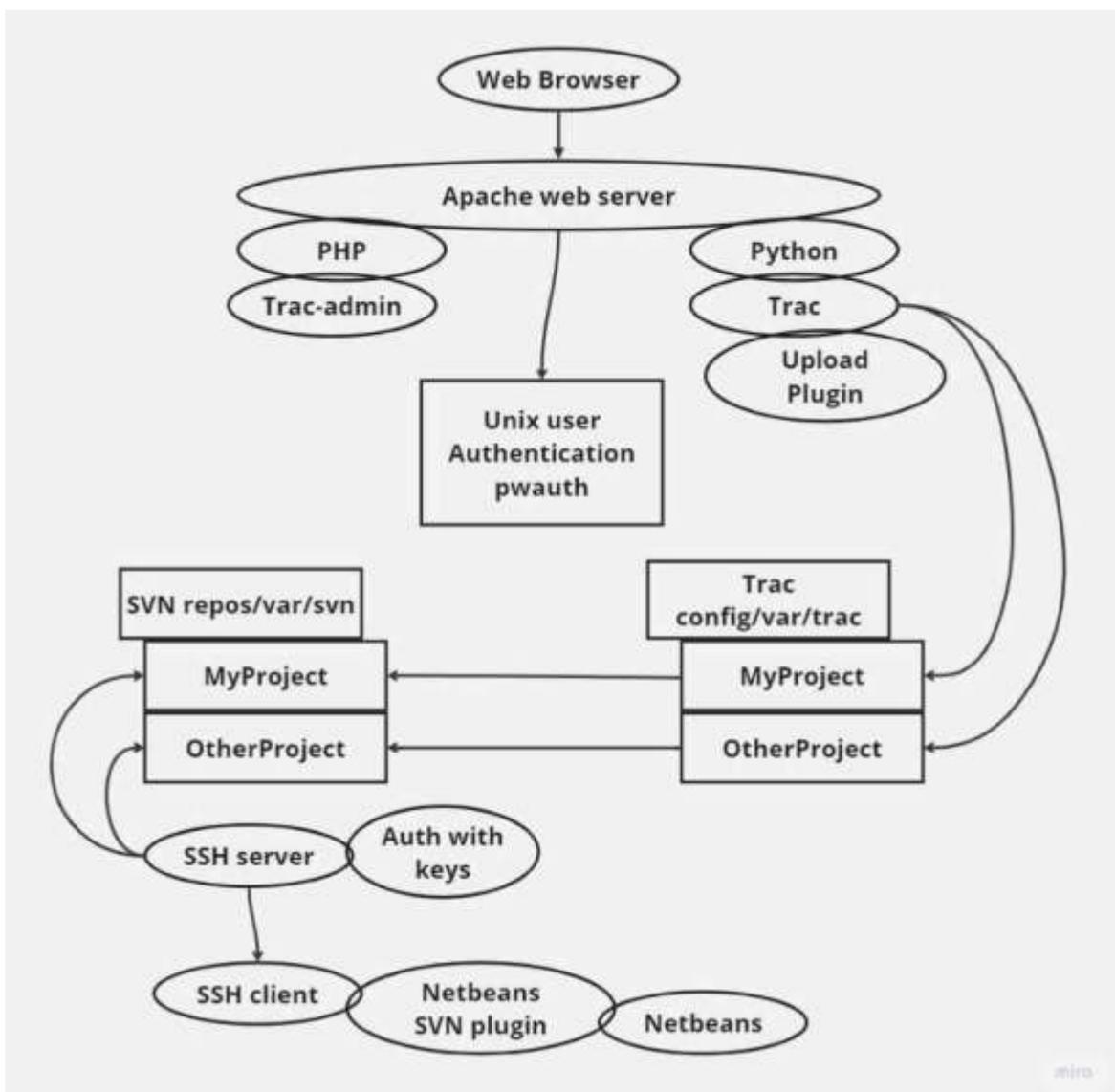
Fig. 4.1 Project Flow

To prove such a kind of improvement to productivity and to make our everyday working life, it was needed from the company to make an inside system for project management. Namely, having trouble finding right files and wasting useful time for sending and searching documents, describing and instructing new employers of the whole system and steps that need to be done, before beginning to make changes in projects or code. For consuming necessary time, keeping all troubles less, and to organize all documents into one place and most importantly, to keep track of projects that are in production for customers or for keeping an eye on errors or mistakes that occur during the work process, then a good web-based project management system was under consideration.

To consider everyday use and needs, the aim was to make an inside system for the company. The system is for helping workers (namely programmers, project managers, developers) to deal with some specific project and its errors. Project management system is needed, for helping to organize and keep an eye on the project and its process. The system is web-based; there are possibilities to add documents and specifications for specific projects. Documentation can consist of different graphs, database diagrams and graphical diagrams, which are needed for project development.

The most important part is that the system has an issue tracking system, a system where comments, bugs and other related questions for specific projects.

4.5   PLAN OF WORK

Modelling is like building a representation of things in the „real world" and allowing ideas to be investigated. In fact, a model is more likely a way of expressing a particular view of a system. Mainly modelling is used to:

- understand the problems involved in building some system
- an aid to communication between those involved in the project
- a component of the methods used in development activities such as the analysis of the requirements.

The way modelling is used in this project is called Unified Modelling Language (UML) that is a standard language for specifying, visualizing, constructing, and documenting the artefacts of systems, as well as for business modelling and other non-software systems.

The main objective of this project is to:
- To develop an online system that is systematic and comfortable
- To design the architecture of the system and its functionalities
- To setup the platform and server environment
- To test the reliability of the system

Fig.4.2 Work Plan

Chapter 5. TECHNOLOGY & LITERATURE REVIEW

The World Wide Web (WWW) is a platform for all the people from all around the world to gain and deliver knowledge and information. The Web is also becoming more popular because of the effectiveness in the use as an administrative and management tool in many institutions. This technology is the main key in the idea of developing an online system. In defining the structure of a web system, website programming is used to manage the behavior of the pages while web design technique will give it a user-friendly interface. The complete programmed web pages will be presented to the client by hosting it on a web server, which will allow them to be transferred to any web browser as requested by client, via HTTP [1]. In the meantime, there are some elements that need to be considered in developing an online system.

1.1 OPERATING SYSTEM:

Operating systems are the most important thing in every computer. It served as the platform for all the programs to run and interact between the hardware and the software of the system. There are a lot of operating systems available to install such as Windows, Linux, and Mac OS.

1.2 PROGRAMMING LANGUAGE:

One of the main components to be taken into account before developing a web page is to select the language to be used. A programming language is a language used to communicate and interact with computers. It is used to communicate with the machine, by creating programs, applications, scripts, or other set of instructions that control its behaviour and to express algorithms [2]. The sights and sounds created on web pages are all created using programming languages, among them are PHP, CSS, and MySQL. It is used for various applications on web pages.

1.3 TECHNOLOGIES:
- PHP
- JavaScript
- MySQL

Chapter 6. SYSTEM REQUIREMENT STUDY

6.1 USER CHARACTERISTICS

Use case diagram is a graphical representation used to capture the dynamic aspect of a system. It consists of actors, use cases and their relationships. Use case diagrams describe how users will interact with the proposed system [27]. It is used to gather the requirements for the system and identify the external and internal factors that will influence the system [28, 29]. By drawing the diagram, the interactions and functionalities can be seen [30]. In Figure 2, there are 3 actors which represent the three groups of users for FYP Online Management System which are Students, Lecturers/Supervisors/Examiners and FYP Coordinators. In the middle is the requirement of each group towards the system.
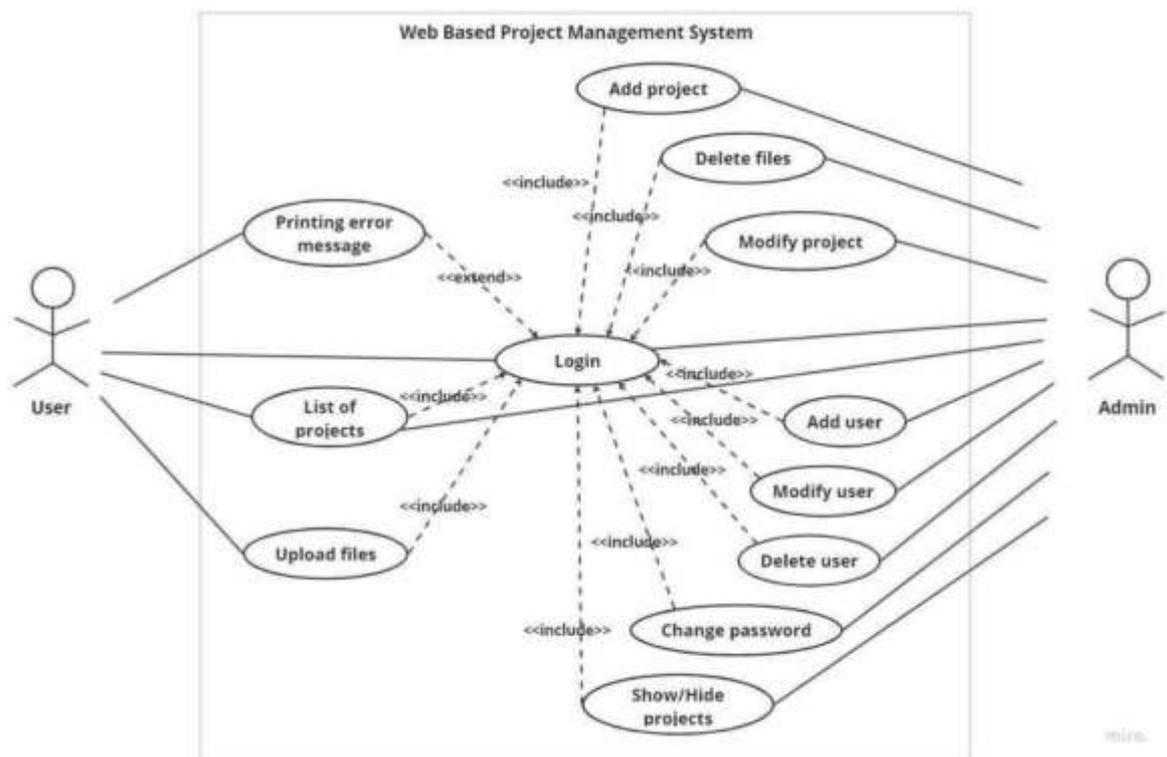
Fig. 6.1 Use Case Diagram

6.2 HARDWARE & SOFTWARE REQUIREMENTS

From experience in developing Web applications, I have derived a list of requirements for the Web development process. The most important requirements are to provide end-user involvement, prototyping, change management, immediate response, risk minimization, no administrative overhead and transparency and guidance. Knowing the end users' requirements is essential for the development of successful Web applications. Defining the main goals for the development of a Web application, then

the customer is not the actual end-user and, therefore, he or she is not able to define all the requirements that are important to the end-user. Prototyping is used to leverage the involvement of end-users in Web application development. Prototyping produces a preliminary version of the required system that can be reviewed by end-users. After review, the prototype is added to and altered to produce another version closer to the one that is wanted. Figure gives a diagram of the prototyping process.

Operating Systems:
- Windows XP SP3
- Windows Server 2003
- Windows Vista SP1
- Windows Server 2008
- Windows 7
- Windows Server 2008 R2
- Windows 8, 8.1
- Windows 10
- Linux
- Unix
- Mac

Hardware Environment:
- Processor: x86 or x64
- RAM: 512 MB (minimum), 1 GB (recommended)
- Hard disk: up to 200 MB of available space may be required. However, 50 MB free space is required in the boot drive even if you are installing in another drive.

Development Environment:
- PHP 5.3.3+ version. Unzip the downloaded file and move the unzipped folder to the desired drive.
- Apache Tomcat
- MySQL (optional. Necessary for DataBase related functionalities)

6.3 ASSUMPTIONS & DEPENDENCIES

Project management is the process of planning, scheduling, resource management, requirement analysis, designing and testing to achieve project goals and objectives. Without project management it is difficult to complete projects in a given time. Therefore, project management is required to remove such barriers in project development and to achieve specific goals.
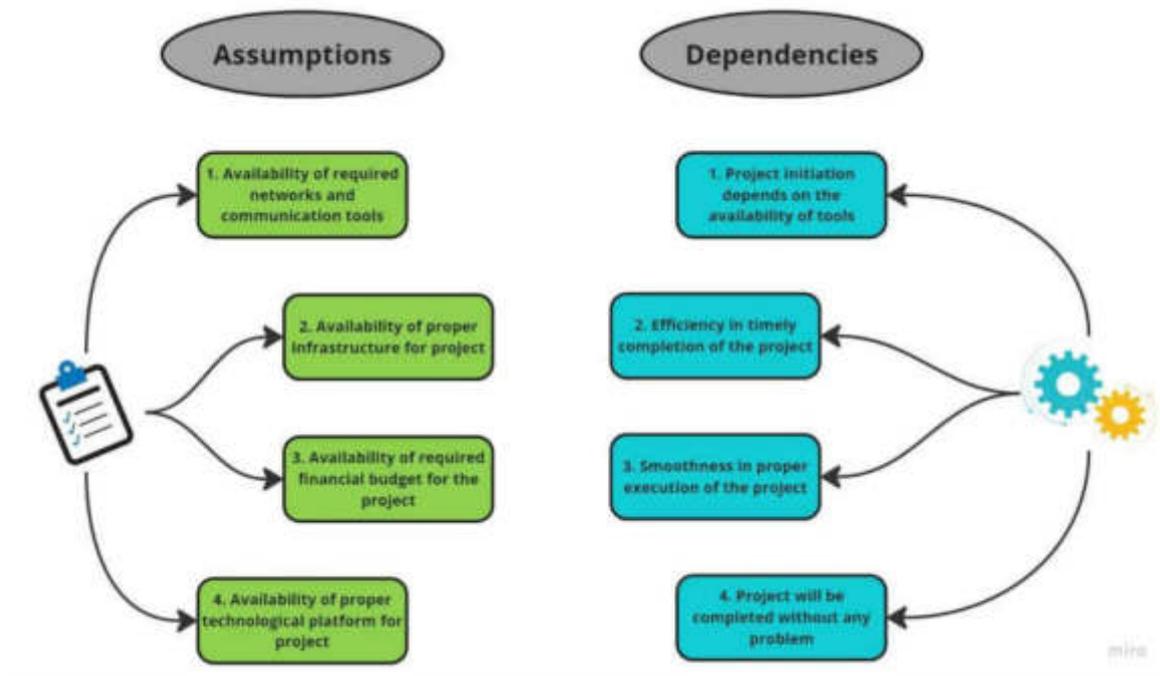
Fig. 6.2 Assumptions and Dependencies of system

Chapter 7. SYSTEM DIAGRAMS

7.1 MAIN FUNCTIONALITY:

On the Figure is shown a functionality of project management system, where user and administrator have different functionalities to run. While the user is modifying or uploading or deleting files in a system while the user is logged in, then our administrators have more rights to control in the system. Namely, an administrator has the right to add, modify or delete users in a system or add new projects and is definitely available to modify projects as the user or add new projects to the system. The Figure below illustrates exactly what kind of possibilities or options are for the user and administrator of the system.
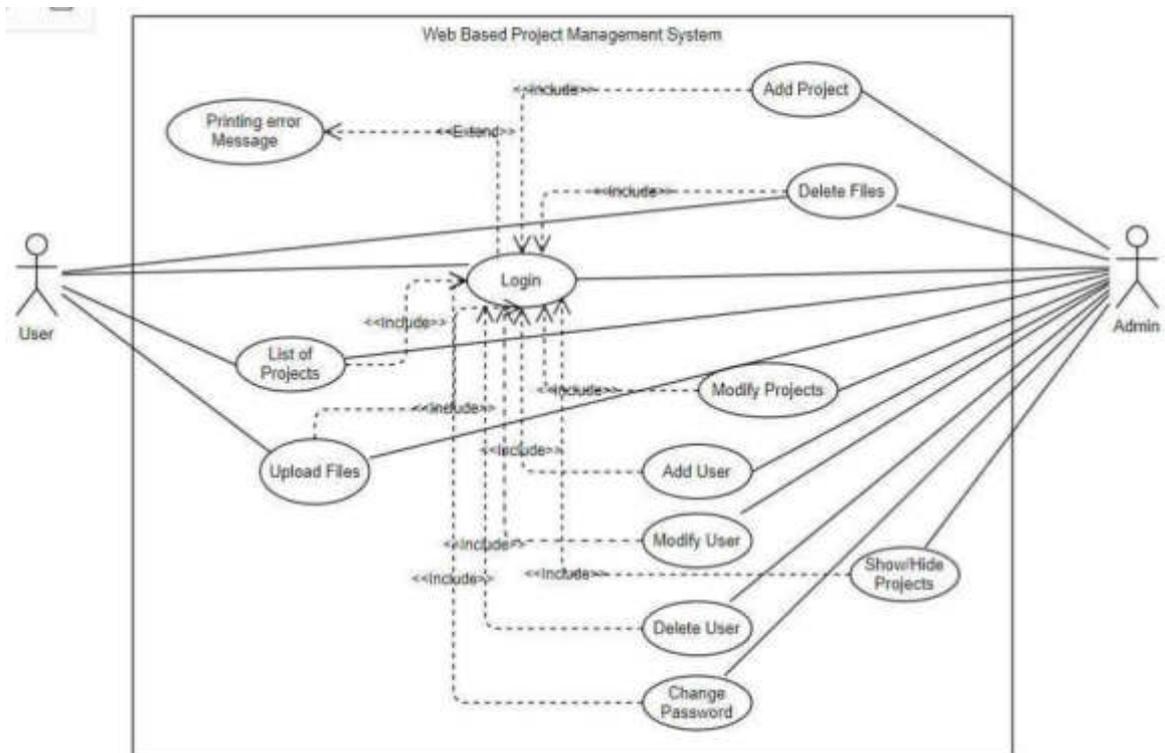
Fig. 7.1 Functionality Diagram

7.2 ADDING USER:

On Figure is shown a sequence diagram of adding users in administrator view through users'' management. Firstly, the user goes to the main page and will get a login window, after adding a username and password, the system checks if the information is correct. If it is correct the user will be led to the main page, where the user is able to see a list of projects, links to the user's management page, add project page and show/hide the project. User moves to users' management and under there is an add user field, where actually TRAC will get as a root user to work under SUDO that adds contact information to a file. System sends back a replay to the user, if the process was successful. The main thing on a Figure to put an attention is that the system is divided as one part belongs to www-data and another one to root.
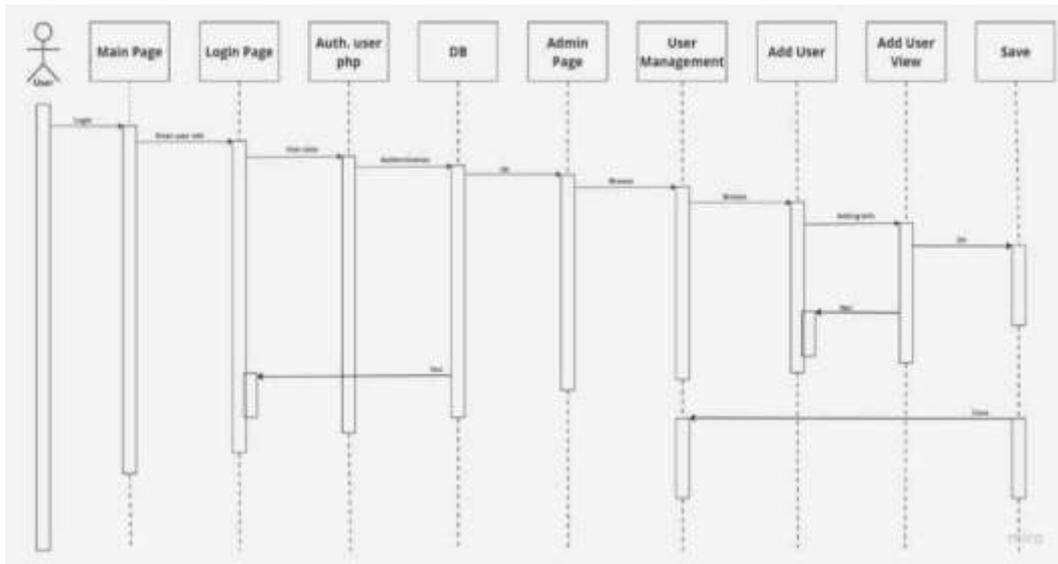
Fig. 7.2 Sequence Diagram of adding user

7.3   COMPONENT DIAGRAM:

Below there is a Figure, that shows component structure of the system, on the Figure.
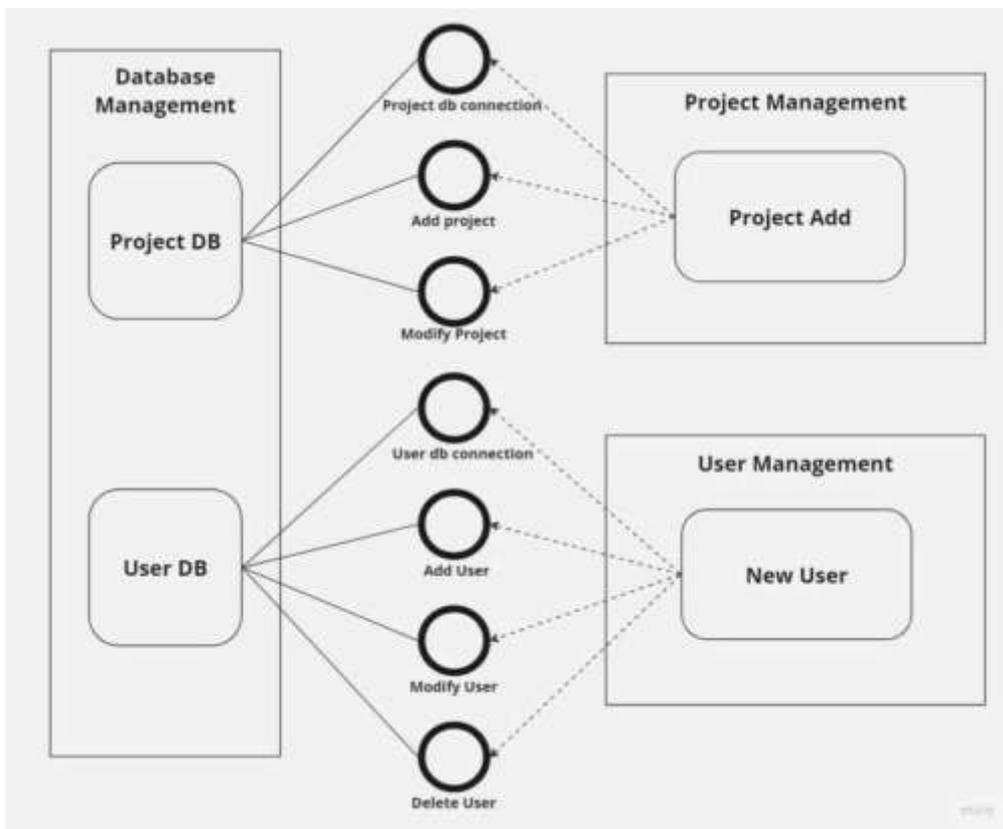
Fig. 7.3 Component Diagram

7.4   PROCESS FLOW

Research			
Operating System	Programming Language	SQL Database	Web Server

System Architecture & Design	
Client-Side	Server-Side

Research System Development	
Programming	Structure

Implementation & Integration

System Testing		
Delays	Stress Test	Scalability

Enhancement & System Upgrade
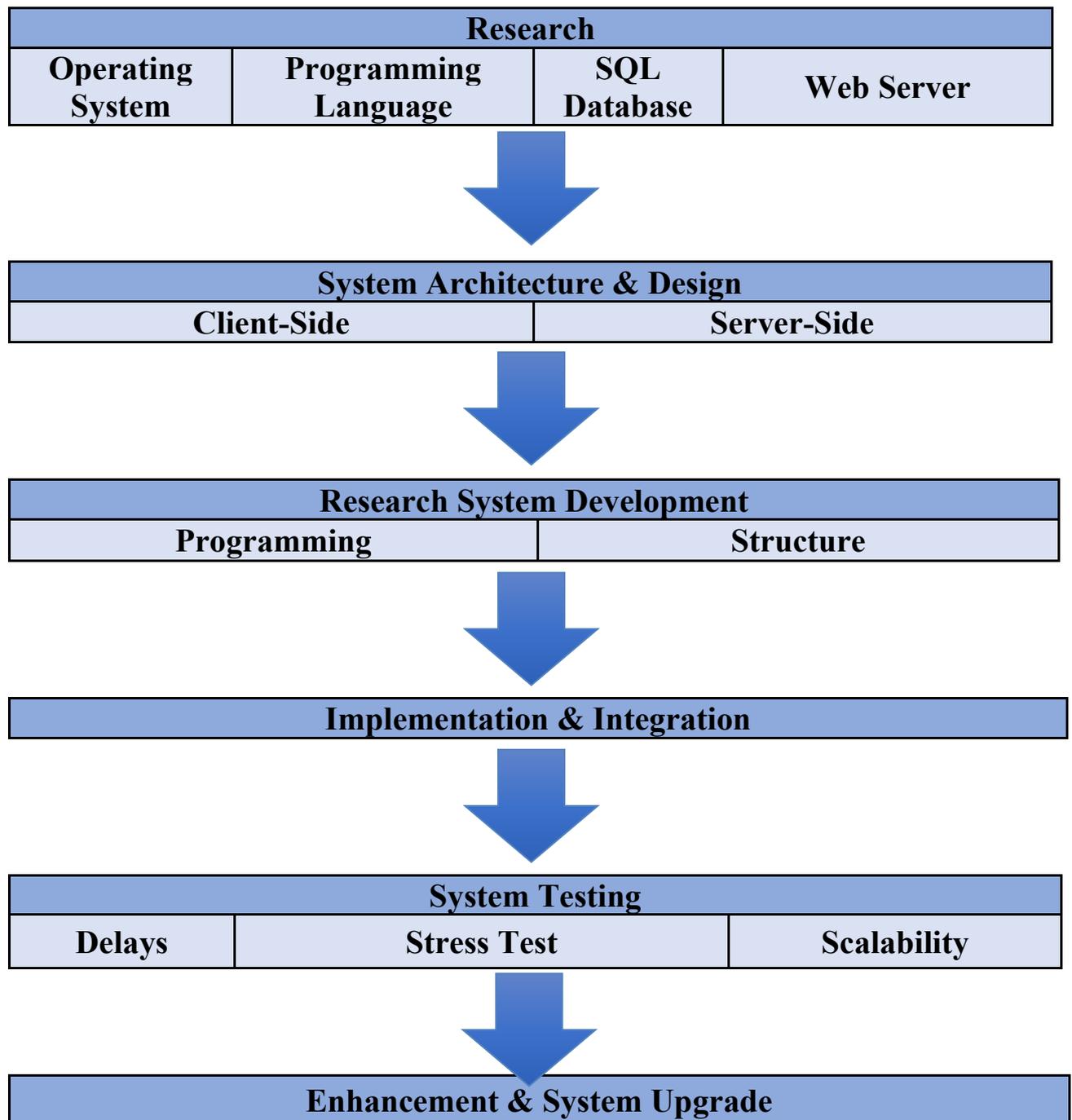
Fig 7.4 Process Flow Diagram

Chapter 8. DATA DICTIONARY

8.1 DEFINITION

A Data Dictionary is a collection of names, definitions, and attributes about data elements that are being used or captured in a database, information system, or part of a research project. It describes the meanings and purposes of data elements within the context of a project, and provides guidance on interpretation, accepted meanings and representation. A Data Dictionary also provides metadata about data elements. The metadata included in a Data Dictionary can assist in defining the scope and characteristics of data elements, as well the rules for their usage and application.

Field Name	Data Type	Field Length	Constraint	Description
Client_id	Int	10	Primary Key	Client id, Auto generated
Client_name	Varchar	20	Not null	Name of client
Password	Varchar2	30	Not null	Login Password for client
Contact_no	Int	15	Not null	Landline/mobile number
Email_id	Varchar2	30	Not null	Any email id
Max_Users	Int	10	Not null	Max no of users
Current_users	Int	10	Not null	Currently present user

Table 8.1 Data Dictionary Data Types

8.2 WHY USE DATA DICTIONARY

Data Dictionaries are useful for a number of reasons. In short, they:
- Assist in avoiding data inconsistencies across a project
- Help define conventions that are to be used across a project
- Provide consistency in the collection and use of data across multiple members of a research team
- Make data easier to analyse
- Enforce the use of Data Standards

8.3 WHAT ARE DATA STANDARDS & WHY SHOULD I USE THEM?

Data Standards are rules that govern the way data are collected, recorded, and represented. Standards provide a commonly understood reference for the interpretation and use of data sets. By using standards, researchers in the same disciplines will know that the way their data are being collected and described will be the same across different projects. Using Data

Standards as part of a well-crafted Data Dictionary can help increase the usability of your research data, and will ensure that data will be recognizable and usable beyond the immediate research team.

Chapter 9. RESULT & CONCLUSION

The result of the project is described from the perspective of the aim and scope set in the beginning of the thesis. The ideas for the future web-based project management system are also described here. The aim of the project was to make a complete, fully working web-based project management system for the company.
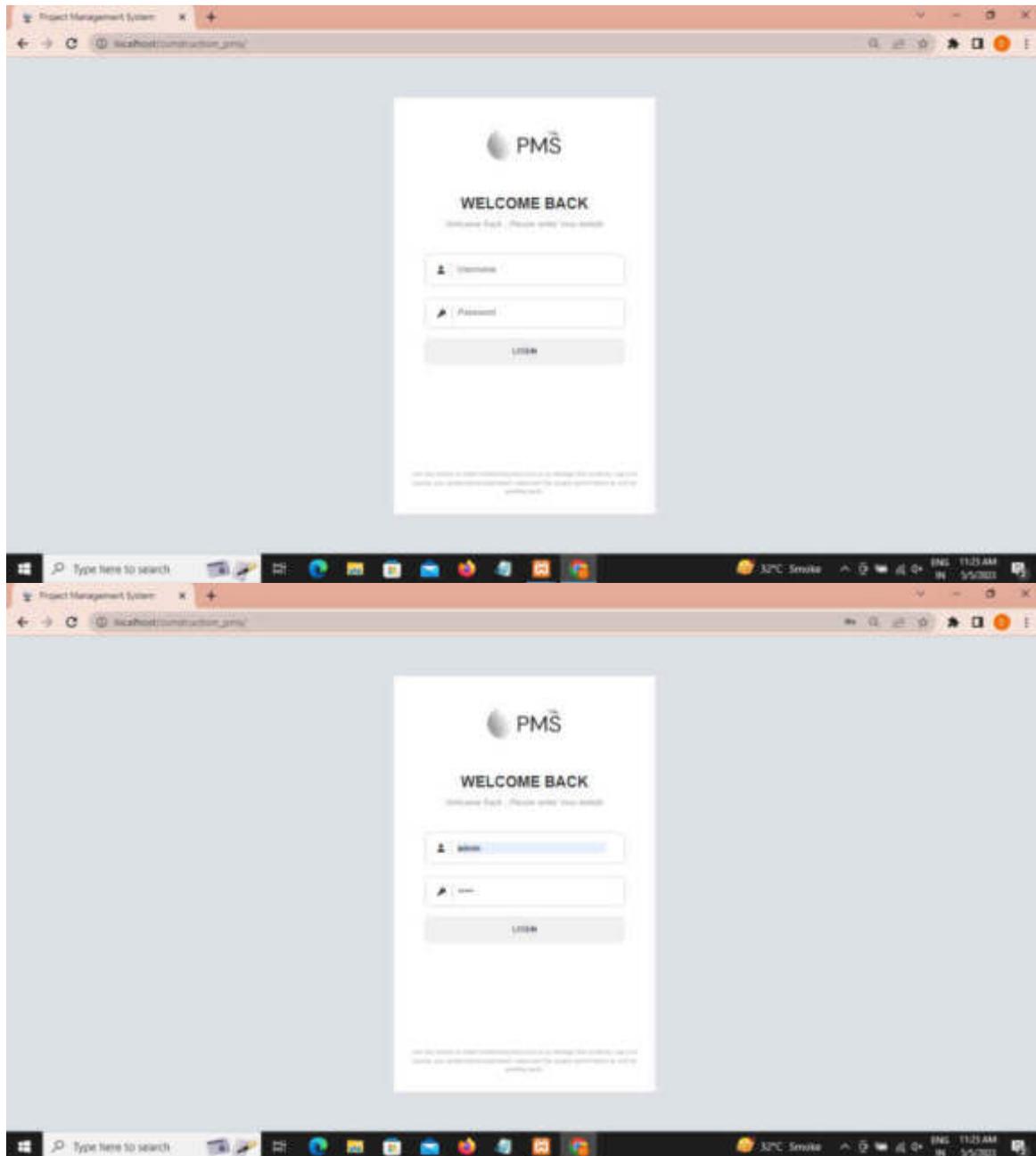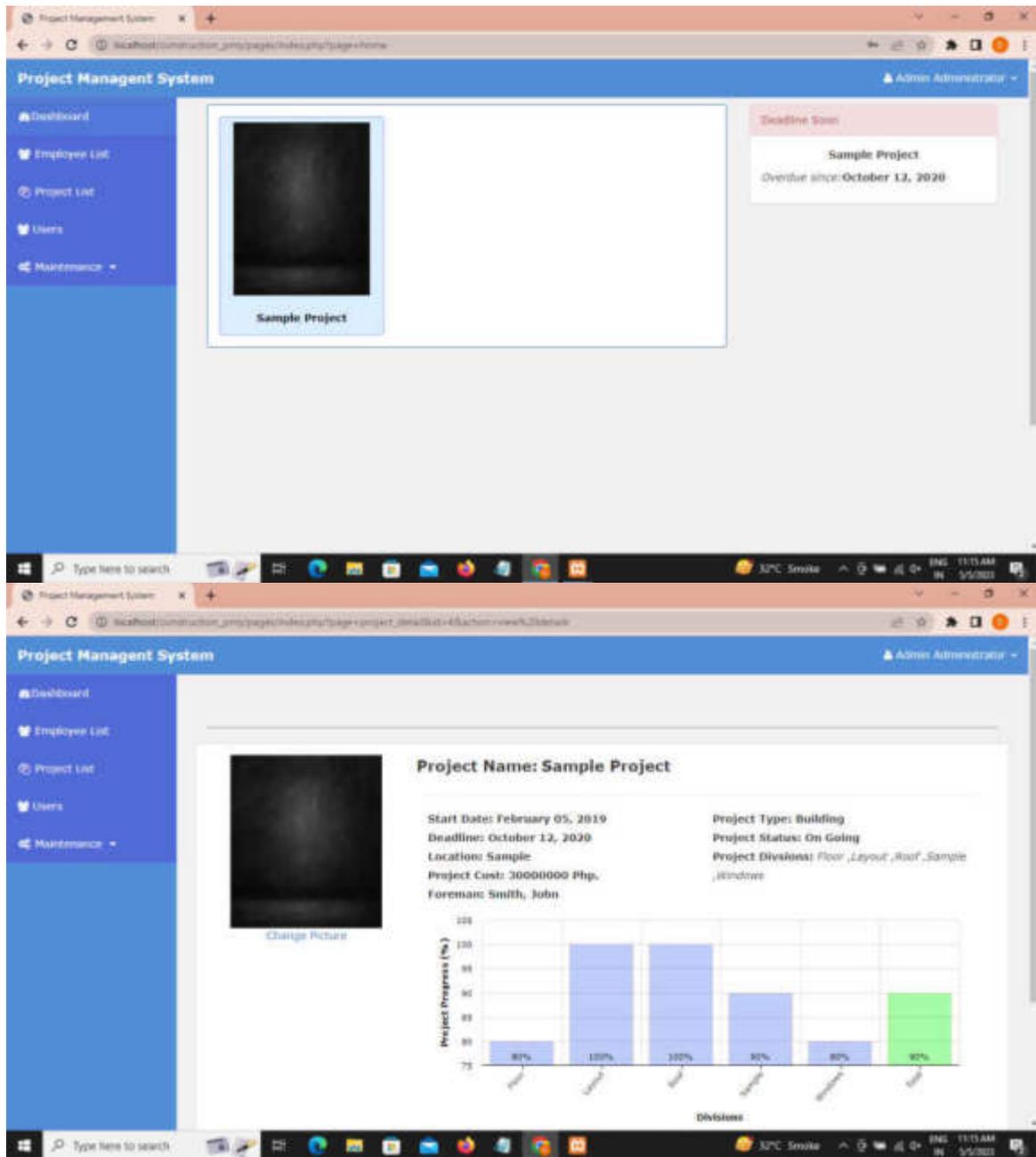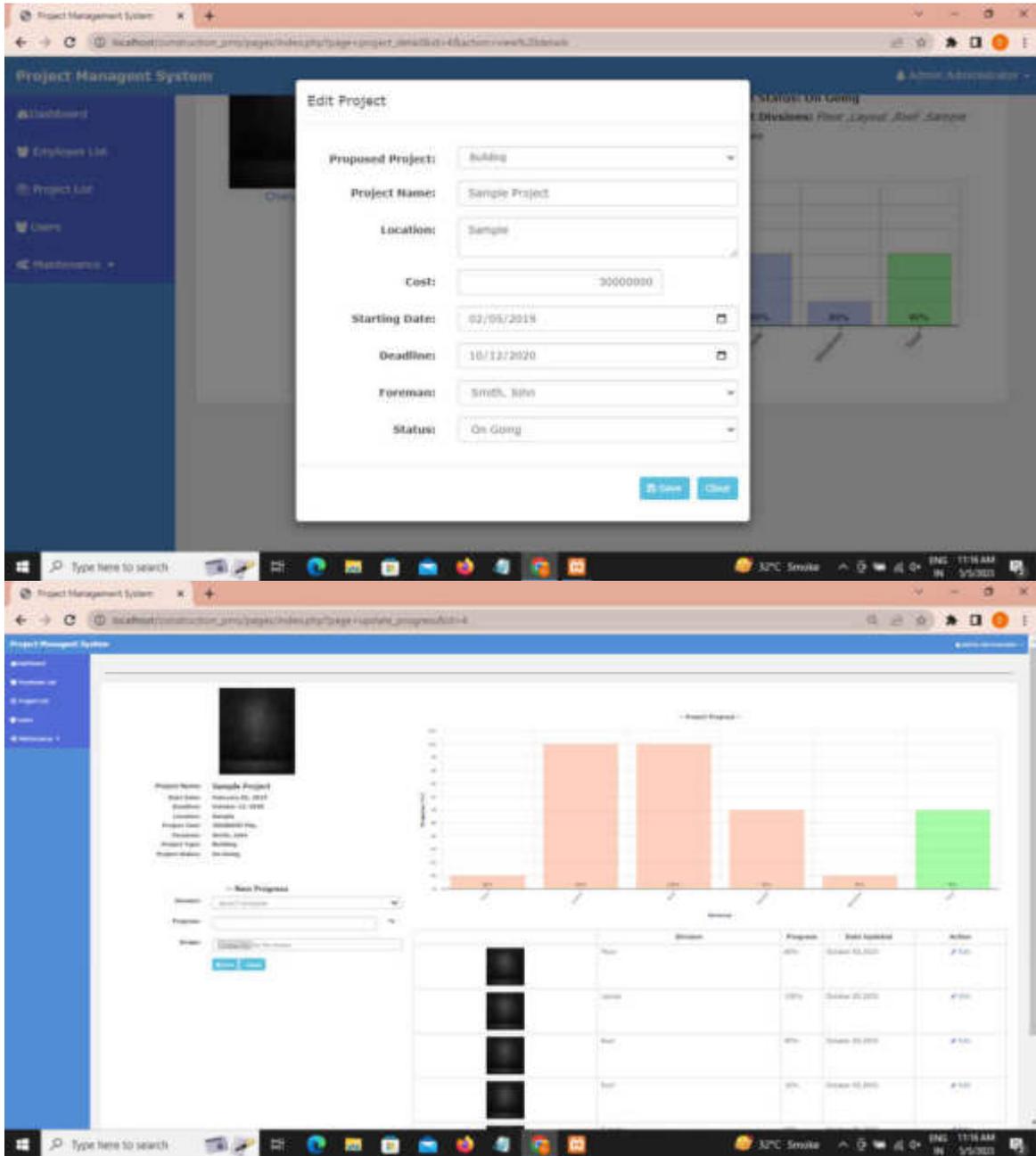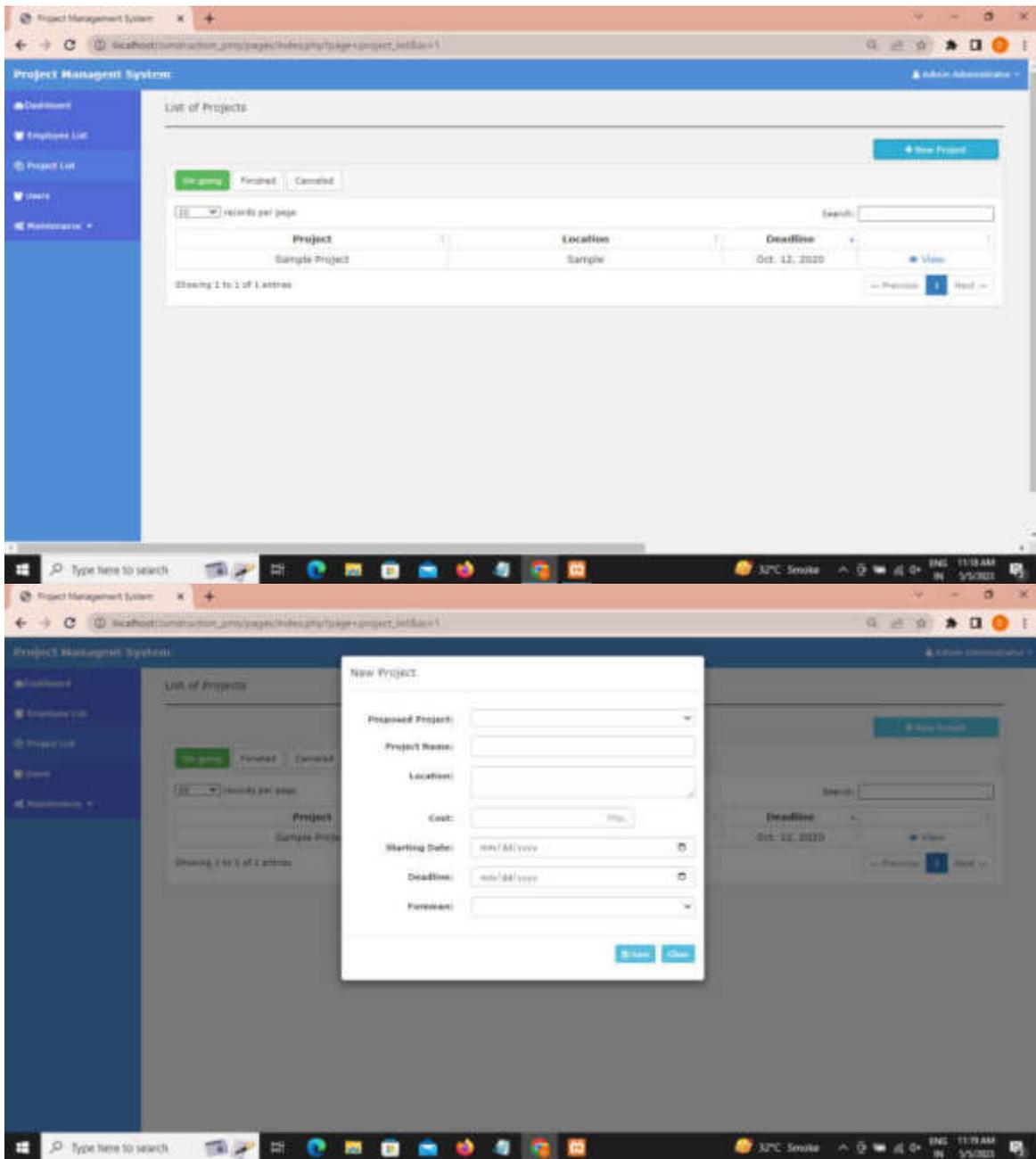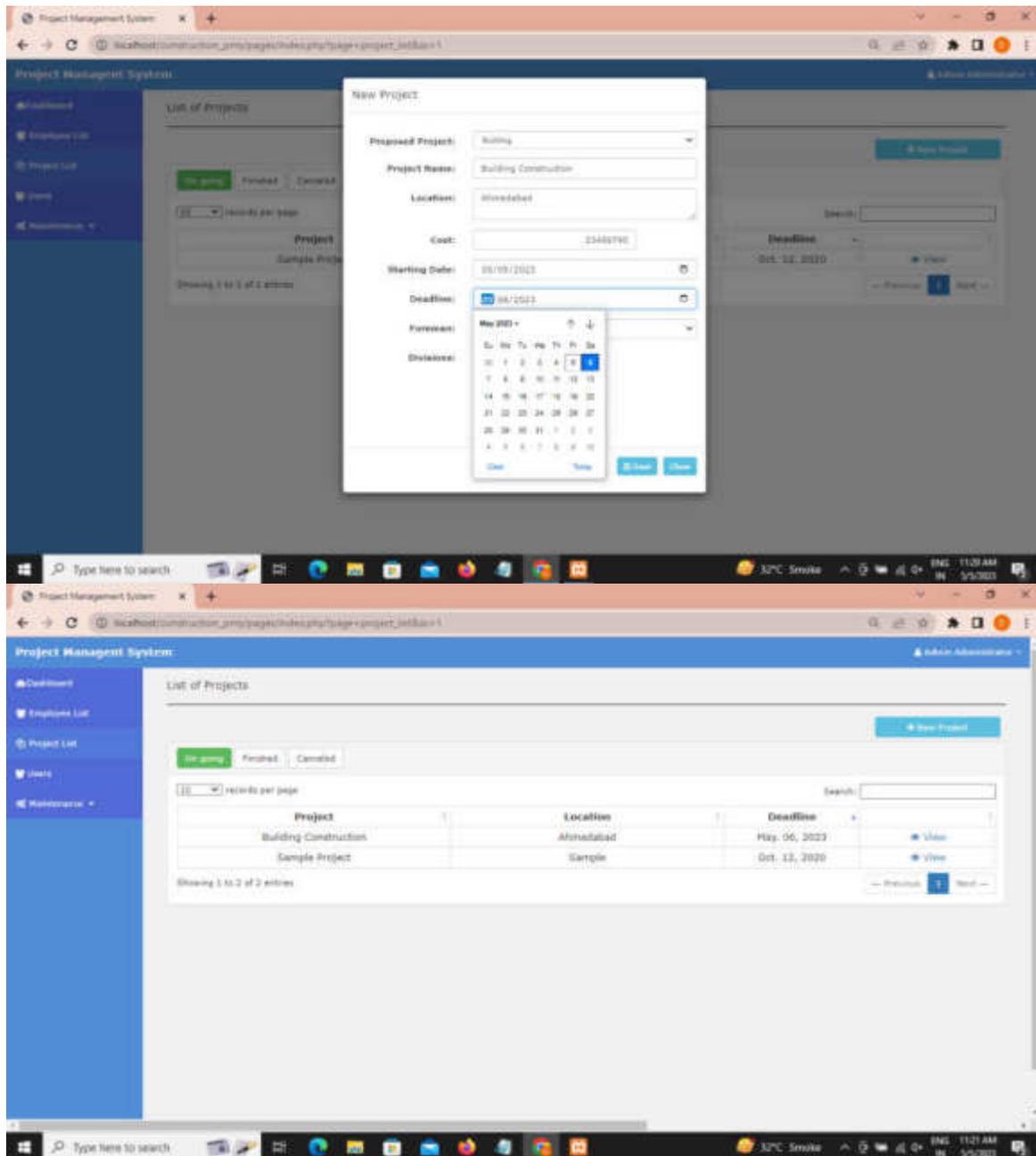
Fig.9.1 Project Implementation

Requirements from the company has been gathered and taken into account. In web-based project management system there has been used an already implemented TRAC system to improve company's everyday use and to increase performance, productivity and efficiency. As a good project management system, it has a possibility to upload, download and delete files and uniformly gives change for developers to be in constant contact with the customer requirements and expectations for the project. User management tool in web-based project management system is a good appliance for keeping eye on the project and for giving rights to different users by system administrator in company. This all makes a complete and good communication system inside company, all data and material will be accessible from one place, to facilitate the solution of a project and contact communication with a client. Finally, the whole system has been tested to ensure that everything functions correctly before the system processes

actual data and produces information that people will rely on. The features that were implemented are listed below.

9.1 USER MANAGEMENT
- Adding new users
- Adding reliable data to user
- Ability to add different rights to users (admin)
- Ability to change password
- Ability to delete users
- Ability to lock users (user don't have possibility to log-in to system)

9.2 FILE UPLOAD
- Users are able to delete files
- Upload files through Trac interface
- Download files

9.3 PROJECT MANAGEMENT
- Adding new projects to system
- Adding projects logo to Trac system
- Define an admin for a specific project
- Adding needed data to project
- Updating files to project
- Deleting updated files in project

9.4 PROJECT BASED VIEWS
9.5 SEURITY LOGIN ADDED TO SYSTEM

References

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INTERNSHIP AT SpurAI

AN INTERNSHIP REPORT

Submitted by

Kansara Purvish Hardik

190390116006

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 SpurAI** has been carried out by **Kansara Purvish Hardik** 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. Upasana Leela   Prof. Akhsay Kansara

Internal Guide   Head of Department

DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship entitled **Internship at SpurAI** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bona fide record of original project work carried out by me under the supervision of **Prof. Upasana Leela & Harsh Pandya (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.   **Kansara Purvish Hardik**

SpurAI

Mo-9725698487

305 –Third Floor, Shan complex, opposite town hall, Elis bridge-380006
Contact no-9725698487, GST Number-24BCCPP5899R2ZI, IECCode-BCCPP5899R

Internship Certificate

Date 02/05/2023

This is to certify that Purvish Hardik Kansara undergone summer internship from 01st February 2023 to 05th May 2023.

During the internship, Purvish has demonstrated a high level of dedication and commitment towards their work. They have shown excellent communication and teamwork skills, and have contributed significantly to the success of our organization.

Technology: React Native.
 We wish him/her grand success for the future.

Signed,

Harsh Pandya

Spur AI

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 : 18 May 2023 (12:33:17)

This is to certify that, *Kansara Purvish Hardik* (Enrolment Number - 190390116006) working on project entitled with *Internship at SpurAI* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student : Kansara Purvish Hardik   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.

ACKNOWLEDGMENT

I would like to thank **SpurAI** for giving me this opportunity to learn things and get exposure of industrial work. And provide support whenever needed in this brief duration of time. I would like to express my gratitude towards **Mr. Harsh Pandya** whose everyday efforts helped me to complete this project. A special thanks to our HOD **Prof. Akshay Kansara** provided an opportunity to enhance my inner ability which will help me in my carrier path. It would not have been accomplished without GTU, who introduce this very interesting and practical subject in the syllabus which will help students to showcase their interest, skill, knowledge, etc., in their particular field. As it exposes students to take on real-world problems and transitions theoretical knowledge into practical use.

<u>Abstract</u>

This report presents the summary of the end-of-studies of the internship carried out in the **SpurAI.** The scope of this document is to describe the experience gained and focus on the achievements as an intern. During the internship, I was involved in a variety of tasks and projects, which provided me with a comprehensive understanding of the company's operations and the challenges faced in the industry. I had the opportunity to work alongside a team of professionals who were dedicated, passionate about their work, and always willing to share their knowledge and expertise with me**.** It also describes the training obtained during this period that I went through a mobile application building technology i.e. React Native. It shows the aspects as well as the implementation concerning Software Project Management. Further provides a new aspect of what the advancements in technology are happening and needed for the development process as well.

List of Figures

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Abbreviations

Symbol	Description
API	Application Programming Interface
Html	Hypertext markup language
CSS	Cascading style sheet
RN	React Native
QA	Quality Assurance
JS	Java Script
TS	TypeScript

Table of Content

Chapter 1. INTRODUCTION

1.1 Company Profile:

Spur AI offers a wide range of custom software development, mobile application and web development services that achieve inspiring results within budget. SpurAI has helped the world's most successful companies become more competitive, increase productivity and reduce costs. We offer a unique model that is purpose-built for quality, value, and speed to market.

Our goal is to build a long-term relationship as your reliable and trusted technology partner. When you grow, shift, and evolve, SpurAI is right there with you. As your trusted technology partner, we connect you with the best possible technology professionals, helping you make the most of every business opportunity. We take the time to develop a true understanding of you, your company, and your business goals.

As the leading provider of mobile and web solutions, the company helps you quickly and cost-effectively bring your product vision to market and speed up your existing application and web development efforts via industry best practices.

Delivered well over 30 Major projects, at SpurAI the work culture is the primary aspect as of the team works well, the project will be flawlessly managed.

The main aspect is when a product gets developed, the same team with a moderator tests the different functionalities. Which helps them to track their mistakes and provide instant solutions. This can help in the productivity of the team as well and once a product gets delivered, it will be managed by our team and provide you long-lasting support.

1.2 Industry Specific Solutions of the Company:

- Microsoft Media Room Development & Solutions

- Diagnostic, DVR, Monitoring & Provisioning System Solutions (TELCO specific)

- 3D Modeling & Simulation Solutions

- Healthcare Sector Solutions

- Transportation Industry Solutions

- Rental Management Industry Solutions

- CRM/ERP Solutions

- Sports Sector Solutions

1.3 Scope of Work

- Mobile Application Development

- Web-App Development

- Artificial Intelligence

- Cloud Services

Chapter 2. OVERVIEW OF DIFFERENT DEPARTMENTS

2.1 Lifecycle of a project in SpurAI

As they respect the changes that might cover at any time while in the development of a project. So, for that, they apply Agile Methodologies as it provides a fast/agile way and can handle changes at any time even at the production itself.
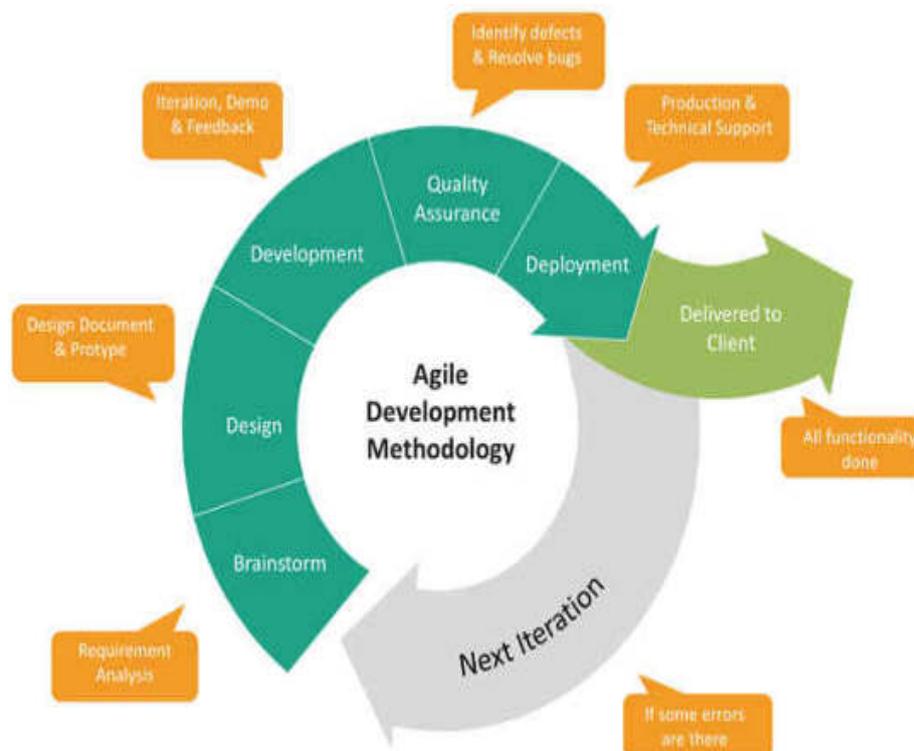
Fig 2.1 Agile Process

Also, based on priorities the tasks may get changed because delivery of a product while also keeping track of its quality is also an important aspect for them.

So, it is as follows: -

1. Communication with the customer.
2. Brief planning.
3. Scheduling of tasks.
4. Prototype building.
5. Review with the customer.
6. If approved, then continue else rebuild.
7. Start testing concurrently.
8. Delivery of the product.

So, in this way, a project gets developed as SPM gives a proper structure to develop software.

2.2 Mobile Application Development

The Mobile App Dev department provides a way to connect clients and businesses with their phones at their fingertips in this department there are two main devices: -

- Android
- IOS

As almost all people have smartphones so it is the best way to connect them with several other technologies.

The company works on 2 main technologies: -

- Native
- React-Native

All the app was developed in Native but when the technology React-Native came, they switched to the new technology which is more robust and provides better functionalities as compared to Native.

React Native also reduces the work needed manually that is done in Native. It also reduces the LOC (Line of Code) of a project and its community is very large and making new packages day by day.

2.3 Web App Development

While some clients prefer their online presence using a website. So it provides a way to publish themselves in the online market. At first, there was HTML, CSS, and JavaScript to develop some basic webpage.

But it evolved when new technologies were added which provide more functionalities and a better UI. Such technologies are: -

- ReactJS
- Word press
- ASP.NET
- NodeJS

And many more.

The company currently uses ReactJS as the frontend and .NET as the backend service. The database may vary according to the customer's requirement as most of the time MongoDB is used.

For a website, several API needs to be called as all the functions are directly related to the backend service. And also all of them needed to be optimized accordingly as well.

2.4 Artificial Intelligence

Nowadays automation getting a severe hike and also has a huge scope as well because of this, many companies want to adopt this new technology as it covers almost all the aspects of development and creates a new view of it.

The company includes the following concepts for development: -

- Machine Learning
- Cloud Automation
- AI Strategy

By providing cloud strategies, customers can also have access to the data in real-time and this is the main advantage of the cloud that as soon as the data gets updated it will get displayed in cloud storage. And also no one can access those data without access.

Chapter 3. INTERNSHIP AND PROJECT OVERVIEW

3.1 Internship Overview

An internship is an opportunity for students to gain practical experience in a specific field or industry. It applies what's learned in theory to practical or real-world situations and gets a taste of what it's like to work professionally.

Internships are usually offered by companies or organizations, and they can be for at least 15 days to around 6 months as well. Types of internships are as follows: -

- Paid Internship
- Unpaid Internship

The benefit of an internship is that you get to learn practical skills that are relevant to your chosen career path and also get a chance to develop your professional network by working alongside experienced professionals in your field.

Additionally, it provides a great opportunity to explore different career options and gain valuable insight into the day-to-day workings of a particular industry or company. They also look great on a resume and can help you stand out from others. Companies can also evaluate candidates with this and most likely they will take one whose has experience in an internship rather than others as a fresher's position.

My internship is based on Mobile and Web Application Development. I have worked on the following training.

HTML, CSS, JavaScript	Firebase
ReactJS	React-Native

During my period of this internship, I have completed 2 projects. The first is just about developing a UI from the given app (Clone). While the second is different from the other as it contains several aspects of React-Native including API calls, Cloud Messaging, etc.

3.1.1 Internship Projects Developed

1. **UI for Android Application**

- A project of creating a UI from an existing application that will help to build some other application and to give basic knowledge about the important aspects of React-Native.

- It was a solo project of developing only the UI of the app with some different views and basic functionality.

Fig 3.1 Login Screen Landscape

Fig 3.2 Tab Screen Landscape

2. Dynamic Application

- This project is about creating a dynamic app design where the layout of the app will be the same but the inside content can be changeable with just a JSON file.

- This project doesn't include any login/signup information but has the backend for different aspects of the app.

- It contains the following functions:-
  - Loading Screen / Splash Screen.
  - Home Screen containing multiple tiles.
  - Integrated Map Screen with location and directions.
  - Web opening Screen.
  - Contact Us Screen.
  - Share this app.
  - Multimedia Screen.
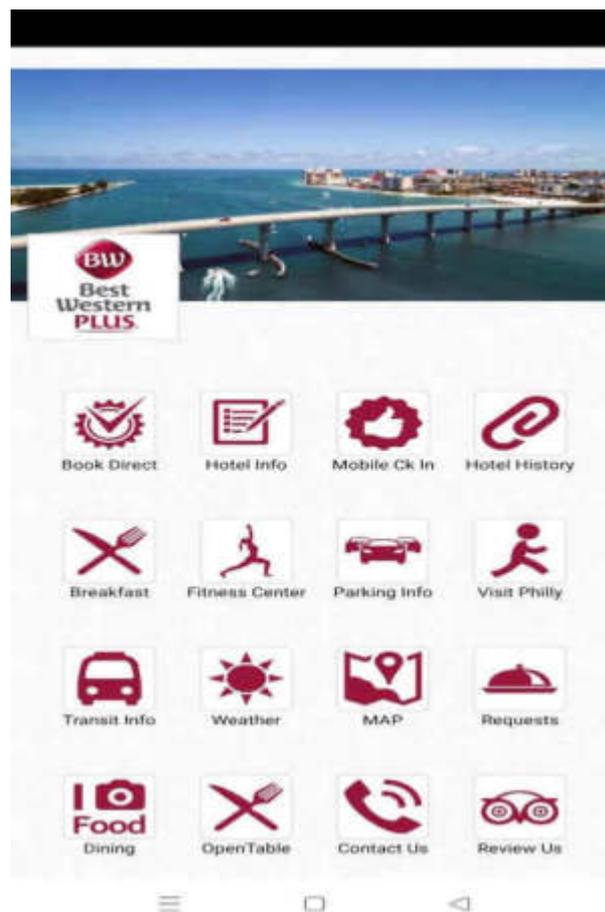
Fig 3.3 Home Screen

3.2 Purpose

The main purpose of this internship is to expose students to real work environment experience and also to give initial experience to them. This can help them to convert theoretical knowledge into practical knowledge because practical knowledge is the only thing useful in a real-world application.

In SpurAI the approach is a bit different than normal internship that other company provides. Here at first, they start with tasks to understand at what level a student understands the concept and then after learning starts.

Here, there are special theory aspects because the hands-on approach will give a better output than spending time explaining each aspect.

3.3 Objective

The main aspects of an internship are as follows: -

- Apply what you've learned in the classroom to the corporate world. See firsthand how your education can be applied to your future career.
- Explore different career paths and industries. Experience different job functions and discover new passions.
- To Gain valuable skills, knowledge, and experience in a field to allow you to make a career transition.
- And best is to get experience and learn from the mistakes that might occur during the whole period of the internship.

3.4 Internship Routing

- The duration is of 12 weeks and there are 5 working days per week. So, our working hours are from 10:30 AM to 7:30 PM. The tasks are given by the mentor daily.
- Changes might occur in between the project as well and we have to work on other technologies as well like Native, React Native, Firebase, etc.

3.5 Roles and Responsibilities

- During the internship program, my responsibilities for the first month are to get the training and learn multiple technologies like HTML, CSS, JavaScript, Firebase, React-Native, Native, and Cloud Messaging.
- To gain technical knowledge and also to build soft skills which will ultimately make me better. Solve the problems of other builds of Native in parallel while developing the React Native project.

3.6 Project Detail

ZuzApp

3.6.1 Project Profile

A mobile application that can be used with both Android devices as well as IOS devices. It contains smartphones, and tablets, and is scalable with React as well. And for all that we have React Native as a technology that supports them all.

The main aspect of React Native is "Learn once, write anywhere". The same code with some minor changes works perfectly in the IOS application.

3.6.2 Project Description

ZuzApp is a mobile application built with React Native. It provides several functionalities to the user like opening an existing webpage inside the app, a contact form, device-specific custom API calls, MAP integration, and some backend analytics of the app.

As there is no authentication process, we still need to analyze what the user does so, how much time he spends, and what functions he did while the app is open. So, through this, we can get data from the device with its ID.

3.6.3 Objectives

The main aspect of this is to provide multiple functionalities for existing industries that have a webpage and also want an application for ios and Android which helps them to gain more traffic and their webpage and in the mobile application.

Through this, we can connect webpages inside the mobile application and the clicks and views will be beneficial for the website for indexing and gaining around 30% more revenue than normal.

The other main aspect is that this app can be used for multiple purposes as the UI will remain the same but the internal content can be changed by just changing one JSON file.

Also, it provides API for other activities, coupons, etc. But the main part is that we can get analytics of the app as well.

Like how many tabs a user visited, and how much time a user spent inside the app. The data will be sent to the backend server after the app gets closed.

3.6.4 Features

- Dynamic app to support multiple things
- Provides Push Notification
- Provides Analytical data at the backend
- Provides MAP integration.
- To change, just modify the app string JSON file
- Same UI for multiple apps.
- Accessibility

3.6.5 Technology Used

- React-Native
- CSS
- JavaScript
- Firebase
- Cloud Messaging

3.6.6 Why to Use?
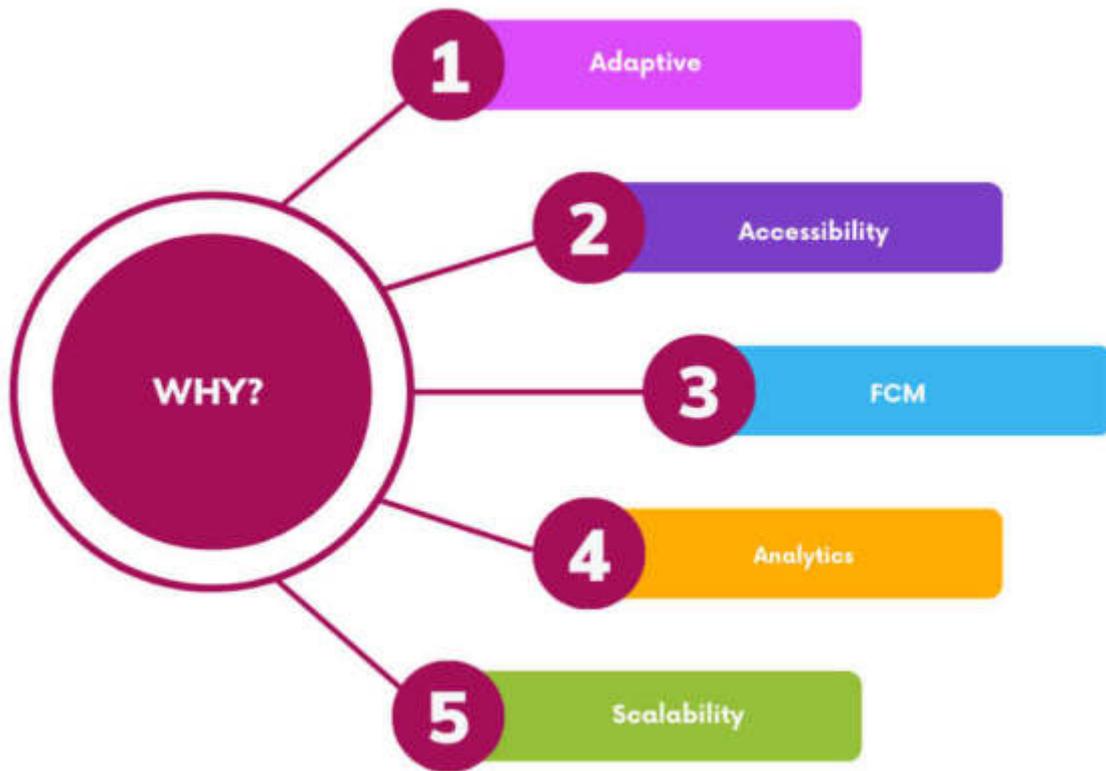
Fig 3.6.6 Why to use

3.7 Project Scheduling
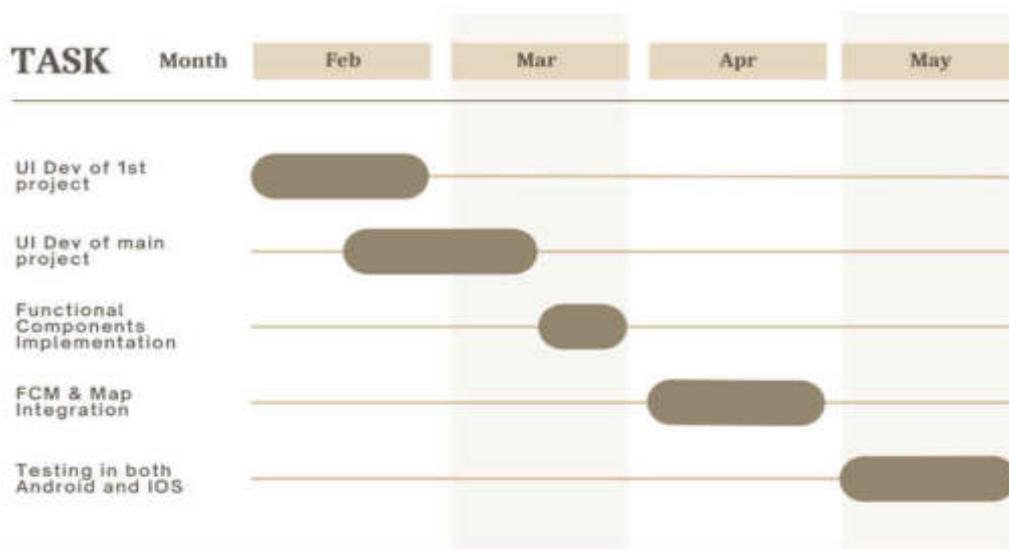
Fig 3.7.1 Project Scheduling

3.8 Outcome

Project #1

Fig 3.8.1 Login Screen Landscape

Fig 3.8.2 Tab Screen Landscape

Fig 3.8.3 About Us Portrait

Fig 3.8.4 Tab Subscreen Portrait

Project #2

Fig 3.8.5 Map View
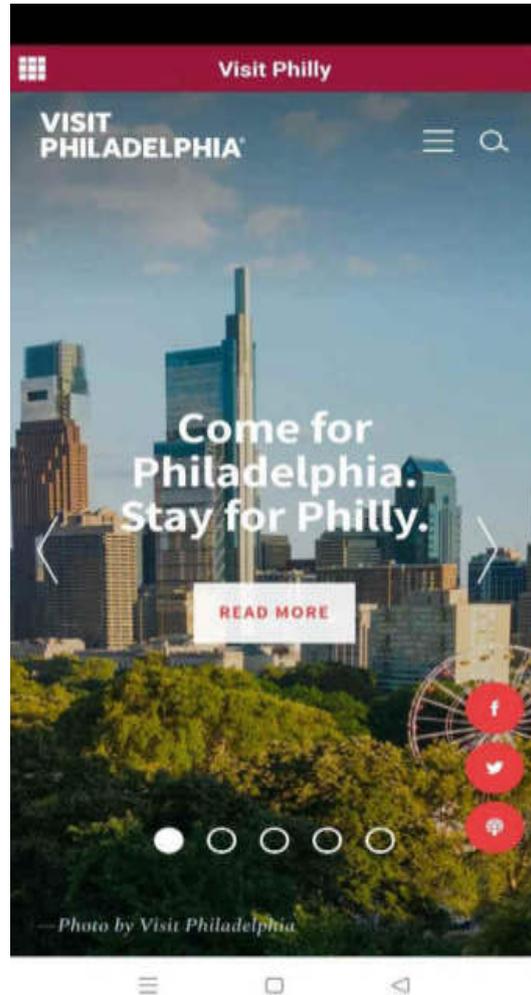
Fig 3.8.6 Web View
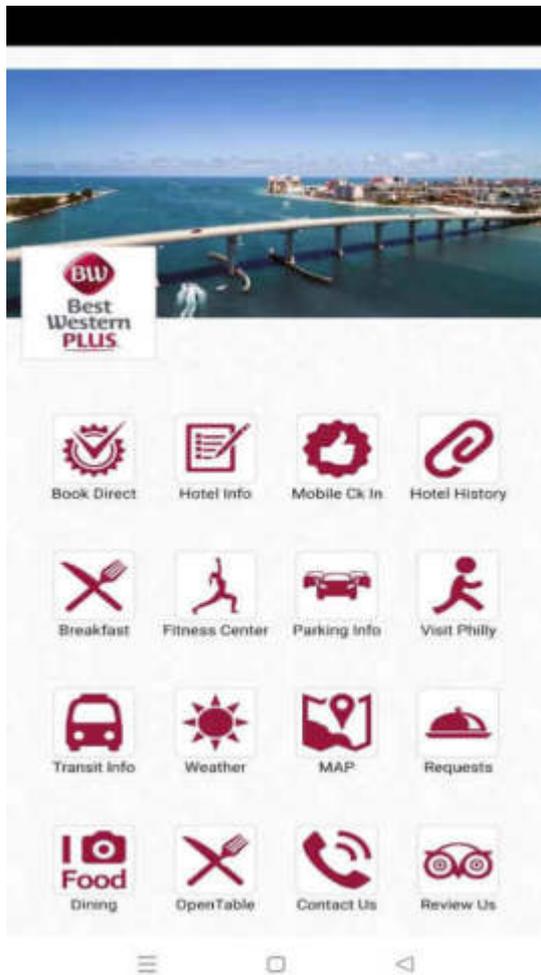
Fig 3.8.7 Home Screen
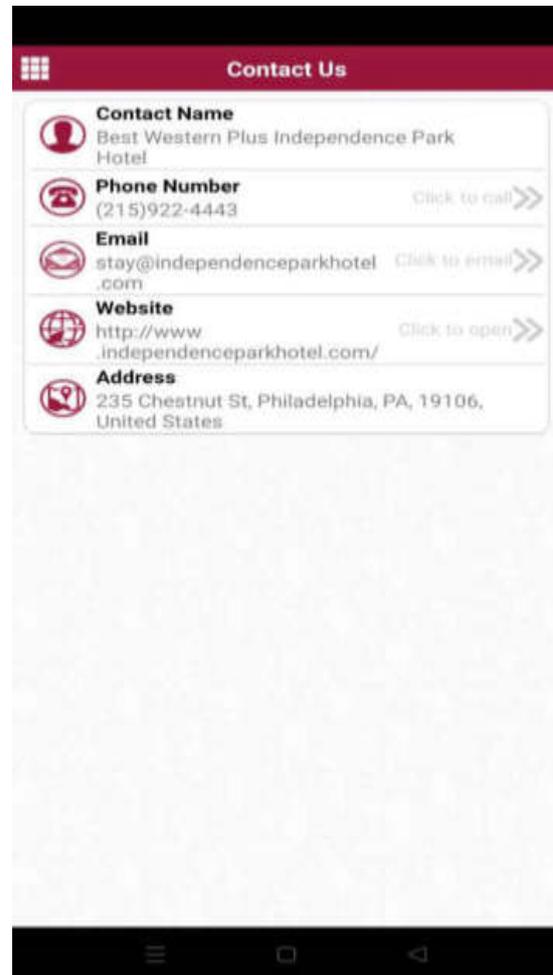
Fig 3.8.8 Contact Screen
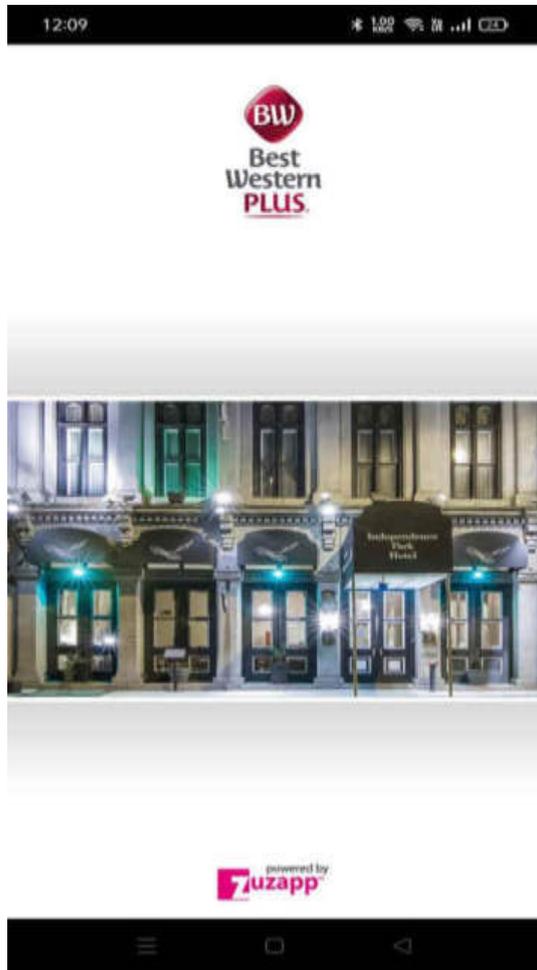
Fig 3.8.9 Splash Screen
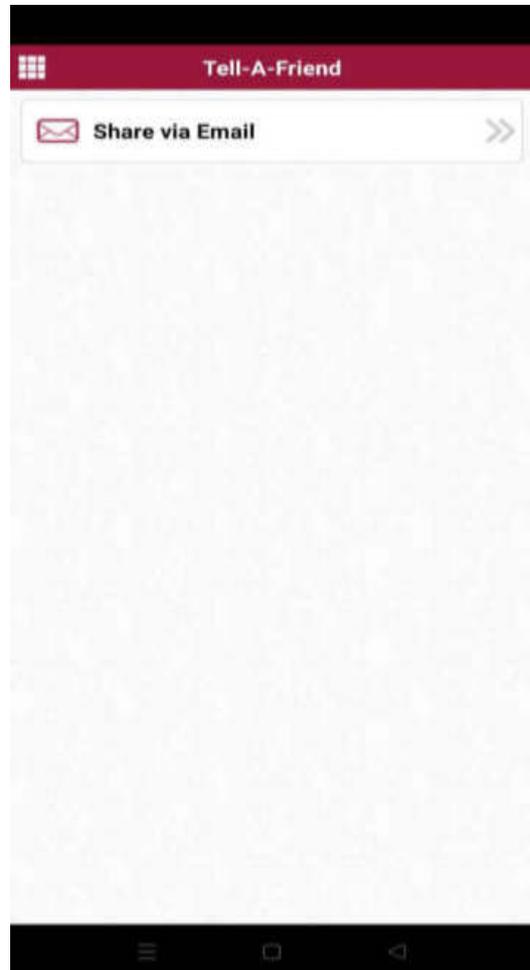
Fig 3.8.10 Share Screen
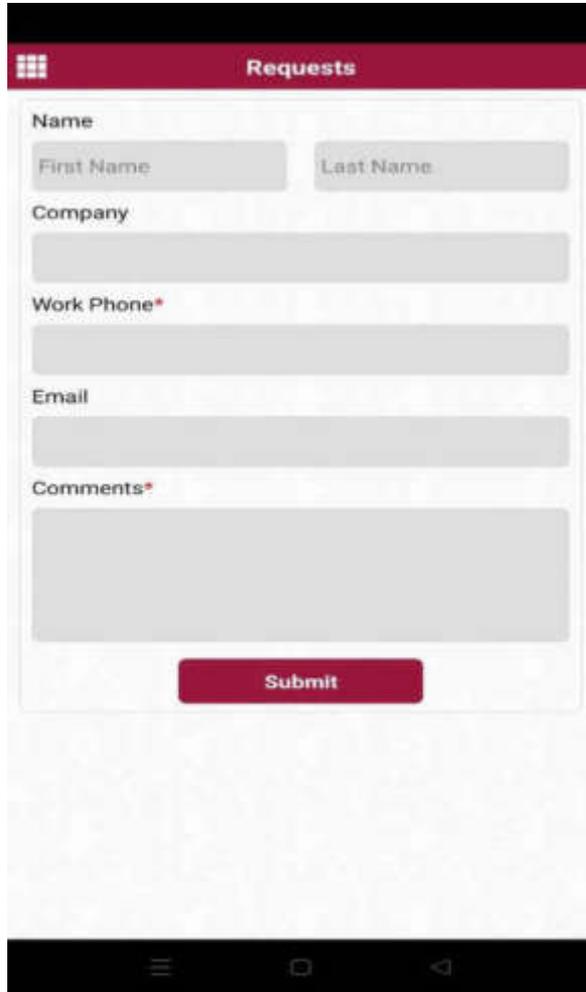
Fig 3.8.11 Form Screen
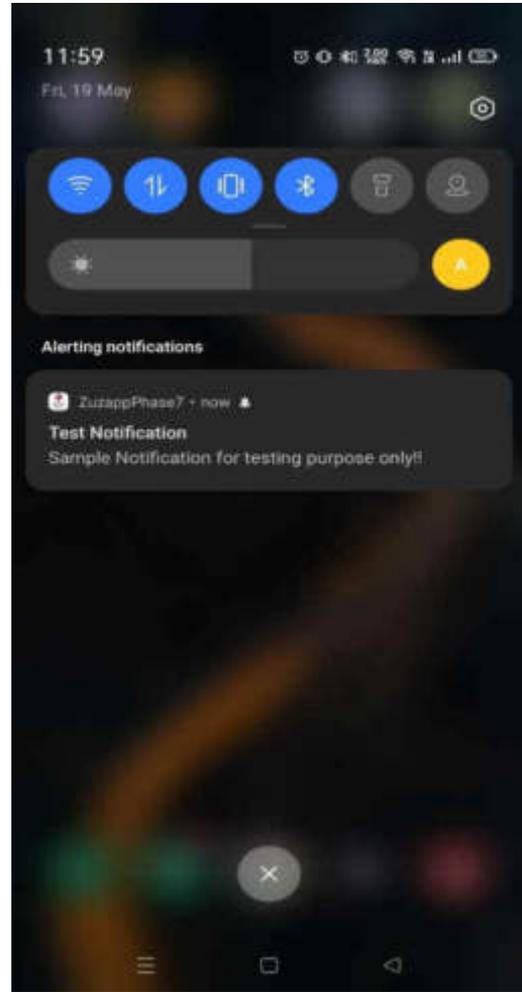
Fig 3.8.12 FCM Notification

CHAPTER 4. FEASIBILITY STUDY

A feasibility study suggests whether or not the proposed software project is feasible. When a need for software develops, we must first assess specific data to determine whether or not the program is worthwhile, which is referred to as a feasibility study.

The feasibility study analyses whether or not the software project can be completed technically, organizationally, and commercially, among other factors. Each organization, on the other hand, conducts the feasibility study uniquely. Other people do it meticulously and methodically, while others do it on the spur of the moment, and some people don't do it at all.

The main aspect of the feasibility study for software development is to assess the project's viability and determine whether it can cause problems or not in the future. A feasibility study involves collecting and analyzing data from various sources like surveys, technical reports, risk assessments, etc.

4.1 Technical Feasibility

- Technical feasibility study determines whether the technology that we are using and the team will be able to accomplish or complete the software or not. The key issues that must be addressed during the technical feasibility study.
- Both apps built using React Native are the assessment of the application's functionality, scalability, and performance with several different scenarios.
- The Application should give an optimal performance at all times to get better UX feedback for customers as well as for companies.

4.2 Operational Feasibility

- It might be possible that you need to make major organizational changes and it might make things more complex.

- To check if the software is organizationally or operationally feasible. The system is very easy to use and operate.

4.3 Economic Feasibility

- Before investing in software development, it's important to ensure that the costs of creating and maintaining the software don't outweigh the benefits it will provide. To determine this, a thorough assessment must be carried out to identify the various costs associated with the development process, such as installation, operation, and ongoing maintenance.

- Additionally, potential revenue streams must be identified, and the size of the target market estimated to ensure that the software is economically feasible. This assessment helps to ensure that the investment in software development is a worthwhile endeavor that will provide benefits that exceed the costs.

CHAPTER 5. ANALYSIS
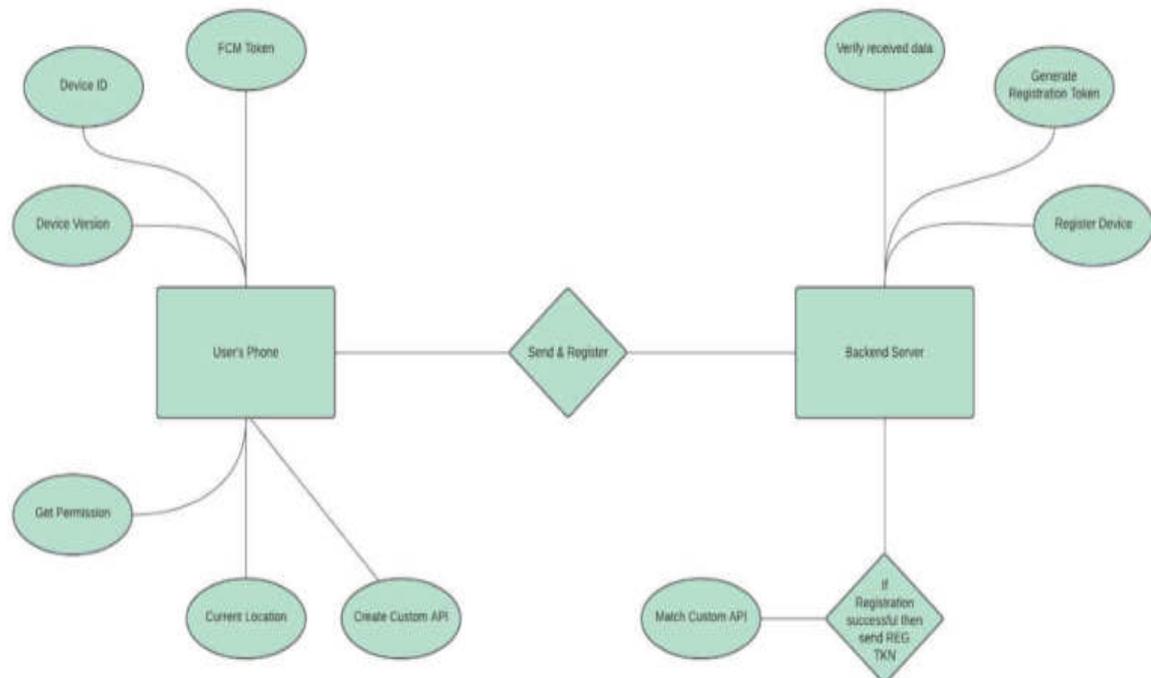
5.1 ER Diagram

Fig 5.1 ER Diagram

It is also called an "Entity Relationship Diagram" as it provides how different entities relate to each other and how the user or admin is related to the entities. Like one-to-one relation or one-to-many etc.

5.2 Data Flow Diagram
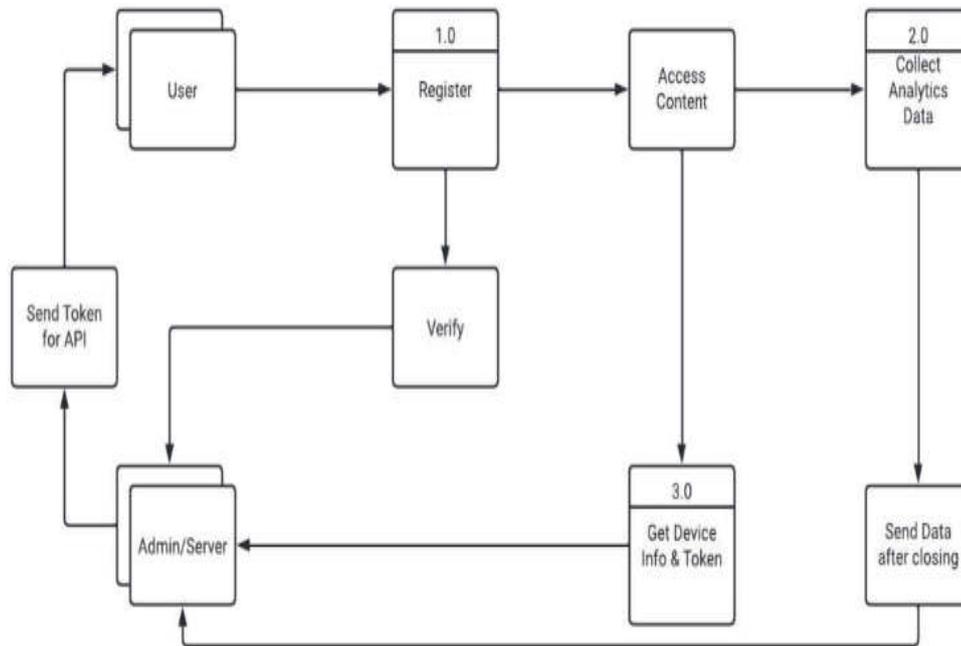
Fig 5.2 Data Flow Diagram

A DFD diagram describes the flow of the whole software that from where to where it can go and what several functionalities are occurring behind the scene. It can help us to understand the software and how it works accordingly.

5.3 Class Diagram
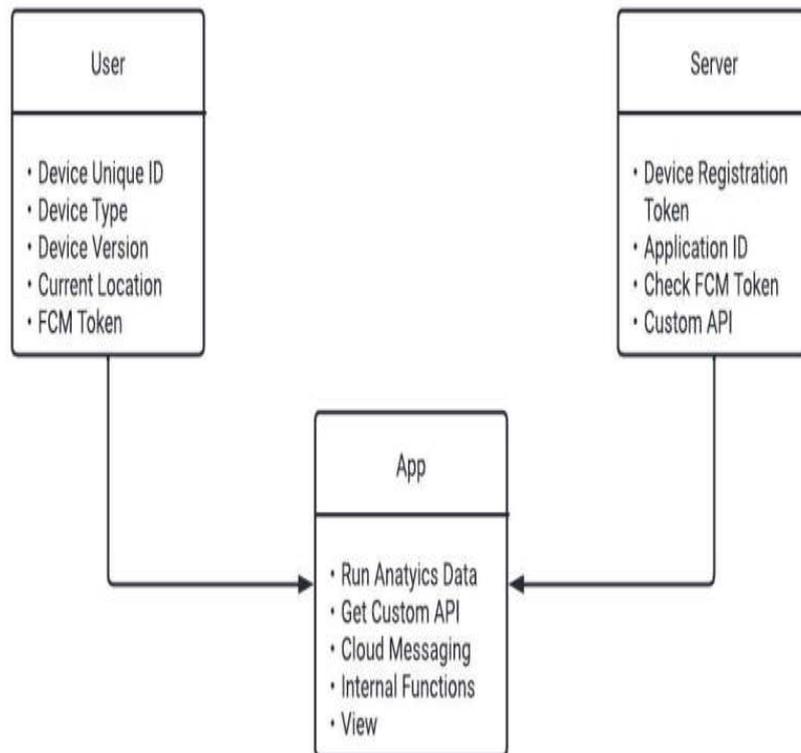
Fig 5.3 Class Diagram

A Class Diagram describes the relationship between the objects and what the objects do to provide different functionalities. It also provides a visual representation of the classes, methods, and the associations between them.

5.4 Use Case Diagram
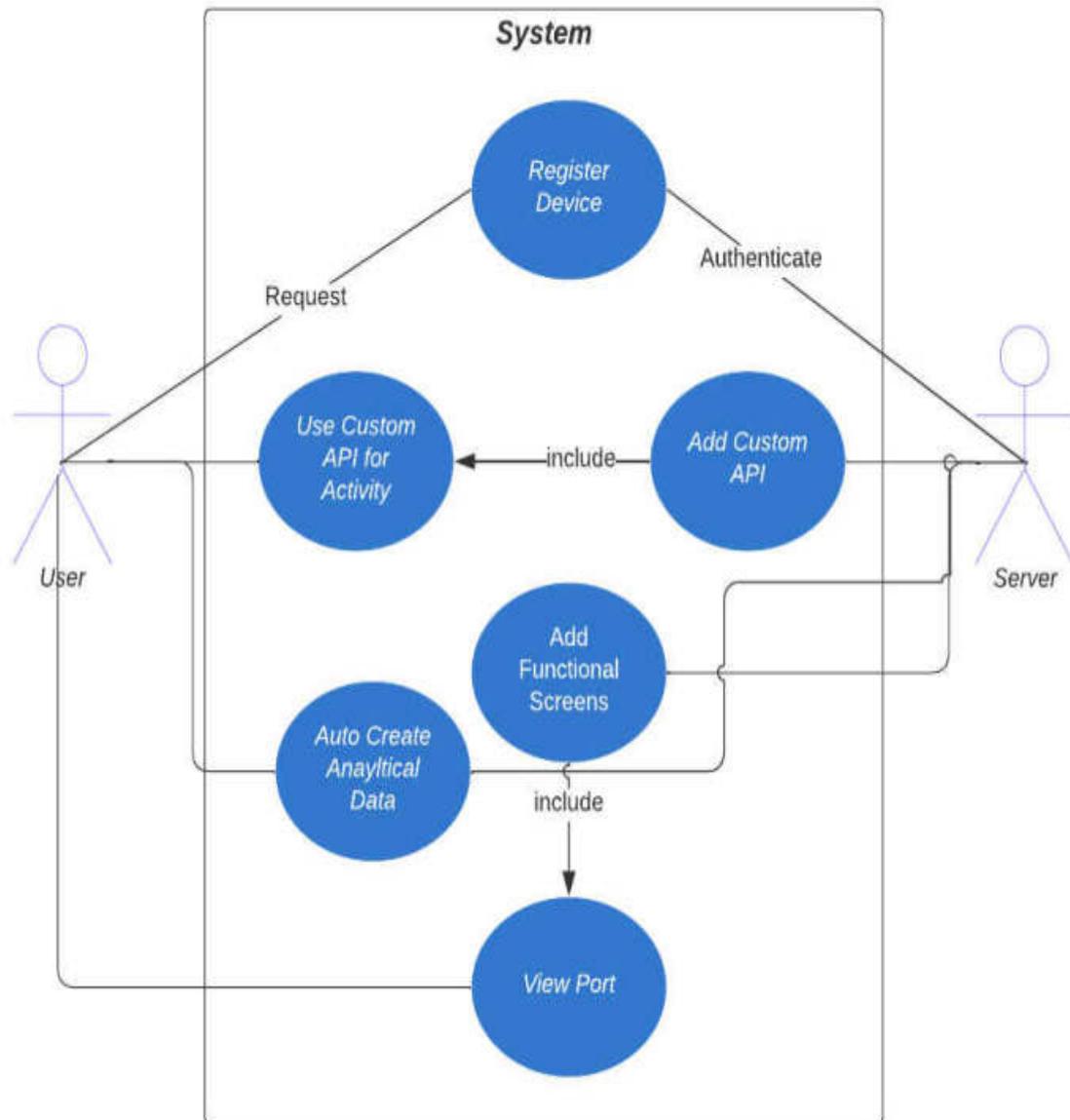
Fig 5.4 Use Case Diagram

A use case diagram provides a visual representation of different functionalities that a user can access that also admin will be able to CRUD operations to reflect it on the user. It consists of Actors, a boundary box, and functions inside it.

CHAPTER 6. DESIGN

6.1 FCM Push Notification
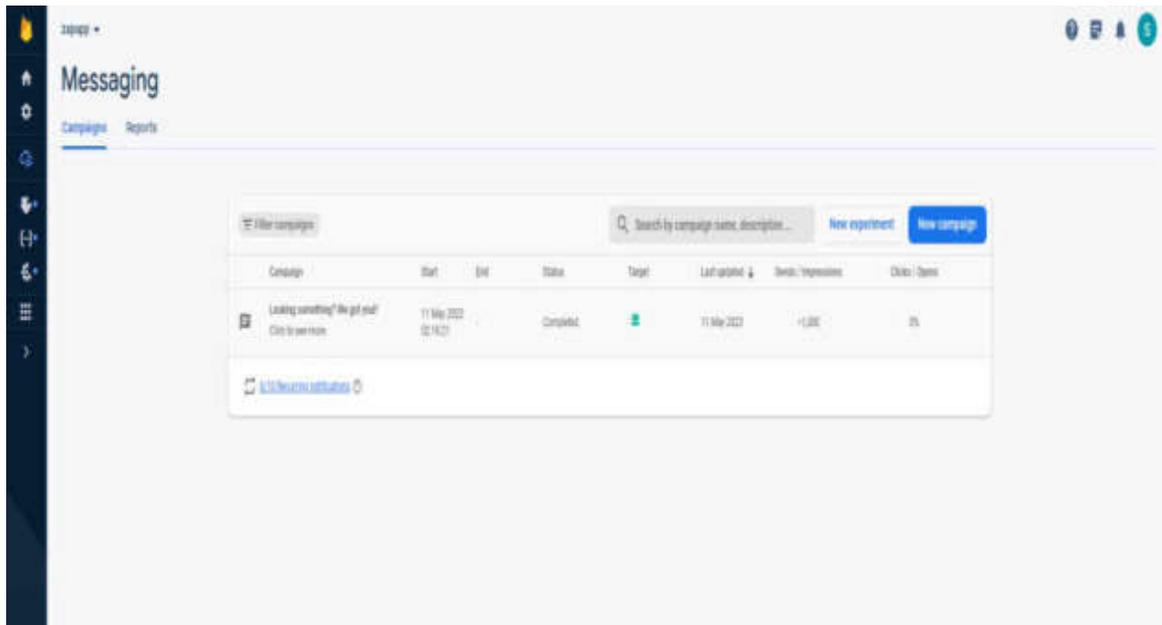
Table 6.1 FCM Dashboard
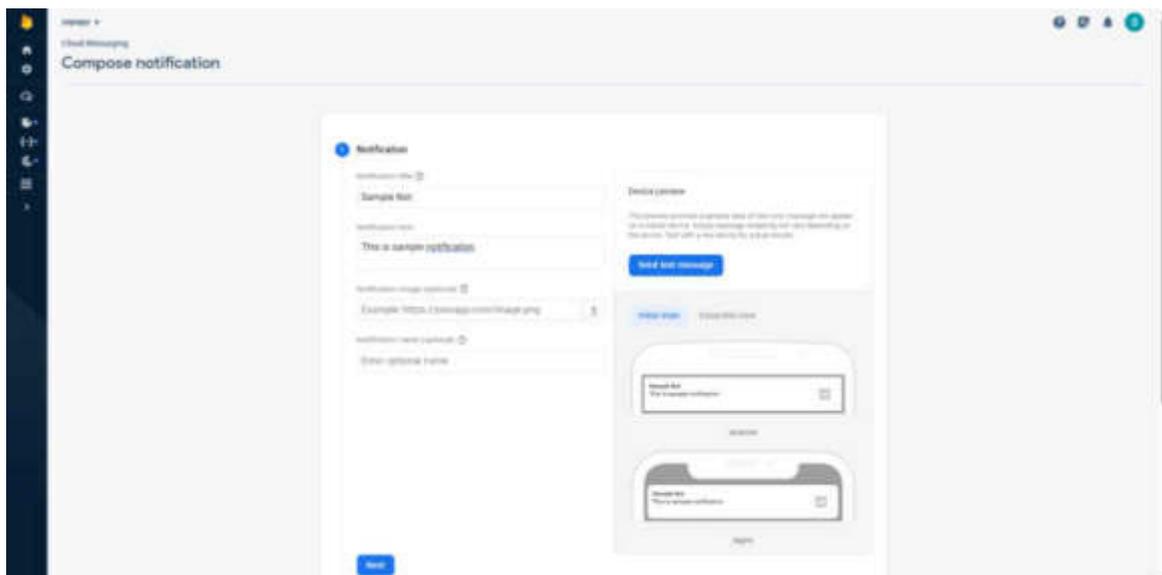
Table 6.2 FCM Campaign Creation

CHAPTER 7. TESTING

7.1 Testing Methods

Testing methods are usually conducted in order and include:

- **Unit Testing**

  Unit testing is the first level of testing and is often performed by the developers themselves. It is the process of ensuring individual components of a piece of software at the code level are functional and work as they were designed to. In the system, individual components are validated like all widgets of the Application.

- **Integration Testing**

  After each unit is thoroughly tested, it is integrated with other units to create modules or components that are designed to perform specific tasks or activities. Validate or test Module.

- **System Testing:**

  System testing is a black box testing method used to evaluate the completed and integrated system, as a whole to ensure it meets specified requirements. It checks the system as a combination of modules.

- **Acceptance Testing:**

  Acceptance testing is the last phase of functional testing and is used to assess whether or not the final piece of software is ready for delivery. Non-functional testing methods incorporate all test types focused on the operational aspects of a piece of software. These include:
  - Performance testing
  - Security testing
  - Usability testing

7.2 Test Cases

Test-Case	Test Scenario	Test-Case Title	Pre-requisites	Test Steps	Expected Results (ER)	Actual Result (AR)	Status
1	Splash Page	Splash Screen till data loads	Open Application	1. Click on the application icon	The user Should be able to see the splash screen till data loads max 5 seconds	The user is successfully able to see the splash screen and redirect to the home screen	Pass
2	Home Page	Home Page redirection after Splash	After Splash Activity	Wait till splashing	The user Should be able to see the home screen	The user is successfully able to redirect to the home screen	Pass
3	Get FCM Token	From the home screen get FCM registration token	From home screen	Automatic	FCM Token will be collected and sent to the server	Successfully collected and sent the token to the server	Pass
4	Use FCM Token and get Reg Token	After FCM, use that FCM token to get the Application Token from the server	From home screen	Automatic	The server will give an Application Token for further use	Successfully received Application Token	Pass

5	Display multiple tiles icon and provide different functionalities on press	Full access to the app	From home screen	Click on one of the icons	The user should be able to navigate to another screen	User is able to navigate all the tiles and screens	Pass
6	Collect data	Analytics data collection	From home screen	Click on one of the tiles	When a user clicks, create a file for analytics like which tile the user clicked and at what date & time (UTC).	Successfully created file.	Pass
7	Closing	Send analytics data	From any state	On termination of the app	When the user closes the app, send the analytics file to the server with a custom API	Received the data on the server	Pass

Table 7.1 Test Cases Created

CHAPTER 8. CONCLUSION AND FUTURE WORK

8.1 Conclusion

- Overall, the internship and project I completed to partially fulfill the requirements for the degree of Bachelor of Engineering from Gujarat Technological University were incredibly beneficial for me in many ways.
- The internship under the Company name helped me to learn Project Development, Project Management, and Testing in a corporate environment.
- I have developed a mobile application that can be used for several use cases and connect users and our clients closely.
- The application provides a platform to convert clients with websites and with functions like form, MAP, Contact, Web Screen, etc. it is scalable as well.
- This application is built using technologies like React-Native, CSS, JavaScript, and Firebase.

8.2 Future Work

- We can further provide directions inside MAP to navigate the user from their location to the app-specific location.
- We can integrate a 3D model which can give the internal structure of the specified location and can provide a better experience.
- Rather than directly calling webpages, we can call the specific API to get data and use that data to develop a Screen and make the UI better.
- Analytics data can be improved to get more specific like to get location constantly and what age group the user falls in.
- Expansion of the app's user base through targeted marketing and partnerships with educational institutions.

References

1. "React-Native" Reference is Available: https://reactnative.dev/docs/getting-started

2. "Firebase" Reference is Available: https://firebase.google.com/

3. "Cloud Messaging" Reference is Available: https://rnfirebase.io/messaging/usage

4. "Vector Icons" Reference is Available: https://www.npmjs.com/package/react-native-vector-icons

5. "Map" Reference is Available: https://www.npmjs.com/package/react-native-maps

INTERNSHIP AT YUDIZ SOLUTION LIMITED

AN INTERNSHIP REPORT

Submitted by

MahammadTaukir MahammadIqbal Katava

190390116007

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 Yudiz Solution Limited** has been carried out by **MahammadTaukir MahammadIqbal Katava** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasna Leela   **Prof. Akshay Kansara**

Internal Guide   Head of Department

Company Certificate

![Yudiz Solutions Limited logo]

yudiz
Solutions Limited

formerly, Yudiz Solutions Private Limited

13th Floor, Bsquare 2, Iscon-Ambli Road,
Ahmedabad - 380054, Gujarat, INDIA
Phone : (+91) 079 29700606
CIN : U72900GJ2011PLC067088
contact@yudiz.com | www.yudiz.com

Date: 1st May, 2023

To whom so ever It May Concern

This is to certify that **Mr. Katava MahammadTaukir MahammadIqbal** is working as a Trainee/Intern with our Company for the duration of six months starting from 1st February, 2023 to till date as a **DevOps Trainee** and he is working on the project **"Shoppinglyx"**.

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, 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 Solution Limited** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasna Leela** & **Jay Dobariya (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

MahammadTaukir Katava   _____

<u>ACKNOWLEDGMENT</u>

I would like to thanks the following individuals and organizations who contributed to the completion of this report:

Without their help and support, this report would not have been possible. I am grateful for their contributions and honored to work with such a group of individuals. I am indescribably grateful to **Ms. Upasna Leela,** Department of Computer Engineering, Saffrony institute, for her guidance and motivation to undertake this project. I am extremely grateful to her for her valuable advice and support for the successful completion of this project at this time. Furthermore, I am extremely indebted to our Head of department **Mr. Akshay Kansara** for his never-ending support throughout our college life.

Finally, I am extremely indebted to my external guide **Mr. Jay Dobariya** for his technical support throughout internship and my friends for their uplifting inspiration, encouraging guidance and proper supervision during the completion of this project. Without their help and support, this report would not have been possible.

Abstract

The main objective of the "ShoppinglyX" is to provide the users with the facility to be able to buy different items like clothing, footwear and electronics online. Online Shopping plays a great important in the modern business environment. This is a website that helps people to find and buy all types of products including fashion as well as electronic items online. In this website, we have 2 modules. The first module includes the customer module and the second module includes the admin module. The customer has to register to browse through the website. The registered customer can view the details of the items they can buy. The admin module contains the access to the admin page wherein the admin can change everything including adding, deleting as well as updating the information regarding all the products available on the website. My main role in this project is backend side handling. Like my responsibilities are to create a private cloud, make a private server and hosting that website on that server.

List of Figures

Abbreviations

Abbreviations used throughout this whole document for Web Application are:

HTML	Hypertext Markup Language
jQuery	JavaScript library
HOD	Head of the Department
CSS	Cascading Style Sheet
DBMS	Database management system
VPC	Virtual Private Cloud
EC2	Elastic Cloud Compute

Table of Contents

COMPANY INTRODUCTION

Company Name: YUDIZ SOLUTIONS LIMITED

COMPANY PROFILE:

Yudiz Solution is a private limited service-based company established in August 2009 and situated in Ahmedabad Gujarat.

The company offers development services such as Website, Game Development, User Interface, User design, Blockchain, App Development, augmented reality, virtual reality, content management systems, artificial intelligence, search engine optimization, Cloud-based service, and many more.

Yudiz solution has different branches in different countries other than India. Yudiz's employee size is approximately more than 300+ and still motivated to increase its company size and also looking forward to completing any task smartly and programmatically.

Almost, 80% of clients are repeated and always satisfied with the work delivered by Yudiz employees.

MISSION AND VISION OF THE COMPANY:

Yudiz believes in creativity and doesn't miss any chances in terms of opportunity. And the work culture is very much supportive so that every new employee gets settled down in the company very easily and comfortably. The company is seeking towards helping prospects so that everybody gets a chance to showcase their talents in the company and carry it towards their performance prospect.

Yudiz Solutions is recognized as an eminent company in the software industry that offers the best-in-class digital solutions and impressive services that stand out globally. The company has many campaigns such as sports leagues, donating campaigns, traveling campaigns, fitness campaigns, health campaigns, and many more.

Website Link and images

Website Link: - [Mobile Game & Blockchain App Development Company - Yudiz](#)
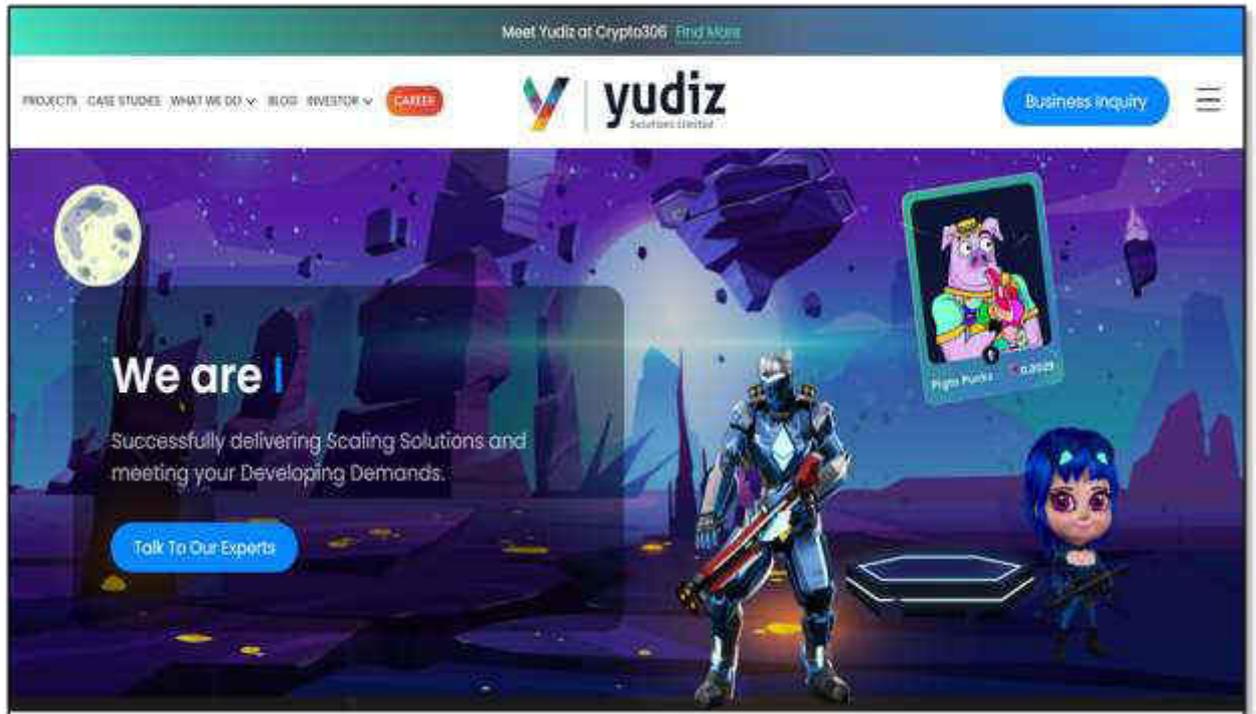
Figure 1: Yudiz Front Page

Figure 2 : Yudiz Introduction
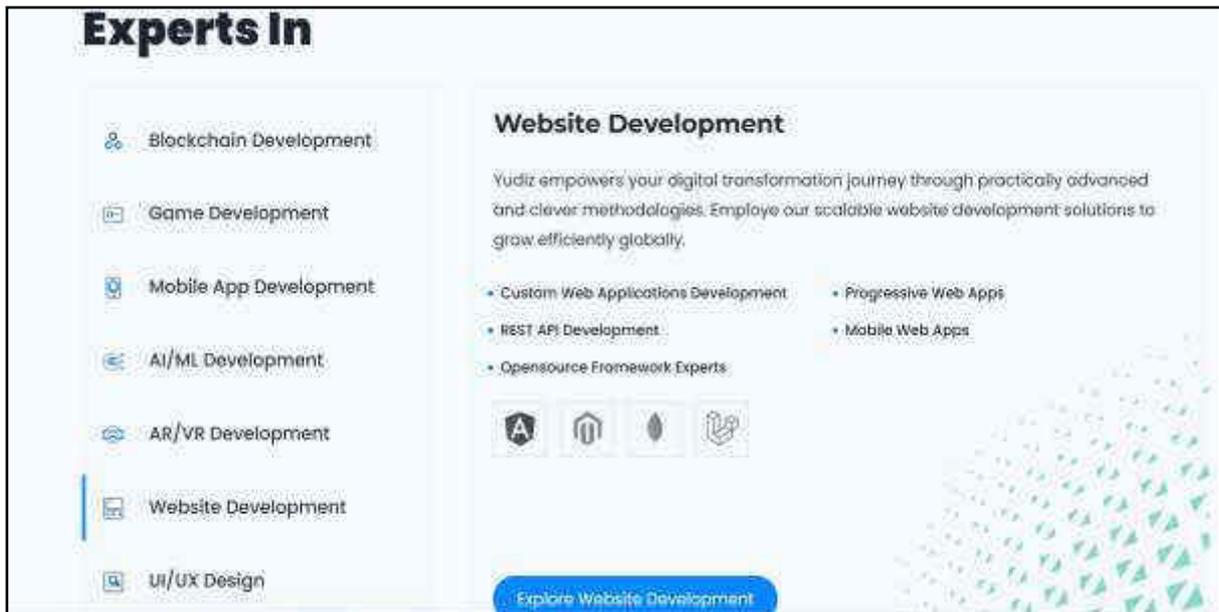
Figure 3: Expertise of company

Chapter 1. INTRODUCTION

1.1   PROJECT SUMMARY:

The project is to make an e-commerce website for selling goods. It is designed keeping in mind to have a user-friendly interface for consumers to search, browse as well as purchase different products.

This platform will consist of features like search function, different categories of products as well as payment options. Customers will be able to create account, save their information and track the orders.

The detailed information of the products will be provided to the users which includes photos and different information about the goods the user is interested to buy in. The main motive of the project is to create a website that provides customers with the best quality products online.

1.2   PROJECT PURPOSE:

The E-commerce website provides the users to avail a wide variety of products across different regions. It has a wide variety of products including fashion which has clothing and footwear and electronics which consists of laptops as well as mobiles.

The main purpose of the project is to build a platform that connects the customers and sellers in one place to get the required products easily. The customers can easily browse and search for whatever items they want to buy at different price rates in a hassle-free manner.

1.3   PROJECT SCOPE:

The project is done with keeping certain conditions in mind like it should be easy to use, feasible as well as user friendly. The system will be cost- effective economical and hassle-free to handle and will be easy to maintain. Since the system will be having good and efficient technology it is possible to say it would be easily adaptable to the changing generations.

1.4   OBJECTIVE:

Following are the main objectives of this System:

1.   To create a database of the E-Commerce Website.

2.   To design an online fashion system.

3.   To provides a solution to reduce and optimize the expenses of customer order management

4.   To create an avenue where all can shop for fashion products online.

5.   To develop a database to store information on fashion products and services.

6.   To create a virtual private cloud and prepare infrastructure for servers.

7.   To create servers on VPC, where we can host our entire project and can server it to our customers.

1.5   Final Product:

An e-commerce website that sells products that includes clothing, footwear and electronic items should provide a user-friendly platform to the customers.

Chapter 2. LITERATURE SURVEY

2.1   INTRODUCTION OF SURVEY:

The products market in India is estimated to be worth around INR 30,000 crores, and is growing at a rate of around 25% per year.

The country has 744 handicraft clusters employing nearly 212,000 artisans and offering over 35,000 products. Surat, Bareilly, Varanasi, Agra, Hyderabad, Lucknow, Chennai, and Mumbai are among the major clusters. Most of the manufacturing units are in rural and small towns, and there is enormous market potential in all Indian cities and abroad.

Significant advances in the availability of handicraft products on various online portals are bolstering market growth in India. Handicrafts are becoming increasingly popular as the country's travel and tourism industry grows. Tourists spend significant money on souvenirs and other craft items, expanding the opportunity for local artisans and craftspeople to produce and sell efficient products.

India has an edge against its competitors like China, Philippines, Thailand, Taiwan and Korea who generally produce machine made products. Indian products have a niche market all over the world creating a distinct impact through exclusive designs, workmanship, finesse, colors and raw material etc.

The growth of C2C e-commerce in India presents significant opportunities for both consumers and sellers. Consumers can easily discover and purchase unique products, while sellers can reach new markets and increase their sales. Additionally, the online platforms can play a key role in helping artisans and craftspeople to develop their businesses and reach new customers.

The demand for products in India is expected to continue to grow in the coming years, driven by consumer preferences for unique and personalized products and the growth of online platforms.

Chapter 3. PROJECT MANAGEMENT

3.1   PROJECT PLANNING OBJECTIVE:

3.1.1   SOFTWARE SCOPE

User authentication and authorization: The software must allow users to register and login to the platform. Registration requires basic information such as name, email address and password. Users should be able to reset their password if they forget it. Also, the platform should provide users with different access depending on their role.

Customers should be able to add products to their purchases basket and proceed to checkout. The payment process should include the shipping address, payment method and order confirmation. The platform should integrate with payment gateway for secure payment processing.

User profile: The platform should allow users to view their profile, update their personal information, view their order history, and manage their account settings.

Admin panel: The platform should have an admin panel that allows administrators to manage users, products, orders, and other aspects of the platform. The admin panel should provide analytics and reports on sales, customer behavior, and other metrics.

Product catalog: The platform should allow sellers to add products to the catalog. Products should be classified according to product type, size, material, price and other materials. All items must have a description, image, and review/rating. Customers should be able to search for products using filters and keywords.

Order Management: The platform should allow sellers to manage orders, view the order details and update order status (shipped, delivered, cancelled, etc.). Platform they should also send notifications to customers and sellers about order status.

Security and performance: The platform should be designed with security in mind, with measures such as encryption, secure authentication, and protection against common attacks. The platform should also be optimized for performance, with features such as caching, lazy loading, and asynchronous processing.

3.1.2 Project Development Approach

The Agile methodology is an iterative and incremental approach to software development that emphasizes collaboration, flexibility, and customer satisfaction.

Planning: In this phase, the development team would work with the client to define the requirements and scope of the project. The team would also identify the stakeholders and their roles, establish the development timeline, and create a project roadmap.

Design: In this phase, the development team would design the software architecture, database schema, user interface, and other components of the ecommerce platform. The team would also create wireframes and mockups to visualize the user interface and gather feedback from the client and end-users.

Development: In this phase, the development team would write the code for the ecommerce platform using the Django framework and other software resources. The team would also conduct continuous integration and testing to ensure that the code is functional and meets the requirements.

Testing: In this phase, the development team would conduct various types of testing, including unit testing, integration testing, and user acceptance testing. The team would also identify and fix any bugs or defects that are discovered during testing.

Deployment: In this phase, the development team would deploy the ecommerce platform to a staging environment and conduct final testing before deploying it to the production environment. The team would also configure the web server and database server and ensure that the application is secure and scalable.

Maintenance: In this phase, the development team would provide ongoing maintenance and support for the ecommerce platform. This includes fixing any bugs or issues that arise, providing user support, and updating the software as needed.

3.2   PROJECT SCHEDULING:

3.2.1 BASIC PRINCIPLE

Define the project scope: The project scope should be clearly defined, including the objectives, deliverables, and timelines. This will help to ensure that the project stays on track and that all team members have a clear understanding of what is expected of them.

Break down the project into smaller tasks: The project should be broken down into smaller, more manageable tasks. This will make it easier to assign tasks to team members, track progress, and ensure that the project stays on schedule.

Identify dependencies: The project schedule should identify dependencies between tasks. This will help to ensure that tasks are completed in the correct order and that the project stays on schedule.

Estimate task duration: Each task should be estimated for its duration, including any potential risks or challenges that may arise. This will help to ensure that the project schedule is realistic and achievable.

Assign tasks to team members: Once tasks have been identified and estimated, they should be assigned to team members based on their skills and availability.

3.2.2   COMPARTMENTALIZATION

Task decomposition: Each major task or deliverable in the project can be decomposed into smaller, more manageable sub-tasks. This makes it easier to estimate the time required for each task and to assign tasks to team members based on their skills and availability.

Phased delivery: Phased delivery involves breaking the project into distinct phases or milestones, with each phase having its own set of tasks and deliverables. This makes it easier to track progress and ensure that the project stays on schedule.

Compartmentalization helps to reduce complexity and make the project more manageable. By breaking down the project into smaller components, it becomes easier to track progress, identify potential issues, and make adjustments as needed to keep the project on schedule.

3.2.3   WORK BREAKDOWN STRUCTURE

Define the project scope: Define the project's objectives, deliverables, and timelines.

Identify major deliverables: Identify the major deliverables required to complete the project, such as creating the online store, integrating payment gateways, and adding products to the store.

Break down major deliverables into sub-deliverables: Break down the major deliverables into smaller, more manageable sub-deliverables. For example, creating the online store may involve creating the homepage, product pages, checkout pages, and account pages.

Identify tasks required to complete sub-deliverables: Identify the tasks required to complete each sub-deliverable. For example, creating the homepage may involve designing the layout, creating content, and integrating navigation.

Estimate the duration of each task: Estimate the time required to complete each task, taking into account potential risks or challenges that may arise.

Assign tasks to team members: Assign tasks to team members based on their skills and availability.

Monitor progress: Monitor progress regularly to ensure that the project stays on schedule. Track task completion, identify any issues or delays, and take corrective action as needed.

3.2.4   TIMELINE CHART

In the context of project and its Budget Operations System, the timeline chart was an important tool for ensuring that the project was completed on schedule. By visually representing each task and its expected duration, the timeline chart helped the project team to identify potential delays or bottlenecks and make adjustments to ensure that the project remained on track. This was particularly important given the complex nature of the project and the involvement of multiple departments and stakeholders. By providing a clear and concise overview of the project timeline, the timeline chart helped to ensure that everyone involved in the project had a shared understanding of the project schedule and their role in meeting project milestones.

3.2.4.1 TASK SETS

1. Week 1:

Planning phase: During this phase, we held meetings to identify and define the project objectives, scope, deliverables, and success criteria. We created a work breakdown structure (WBS) and a project schedule. Our team took responsibility for creating the project schedule and setting up regular team meetings, defining the project objectives and scope. On week 1, I have started to learn about cloud services and cloud-based infrastructures.

2. Week 2-3:

Design phase: During this phase, we designed the user interface, database schema, and software architecture. We also developed wireframes, use case diagrams, and flowcharts. On this time duration, I have started to get knowledge of different cloud services providers like, Amazon AWS, Google GCP, Microsoft Azure.

3. Week 4-7:

Development phase: During this phase, we started coding the software using the Django framework and PostgreSQL database. We also implemented the user interface using HTML, CSS, JavaScript, and jQuery. We divided the coding tasks among the two of us based on our skills and strengths. During this time period, I have learnt about how to create our personal virtual private cloud and how to create private and public servers on our private cloud.

4. Week 8-10:

Testing and Debugging phase: During this phase, we tested the software to ensure that it met the requirements and was free of bugs. We also fixed any issues that were identified during testing. On testing time period, I started to work on load balancing and autoscaling of our servers for handling a large amount of traffic on our site.

5. Week 11-13:

Deployment and Maintenance phase: During this phase, we deployed the software to the production environment and provided support and maintenance as needed. On deployment phase, I have deployed our site on our personal 'NginX' server created on private cloud on AWS.

3.3   RISK MANAGEMENT:

3.3.1   RISK IDENTIFICATION

Technical risks: There may be technical risks related to the development of the website, such as compatibility issues, coding errors, or integration problems with payment gateways.

Resource risks: There may be risks related to the availability of resources, such as not having enough team members with the required skills or unexpected delays in receiving materials.

Schedule risks: There may be risks related to the project timeline, such as not completing tasks on time or unexpected delays due to external factors.

Financial risks: There may be risks related to the project budget, such as unexpected expenses or changes in the scope of the project.

3.3.1.1 Risk Identification Artifacts

Risk register: A risk register is a document that lists all identified risks, along with information about their likelihood, impact, and potential mitigation strategies.

Risk matrix: A risk matrix is a graphical representation of the identified risks, plotted against their likelihood and impact. This can help project teams prioritize risks and focus on those that are most critical.

Brainstorming notes: Brainstorming sessions may be conducted to generate ideas for potential risks. These notes can be compiled and analyzed to identify common themes and potential risks.

Scenario analysis: Scenario analysis involves creating hypothetical scenarios and evaluating their potential impact on the project. This can help project teams identify potential risks that may not have been considered otherwise

3.3.2   RISK PROJECTION

Risk response plan: A risk response plan is a document that outlines the strategies to be used to address each identified risk.

Risk mitigation strategies: These are the specific actions that will be taken to reduce the likelihood or impact of each risk.

Risk monitoring plan: A risk monitoring plan outlines how the project team will monitor and control risks throughout the project lifecycle.

3.3.2   RISK PROJECTION

Chapter 4. SYSTEM REQUIREMENTS

4.1   USER CHARACTERISTICS:

ShopinglyX users can be users of online shopping websites with internet access and devices such as computers, tablets or smartphones. Websites can be used by many people, from consumers who want to buy products from the comfort of their homes or offices, to sellers who want to sell their products to a wider audience. Small business owners can use online shopping websites as a platform to sell their products without the need for a physical store.

4.2   FUNCTIONAL REQUIRMENTS:

ShopinglyX provides user registration and login functionality so that users can create accounts and access website features such as a product catalog that contains information about products, add products to their cart, view their cart and checkout, payment gateway integration which allows users. For payment, search functionality that allows users to easily find products, mobile responsive and easily accessible on different devices.

4.3   NON FUNCATIONAL REQUIREMENT:

A non-functional requirement defines the performance attribute of a software system. Types of Non-functional requirements are Scalability, Internet connection, Availability, Reliability, Recoverability, Data Integrity, etc.

4.4   HARDWARE AND SOFTWARE REQUIREMENT:

Hardware and Software Requirements are used to describe the minimum hardware and software requirements to run the Software. These requirements are described below.

4.4.1   Hardware Requirement

- Processor: Intel i5 or higher
- Disk Space: 1 GB (minimum)
- RAM: 4 GB (minimum)

4.4.2   Software Requirement

- Operating System: Windows 7 or above
- Coding Environment: VScode (python 3.7)
- Browser: Chrome 89 or above.

4.4.3   User Interfaces

- UI UX software: Figma, Adobe xd
- Frontend software: Html, JavaScript, Ajax, CSS, Bootstrap, JQuery
- Back-end software: Sqlite, Django, Paypal Payment gateway

4.4.4   Hardware Interfaces

- Mac OS
- Windows OS
- Linux OS
- Vs Code

Chapter 5. DETAIL DISCRIPTION

5.1   SELLER MODULE

The seller module allows sellers to upload their products and process orders by creating their own stores online. The main features of this module are:

Registration/Login Module: It allows them to register on the website by creating their own accounts and they can login using their credentials.

Product upload Module: The sellers are enabled to upload their products with the necessary description and images.

Order management Module: It allows the sellers to manage the orders including shipping and delivery management of products.

Payment Module: It enables them to receive the payments for their orders through the payment gateway.

5.2   BUYER MODULE

The buyer module in an e-commerce website that sells fashion and electronic items provides the user to browse and purchase products from various sellers. The main features of this module are:

Registration: it enables buyer to register on the website and create their own account. Login Module: The buyers can login to the website using the said credentials.

Shopping Cart Module: It allows users to add products of their choice to the cart and view them as well as proceed to checkout.

 Product catalog module: It provides buyers the ability to browse and search for products on the website and provide the images and information about the items.

Payment Module: This module enables buyers to pay for their orders using various payment options, such as credit/debit cards, PayPal, and other popular payment methods.

5.3   ADMINISTRATOR MODULE

The administrator module enables the websites the administrator to manage the overall operations of the website. It includes managing accounts, monitoring the performance of website. The main features of this module are:

Registration/Login Module: It enables the administrator to login to the website and avail the information using their credentials.

Product management Module: It allows them to manage the products including their details, images and prices.

Order management Module: It enables the administrator to manage the orders like track the status of the order and payments process.

Order Management Module: This module enables the administrator to manage the orders received on the website, including tracking the order status, processing payments, and managing refunds.

User management Module: It enables the administrator to manage the user account which include creating or deleting the accounts and altering the details of the users.

Chapter 6. SYSTEM DESIGN

6.1   CLASS DIAGRAM
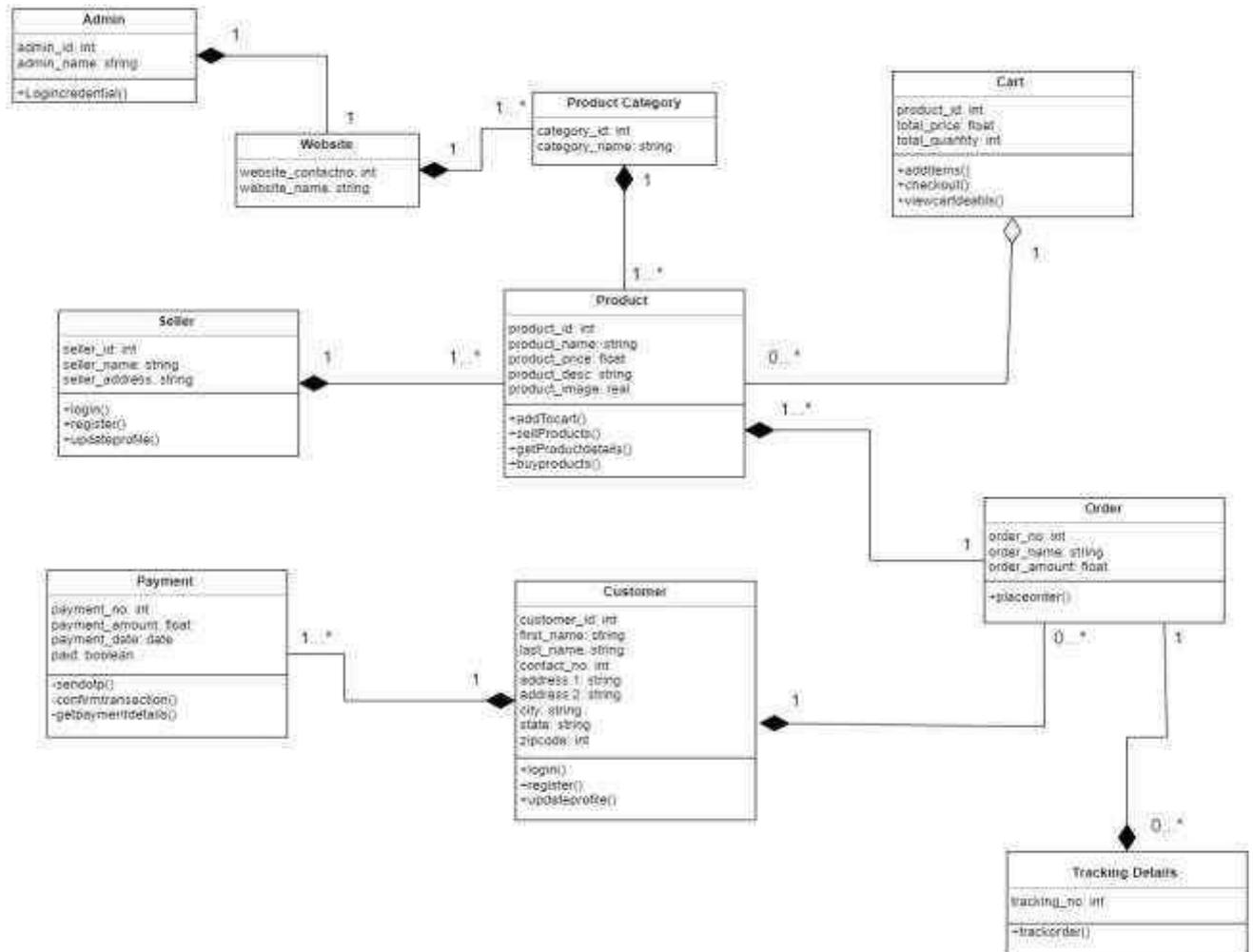
Figure 6.1: CLASS DIAGRAM

6.2   USE-CASE DIAGRAM
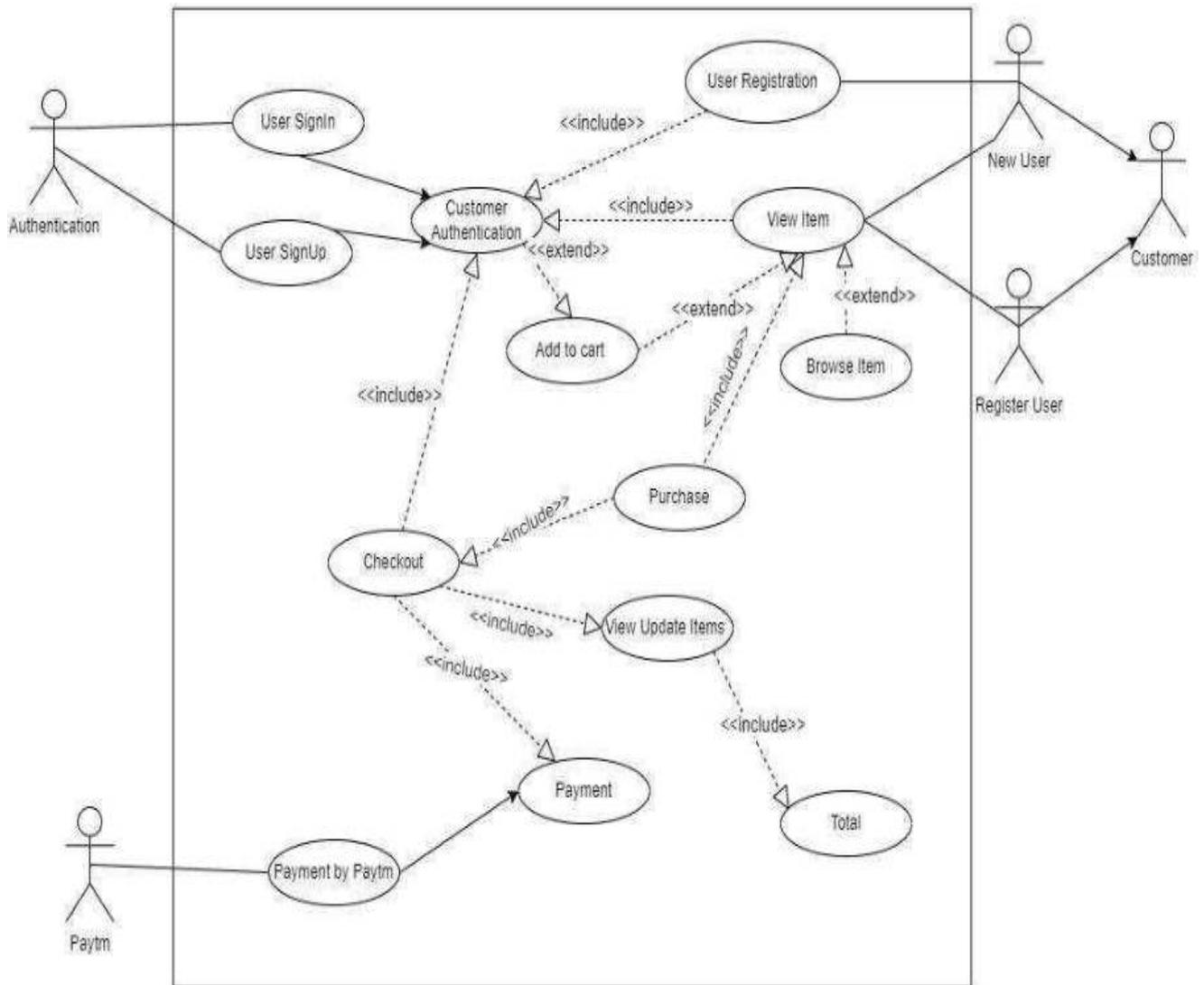
Figure 6.2: USE-CASE DIAGRAM

6.3   ACTIVITY DIAGRAM
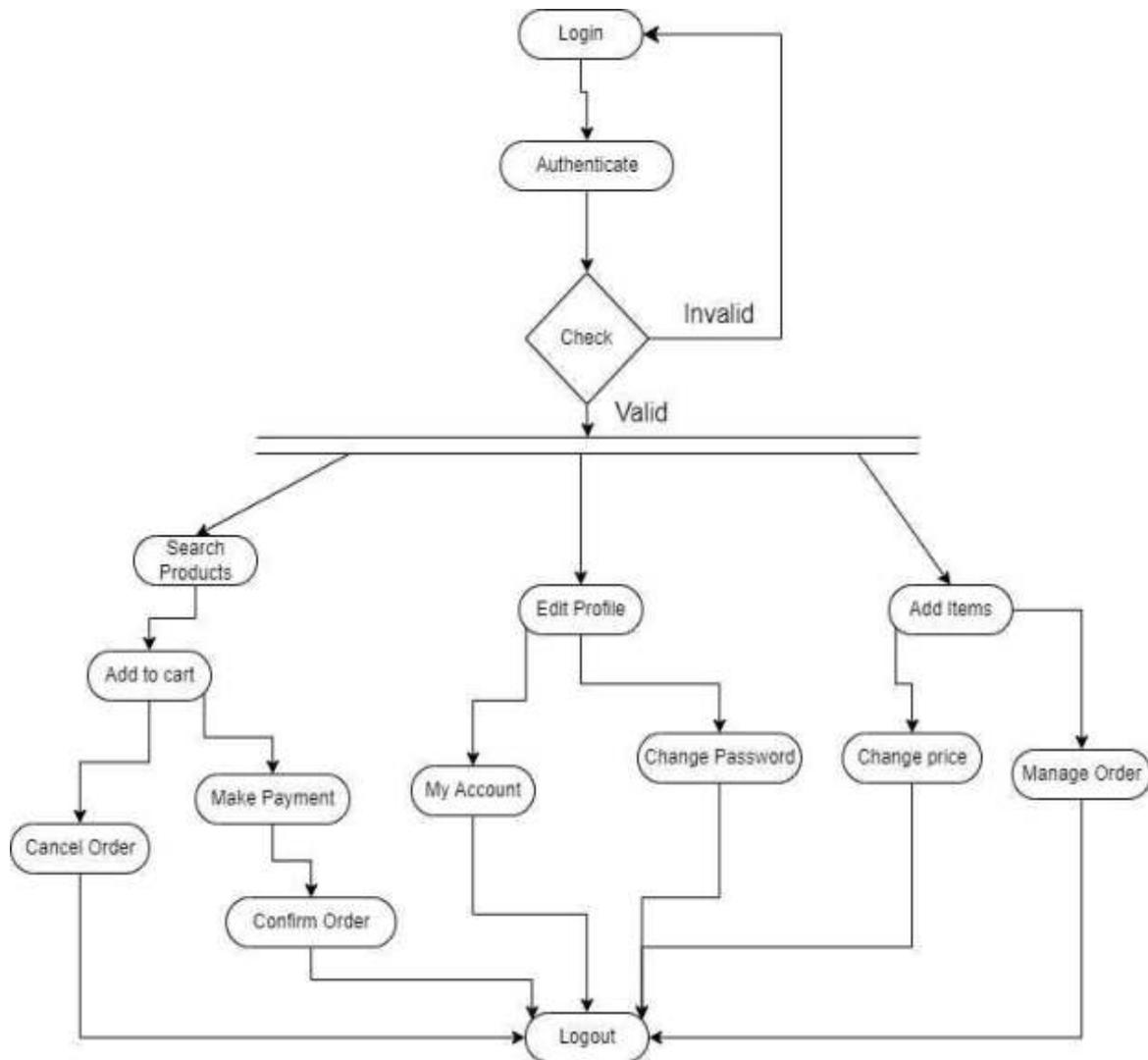
Figure 6.3: ACTIVITY DIAGRAM

6.4   ER DIAGRAM

Figure 6.4: ER DIAGRAM

6.5   DATA-FLOW DIAGRAM
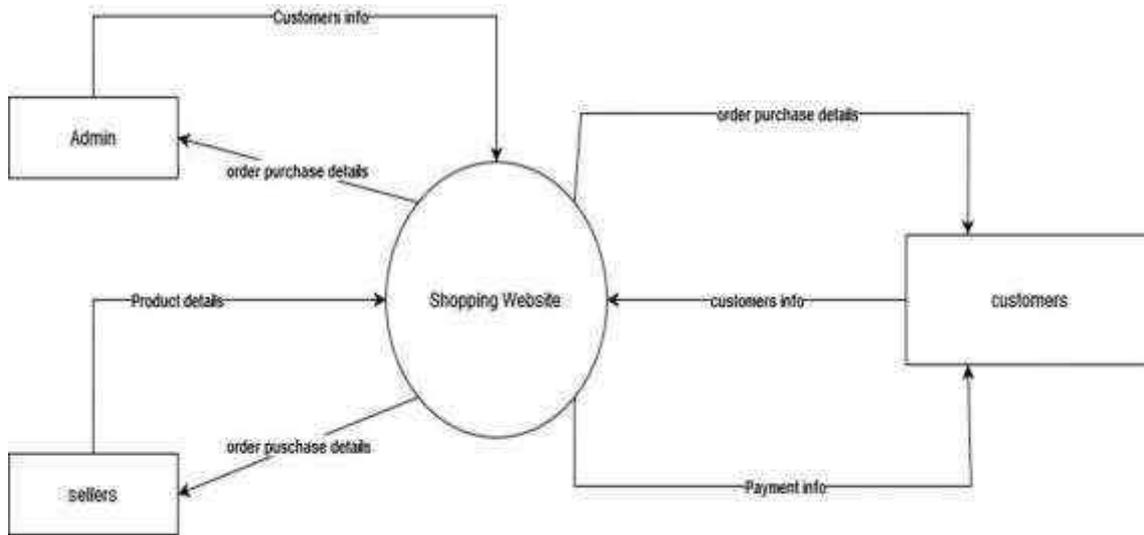
Figure 6.5.1: CONTEXT LEVEL DFD DIAGRAM
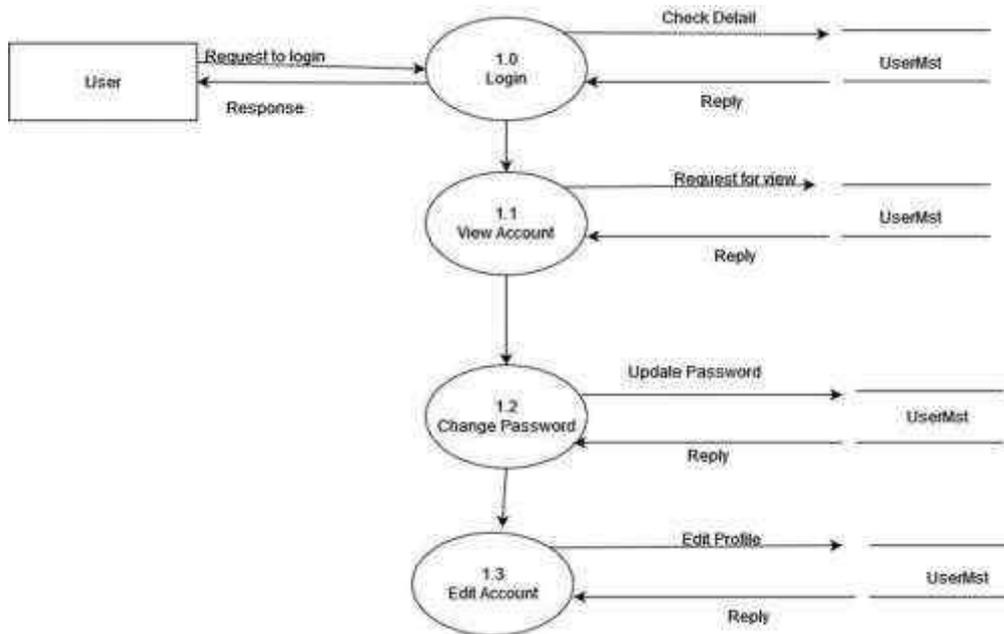
Figure 6.5.2: LEVEL 1 DFD DIAGARM
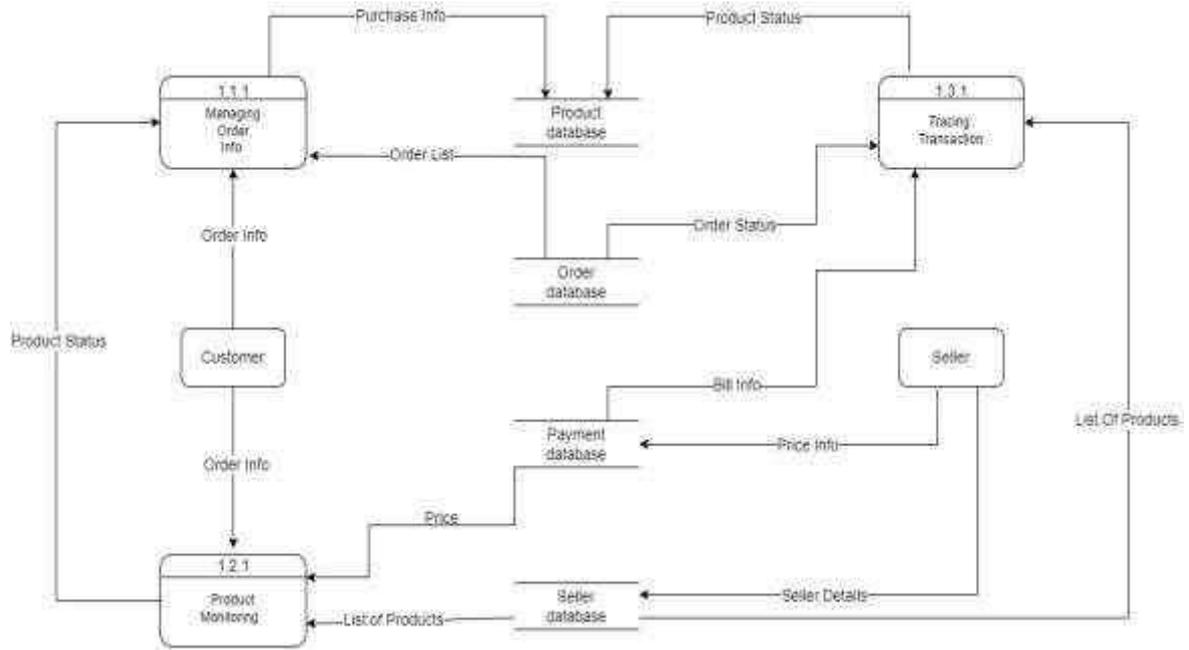
Figure 6.5.3: LEVEL 2 DFD DIAGRAM
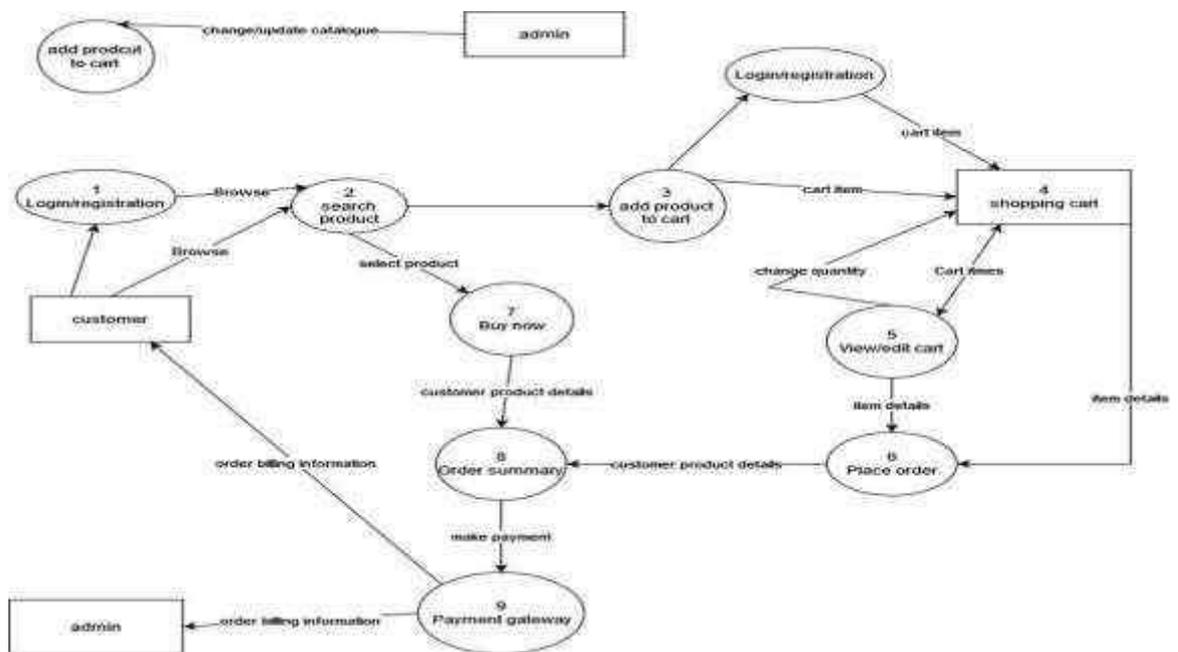
Figure 6.5.4: LEVEL 3 DFD DIAGRAM

Chapter 7. LIMITATION AND FUTURE ENHANCEMENT

7.1   LIMITATION

Limited product: The platform may only offer a limited range of handcrafted products, which could limit its appeal to customers looking for a wider range of products.

Limited functionality: The ecommerce platform may not have all the features and functionalities of a mature ecommerce platform, such as advanced product search, recommendation systems, and detailed analytics.

Limited payment options: The platform may only support a limited number of payment options, which could limit its appeal to customers who prefer other payment methods.

7.2   FUTURE ENHANCEMENT

Payment options: Providing a wider range of payment options can help to improve the platform's appeal to customers who prefer alternative payment methods.

Recommendations: Providing personalized product recommendations to customers can help to improve the customer experience and increase sales.

Customization: Allowing customers to customize certain product options, such as size and color, can help to increase customer satisfaction and sales.

Chapter 8. APPENDICES

8.1   BUSINESS MODEL

The marketplace aspect involves attracting artisans and crafters from various regions in India to sell their products on the platform. This helps to provide a diverse range of products for customers to choose from, and also supports small-scale artisans who may not have the resources or access to larger markets.

The e-commerce aspect involves providing a user-friendly online shopping experience for customers to browse and purchase handcrafted products. This includes features such as a product catalog, search functionality, shopping cart, and payment gateway integration. The platform also allows for customer reviews and ratings, which can help to build trust and credibility for both the platform and the artisans.

The revenue model for the business is based on a commission-based system, where a percentage of the sale price of each product sold on the platform is taken as commission. This allows the platform to generate revenue while still providing a fair price for the artisans and crafters.

Overall, the business model for the Django ecommerce project aims to promote and support the handcrafted industry in India while providing a convenient and accessible platform for customers to purchase unique and high-quality handcrafted products.

8.2   PRODUCT DEPLOYMENT DETAIL

The platform will be hosted on a web server that is capable of handling the expected traffic and workload. This involves setting up a virtual private server (VPS) or cloud hosting service.

The Django ecommerce application will need to be installed and configured on the server. This involves setting up the required dependencies, such as Python and Django, as well as configuring the database and web server settings

Once the application is installed and configured, the platform can be customized with branding and design elements, such as a logo and color scheme, to make it visually appealing and recognizable to customers.

Product listings can then be added by artisans and crafters, including product descriptions, images, and pricing information. The platform will need to have a user- friendly interface for artisans to easily create and manage their listings.

The platform will need to be tested thoroughly to ensure that it is functioning properly and is free of any bugs or errors. This may involve both manual and automated testing methods, as well as testing for security vulnerabilities.

8.3   SCREENSHOTS

Figure 8.3.1   ADMIN DASHBOARD
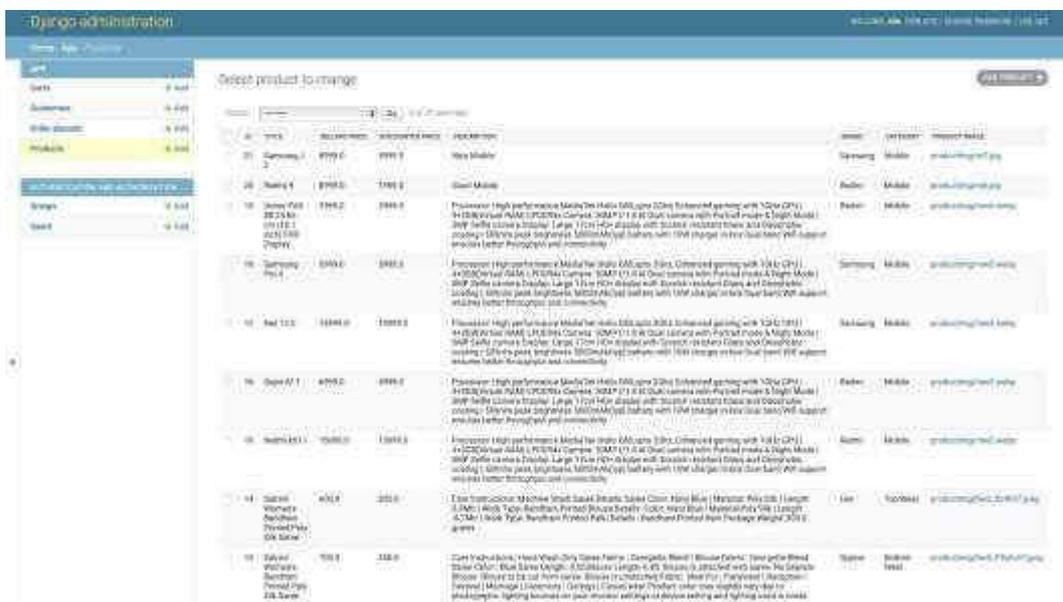
Figure 8.3.2: ADMIN PRODUCT

Figure 8.3.3: CARTS

Figure 8.3.4: HOME PAGE
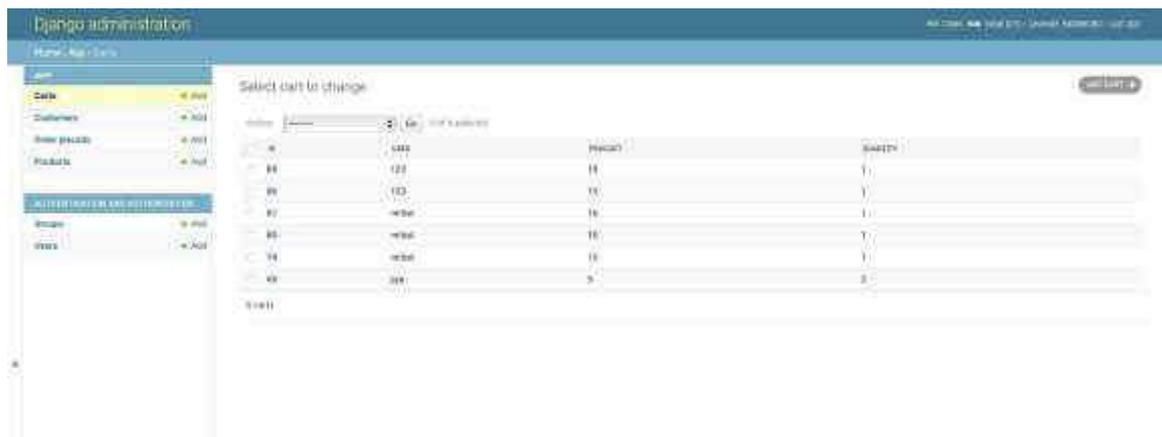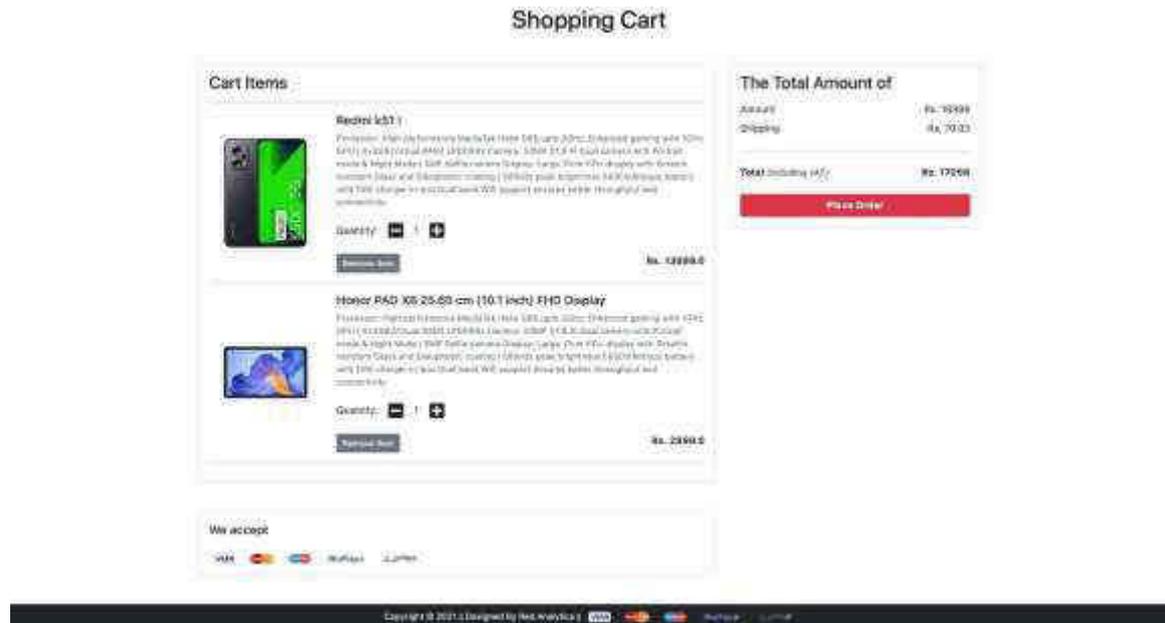
Figure 8.3.5: CART PAGE
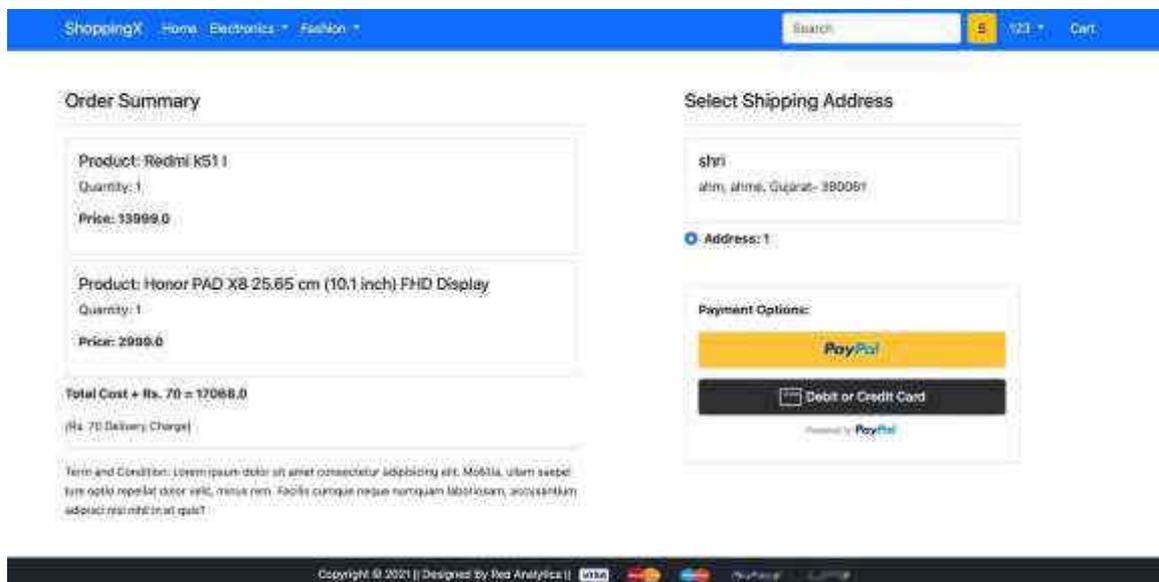
Figure 8.3.6: CHECKOUT PAGE

8.4   API AND WEB SERVICE DETAILS

PayPal API: We have integrated the PayPal API into our project to handle payment transactions securely. Customers can make payments for their orders using PayPal.

jQuery API: We have used the jQuery API to enhance the user interface of our web pages. This API helps to simplify HTML DOM traversal and manipulation, event handling, and animation.

Bootstrap API: We have also used the Bootstrap API to develop a responsive and mobile friendly front-end user interface. This API provides pre-designed UI components like buttons, forms, and typography that can be easily integrated into web pages.

Chapter 9. CONCLUSION

9.1 CONCLUSION

The E-commerce industry in India has a rich and a bright future. The country's diverse cultural traditions have led to the creation of unique and intricate products.

Despite facing challenges such as competition from mass-produced products and a lack of government support, the industry has demonstrated resilience and adaptability.

Artisans have been able to leverage technology and e-commerce platforms to reach a wider audience and expand their business opportunities.

Furthermore, there is growing global demand for products, which presents a significant opportunity for the industry to further grow and thrive.

In conclusion, the industry in India has immense potential for the future, and with the right support and investment, it can continue to flourish and contribute to the country's economic growth.

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INTERNSHIP AT ESPARKBIZ TECHNOLOGIES PRIVATE LIMITED

AN INTERNSHIP REPORT

Submitted by

Sagar Nikunjbhai Khatri

190390116008

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 eSparkBiz Technologies Pvt. Ltd.** has been carried out by **Sagar Nikunjbhai Khatri** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasana Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

eSparkBiz

Date: 21/04/2023

TO WHOM IT MAY CONCERN

This is to certify that **Sagar Nikunjbhai Khatri** a student of **Saffrony Institute of Technology** has successfully completed his internship in the field of Software Developer from 23rd January 2023 to 21st April 2023 (Total number of Weeks: 13) under the guidance of Mr. Chintan Gor.

His internship activities include work on **"HRMS"** Project.

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 eSparkBiz Technologies Pvt. Ltd.

Authorised Signature with Industry Stamp

S. J. Dholakiya

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 eSparkBiz Technologies Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasana Leela & Chintan Gor (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.   **Sagar Nikunjbhai Khatri**   _____

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. Upasana Leela** and external guide **Mr. Chintan Gor** 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 be benefit an organization by streamlining HR processes, reducing manual tasks, improving data accuracy, and providing better insights into employee performance.

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Chapter 1. Introduction

1.1 Company Profile

eSparkBiz is a leading dependable software development company in India and USA. Empowering ideas with agility, scalability, & innovation with cutting edge technological solutions for thriving businesses.

eSparkBiz is company providing a complete range of IT services to boost digital growth. started in 2010, eSparkBiz has grown at an exponential pace with 500+ clients across 20 countries. In 12+ years of work experience. eSparkBiz provides services of Web development, Mobile development and Blockchain development.

1.2 Problem Statement

Developing a system for organization and employees to manage an employees, to track an employee activities and measure the performance of the employees.

It will improve the efficiency and save the time of the organization with managing an all the employee activity at one place.

1.3 Purpose of Project

The purpose of the HRMS system is to track the employee performance and to make the organization's work easy with this system.

The main objective of this project is to develop a user-friendly and convenient system where HR can able to track an employee's working activities.

1.4 System Details

The web-based HRMS will be proposed to increase the performance and organization of the entire range of staff management services by developing these sections:

1.4.1 Employee Section

1. Employees check in /check out   & break in / break out
2. Detailed reports section.
3. leaves Application.
4. Attendance

5. employee activities

6. Hotline

7. Manage profile

8. Sensation

1.4.2 Admin Section

1. All Employee Detailed Data

2. Leave Management

3. Comments of Employees

4. IP whitelist to use System.

1.5 Scope of System

To make existing system more efficient. To provide user friendly environment where user can be serviced better. Provide a system where features like:

Employee:- Employee must registers to access the system, after register and login user can check in to the system, if user wants to take break in between work then employee must have to break in to the system. there are 4 features break in, break out, check in, check out. Employee can see the activity of other employees and also see and search the any of the employee profile. Employee can apply the leave and see the daily attendance, working hours, productivity ratio etc. and there is a comment feature that used for if user wants to comment anything regarding system then they do.

Admin:- Where admins are able to see the leaves applied by the employees and approve and reject the leaves. Able to view the all the comments by the employee regarding their issues. And able to whitelist a employee device to use that system on particular device.

1.6 Objectives

The main objective of HRMS is effectively monitoring employee performance. It will let you know what tasks your employees are working on, how long they spend time on each task, and **how productive they are at their work**. Knowing this, you can make better decisions on employee activity, promotion, demotion, growth, etc.

Paperless: To make existing system paperless and save lots of bunching logs of files on the shelf which makes the later on access of the record not at all easy task and overhead to peoples.

Automatic: Making the existing system fully automatic which will save lots of human resources work. As the current system is all human resource work is needed to maintain and keep the record and details of every employee under and organization to keep track of every employee in staff working in an organization.

Chapter 2. System Requirement Gathering

2.1 Stakeholder of The System

A stakeholder is a person, or a group that has interest in an organization's activity. There are two different stakeholders in our web site, who are going to use this and get easily connected with each other directly or indirectly by our web site.

In this system stakeholders are employee and organization which are going to use this system.

2.2 Requirement Gathering Technique Used

Technique of Fact Finding in Systems Analysis and Design

1)   Interviews

2)   Questionnaires

3)   Observation

4)   Record view & background reading

5)   Sampling

▪ In our software development process, we used **Interview technique** to gathering requirement. This method is used to collect the information from groups or individuals. We used this method because it gives reliable and accurate information.

The question arising during the requirement analysis phases is:

1)   How many types of user in system?

2)   What is problem?

3)   Why is it important to solve the problem?

4)   What are the possible solutions to the problem?

5)   What exactly are the data inputs and data outputs by system?

6)   What are the likely the complexities that might arise while solving the problem?

7)   Do you have any existing website?

2.3 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

2.4 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 3. System Management and planning

3.1 Feasibility Study

3.1.1 Technical

The system is self-explaining and does not need any entire sophisticated training. A system has been built by concentrating on the graphical user interface concepts, the application can also be handled very easily with a novice uses.

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. The technical capability of the feasibility of the available technology should be considered.

3.1.2 Operational

It refers to the feasibility of the system to be operational. Some systems may work very well at the design and implementation but many falls in the real time environment.it introduces the study of human resources required and their technical expertise. This provides consistent and integrated data management. It also provides information at all levels of people. Usually, people are reluctant to change that come in their progression. Hence an additional effort is to be made to train and educate the users on the new way of the system.

In Operational Feasibility degree of providing service to requirements is analyzed along with how much easy product will be to operate and maintenance after deployment. Along with this other operational scope are determining usability of product, determining suggested solution by software development team is acceptable or not etc.

3.2 Requirement Hardware and Software

RAM	Minimum 8 GB
Operating System	Ubuntu
Frontend	HTML, CSS, JavaScript, Ejs
Backend	Node js, Express js
Database	MySQL
Tools	Visual Studio Code, Postman

Table 3.2.1 System Requirement

3.3 System Planning

3.3.1 System Modules

In this system there are mainly two modules and that modules have and their submodules

1) User

- Dashboard
- Hotline
- Attendance Summary
- Leave Application
- Sensation
- User Profile
- User Profile Edit

2) Admin

- Employees Data
- Leave Approve
- Allowed Devices
- Read Comments

3.3.2 project development approach

- Top-down Approach
- When approaching a project from the top down, higher level decision-markers start with a big picture goal and work backward to determine what actions different groups and individuals will need to take in order to reach that goal.

3.3.3 Roles and Responsibilities

- Investigation of current system and issues
- Requirement analysis to determine the needs and expectation of a new system
- Database design
- Development
- Testing

3.4 Process Model

A software process model is a simplified representation of a software process. Each model represents a process from a specific prescriptive. There are several models for such processes, each describing approaches to a variety of tasks or activities that take place during the process.

1. Waterfall Model
2. V-Model
3. Incremental Model
4. Spiral Model
5. Prototype Model

Incremental Model

The incremental build model is a method of software development where the product is designed, implemented and tested incrementally is finished. It involves both development and maintenance. As new requirements can arise in future incremental models are used. With the help of it we can fulfill maximum user requirements. This model combines the elements of the waterfall model with the iterative philosophy of prototyping.

These increments form a base for customer evaluation. Many features can be added after the development of the system that serves the main purpose. If there are a smaller number of employees to work on the project Incremental development model is very useful to complete the project before the deadline. In every increment the needs of the client are kept in mind and more features and functions are added. The product is decomposed into a number of components, each of which is designed and built separately. Each component is delivered to the client when it is complete. This allows partial utilization of the product and avoids a long development time. It also avoids a large initial capital outlay and subsequent long waiting period. This model of development also helps ease the traumatic effect of introducing a completely new system all at once.

Why we choose this model-

Incremental model is better than a waterfall for most business, e-commerce, and personal systems. and also, spiral model is very expensive at cost as compared to incremental and handle the large project that's why we choose incremental model.

By developing software incrementally, it is cheaper and easier to make changes in the software as it is being developed.
Compared to waterfall model, this model has 3 important benefits :

1. The cost of accommodating changing customer requirements is reduced. The amount of analysis and documentation that has to be redone is much less than that's required with waterfall model.
2. It's easier to get customer feedback on work done during development than when the system is fully developed,
3. More rapid delivery of useful software is possible even if all the functionality hasn't been included. Customers are able to use and gain value from the software earlier than it's possible with the waterfall model.

Characteristics of incremental model-

- System development is broken down into many mini development projects
- Partial systems are successively built to produce a final total system.

- Highest priority requirement is tackled first.

- Once the requirement is developed, requirement for that increment is frozen.

🟩	COMMUNICATIONN
🟪	PLANNING
⬜	MODELING [Analysis, Design]
🟧	CONSTRUCTION [Code, test]
🟨	Deployment [delivery, feedback]
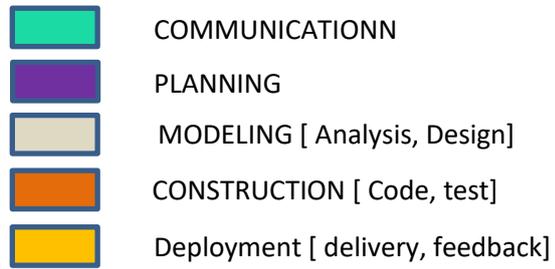
Fig 3.4.1 Incremental Model Process
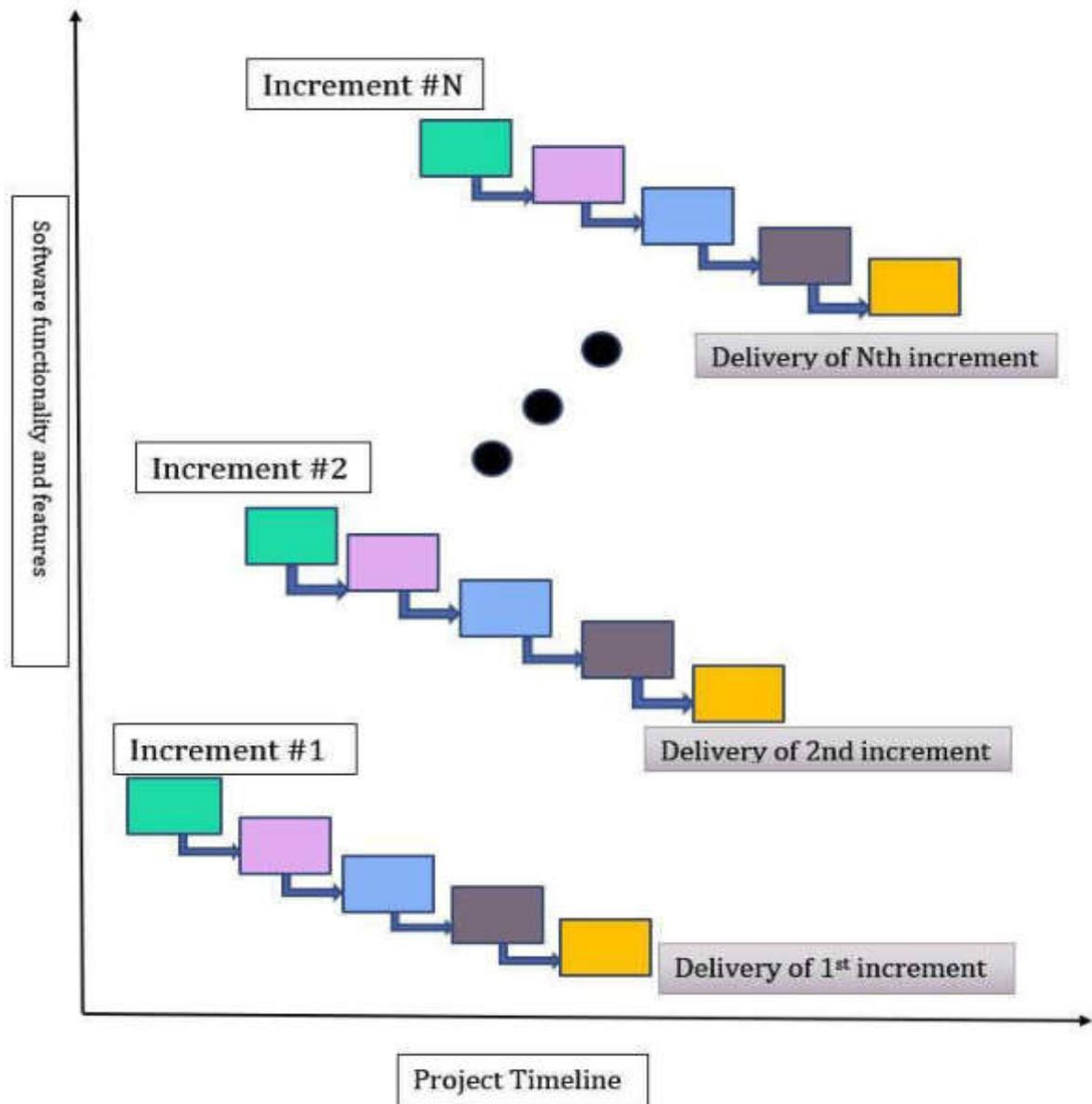
Fig 3.4.2 Incremental Model Process 2

Tasks involved in incremental model

1. Communication: helps to understand the objective.

2. Planning: required as many people (software teams) work on the same project but different   function at same time.

3. Modelling: Involves business modelling, data modelling, and process modelling. And it involves analysis and design. In analysis phase, system analysis expertise identifies the requirements. System functional requirements are understood by the requirement analysis team. To develop the software under the incremental model, this phase performs crucial role.

In designing phase, design of system functionality and the development method are finished develops new practically, the incremental model uses style and development phase.

4. Construction: This involves the reuse software components and final coding and designing and development phase and tests the functionality in the testing phase. After completion of this phase, the number of the tasks working is enhanced and upgraded up to the system.

5. Deployment: Integration of all the increments.

Advantages

- This model is more flexible – less costly to change scope and requirements.
- It is easier to test and debug during a smaller iteration.
- In this model customer can respond to each built.
- Lowers initial delivery cost, errors are easy to be identified.
- Easy to manage risk because risky pieces are identified and handled during it'd iteration.
- Incremental model is used because requirement of the complete system is clearly defined and understood.
- It's suitable for system's future updates when the technology or the source is changed.

Disadvantages

- It's required good planning and design
- Each iteration is rigid doesn't overlap each other.
- Well defined module interfaces are needed.
- Rectifying a problem in one unit requires correction in all the units and consumes a lot of time.

Chapter 4. System Analysis and Design

4.1 UML (Unified Modeling Language)

4.1.1 Use Case

Fig 4.1.1.1 Use Case Diagram

4.1.2 Activity Diagram

Activity Diagram represents the activities performed by system. It provides the view of the behavior of a system.

Activity Diagram for User
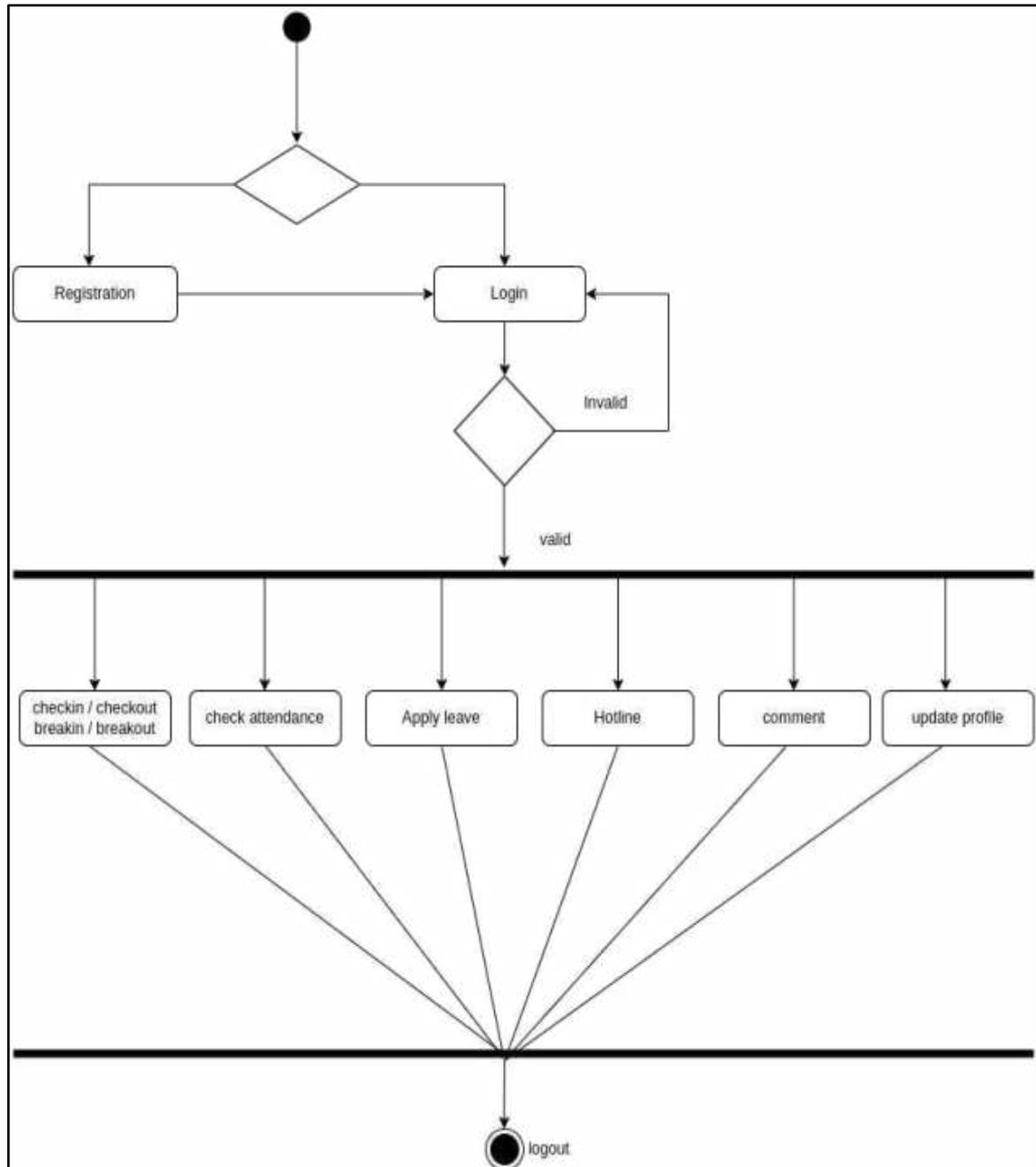
Fig 4.1.2.1 User Activity Diagram

Activity Diagram of Admin
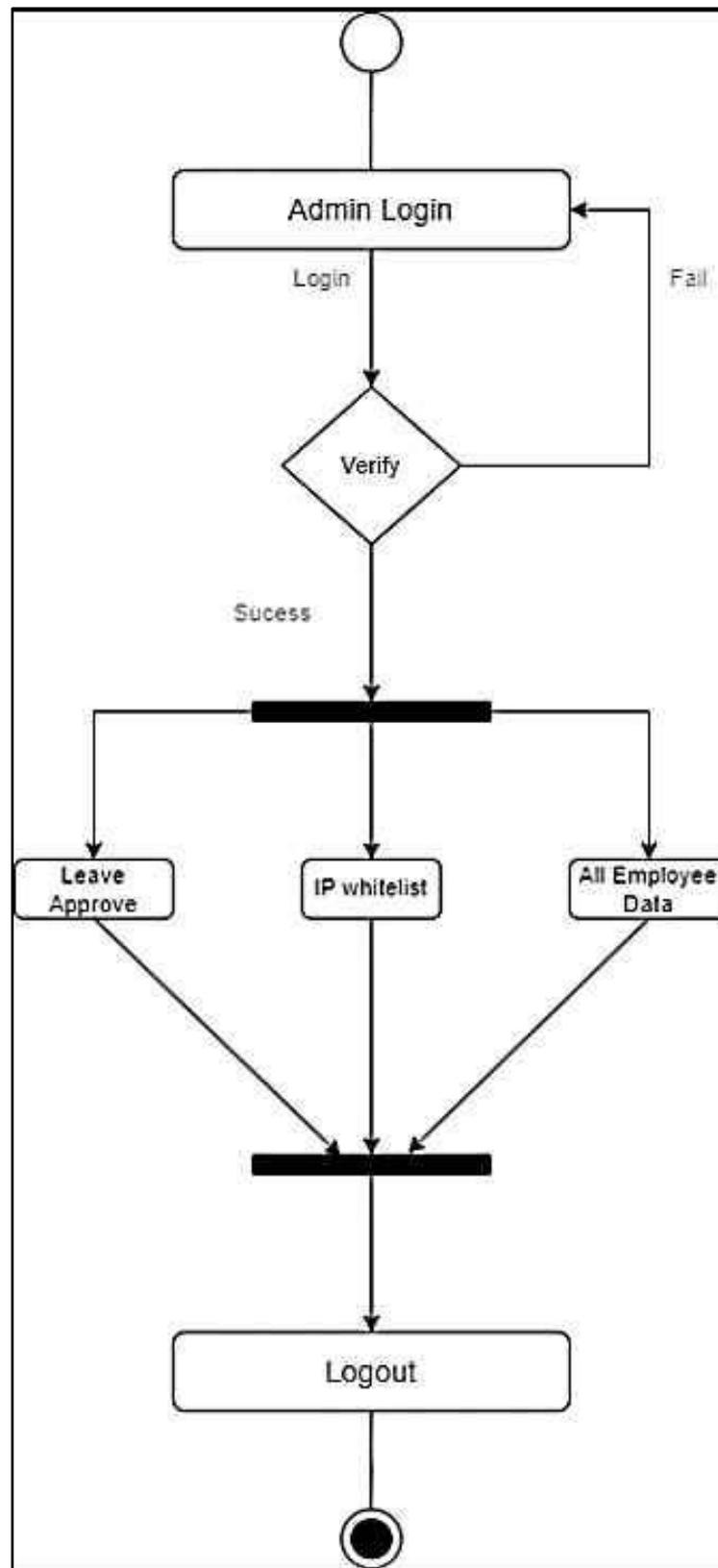
Fig 4.1.2.2 Admin Activity Diagram

4.1.3 Class Diagram
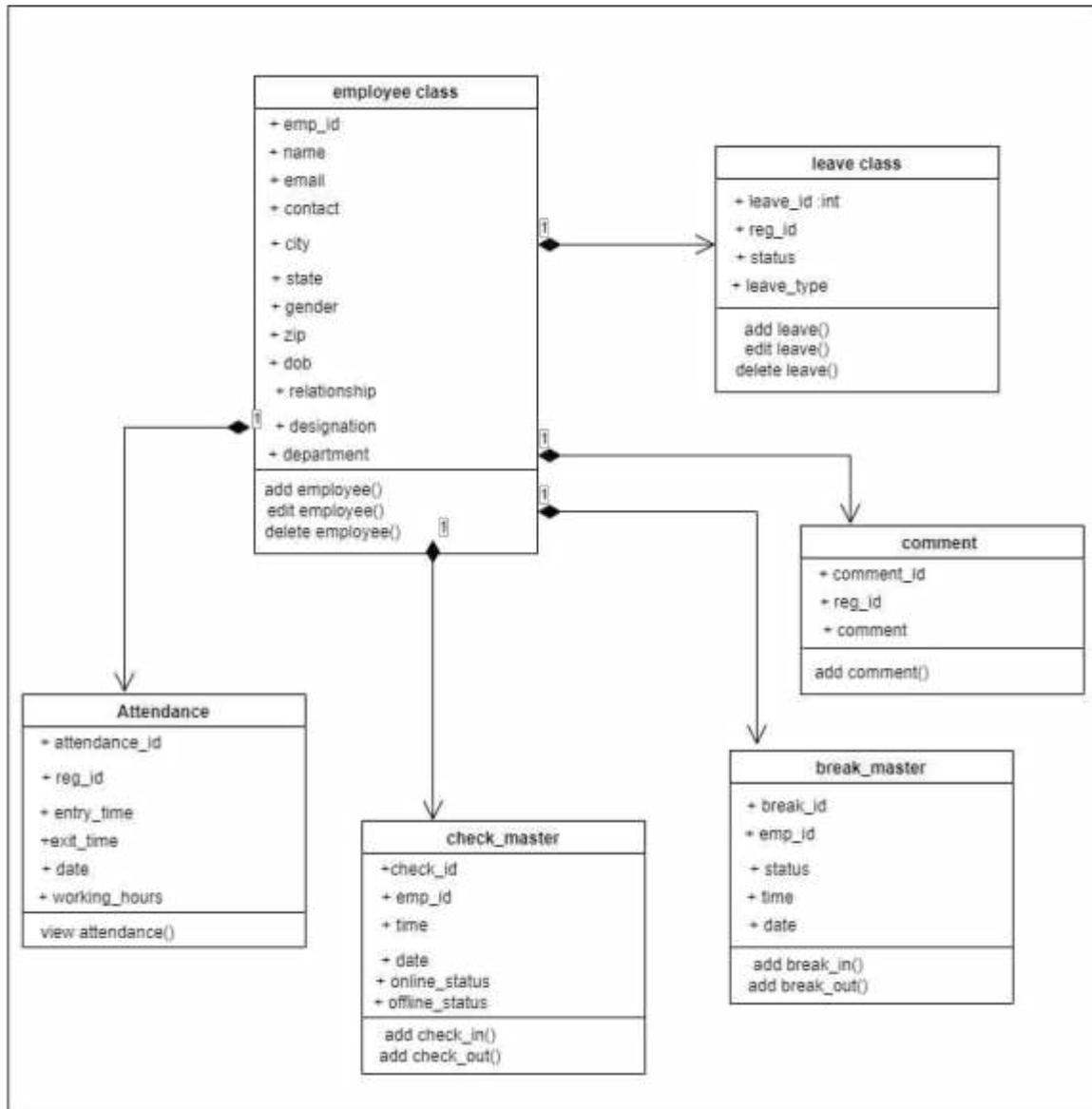
Fig 4.1.3.1 Class Diagram

4.1.4 Sequence Diagram
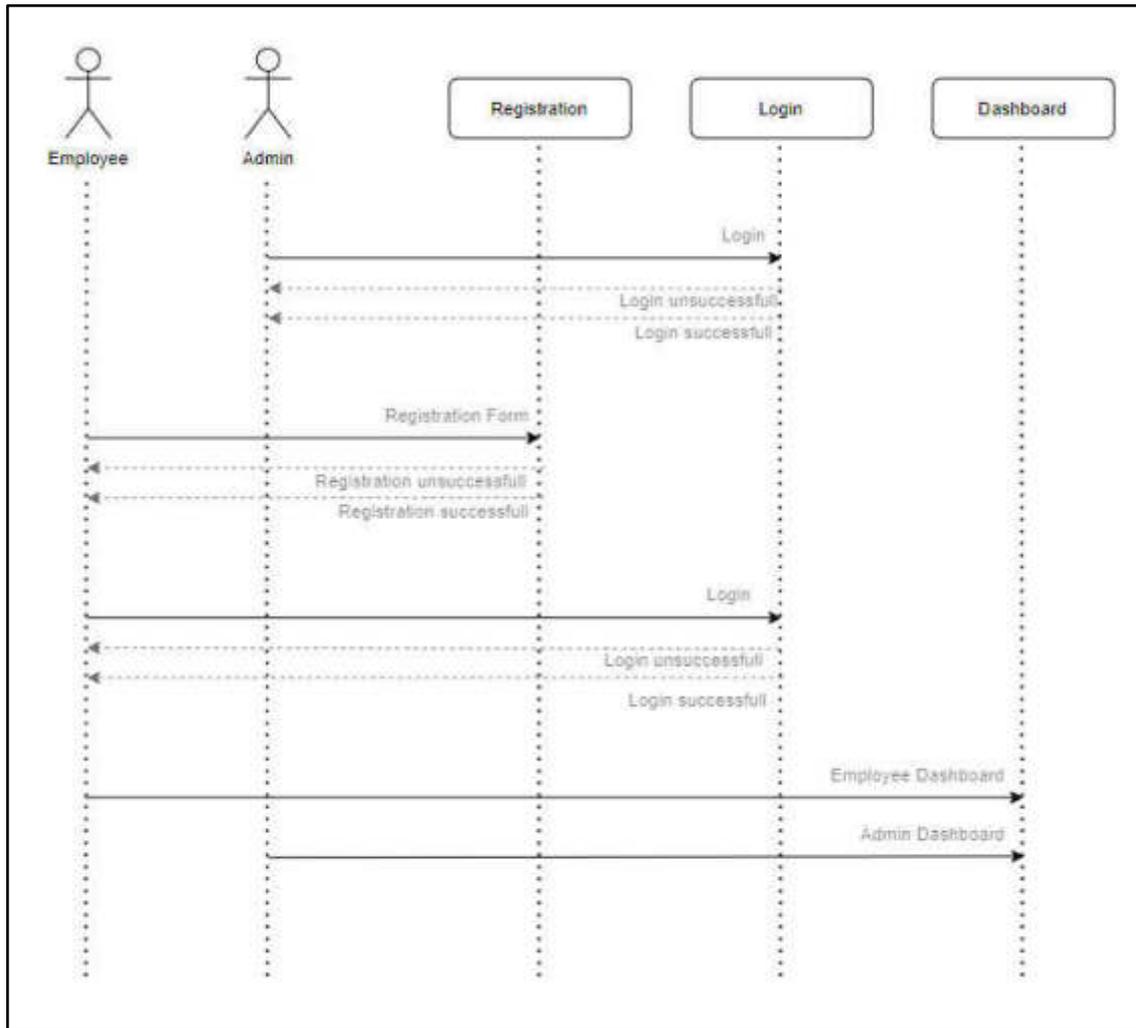
Fig 4.1.4.1 Sequence Diagram

4.2 System Flow Diagram
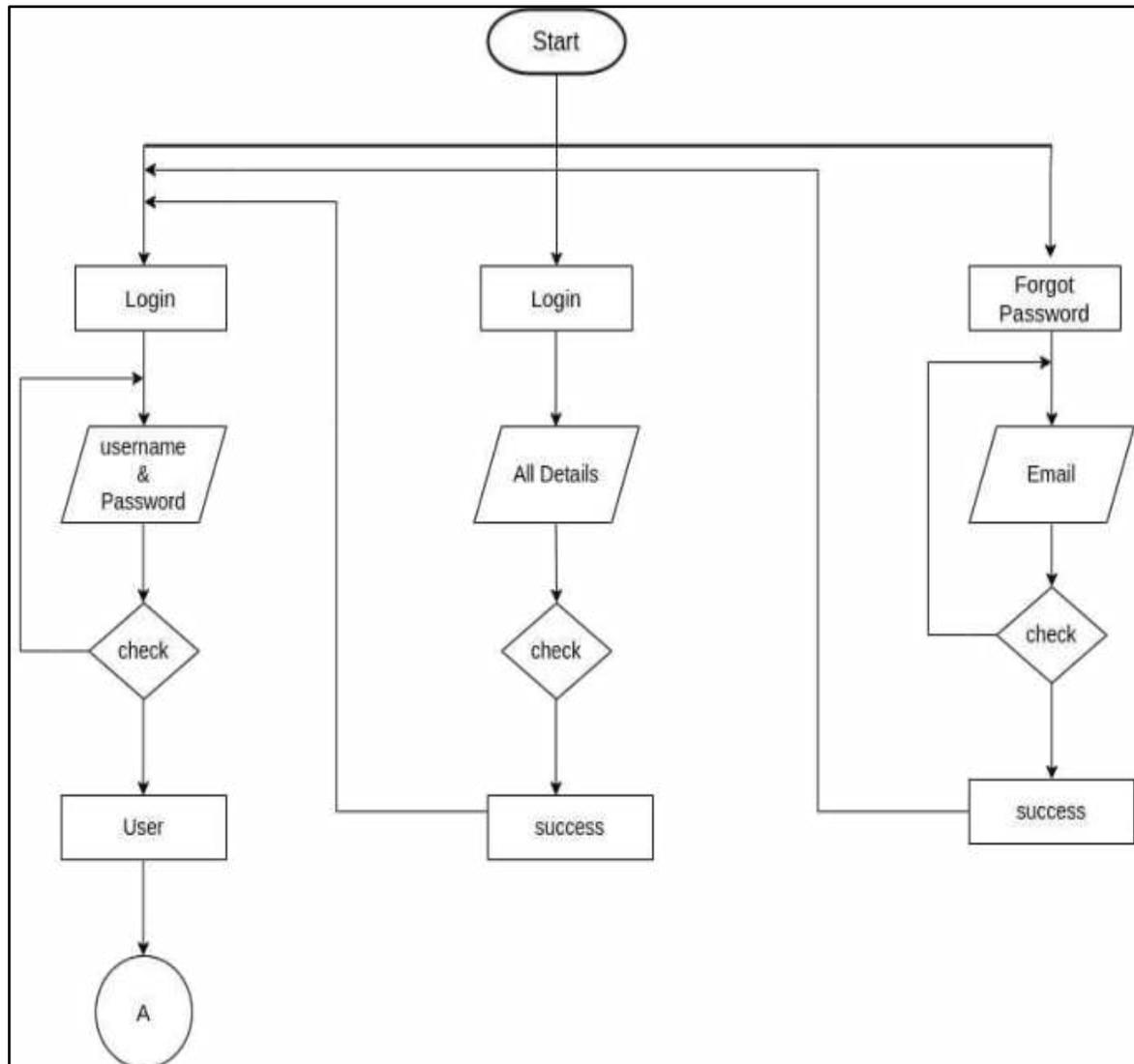
Fig 4.2.1 System Flow Diagram

System Flow Diagram
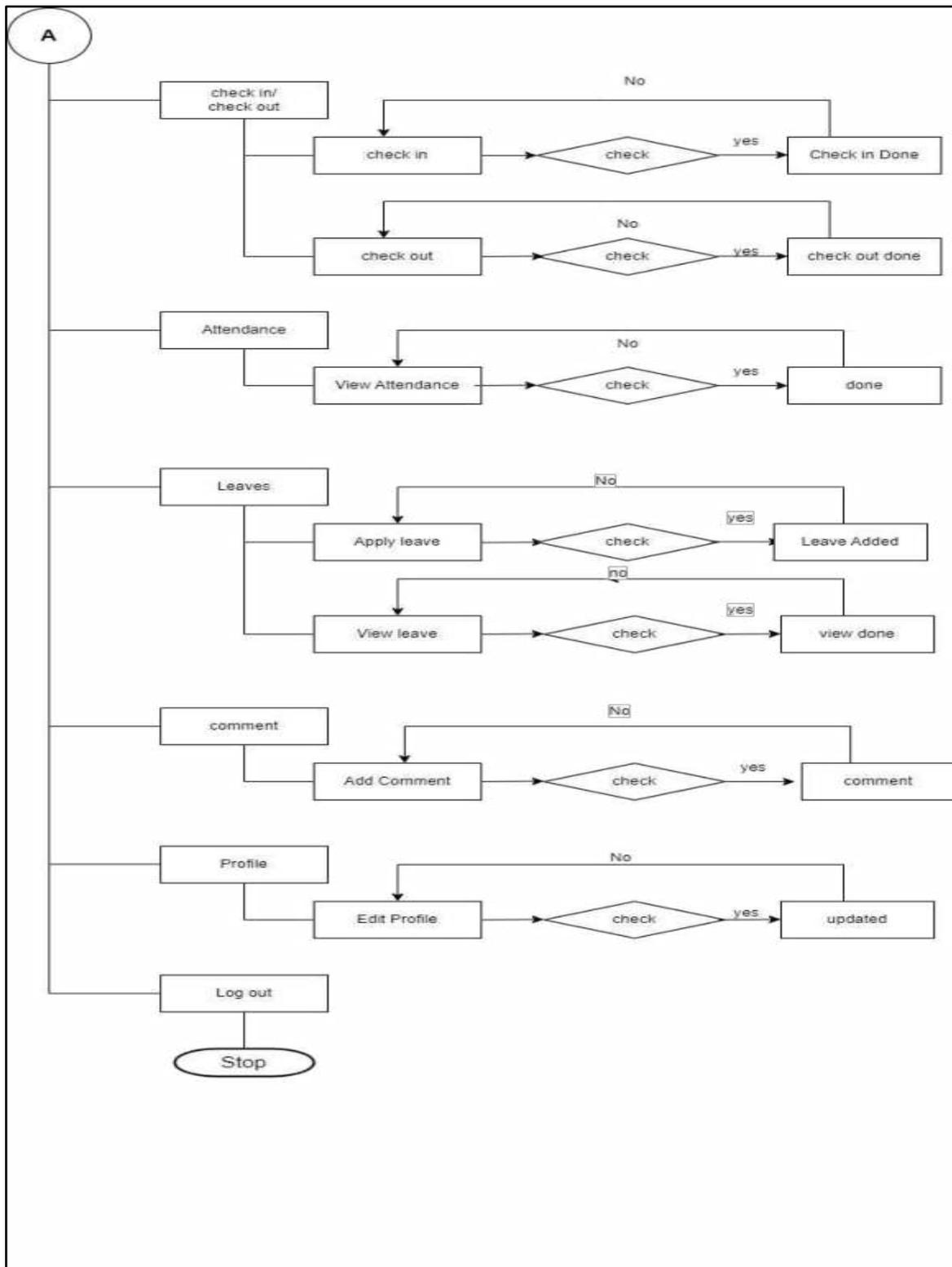
Fig 4.2.2 System Flow Diagram

4.3 Data Dictionary

4.3.1 HRMS Employee Table

Name	Datatype	Size	Constraint
emp_id	int	11	Primary Key, Auto increment
email	varchar	25	Not null
password	varchar	255	Not null
is_activate	boolean	1	Not null
is_deleted	boolean	1	Not null
is_admin	boolean	1	Not null
code	int	11	Null

Table 4.3.1.1 Employee Table

4.3.2 Employee Basic Information Table

Name	Datatype	Size	Constraint
basic_info_id	int	11	Primary Key, Auto increment
fk_emp_id	int	11	Foreign key
first_name	varchar	25	Not null
last_name	varchar	25	Not null
birth_date	varchar	30	Not null
relation_status	varchar	10	Not null
blood_group	varchar	5	Not null
gender	int	11	Not null
state	varchar	30	Not null
city	varchar	30	Not null
phone_number	int	10	Not null

Table 4.3.2.1 Employee Basic Information Table

4.3.3 Courses Table

Name	Datatype	Size	Constraint
course_id	Int	11	Primary Key, Auto increment
course_name	Varchar	20	

Table 4.3.3.1 Courses Table

4.3.4 Department Table

Name	Datatype	Size	Constraint
department_id	Int	11	Primary Key, Auto increment
department_name	Varchar	20	

Table 4.3.4.1 Department Table

4.3.5 Education Table

Name	Datatype	Size	Constraint
education_id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
course_name	Varchar	15	-
passing_year	Int	15	-
college/school	Varchar	30	-
marks	Int	10	-

Table 4.3.5.1 Education Table

4.3.6 Experience Table

Name	Datatype	Size	Constraint
experience_id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
company_name	Varchar	20	-
designation	Varchar	20	-
start_date	Date	30	-
end_date	Date	10	-

Table 4.3.6.1 Experience Table

4.3.7 References Table

Name	Datatype	Size	Constraint
references _id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
person_name	Varchar	20	-
person_contact	Varchar	20	-
person_relation	Varchar	20	-

Table 4.3.7.1 References Table

4.3.8 Document Table

Name	Datatype	Size	Constraint
document_id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
resume	Varchar	100	-
bank_detail	Varchar	100	-
aadhar_card	Varchar	100	-
pan_card	Varchar	100	-
photo	Varchar	100	-

Table 4.3.8.1 Document Table

4.3.9 State Table

Name	Datatype	Size	Constraint
state_id	Int	11	Primary Key, Auto increment
state_name	Varchar	30	

Table 4.3.9.1 State Table

4.3.10 City Table

Name	Datatype	Size	Constraint
city_id	Int	11	Primary Key, Auto increment
fk_state_id	Int	11	Foreign key
city_name	Varchar	30	

Table 4.3.10.1 City Table

4.3.11 Check-in Table

Name	Datatype	Size	Constraint
check_system_id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
checkin_time	Datetime		Null
checkout_time	Datetime		Null
total_office_time	Varchar	30	Null
check_date	Date		Null

Table 4.3.11.1 Check-in Table

4.3.12 Break Table

Name	Datatype	Size	Constraint
break_system_id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
breakin_time	Datetime		Null
breakout_time	Datetime		Null
total_brake_time	Varchar	30	Null
break_date	Date		Null

Table 4.3.12.1 Break Table

4.3.13 Employee Comment Table

Name	Datatype	Size	Constraint
emp_comment_id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
comment_status	Varchar	20	-
comment	Varchar	200	-
comment_date	Datetime	20	-

Table 4.3.13.1 Employee Comment Table

4.3.14 Leave Application Table

Name	Datatype	Size	Constraint
leave_id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
leave_date	Varchar	20	-
leave_reason	Varchar	200	-
leave_type	Varchar	20	-
Is_cto_approved	Int	11	Default 0
Is_hr_approved	Int	11	Default 0
Is_halfday	Int	11	Default 0

Table 4.3.14.1 Leave Application Table

4.3.15 Sensation Table

Name	Datatype	Size	Constraint
sensation_comment_id	Int	11	Primary Key, Auto increment
fk_emp_id	Int	11	Foreign key
sensation_comment	Varchar	500	Null
image	Varchar	200	Null

Table 4.3.15.1 Sensation Table

4.3.16 IP information Table

Name	Datatype	Size	Constraint
ip_id	Int	11	Primary Key, Auto increment
ip_address	Varchar	15	
ip_device_name	Varchar	30	

Table 4.3.16.1 IP information Table

Chapter 5. Project Implementation

5.1 User/ Employee Panel

- Registration Page
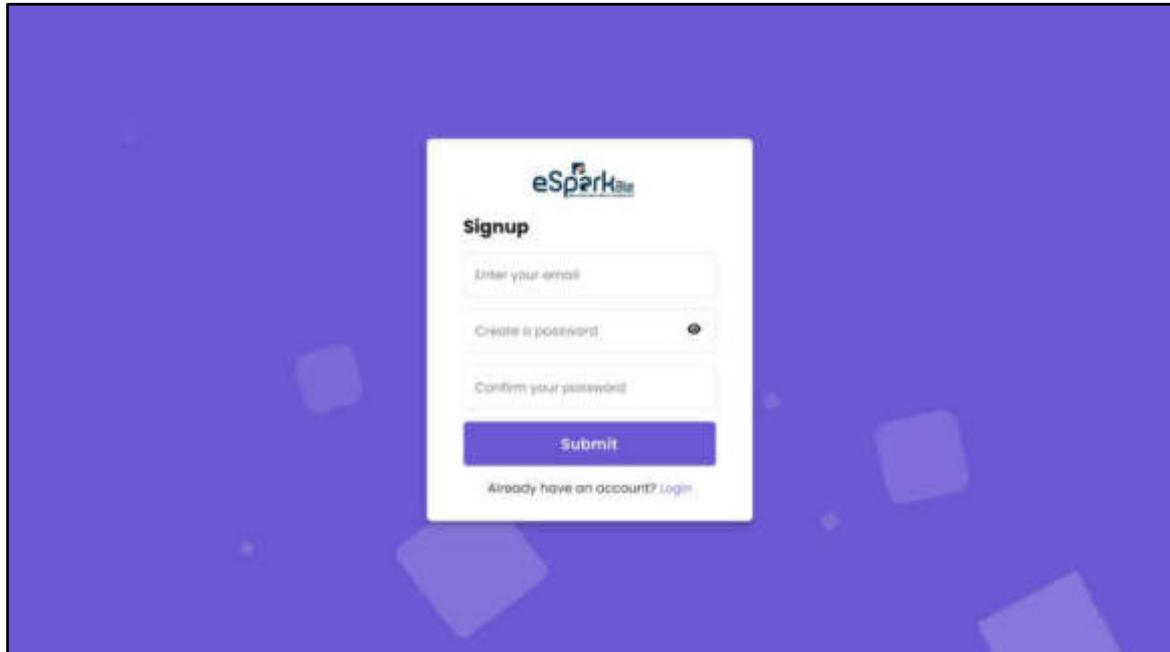
Fig 5.1.1 Registration Page

- Login Page
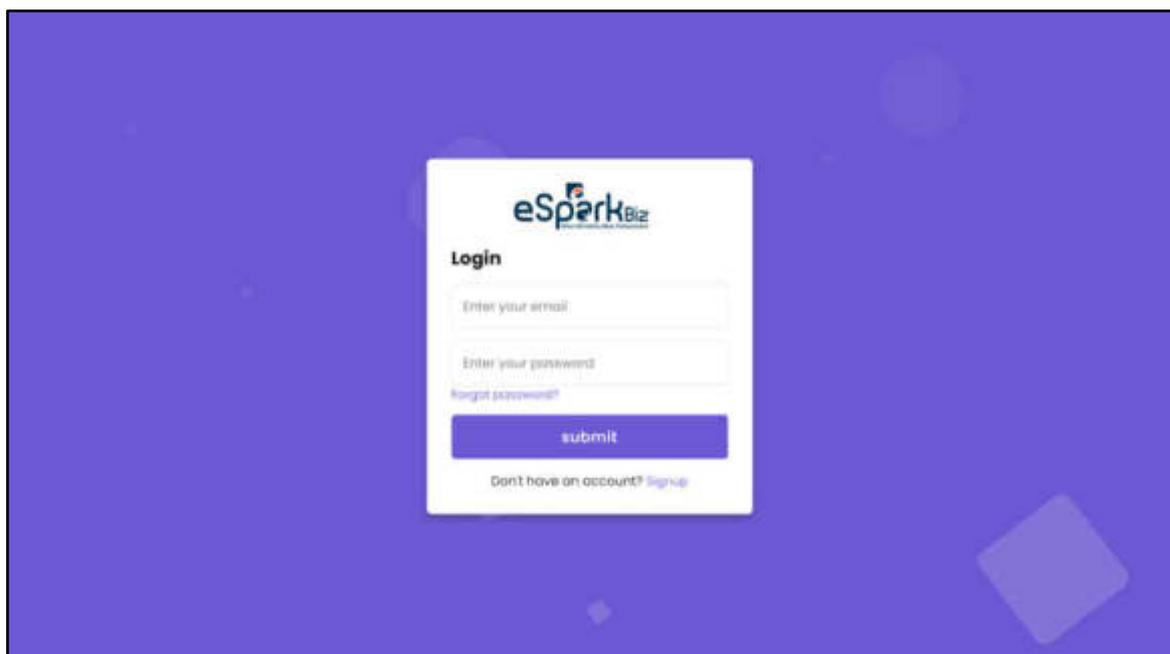
Fig 5.1.2 Login Page

- Forgot password Page
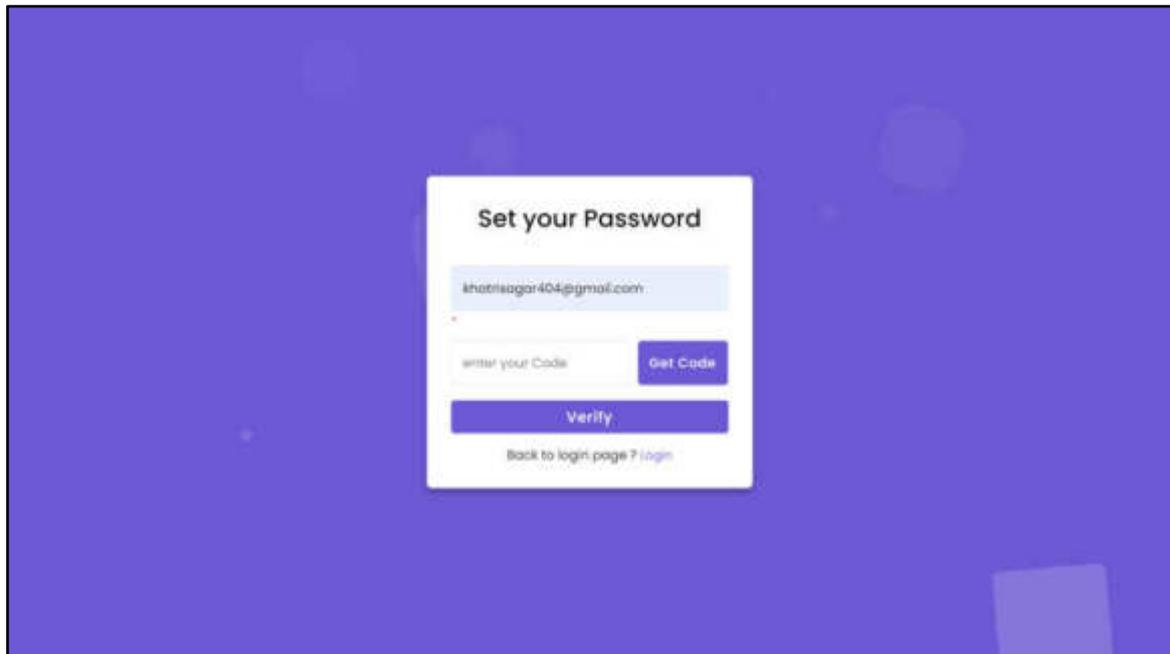
Fig 5.1.3 Forgot Password Page

- Forgot password email verification
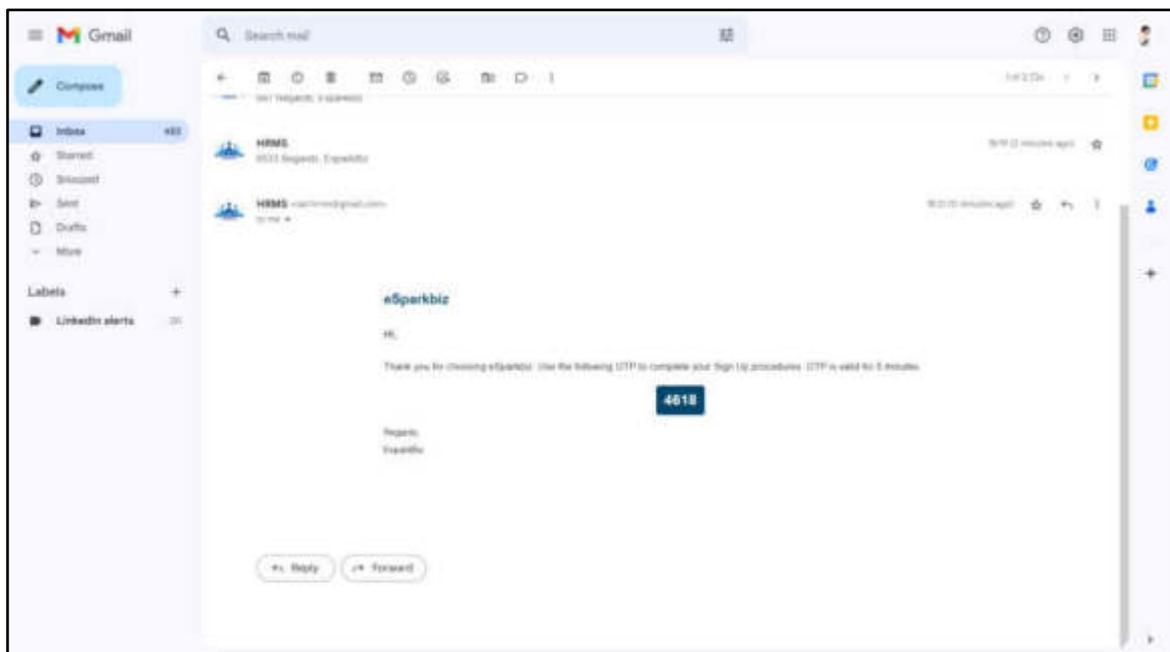
Fig 5.1.4 Forgot Password Email Verification
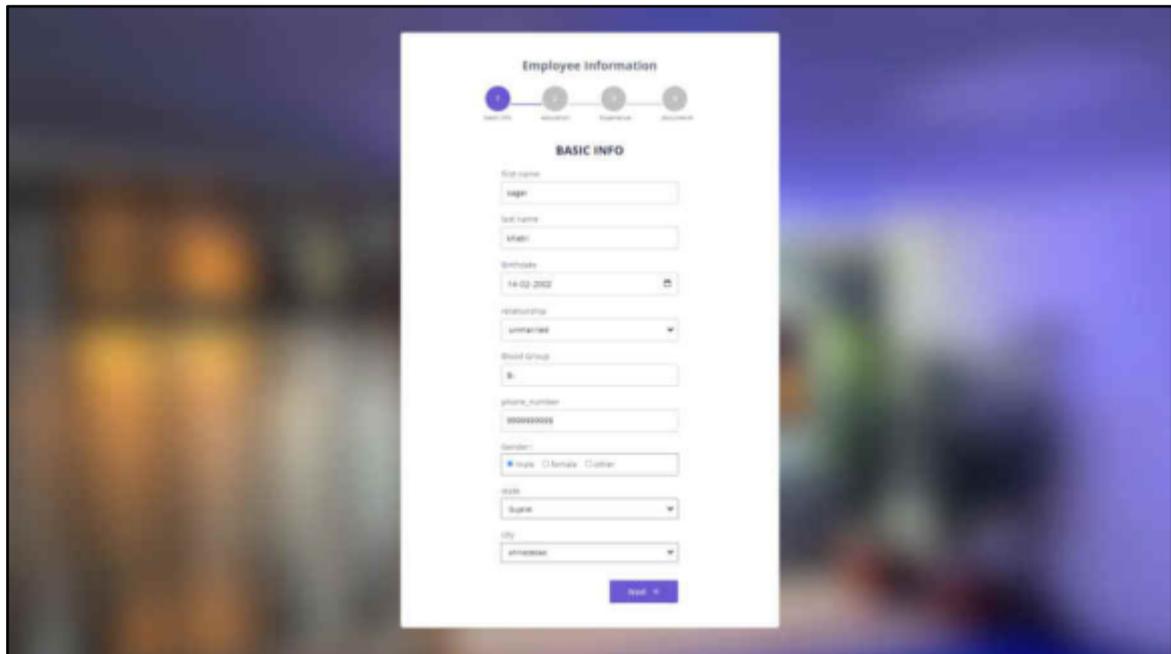
- Employee basic information form

Fig 5.1.5 Employee Basic Information Form

- Education information page
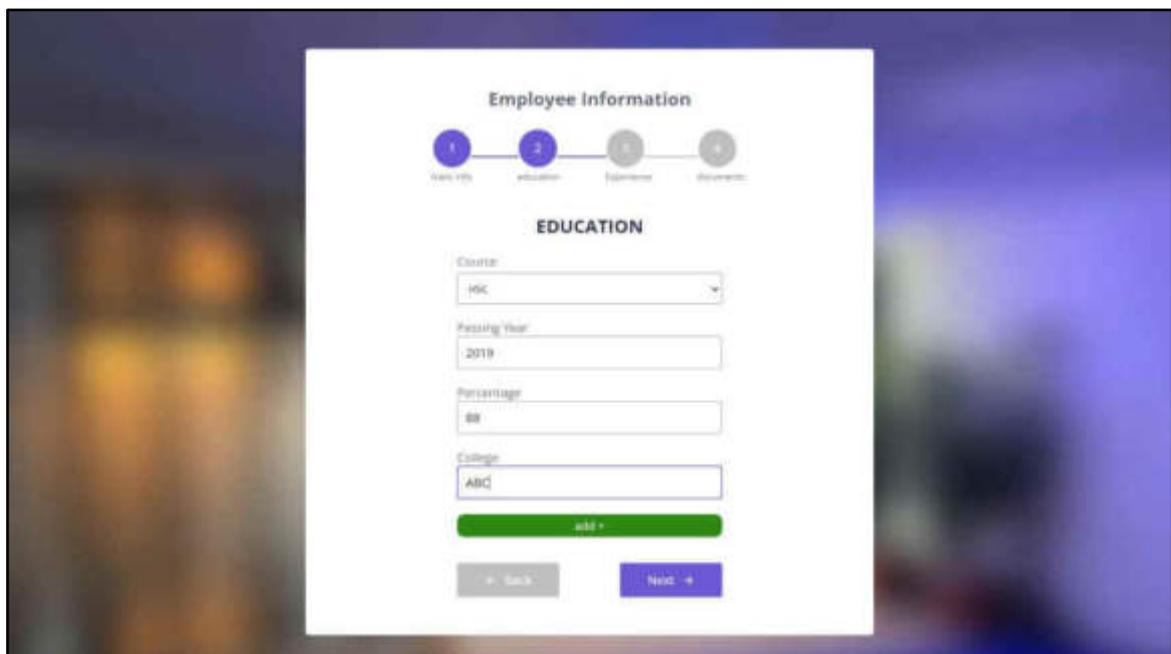
Fig 5.1.6 Education Information Page

- Experience information page
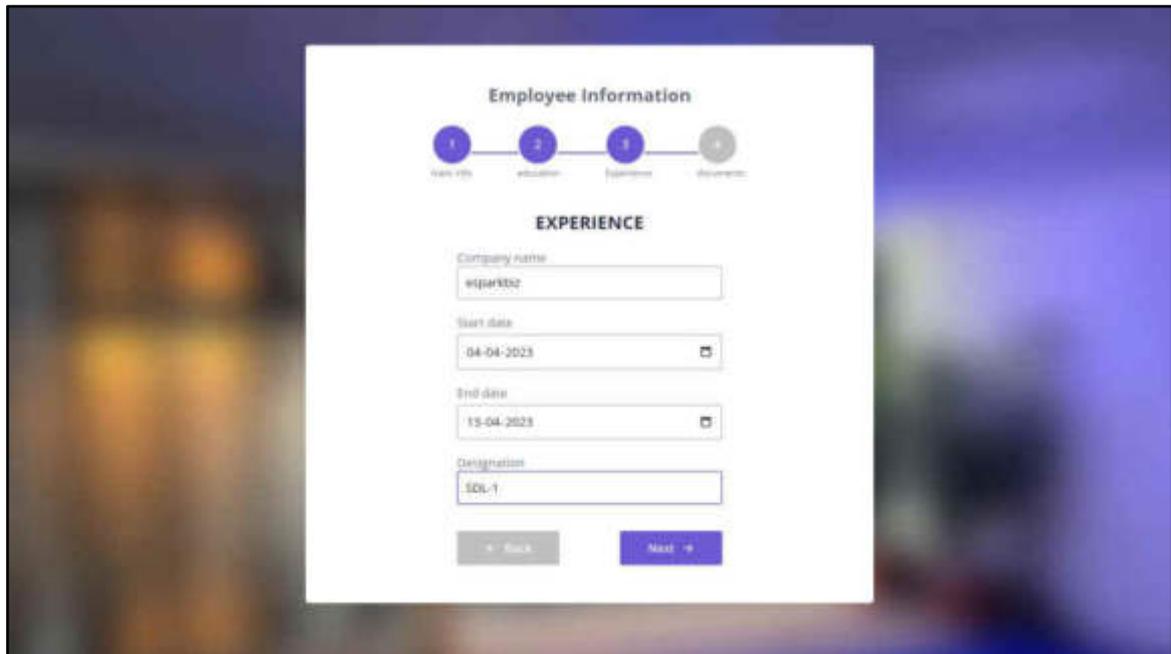
Fig 5.1.7 Experience Information Page

- Document page
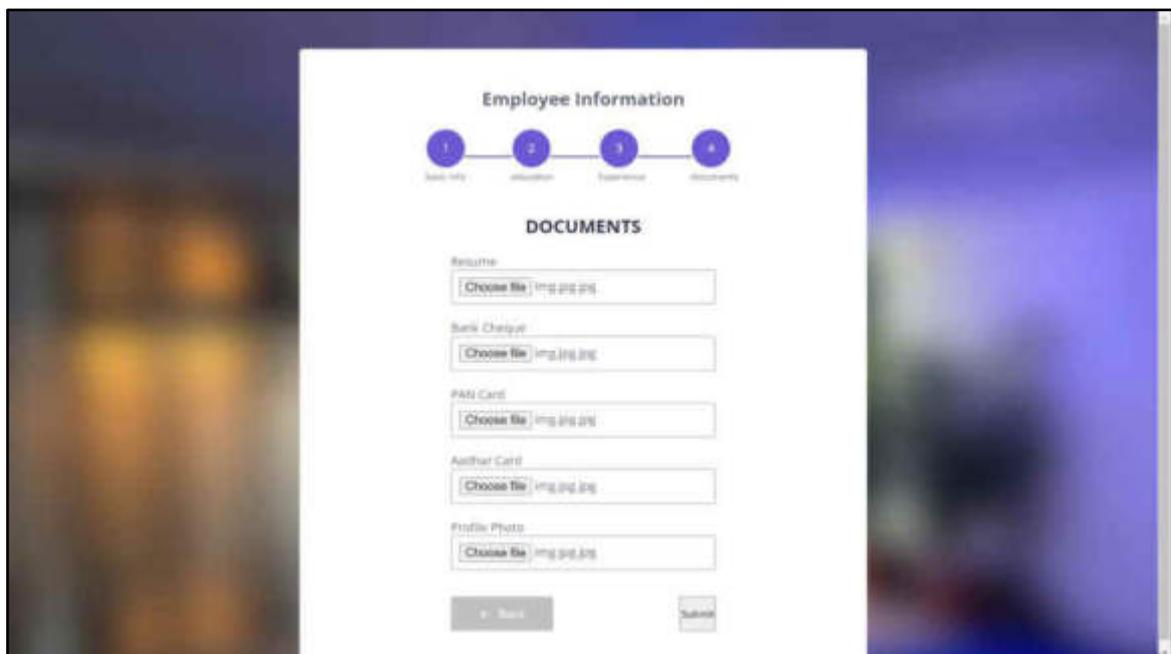
Fig 5.1.8 Document Page

- Dashboard Comment section and Employee Activities
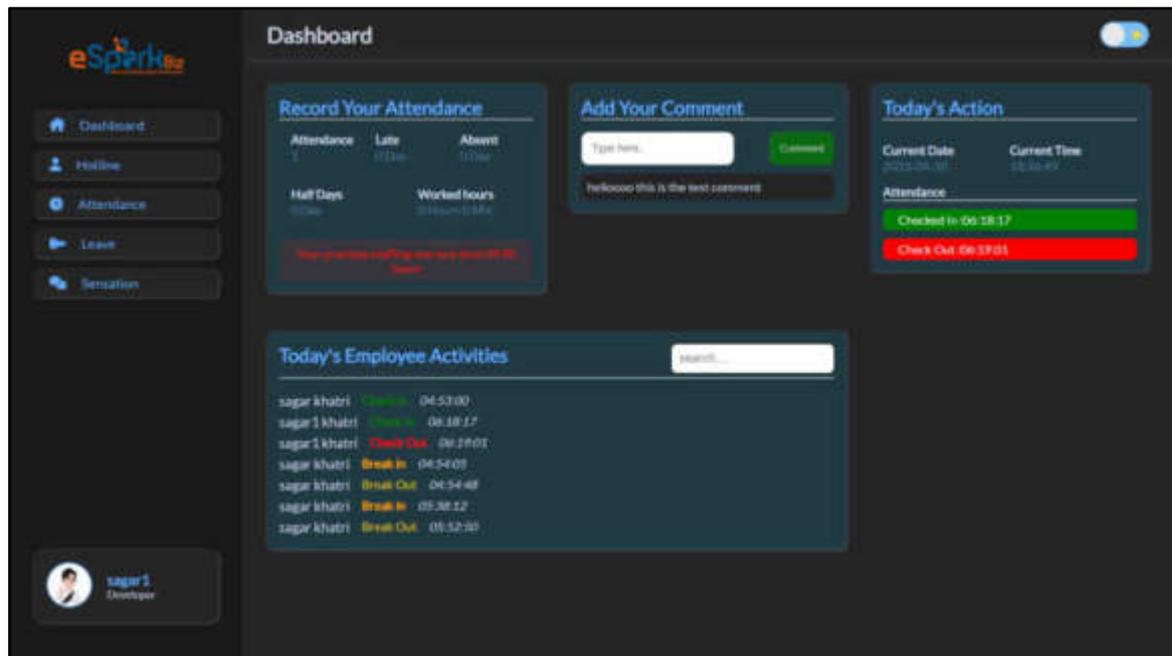
Fig 5.1.9 Dashboard Comment and Employee Activities

- Edit employee profile page
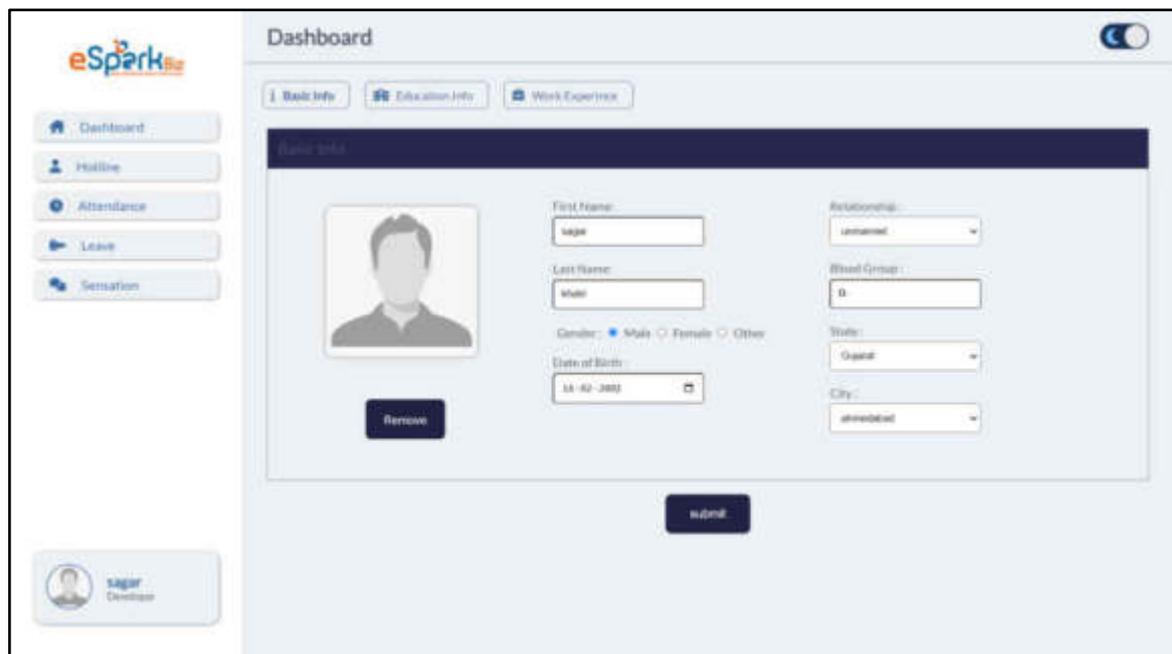
Fig 5.1.10 Employee Edit Profile Page

- On check-in Dashboard page
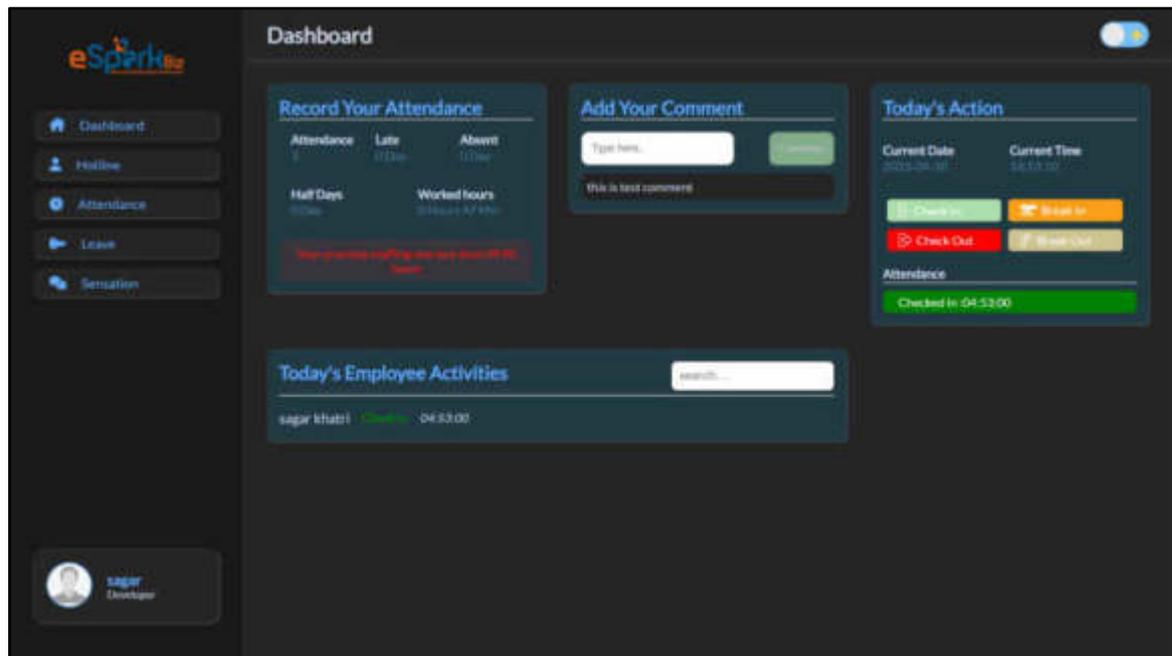
Fig 5.1.11 On Check-in Dashboard Page

- On check-in hotline page
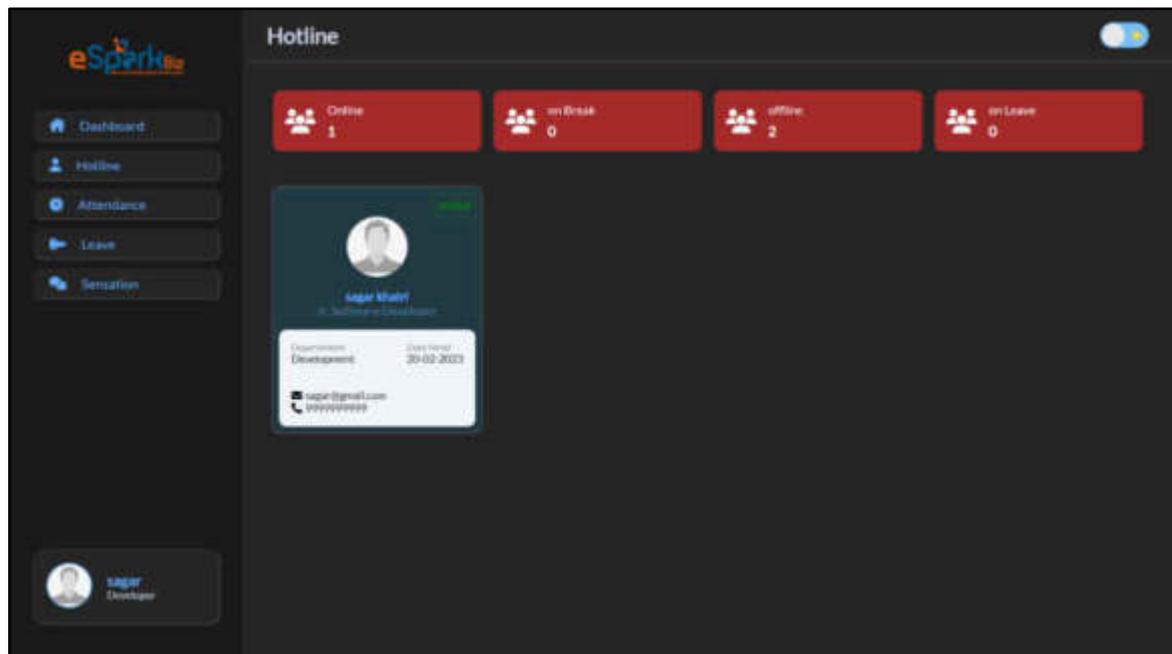
Fig 5.1.12 On Check-in Hotline Page

- On break-in dashboard page
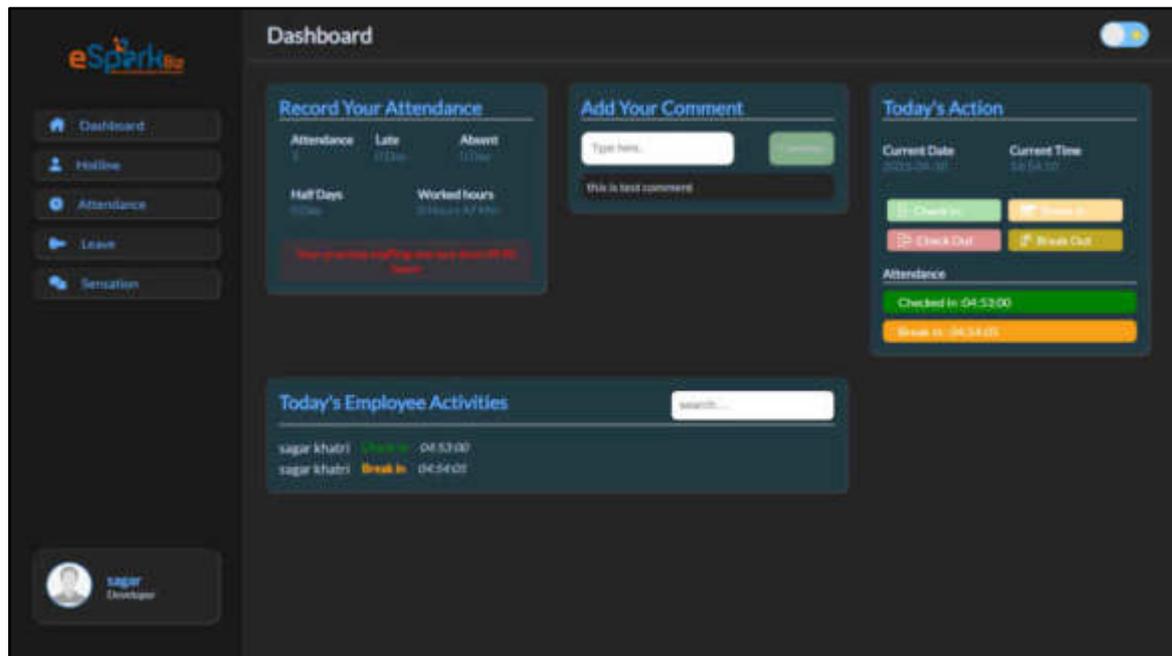
Fig 5.1.13 on Break-in Dashboard Page

- On break-in hotline page
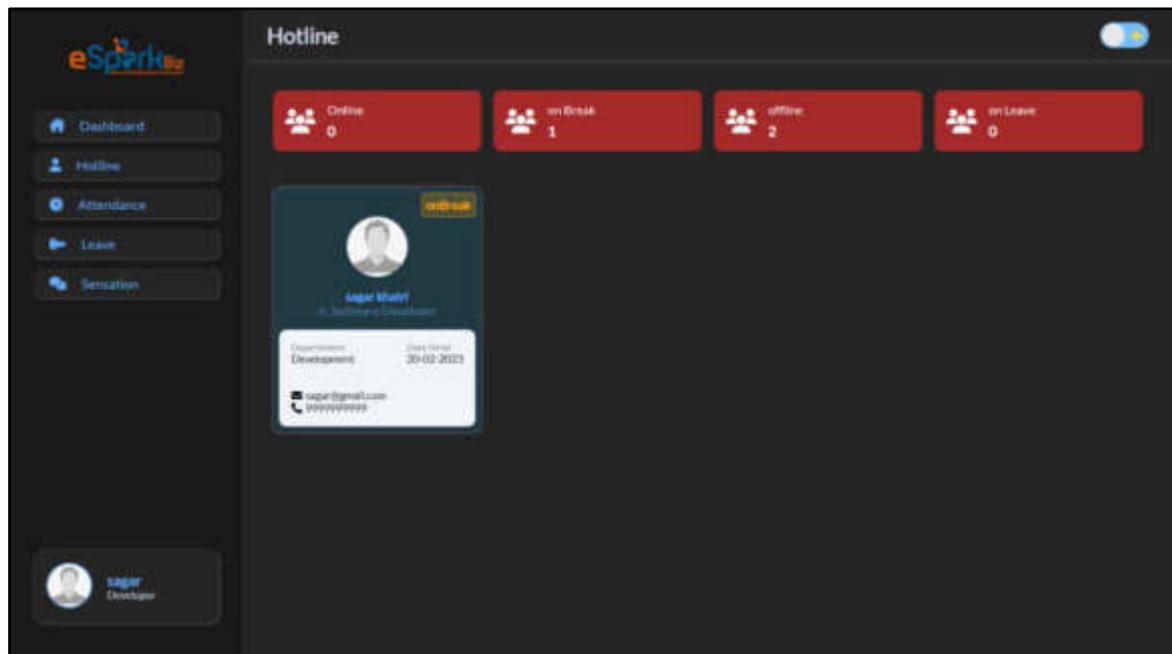
Fig 5.1.14 on Break-in Hotline Page

- All offline Employee Page
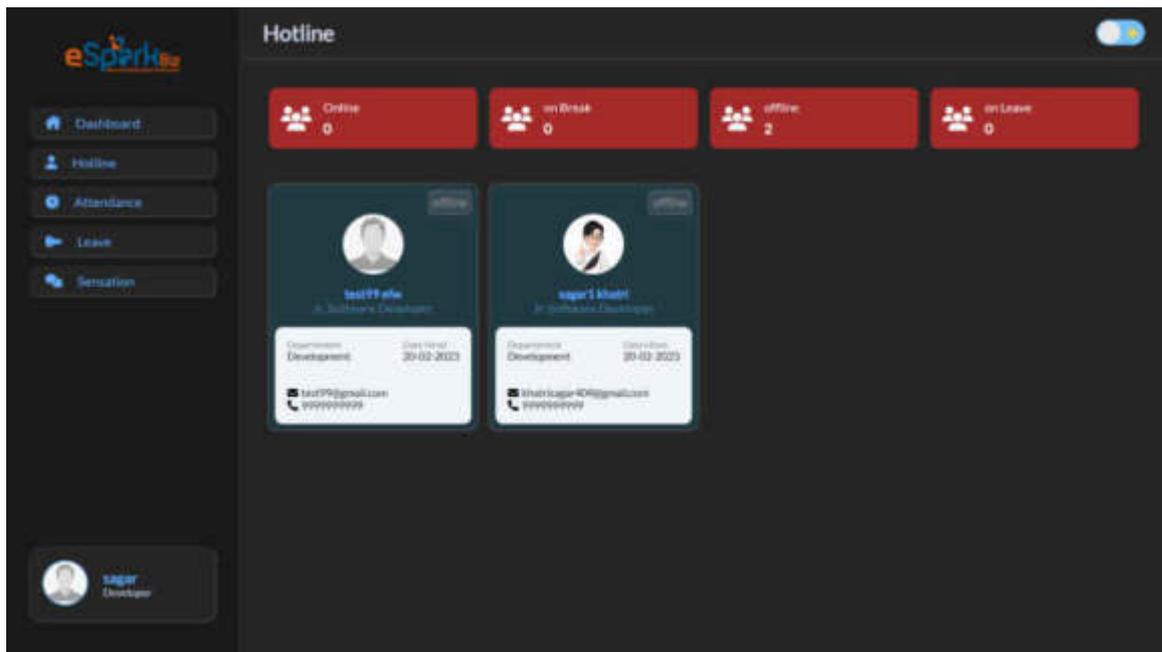
Fig 5.1.15 Hotline Offline Employee Page

- Attendance summary page
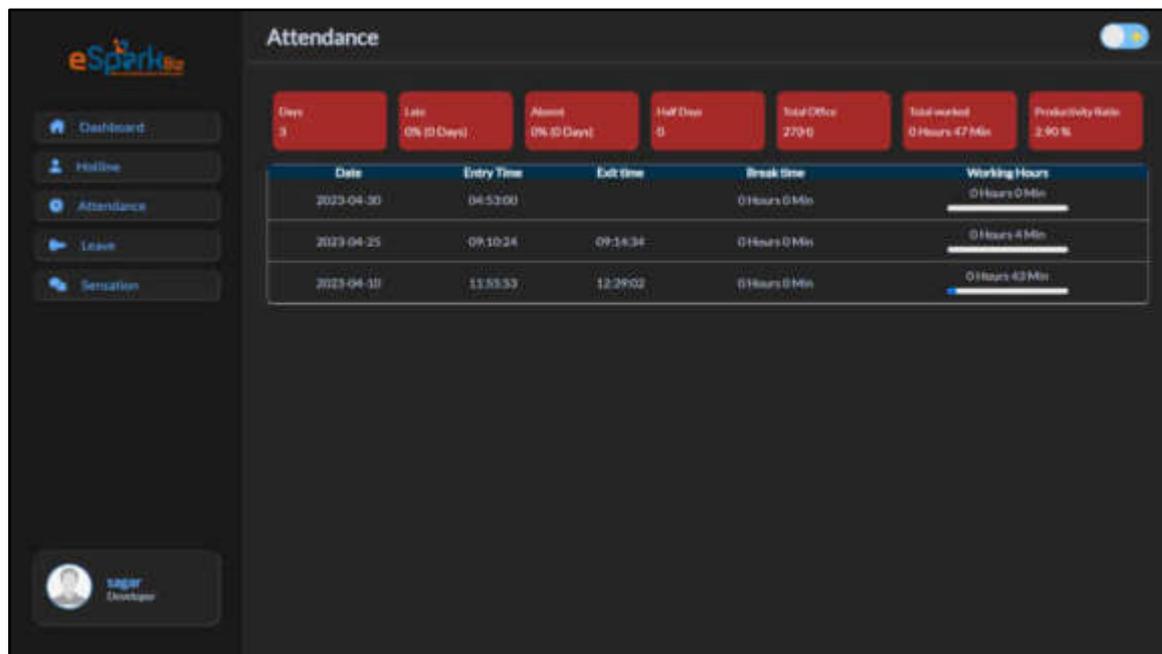
Fig 5.1.16 Attendance Summary Page

- Sensation page
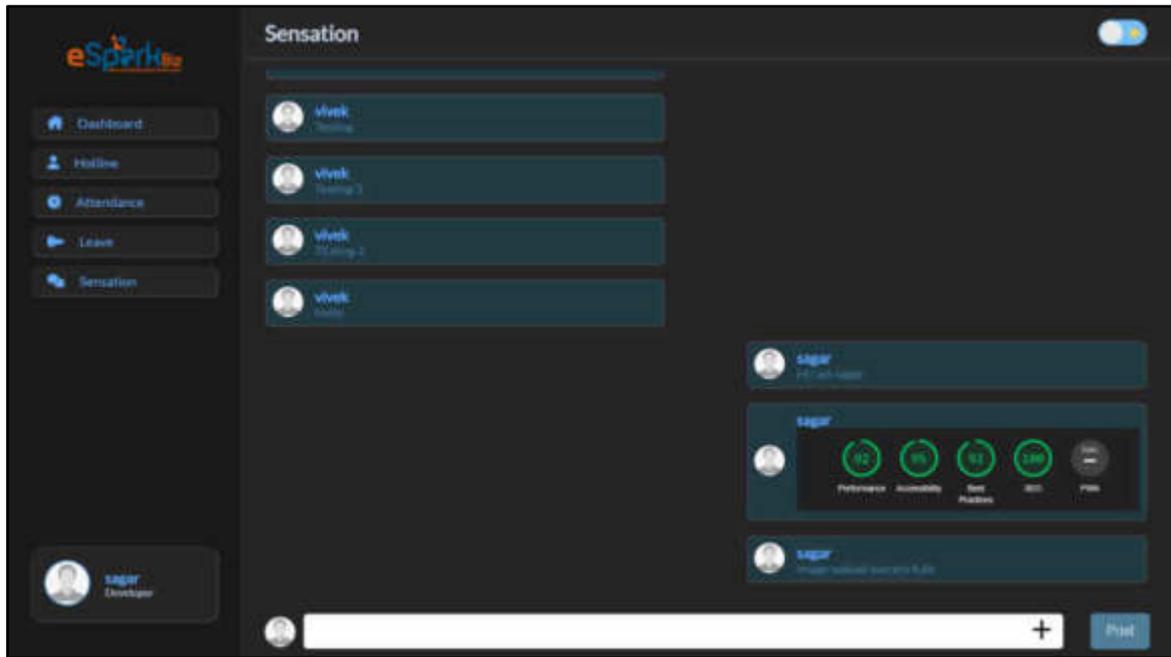
Fig 5.1.17 Sensation Page

- Leave Application page
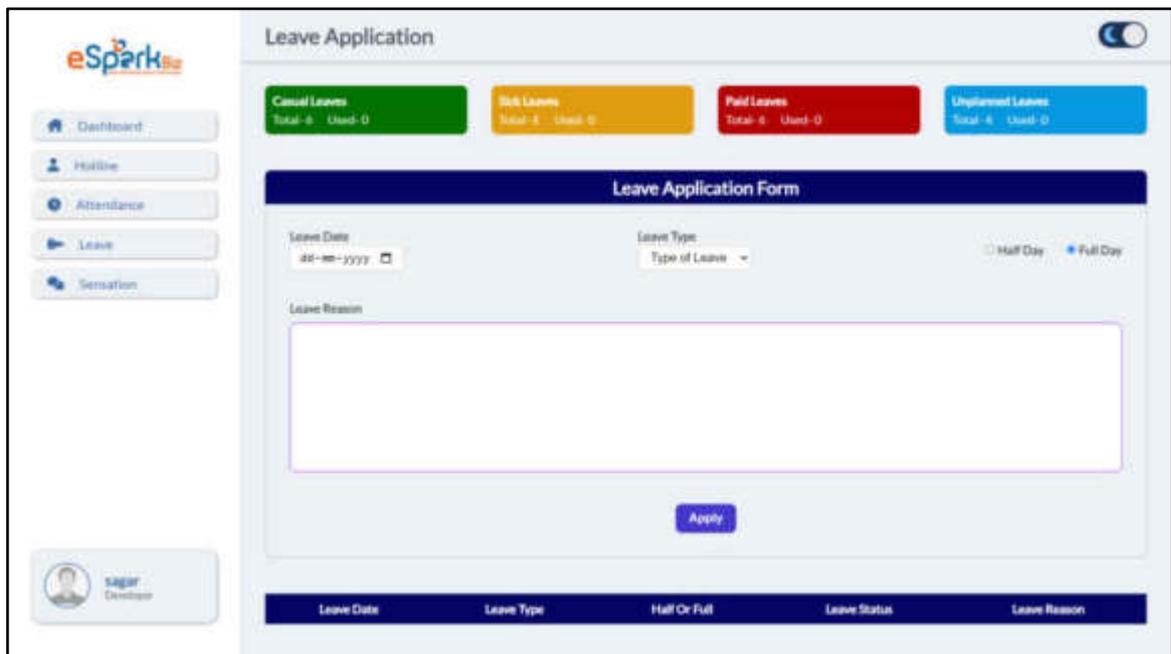
Fig 5.1.18 Leave Application Page

- After applying leave

Fig 5.1.19 Leave Application After Apply Leave

- After approving a leave

Fig 5.1.20 Leave Application Page After Approving Leave

- Only authorized devices are allowed
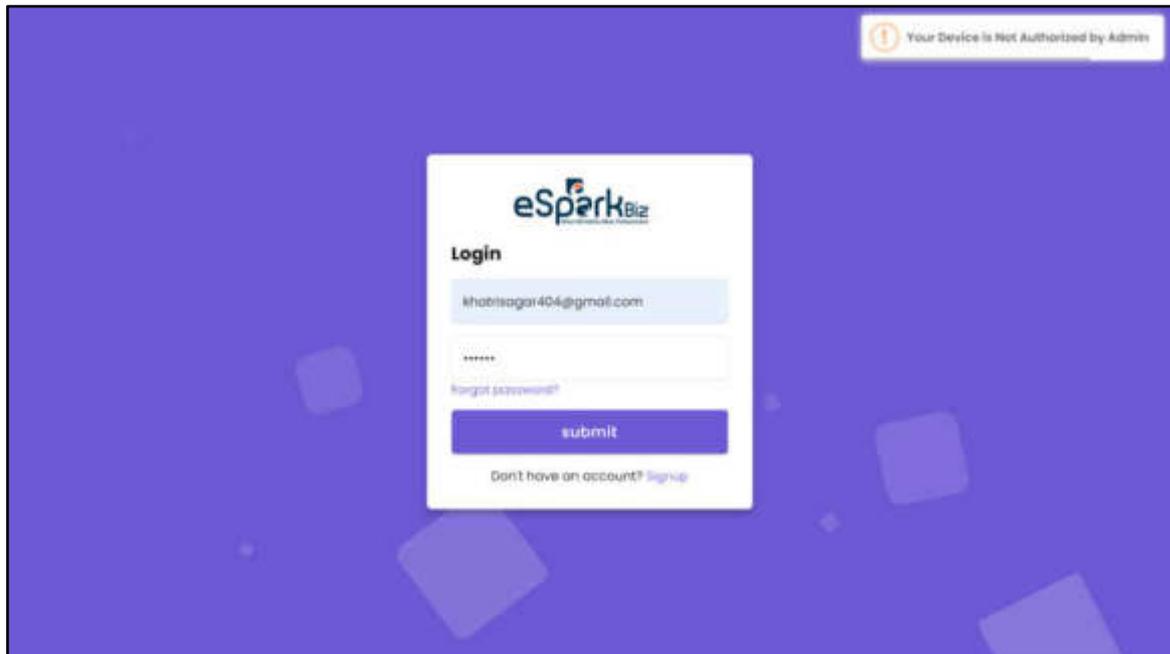
Fig 5.1.21 Authorized Allowed On Login

5.2 Admin

- Admin Employee data page
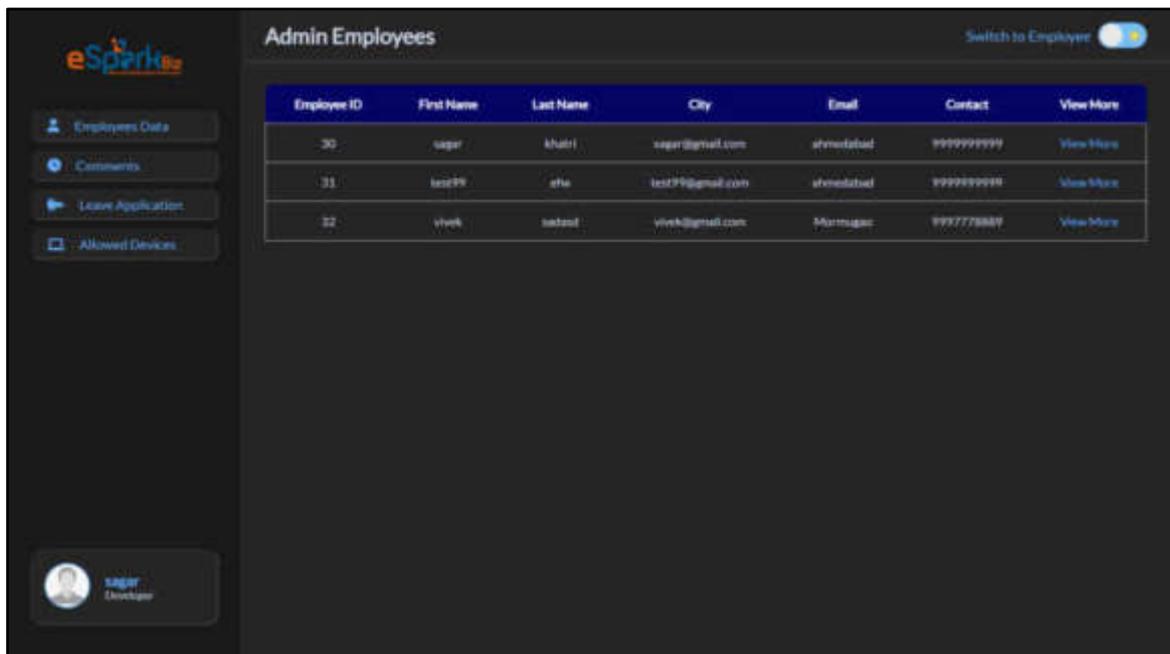
Fig 5.2.1 Admin Employee Data Page
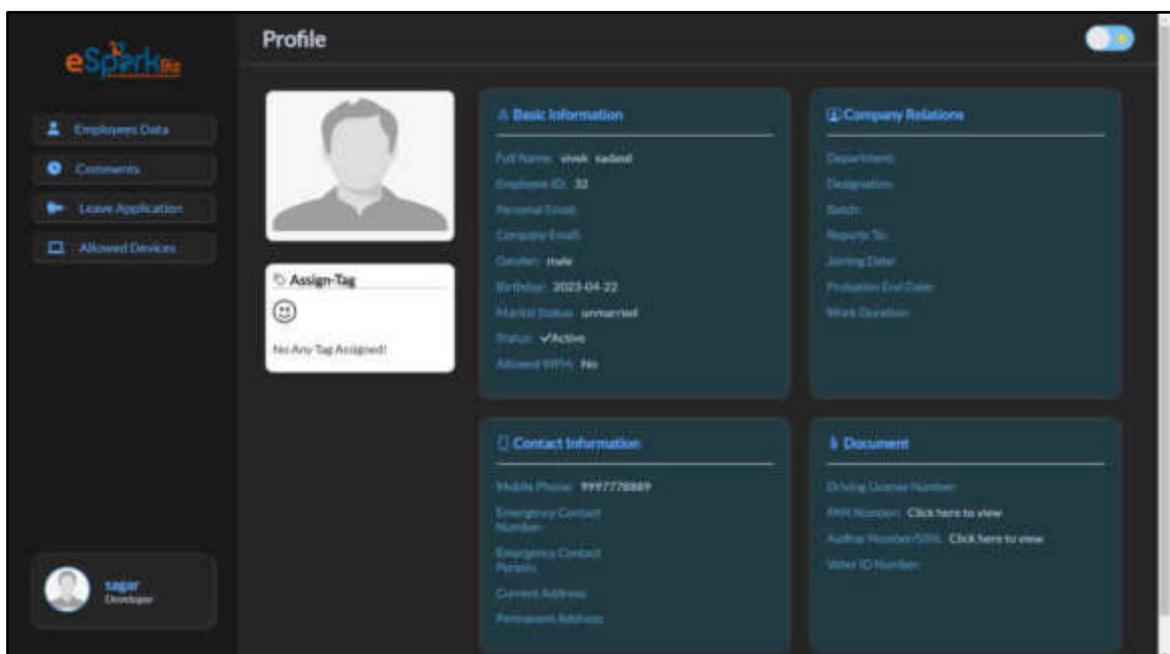
Fig 5.2.2 Admin Single Employee

- Admin read Comment section page
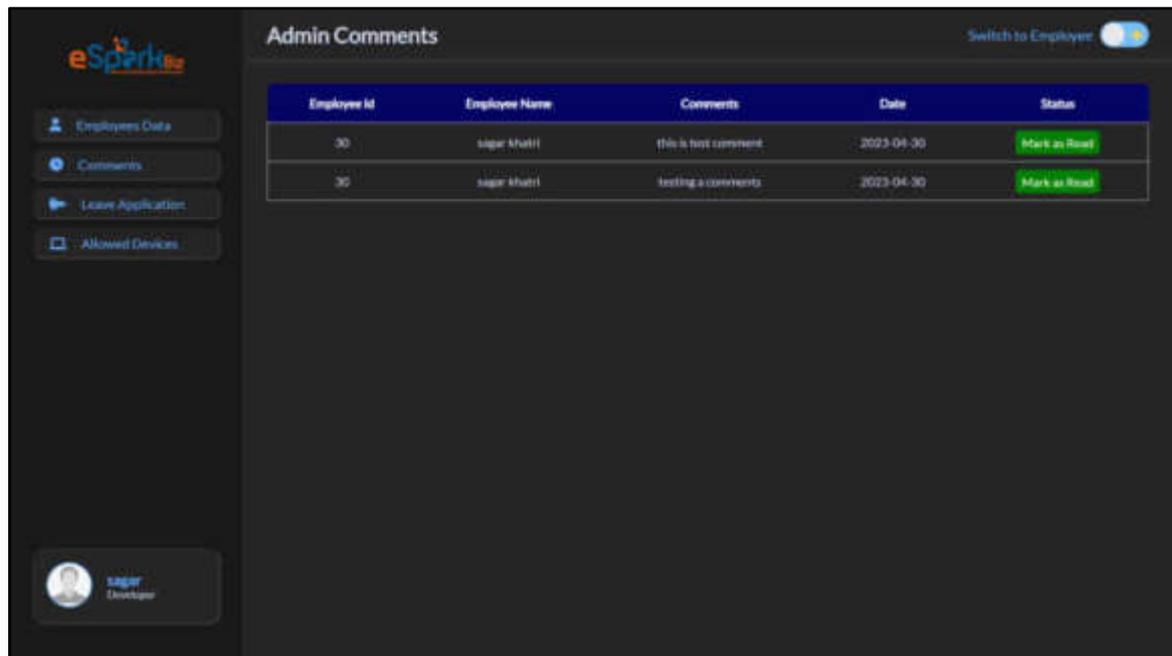
Fig 5.2.3 Admin Comment Section

- Admin Leave Application
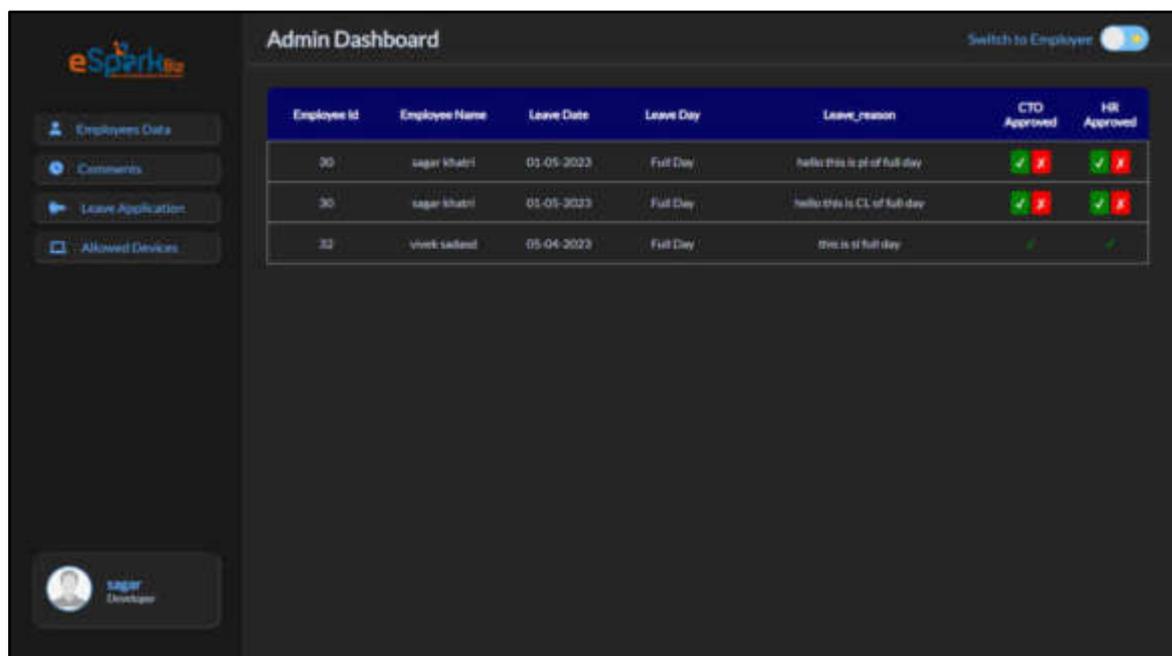
Fig 5.2.4 Admin Leave Application Before Approve

Fig 5.2.5 Admin Leave Application After Approve

- Allowed Devices page

Fig 5.2.6 Admin Allowed Device Page

Chapter 6. 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.

6.1 Testing Methods

6.1.1 Unit Testing

In this phase of the testing technique all the individual modules/components are tested separately. And check that whether it is good to use or not.

There are mainly three types of unit testing

1) Black Box Testing: This testing is proceed to cover an user input output and interface.

2) White Box Testing: This testing is used to test a functional behavior of the system.

3) Grey Box Testing: This technique is used to test a performance and functions of the system.

6.1.2 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.

6.1.3 Validation Testing

It is the process of testing that what we are building is the right product or not?

6.1.4 Verification Testing

It is the process of testing that the created system meets the requirements or not?

And the system have the required functionalities or not.

6.1.3 Validation Testing

Chapter 7. Summary

7.1 Assumptions

1. We assume that the system which will prepare by us is easy to use for all end users.
2. We assume that the owner of the organization will able to maintain the system very easily.
3. We assume that all the features of the system will be work properly in future.

7.2 Limitation

1. Users must have an internet connection to use this system.
2. Our system does not provide notification.
3. Our system does not provide language localization.

7.3 Future Scope

1. Provide better security.
2. System will be kept update or notified about any information to user through notification.
3. In our system we will provide multiple language option to user, so user can select their comfortable language.

7.4 Conclusion

Since the project has been designed exclusively as a project, certain complexities that do faced by any real-life manual problem like total no. of employee, address redundancy etc. are considered in this project. But enhancement to the project can easily be made without changing and programming structure.

7.4 Summary of Internship

In a nutshell, this internship has been an excellent and rewarding experience. I can conclude that there have been a lot I've learnt from my work at eSparkBiz. Needless to say, the technical aspects of the work I've done are not flawless and could be improved and provides enough time. As someone with no prior experience with Node and whatsoever I believe my time spent in research and discovering it was well worth it and contributed to find an acceptable solution to build functional web app.

References

https://developer.mozilla.org/en-US/docs/Web/JavaScript

https://www.w3schools.com/js/DEFAULT.asp

https://www.freecodecamp.org/

INTERNSHIP AT BRAINVIRE INFOTECH PVT. LTD.

A PROJECT REPORT

Submitted by

Manavadariya Nivedi Hasmukhbhai

190390116010

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

S.P.B. Patel Engineering College, Mehsana

Gujarat Technological University, Ahmadabad

May, 2023

S.P.B. Patel Engineering College

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

CERTIFICATE

This is to certify that the project report submitted along with the project entitled **Internship at Brainvire Infotech** has been carried out by **Manavadariya Nivedi Hasmukhbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasana Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

Gujarat Technological University   Saffrony Institute Of Technology

5th May, 2023

TO WHOMSOEVER IT MAY CONCERN

Internship Certificate

This is to certify that **Ms. Nivedi Manavadariya** 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, she has actively participated in various projects and assignments. Also she has shown great potential and a willingness to learn and grow, and we are confident that she will continue to excel in her 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)

Gujarat Technological University   Saffrony Institute Of Technology

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 (20:32:46)

This is to certify that, *Manavadariya Nivedi Hasmukhbhai* (Enrolment Number - 190390116010) working on project entitled with *Employee Management System* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed

Name of Student :	Manavadariya Nivedi Hasmukhbhai	Name of Guide :	Miss. Upasana Pingalashibhai Leela

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, Mehsana

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

DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled Internship at Brainvire Infotech submitted in partial fulfillment for the degree of Bachelor of Engineering in Information Technology to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me at Brainvire Infotech under the supervision of Mr. Nitin Padharia 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

Nivedi Manavadariya

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.

Special thanks to Mr. Vipul Nai, Mr.Dipak Yadav, Mr. Dakshal Jethva, Mr. Hasya, and all the individuals who have assisted me during this journey and without whom this work would not have been possible.

I wish to express my sincere gratitude to my mentor, Ms. Upasana Leela , 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.

List of Figures

LIST OF TABLES

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

Table of Contents

Chapter 1. OVERVIEW OF THE COMPANY

1.1 COMPANY HISTORY:

Founded in 2000, Brainvire 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, and Utah, UAE, Canada, Singapore and India, Brainvire has a 800+ 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 DIFFERENET PRODUCT:

Data engineer

Data Scientist

Devops

Delivery Manager

Technical Lead

AngularJs Developer

ReactJs Developer

NodeJs Developer

Full stack Developer

MEAN Stack Developer

MERN Stack Developer

Talent Acquisition Executive / Sr Talent Acquisition Executive / HR Executive

Business Development Executive

Content Writer

Project Manager

UI/UX Designer

Angular Developer

ReactNative Developer

Business Analyst

Project Lead

Mobile Application Developer

IOS Developer

Flutter/Android Developer

Shopify Developer

Ecommerce Developer

.Net Developer

Digital Marketing

ODOO Developer

Mangento Developer

1.3 CAPACITY OF COMPANY

Since 2000 (20 Years in Digital Transformation)	**Team Size** 1500+ Passionate Professionals	**Infrastructure** More than 2,50,000 Sq. Ft space
Presence In USA, Canada, Middle East, Singapore, India (Mumbai, Ahmedabad)	**Resource Strength** 60% Masters in Computer Science, 30% Bachelors in Computer Science, 10% Masters in Business Administration	**Quality Management** ITIL, Prince2, OWASP
Average Age Between 25-30, Pool of young resource	**Certified Scrum Masters** 15+	**Business Dimensions** 30% Products, 40% Resources, 30% Fixed Cost
Clientele 500+ valuable clients from 40+ countries	**Proud Of** Being a Digital Enabler of Fortune 500 Companies and Top Brands of Verticals	**Websites Designed And Developed** Digitized 1500+ Businesses
Mobile Apps Published 500+ Conceptual App Development	**Client Retention Ratio** 98%	**Proven Track Record** 90% Client Retention with recurring business opportunities
Extensive In-House Programs Knowledge Enhancement Trainings and exposure to recent Technological Trends	**Employee Attrition %** 5%	**% Of Women Employees** 40%

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 retype 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 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 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 employees' 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 **H**yper**t**ext **M**arkup **L**anguage, 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 and XUL.

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 RECTJS

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. It's an open-source and component-based framework responsible for creating the application view layer. ReactJs 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. 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 <u>open source</u>, cross-platform   runtime   environment   for executing <u>JavaScript</u> code. Node is used extensively for server-side programming, making it possible for developers to use JavaScript for <u>client-side</u> and server-side code without needing to learn an additional language. Node is sometimes referred to as a programming language or <u>software development</u> framework, but neither is true; it is strictly a JavaScript <u>runtime</u>.

Node incorporates the V8 JavaScript engine, the same one used in <u>Google Chrome</u> and other browsers. It is written in <u>C++</u> 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 (<u>JIT</u>) processes to speed up execution

2.5.4 EXPRESSJS

ExpressJS 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, ExpressJS 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 ExpressJS 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

Week 1	Understood the basic of linux and used tool like ubuntu,centos.
Week 2	Practice on Linux and Perform some commands to do operation on files by commandpromt
Week 3	Starting the HTML and learn tags and also practice on it and at last created web page by using tags.
Week 4	In this week we practice on CSS and giving some test in that we have sample page and we created same.
Week 5	Understood the JavaScript and some concept like Operators & Expressions,loops.
Week 6	Learn Exception handling, Try( ),Catch( ), async/await, inheritance.
Week 7	Understood the SQL, and use postgressql to perform SQL Queries.

Week 8	In this week we perform sql queries and create table, perform some operators.
Week 9	Understood the python and start from the basics so in this week the condition , loops concept we used.
Week 10	Continue with the python in that we used filter and map concept with the class and async/await function.
Week 11	Starting the oops concept with programming with the abstract method.
Week 12	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

Actor	Features	Description
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 OnlineEmployee 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.

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 RectJs, NodeJs, 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 acomputer 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 theappearance of full motion.

4.2.3 Module Design

To make this software handier and more feasible to the user we have divided it into fewdifferent 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 storingnew user as well as for updating the customer's details. The module is very useful to findthe number of users who registered.

Add Employee module:

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

Figure 3.2 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 andbackground 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 carefullyconsidered 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 NodeJs 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 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).

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, 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 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 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 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.

8.2.4 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.

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INTERNSHIP AT DEMAZE TECHNOLOGY

AN INTERNSHIP REPORT

Submitted by

Vatsal Upendrabhai Modi

190390116011

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information and Technology

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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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 Demaze Technology** has been carried out by **Modi Vatsal Upendrabhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Prof. Upsana Leela

Internal Guide

Sign

Prof. Akshay Kansara

Head of Department

298575

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 : 17 May 2023 (10:30:04)

This is to certify that, *Modi Vatsal Upendrakumar* (Enrolment Number - 190390116011) working on project entitled with *AMAZON CONSULTANCY SERVICE* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed

Name of Student :	Modi Vatsal Upendrakumar	Name of Guide :	Miss. Upasana Pingalashibhai Leela
Signature of Student :	Vatsal	*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.

298575

<u>Company Certificate</u>

Demaze
Technologies

TO WHOM IT MAY CONCERN

Date: 03 May 2023

To,
Vatsal Upendrabhai Modi
G-402, Avani Square, Manoharvilla Cross Road,
Nikol-Naroda road, Nava Naroda, Ahmedabad, 382330

Sub: Internship completion letter.

Dear Vatsal,

This is to certify that Vatsal U. Modi, 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.

Krupal N. Chaudhary
Proprietor

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. Upasna leela** 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.

328628

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 be 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 Employe 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.
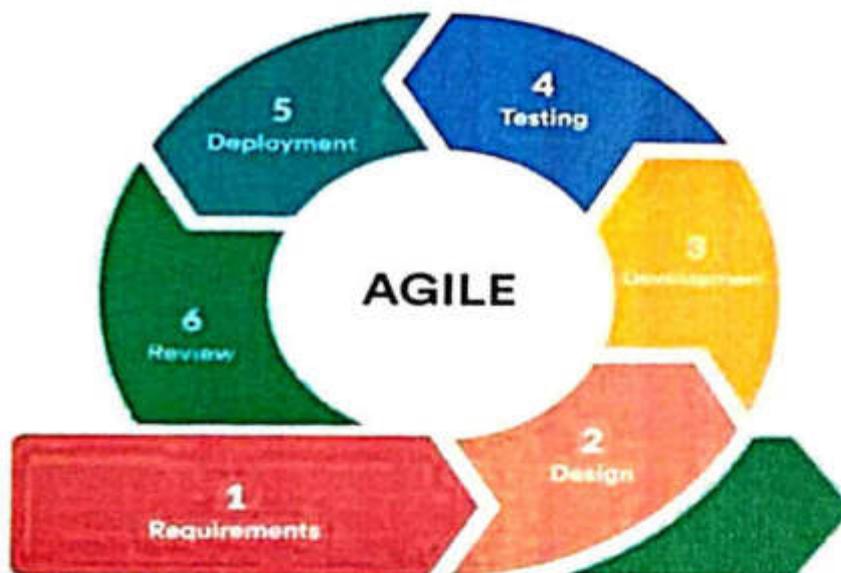
Fig 2.1 Agile Methodology

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 .

. **Screenshot of CSS Box Model**
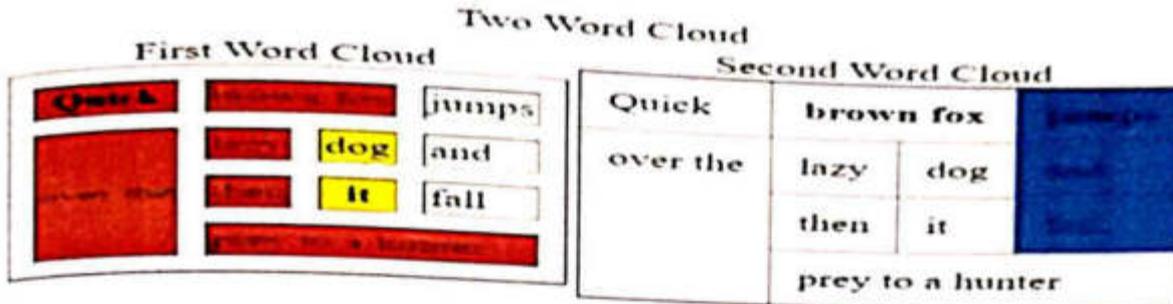
Fig 3.1 Screenshot of CSS Box Model

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.

• **Screenshot of flex task**
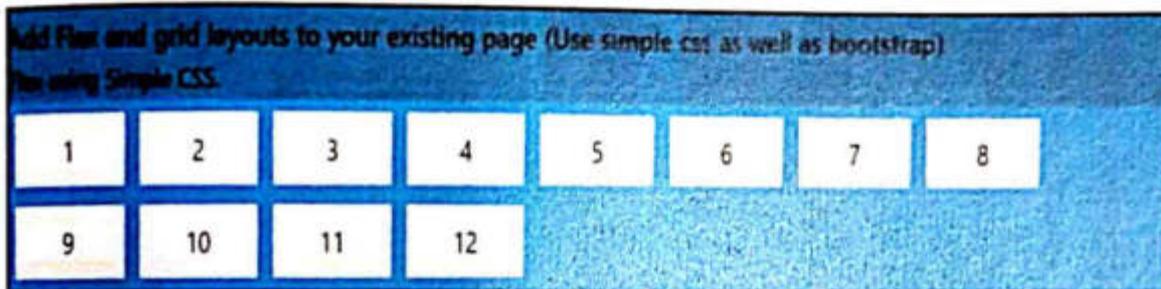
Fig 3.2 Screenshot of flex task

The display: flex; turns the element into a flex container. The justify-content: center the item across the main axis. The align-items: center 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 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

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

3.6 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.

- **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
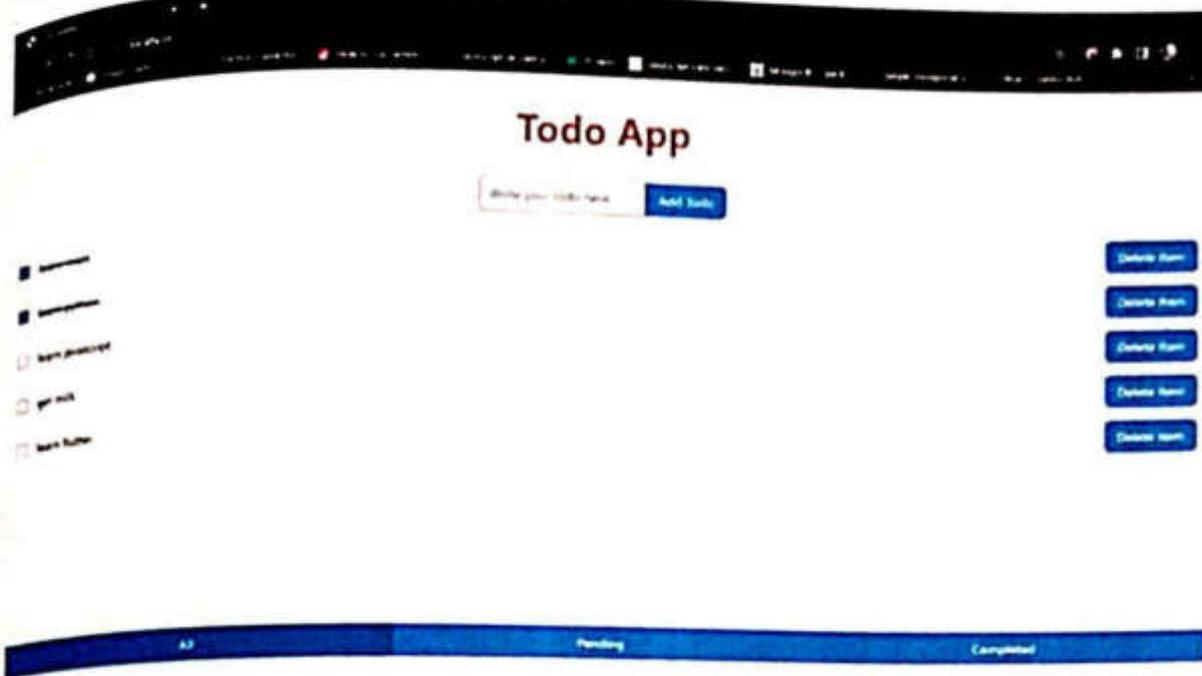
Fig 3.7 Screenshot of Todo App

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.

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 an 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

Introduction to Project

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.
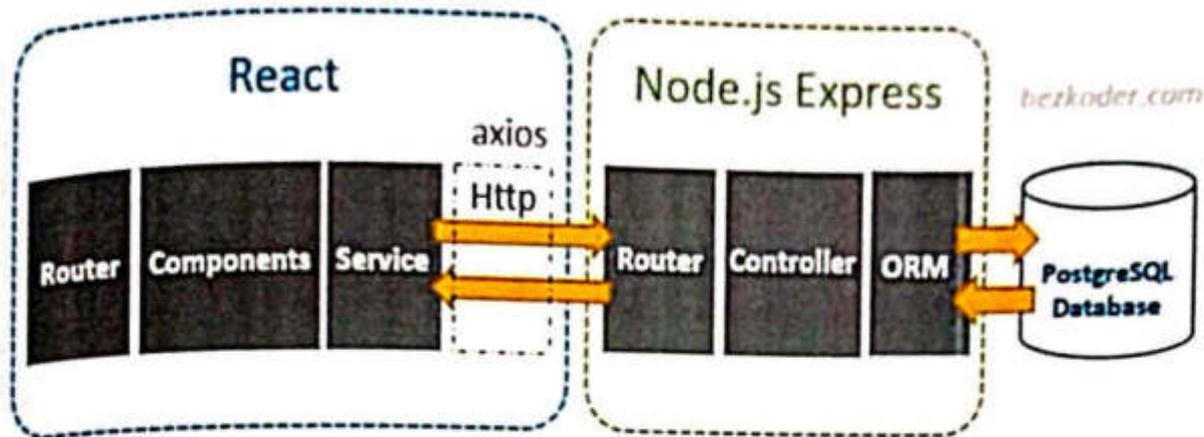
Fig 6.1 Core Architecture

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.
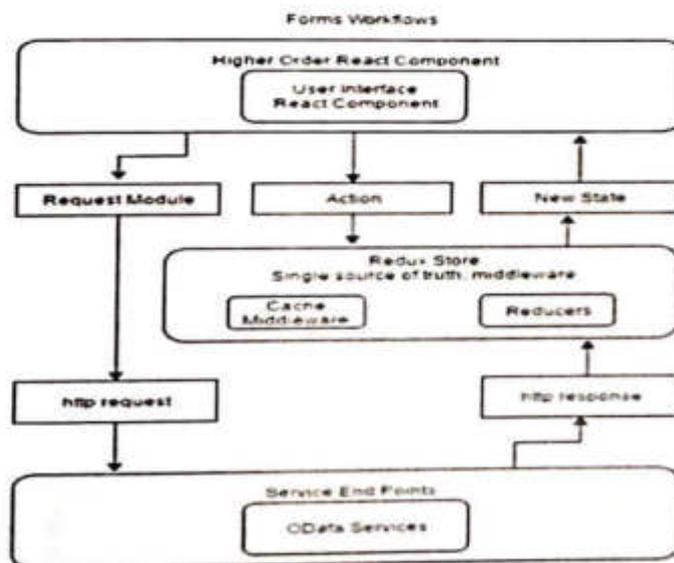
Fig 6.2 UI Architecture

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

- 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

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.
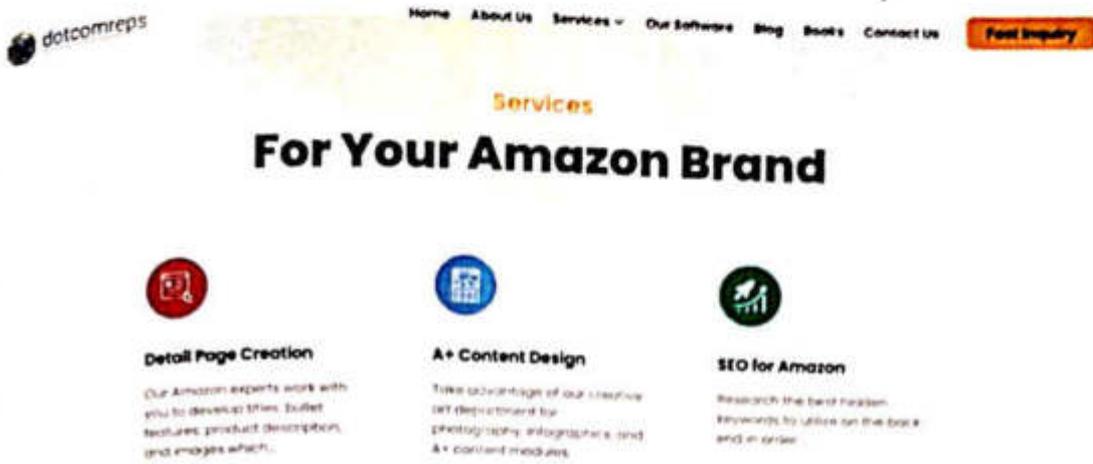
7.3 Screenshot of about us section.

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 whis 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	1. Open website 2. Enter Incorrect Credential 3. Click on Login button.	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	1. Open website 2. Click on service tab on the menu	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	1. Open website 2. Open service page 3. Select service 4. Check out button	User should be able to redirect on the cart page	User should be able to redirect on the cart page	Pass

| Pay button | 1. Open website 2. Select service and checkout 3. Click on pay | User should be able to redirect on payment gateway page | User should be able to redirect on payment gateway page | Pass |
| Package page | 1. Open website and package page 2. Choose 4 services from toggle list | 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 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.

9.3 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

9.4 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.

9.5 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.

9.6 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

1. https://www.w3schools.com/html/
2. https://developer.mozilla.org/en-US/docs/Web/HTML
3. https://www.w3schools.com/w3css/defaulT.asp
4. https://developer.mozilla.org/en-US/docs/Web/CSS/Reference
5. https://javascript.info/
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INTERNSHIP AT ZURU TECH INDIA PVT LTD.

AN INTERNSHIP REPORT

Submitted by

Hetal Ghanshyambhai Narsinghani

190390116012

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 Zuru Tech India Pvt Ltd** has been carried out by **Hetal Ghanshyambhai Narsinghani** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasana Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

ZURU™

Tomorrow
Reimagined

Date: 30-Apr-2023

TO WHOM IT MAY CONCERN

This is to certify that **Hetal G Narsinghani**, a student of the Department of **Information and Technology, Saffrony Institute of Technology, Mehsana** has successfully completed his internship in the field of **Web development in React.js** from 23-Jan-2023 to 30-Apr-2023 (Total number of Weeks: 14) under the guidance of **Mr. Vrajpalsinh Jhala.**

His internship activities include Working on various projects including some basic HTML/CSS projects, Crud operations using JavaScript and Industrial level ReactJS Project. She demonstrated excellent technical skills and significantly contributed to complete these projects.

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 Zuru Tech India Pvt. Ltd.

Authorized Signatory

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CIN: U72900GJ2017FTC096689

DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Zuru Tech India Pvt Ltd** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasana Leela** & **Mr. Vrajpalsinh Jhala (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.   **Hetal Ghanshyambhai Narsinghani**   _____

<u>Acknowledgement</u>

I wish to express my heartfelt appreciation to all those who have contributed to this Internship, both explicitly and implicitly, without the co-operation of whom, it would not have been possible to complete this Internship. I would like to thank our supervisor/mentor **Prof. Upasana Leela** for constantly guiding and showing me the correct path to reach towards our desired goal. Also, I thank her for sharing her experience, knowledge and valuable time with me and showing her concern in my project to make it better. I am grateful to my college Saffrony Institute of Engineering and Technology for providing me all the required resources and a good environment. I also thank all the other faculties who directly or indirectly supported me in making this project successful by sharing their ideas and knowledge. I also extend my sincere thanks to ZURU TECH India Pvt. Ltd. who provided me the working environment and **Mr. Vrajpalsinh Jhala** for constantly guiding me in completing the Internship. At last, I would like to thank my parents and friends who have helped me in making the project work successful.

Abstract

This Web Development Internship involved working as part of a development team on a real-world software project. The focus of the Internship was on gaining practical experience in software development practices and tools, such as agile development, version control, continuous integration and continuous deployment and testing. The project involved developing a web-based application for a client, using a modern tech stack and following industry best practices. Throughout the Internship, I collaborated with experienced developers to learn and apply new skills, such as designing software architecture, writing clean code, and debugging. By the end of the Internship, I had gained valuable hands-on experience in software development, as well as a deeper understanding of the software development process.

List of Figures

List of Tables

ABBREVIATIONS

HTML   Hypertext Markup Language

CSS   Cascading Style Sheet

DOM   Document Object Model

BOM   Browser Object Model

SCSS   Syntactically Awesome Style Sheets

VS Code   Visual Studio Code

JS   JavaScript

Table of Contents

CHAPTER 1: - OVERVIEW OF COMPANY

1.1 ABOUT THE COMPANY

Fig 1.1 ZURU Tech Logo

➢ ZURU Tech is in the process of developing a project that aims to revolutionize the Construction Industry. The company is creating the world's first fully connected building information modeling application that will be linked to an Industry 4.0 capable factory to manufacture any building. The team at ZURU Tech consists of highly skilled and motivated individuals from different parts of the world who are working collaboratively to create a fully integrated construction experience. Furthermore, ZURU Tech's engineering teams are tasked with providing solutions and driving innovation across the entire ZURU Group, which includes Toys, Edge, and Tech.

1.2 MISSION

➢ ZURU Tech is a company that is developing Building Information Modeling (BIM) software for architectural design and manufacturing, intending to create state-of-the-art and fully automated robotic production plants. They have a global team based in several locations, including Modena and Milan (Italy), Ahmedabad and Kolkata (India), Shenzhen (China), and Auckland (New Zealand). ZURU Tech's mission is to provide disruptive solutions for the construction industry by working with world-leading talent to apply the most advanced digital technologies to building processes.

1.3 VISION

➢ ZURU Tech's vision is to revolutionize the construction industry through the development and implementation of cutting-edge digital technologies. They aim to create disruptive solutions that optimize building processes, reduce waste, and

enhance sustainability. By leveraging the power of building information modeling (BIM) software and robotic production plants, ZURU Tech seeks to transform the way buildings are designed, constructed, and maintained. Ultimately, their vision is to improve the built environment and enhance the quality of life for people around the world.

1.4 VALUES

➢ ZURU Tech is a company that values innovation, integrity, collaboration, and autonomy. They believe in the limitless potential of their team to tackle challenges, break conventions, think ahead, and keep learning. ZURU Tech is passionate about creating projects that will have a positive and long-lasting impact, and they strive to maintain the highest standards of integrity in all their endeavors.

➢ The company is driven by a shared vision to develop disruptive solutions for the construction industry, and they place great importance on teamwork and collaboration to achieve this goal. ZURU Tech also places a strong emphasis on autonomy, recognizing that hiring the best people in their field and giving them the necessary tools, resources, and space to excel are critical to their success. They expect their team members to take accountability for their work and be responsible for its outcomes.

1.5 DREAMCATCHER

➢ At ZURU, Dreamcatcher is a central element of their work. The company has more software engineers than any other type of engineer, highlighting their focus on changing the way construction is viewed, ultimately resulting in a simpler, more transparent end-to-end experience and a more affordable and compelling product. Good product design is essential for maximizing the potential of the ZURU Factory and Dreamcatcher Software.

➢ The company has drawn inspiration from Elon Musk's innovative business models and focused on the speed of innovation. They admire Musk's emphasis on vertical integration, problem-solving, and hard work, which has led to successful and unstoppable product-focused companies like Tesla and SpaceX. ZURU applies this approach to everything they do, starting with product design, which prioritizes cost-effectiveness, availability of materials, zero-carbon pathways, scalability, ease of

transportation, ease of assembly, compliance with building codes, and the level of customization required.

1.6   WORK ENVIRONMENT

Fig 1.2 ZURU Tech Work Environment

➢ ZURU Tech prides itself on being a disruptor in the industry, constantly striving for improvement and thinking outside the box. The company's world-changing project is aimed at revolutionizing the building industry, by providing affordable and high-quality housing solutions to address the global housing crisis. ZURU Tech values creativity, recognizing that the most significant challenges require unique and innovative solutions, and they welcome out-of-the-box thinkers to help achieve their goals.

➢ Collaboration is a key aspect of the company's culture, as they believe that a dynamic team working together towards a common mission is essential for success. ZURU Tech's team members bring diverse talents and perspectives to the table, making for a fun, energetic, and collaborative work environment. The company stays on the cutting edge of technology, harnessing machine learning, computer vision, and automation to build the future most innovatively and efficiently.

CHAPTER 2: - OVERVIEW OF DIFFERENT UNIT

2.1 DIFFERENT DEPARTMENTS

1. Online Services
   - ➢ It is an entity which offers the transmission, routing, or providing of connections for digital online communications.

2. Human Resource (HR)
   - ➢ It includes responsibilities such as compensation and benefits, recruitment, retention, firing, and keeping up to date with any laws that may affect the company and its employees.

3. Quality Assurance (QA)
   - ➢ It establishes and maintains set requirements for developing or manufacturing reliable products.

4. Artwork
   - ➢ The team responsible for creating the overall look of a television show or feature film, as determined by the director.

5. Structural Engineering
   - ➢ Their task is to oversee the completion of construction projects and ensure structures are durable and safe.

6. Customer Delight
   - ➢ Their task is to exceed the customer's expectations to create a positive experience with your product or brand.

7. Influencer Research
   - ➢ Their task is to gather data about the target market & consumers and provide a foundation for the work of the creative department and account management.

8. Finance
   - ➢ The department controls the income and expenditure in addition to ensuring effective business running with minimum disruptions.

9. IT & Admin

➢ The department manages office supplies, maintains and updates company databases, organize filing system and even answer queries by employees and clients.

10. Annotation

➢ It involves manually labeling data with relevant information. It is essential for businesses because it enables them to train machine learning models that can automate tasks and improve decision-making.

11. Animation

➢ They produces multiple images called frames, which when sequenced together create an illusion of movement. They tend to work in 2D, 3D model-making or computer-generated animation.

2.2   PROJECT MANAGEMENT PHASES

Regardless of the scope, any project should follow a sequence of actions to be controlled and managed. According to the Project Management Institute (PMI), a typical project management process includes the following phases:

1. Initiation,
2. Planning,
3. Execution,
4. Performance / Monitoring
5. Project Close.

2.3   SEQUENCE OF OPERATION FOR MANUFACTURING OF END PRODUCT

1.   Understanding Client Requirements :

➢ 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. Planning :

➢ The 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.

3. Development :

➢ After sufficient planning comes the development part. In this part, actual software is build by following methods like agile delivery method.

4. Monitoring 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.

5. Release or Deployment :

➢ In this phase, the software is delivered to the client through any hosted service.

6. Maintenance :

➢ This part comes in picture after the final delivery of the software. This phase includes tasks such as working software, bug fixing, latest updates, etc.

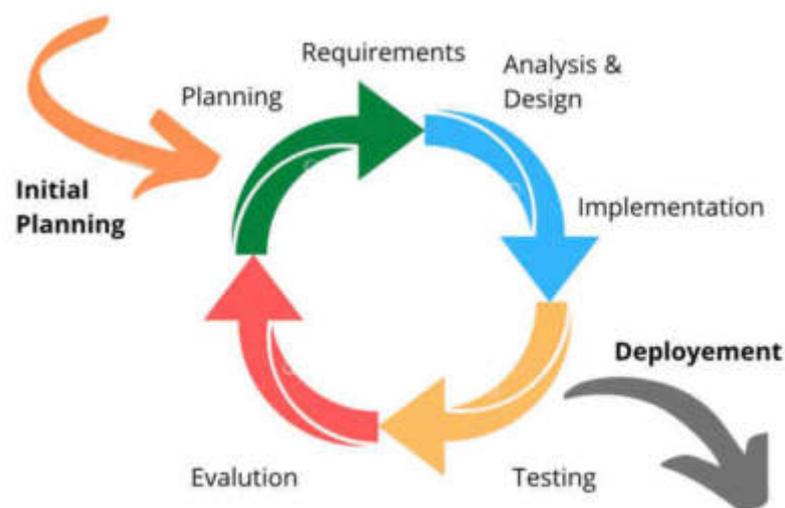## 2.4 DIFFERENT STAGES OF PRODUCTION

Fig. 2.1   Agile Development Cycle

➢ Agile is a methodology used in project management, particularly in software development, that prioritizes flexibility, collaboration, and incremental delivery.

➢ The Agile methodology was created in the early 2000s as a response to the limitations of traditional waterfall project management. Unlike the linear approach of the waterfall, agile emphasizes an iterative and adaptive approach, with continuous feedback and changes throughout the development process. Agile is based on a set of values and principles outlined in the Agile Manifesto, which emphasize individuals and interactions, working software, customer collaboration, and responding to change.

➢ In an agile project, work is divided into small, manageable chunks called sprints, typically lasting between one and four weeks. At the beginning of each sprint, the team decides on a set of goals or user stories to be completed within the sprint. Throughout the sprint, the team holds daily stand-up meetings to review progress, identify any roadblocks, and make any necessary adjustments. At the end of each sprint, the team delivers a working product increment that can be reviewed and tested by stakeholders.

➢ Agile also emphasizes collaboration and communication between team members as well as between the team and stakeholders. This helps to ensure that everyone is aligned on the project goals and that the product meets the needs of the customer or end-user. One of the key benefits of Agile is its flexibility and ability to adapt to changing requirements or priorities. Instead of being locked into a rigid plan, agile allows for changes to be made throughout the project based on feedback and new information.

➢ There are several popular Agile frameworks, including Scrum, Kanban, Crystal and Extreme Programming (XP), each with its unique approach and set of practices. Overall, Agile is a popular methodology in software development and project management due to its focus on collaboration, flexibility, and delivering value to the customer.

CHAPTER 3: - INTERNSHIP MANAGEMENT

3.1 INTERNSHIP SUMMARY

➢ As an Intern in Front-end development, I had the opportunity to gain hands-on experience in creating and enhancing web pages for various products. During my Internship, I worked with web tools and technologies and collaborated with teams and stakeholders to understand user needs and behaviour.

➢ Throughout the Internship, I also had the opportunity to participate in developing web critiques and brainstorming sessions with the team, which helped me to develop my communication and collaboration skills. Additionally, I was able to work on a variety of projects, including mobile apps, websites, and web applications.

➢ Overall, my Internship in Front-end development provided me with valuable experience in the fast-paced and constantly evolving field of Web Development. I gained practical skills that will be beneficial for my future career and was able to learn from experienced designers and developers. I am grateful for the opportunity to have been a part of such a dynamic team, and I look forward to continuing to develop my skills in Front-end development in the future.

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. Accordingly, 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 my skills and build a network with professionals.

3.3 OBJECTIVE

The main objectives of my Internship are as per below:

✧ Developed Communication Skills, Corporate Behavior, and Etiquettes taking Professional World into consideration.

✦ 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 is implemented for Software Development.

✦ Understood the advanced concepts of HTML and CSS.

✦ Learned Basic and Advanced JavaScript and React JS Framework.

3.4 SCOPE

➤ The scope for the Internship role at the 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

➤ Internship Schedule for my Internship started with some basic HTML and ended to Advanced ReactJS concepts. I have gained the knowledge of all and sharpened my skills.

➤ My Internship was divided in the following sections :

✦ Kick-Start of the Journey

✦ Building Confidence

✦ Establishing a Successful Future

3.5.1   Basics of HTML (WEEK-1)

➢ HTML is the standard markup language for Web pages.

  ✧ HTML5 vs Previous Versions.

  ✧ HTML Elements, Attributes, Tables and Forms

  ✧ HTML Links, Images and Lists

  ✧ Multimedia, Embedding and Error handling

  ✧ Meta tags, Canvas, SVG, IFrames, HTML Media etc.   **Fig 3.5.1**

  ✧ Geolocation API, Storage API, Web Socket support, Web Worker API

3.5.2   Basics and Advanced CSS (WEEK-2)

➢ CSS is the language we use to style an HTML document.

➢ CSS describes how HTML elements should be displayed.

  ✧ Types of CSS

  ✧ CSS Modules, Properties and Selectors

  ✧ Box Model, Grid, Flex, Transition, Animation

  ✧ Icons, Gradients and Combinators

  ✧ Media Queries, Web Fonts, Z- Index etc.
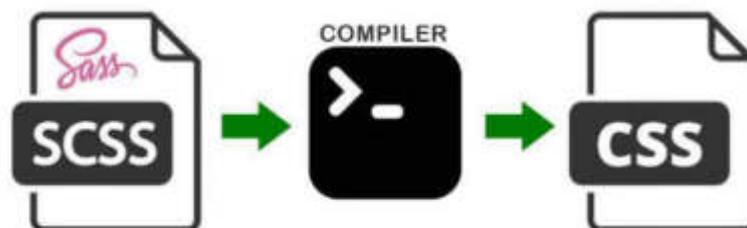
  ✧ SCSS – Advanced CSS with more functionality.

Fig 3.5.2 SCSS Compiler

3.5.3   Hands-On Assignments (WEEK-3)

➢ Figma is a powerful web-based design tool that helps us create anything, websites, applications, logos, and much more.

➢ Understanding the Figma Design is very important for Front-end Developers to develop the website or application.

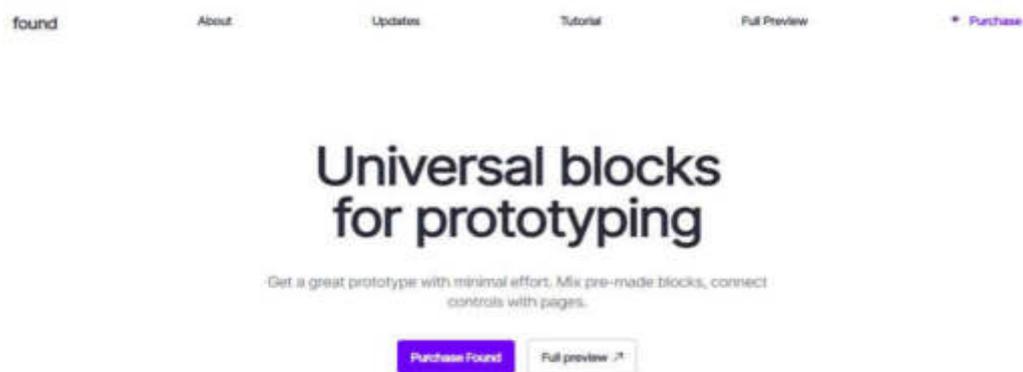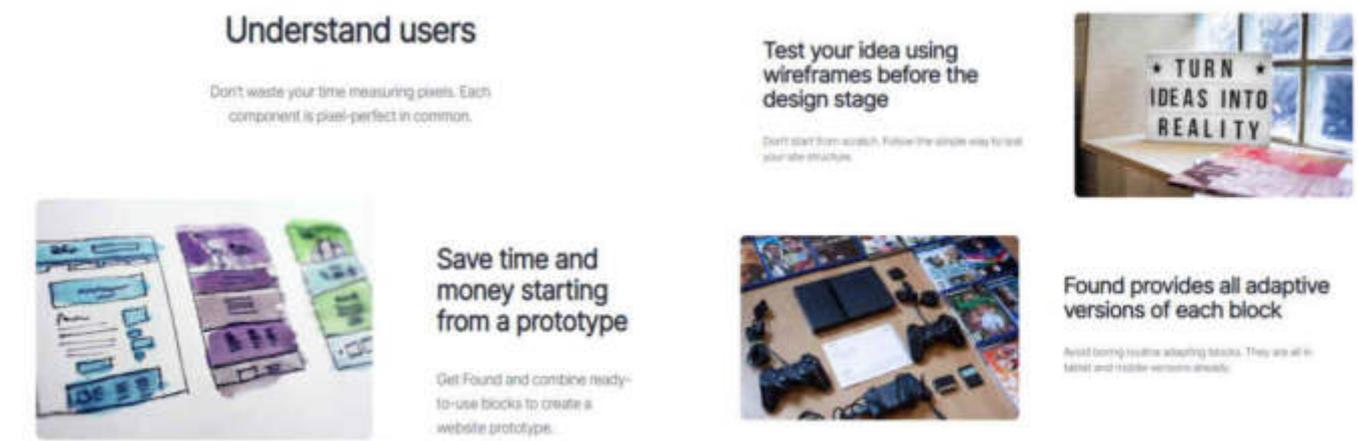➢ I need to create a Landing Page. Screenshots of the outcome are as follows :

Fig 3.5.3.1 Screenshot-1 of Landing Page

3.5.3.2 Screenshot-2 of Landing Page   **3.5.3.3** Screenshot-3 of Landing Page

Fig 3.5.3.4 Screenshot-4 of Landing Page   **Fig 3.5.3.5** Screenshot-5 of Landing Page

Fig 3.5.3.6 Screenshot-6 of Landing Page

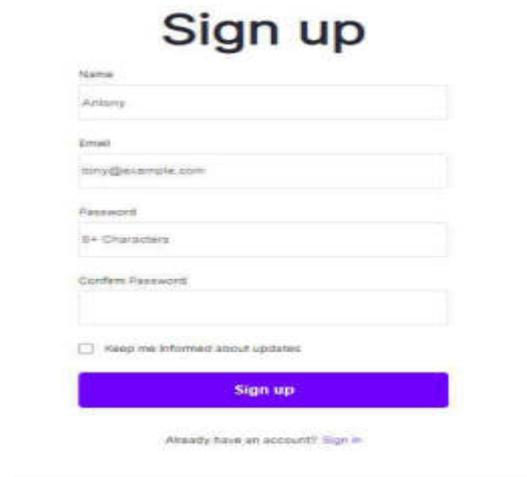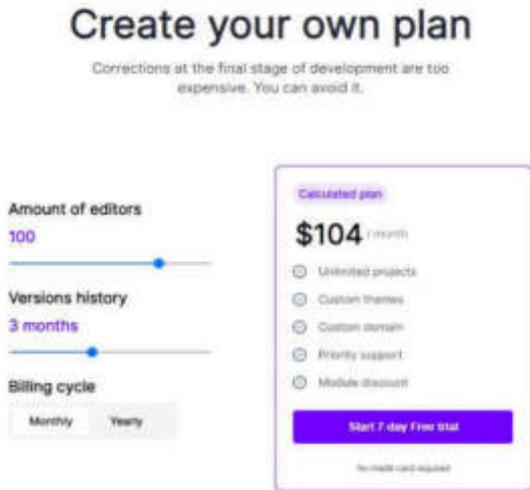**Fig 3.5.3.7** Screenshot-7 of Landing Page

Fig 3.5.3.8 Screenshot-8 of Landing Page　　**Fig 3.5.3.9** Screenshot-9 of Landing Page

3.5.4　Hands-On Assignments (WEEK-4)

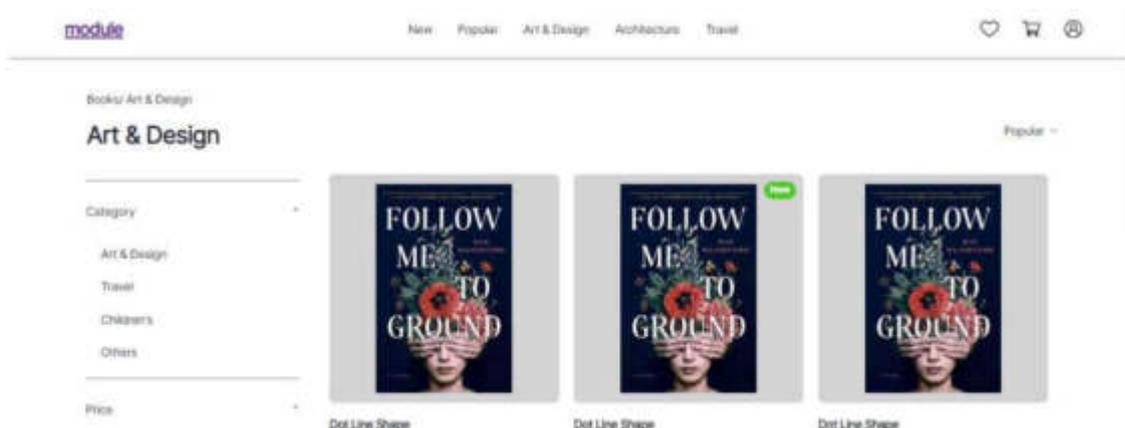➤ Creating various web pages. Screenshots of the outcome are as follows :
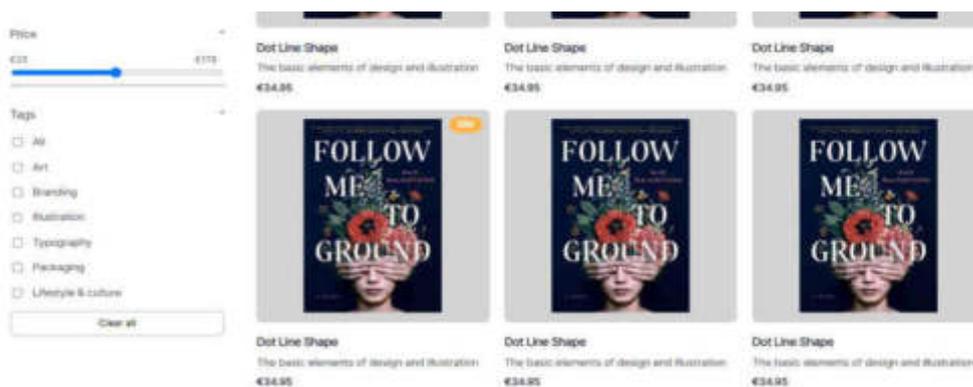

Fig 3.5.4.1 Screenshot-1 of Catelog Page
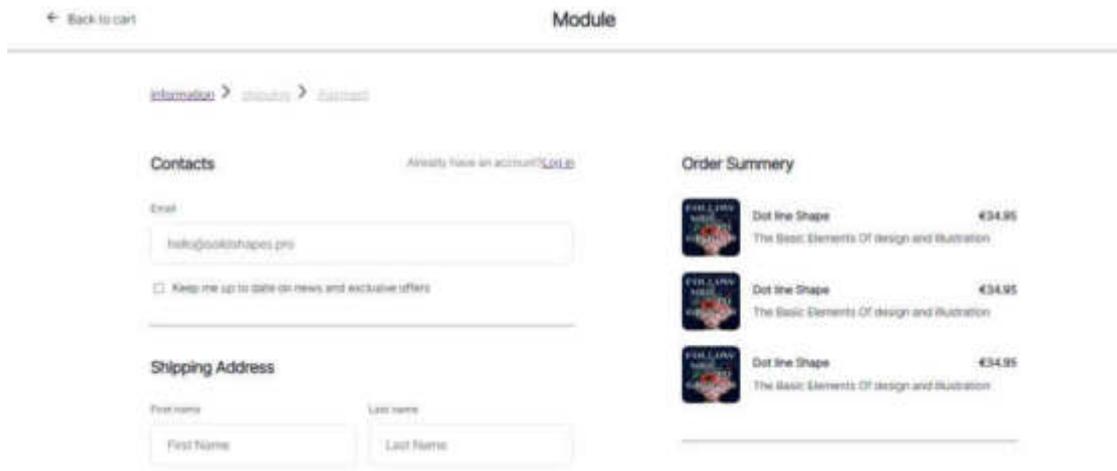

Fig 3.5.4.2 Screenshot-2 of Catelog Page

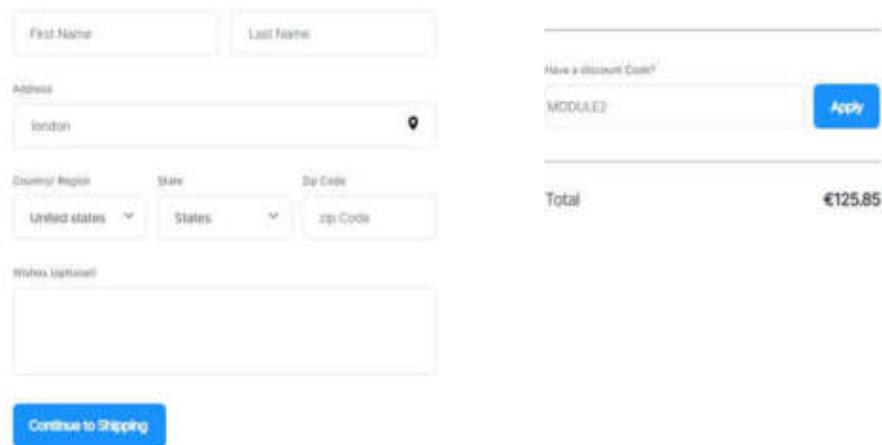**Fig 3.5.4.3** Screenshot-1 of Module Page
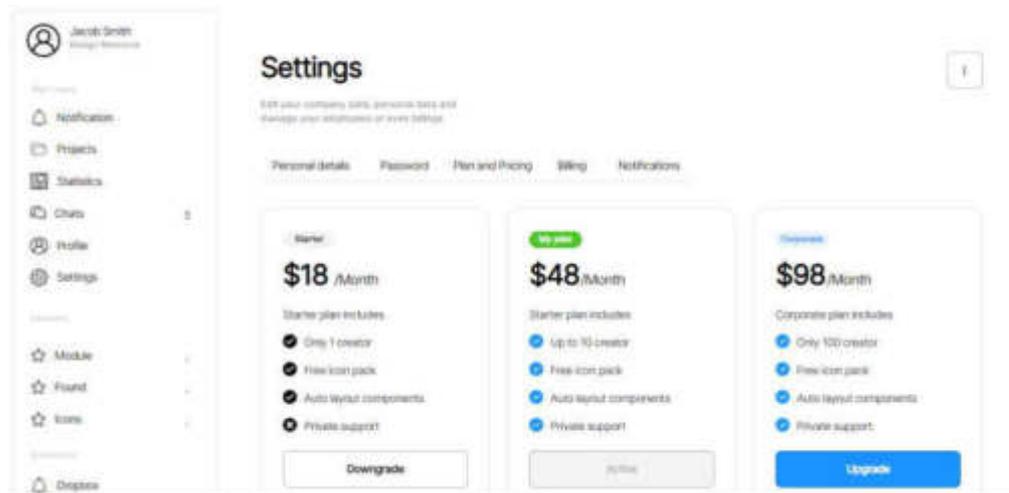

Fig 3.5.4.4 Screenshot-2 of Module Page

Fig 3.5.4.5 Screenshot of Dashboard Page

3.5.5 Git (WEEK-5)

➢ Git is a DevOps tool used for source code management. It is a free and open-source version control system used to handle small to very large projects efficiently.

✧ Git Installation and Configuration.

✧ Git basic commands and their use.

✧ Git using Bash & VS code.

✧ Advanced Commands of Git.

✧ Merge Conflicts & how to resolve it.
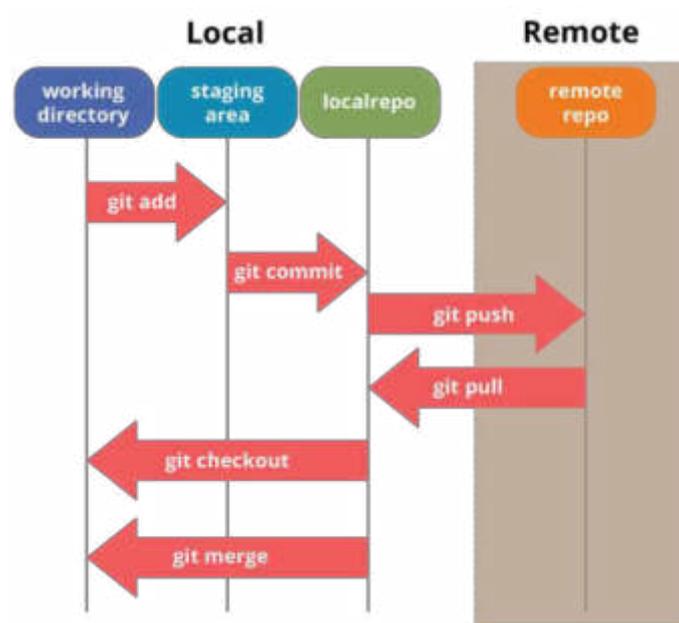

Fig 3.5.5.1 Git Commands

3.5.6 Basics of JavaScript (WEEK-6)

✧ JavaScript statements, comments, operators, arithmetic, assignment, etc.

✧ Data types, Arrays, Objects, Type conversions, etc.

✧ JS variables, functions, loops, operators, flow control, etc.

✧ JS ES versions and features along with differences.

✧ JS Document Object Model (DOM) and Browser Object Model (BOM).

3.5.7   Advanced JavaScript (WEEK-7)

✧   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, Async/await

✧   Events and 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

3.5.8   Hands-On Exercise (WEEK-8)

➢   This project includes the implementation of the CRUD Operations using Javascript.

➢   CRUD stands for Create, Read, Update and Delete.

➢   The registered user can only have the access of the system to view or edit the data.

Fig 3.5.6.1 Screenshot-1 of Log In page   **Fig 3.5.6.2** Screenshot-2 of Log In page

Fig 3.5.6.3 Screenshot of Create page   **Fig 3.5.6.4** Screenshot of Read page
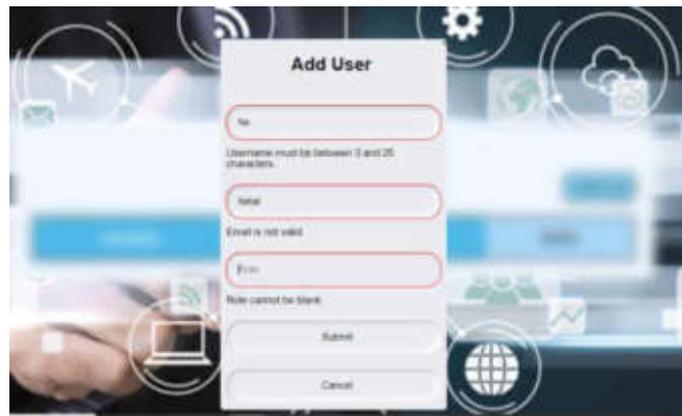
Fig 3.5.6.3 Screenshot of Form Validation

3.5.9 Introduction to ReactJS (WEEK-9)

◇ JavaScript XML (JSX), Elements, Fragment

◇ Components, Props and Stats

◇ Component Life cycle, Uncontrolled vs Controlled Components

◇ React Forms, Routers, Event Handling, etc.

◇ Conditional Rendering, Composition vs Inheritance

◇ Think in React and various types of Hooks

3.5.10 Advanced ReactJS (WEEK-10)

- ✧ Code Splitting, Lazy Loading, Suspense

- ✧ Context APIs, Error Boundaries, Portals, Resuable Hooks, etc.

- ✧ Concept of Refs and Forwading Refs

- ✧ Data binding

- ✧ Authentication and Authorization.

CHAPTER 4 : - SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

➢ 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 back-end and front-end) are Node, Express, Angular, React, and jQuery.

4.2 CHALLENGES FACED

➢ Several challenges in web application development are

- ◇ User interface and experience
- ◇ Scalability
- ◇ Performance
- ◇ Knowledge of framework and platforms
- ◇ Security
- ◇ Confidentiality

4.3 REQUIREMENT 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 Requirement of the 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 demands much reliability and it assures that the information about the user will be secured and accessed according to the rights. The flow is maintained accordingly.

4.5 SELECTION OF SOFTWARE AND JUSTIFICATION

➢ Selection of the right tools in the Software Development is very important and it plays a huge role in the 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 Front-end and Node JS for back-end.

CHAPTER 5 : - INTRODUCTION TO PROJECT

5.1 PROJECT DEFINITION AND OVERVIEW

➢ Create an Real-Estate e-Commerce website for the company services that provides different services like property management, browsing properties based on various criteria such as location, price range, property type, and amenities. It also provides advanced search options and filters to help users narrow down their property search based on specific requirements.

5.2 FEATURES OF WEB APPLICATION

➢ Property Listings:

♦ Allow users to browse and search for properties based on various criteria such as location, price range, property type, and amenities. Each listing should include details like property description, price, square footage, number of rooms, and high-quality images.

➢ Advanced Search and Filters:

♦ Provide advanced search options and filters to help users narrow down their property search based on specific requirements such as the number of bedrooms, bathrooms, proximity to schools, or specific amenities.

➢ Reviews and Ratings:

♦ Allow users to leave reviews and ratings for properties they have visited, providing valuable feedback to other potential buyers and establishing credibility for the listings.

➢ Blog and Resource Center:

♦ Maintain a blog or resource center with articles, guides, and tips related to real estate buying, selling, and investing, offering valuable insights and establishing the website as a reputable source of information.

5.3   TECHNICAL REQUIREMENTS

➢ Front-end: React JS

➢ Code Editor : VS Code

5.4   PERFORMANCE REQUIREMENTS

➢ The outcome of the website can be viewed on any of the web browser.

➢ It is recommended to have the web browser with latest version.

5.5   APPLICATION USE CASES

➢ Ability to browse the data of properties

➢ Ability to show property listing

➢ Provides advanced search options

➢ Filters properties based on the specific requirements

➢ Allow users to leave reviews and ratings

➢ Allow users to compare multiple properties

➢ Provides Online Booking and Scheduling

CHAPTER 6: - SYSTEM ARCHITECTURE
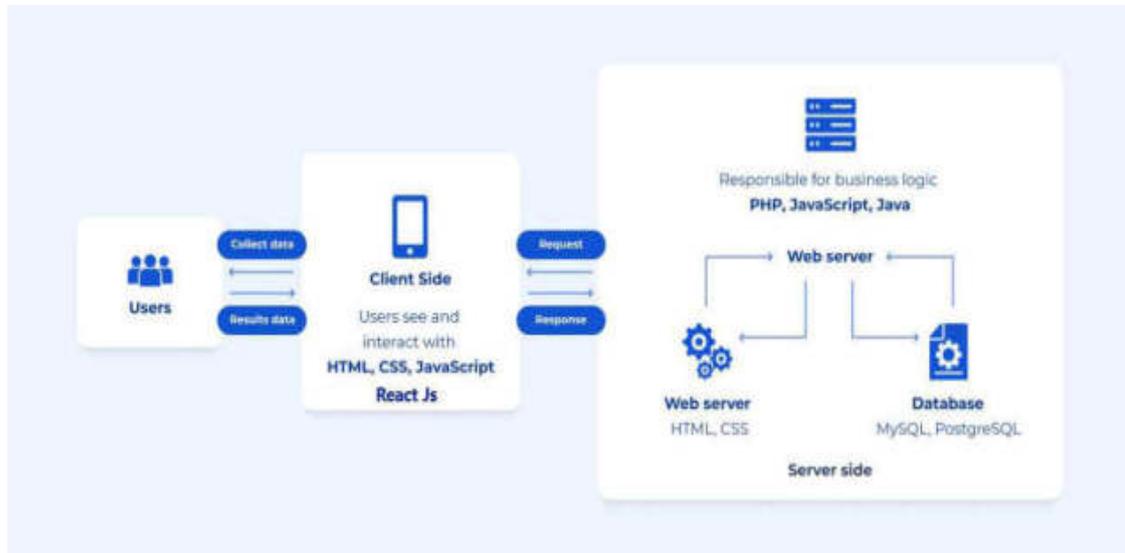
6.1   WEB APP ARCHITECTURE

Fig 6.1 Web App Architecture

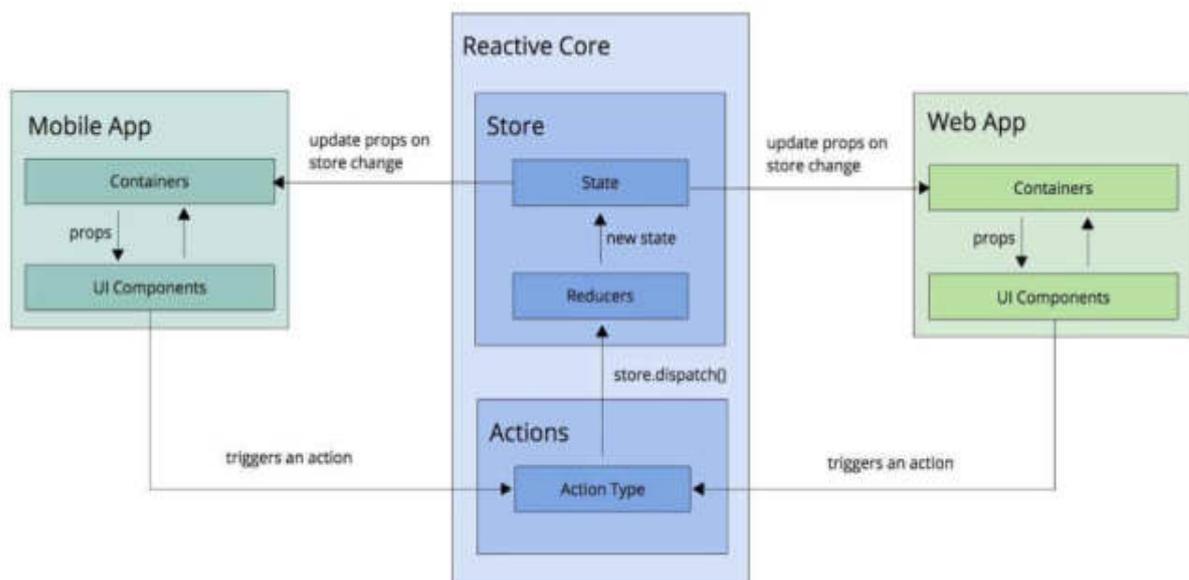## 6.2   REACTIVE CORE ARCHITECTURE

Fig 6.2 Reactive Core Architecture

6.3 FLOW TO BUILD WEB APPLICATION

Fig 6.3 Flow to build Web App

CHAPTER 7: - IMPLEMENTATION

7.1   IMPLEMENTATION PLATFORM

➢ **Title:** Real-Estate Web Application

➢ **Front-end:** React JS

➢ **Code Editor:** Visual Studio Code

7.2   OUTCOMES OF THE PROJECT

➢ The Real-Estate Web App allows users to browse for properties based on various criteria such as location, price range, property type, and amenities. The website can be viewed in both - Dark and Light Mode. The look of the website in Dark Mode is as follows :
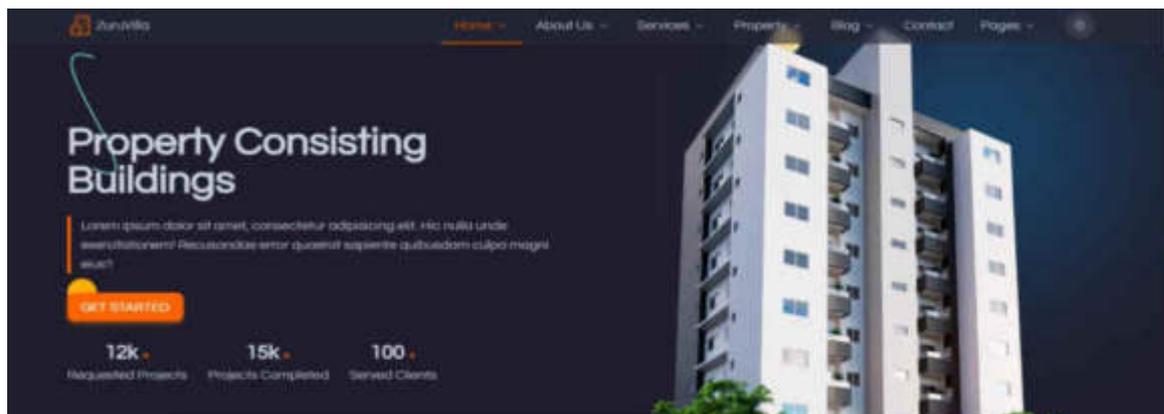
➢ **HOME PAGE-1 :**
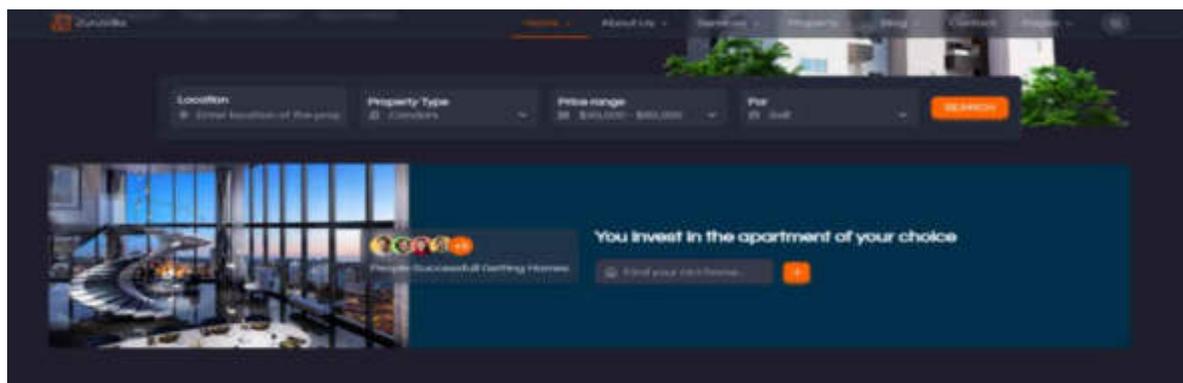

Fig 7.1.1 Screenshot of Main Section
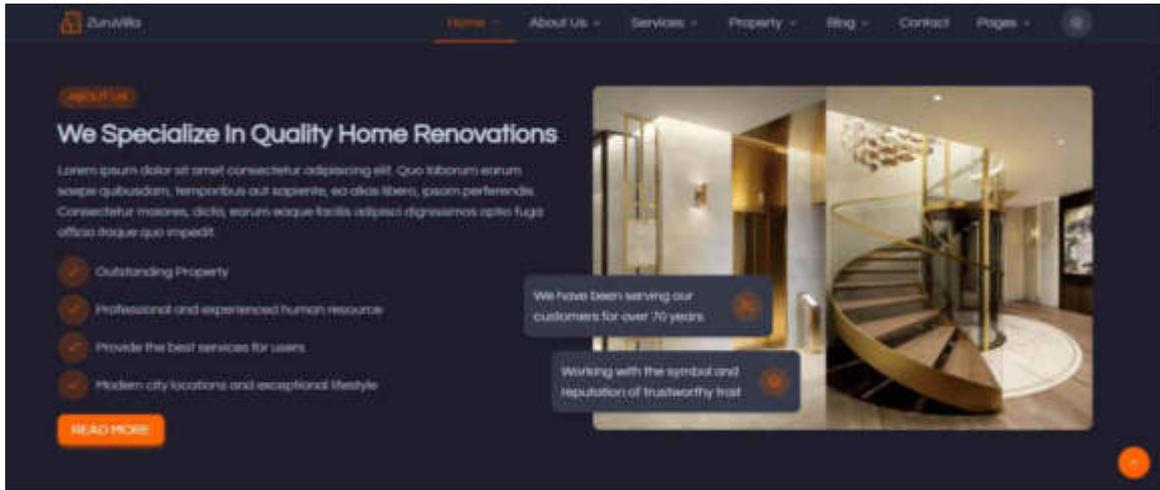

Fig 7.1.2 Screenshot of Search Section

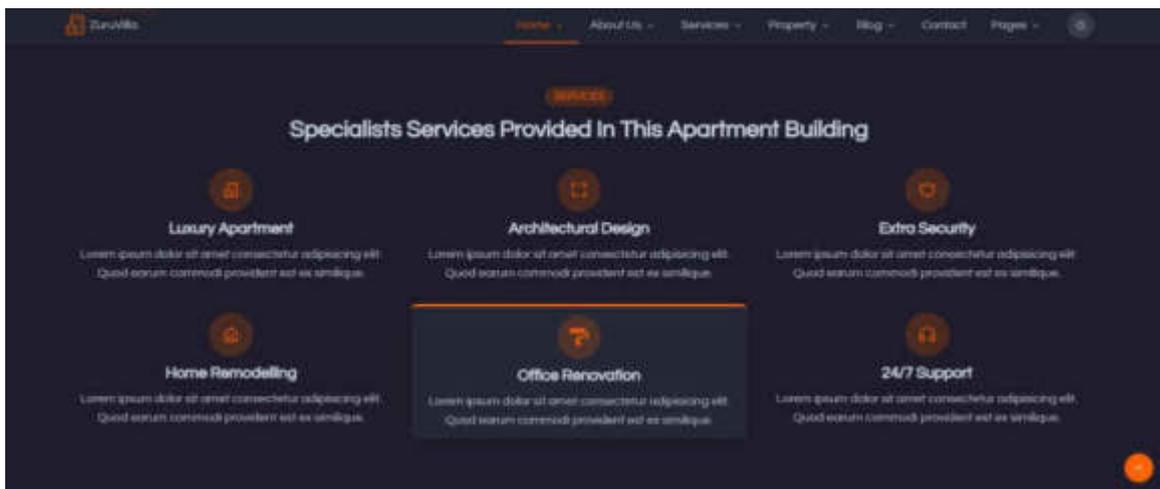**Fig 7.1.3** Screenshot of About Us Section

Fig 7.1.4 Screenshot of Services Section
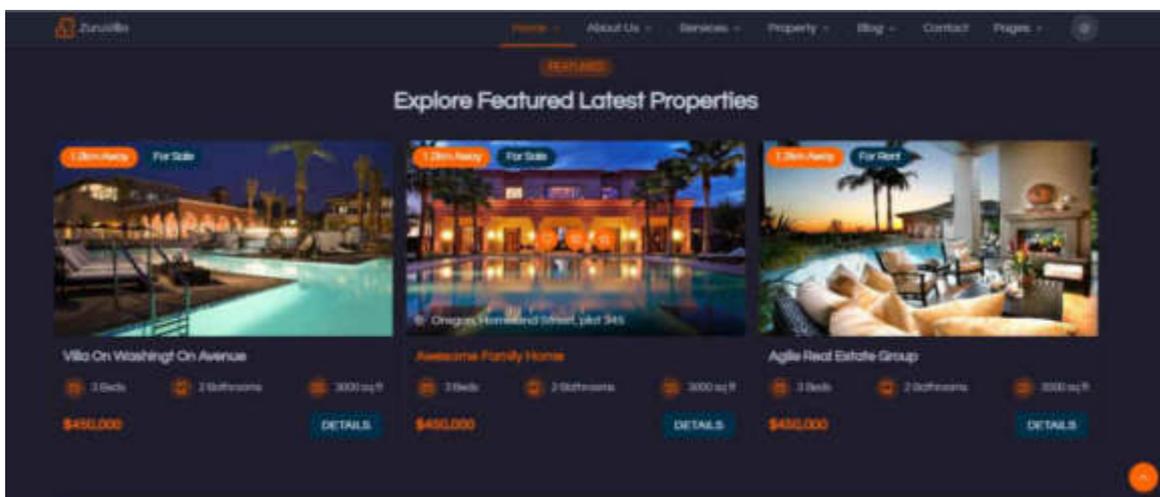
Fig 7.1.5 Screenshot of Featured Section
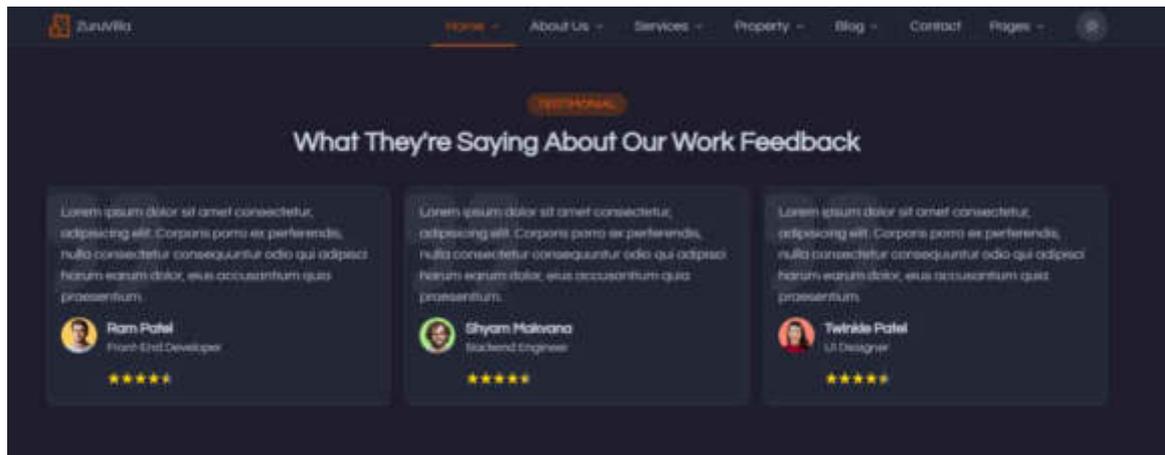
Fig 7.1.6 Screenshot of Testimonial Section
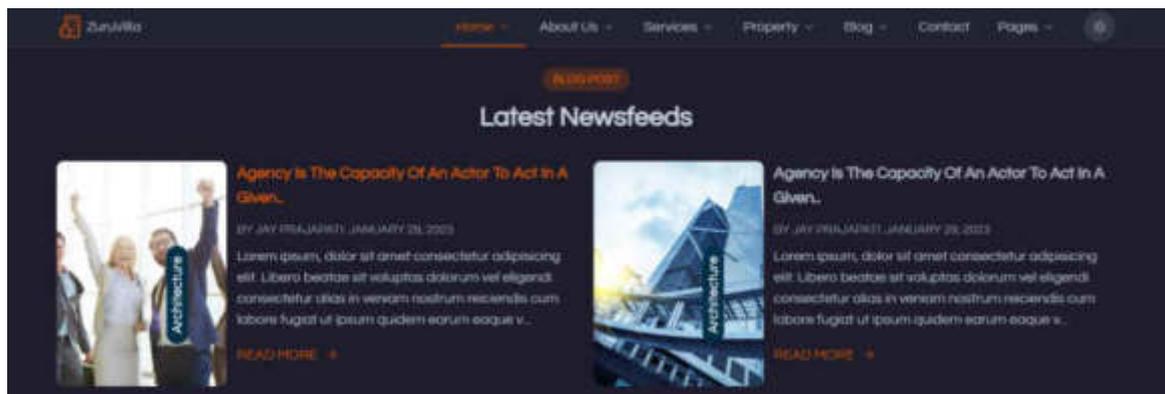
Fig 7.1.7 Screenshot of Blog Post Section

➢ **PROPERTY PAGE :**
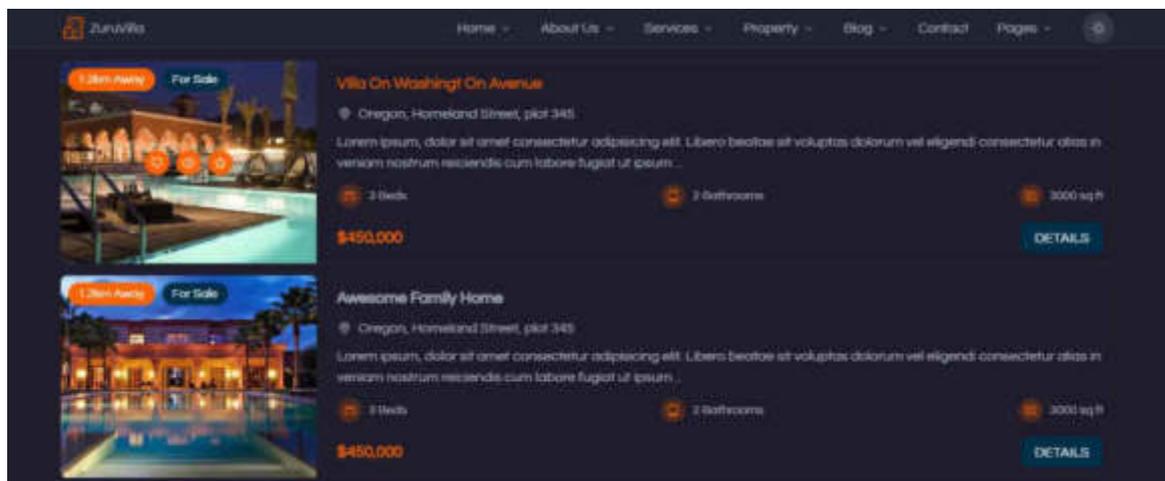
Fig 7.1.8 Screenshot of Property Page

➢ **ABOUT US PAGE :**

Fig 7.1.9 Screenshot-1 of About Us Page

Fig 7.1.10 Screenshot-2 of About Us Page

➢ The look of the website in Light Mode is as follows :

Fig 7.1.11 Screenshot of Portfolio Page
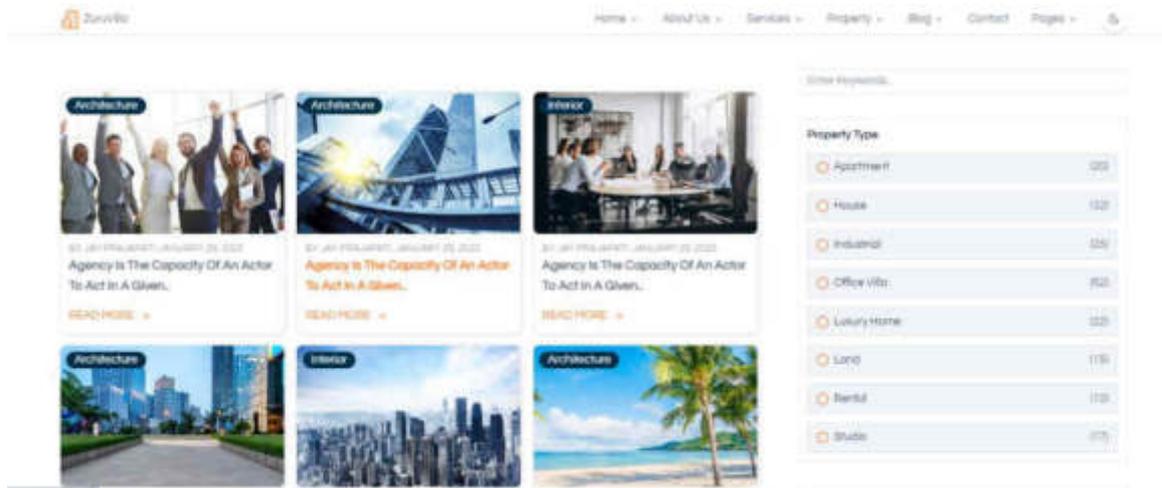
Fig 7.1.11 Screenshot of Blog Page
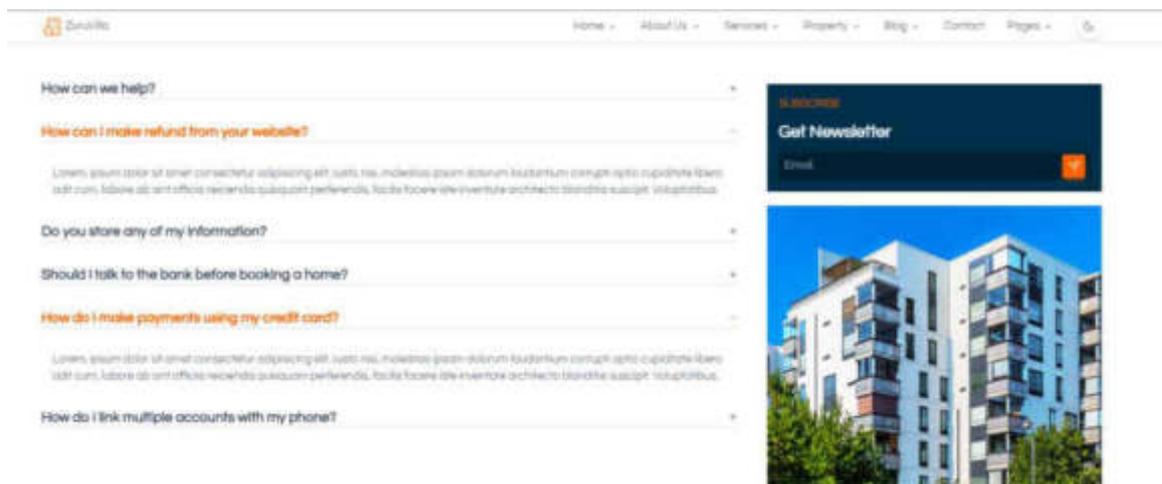
Fig 7.1.12 Screenshot of FAQs Section

CHAPTER 8: - TESTING

8.1   TEST PLAN

➤ A test plan is a detailed document which describes software testing areas and activities. It outlines the test strategy, objectives, test schedule, required resources (human resources, software, and hardware), test estimation and test deliverable.
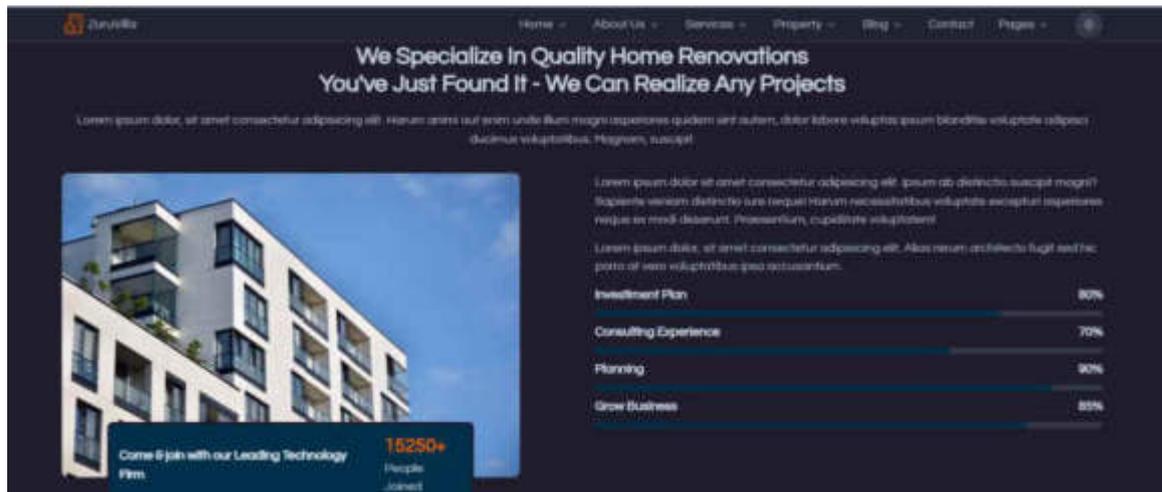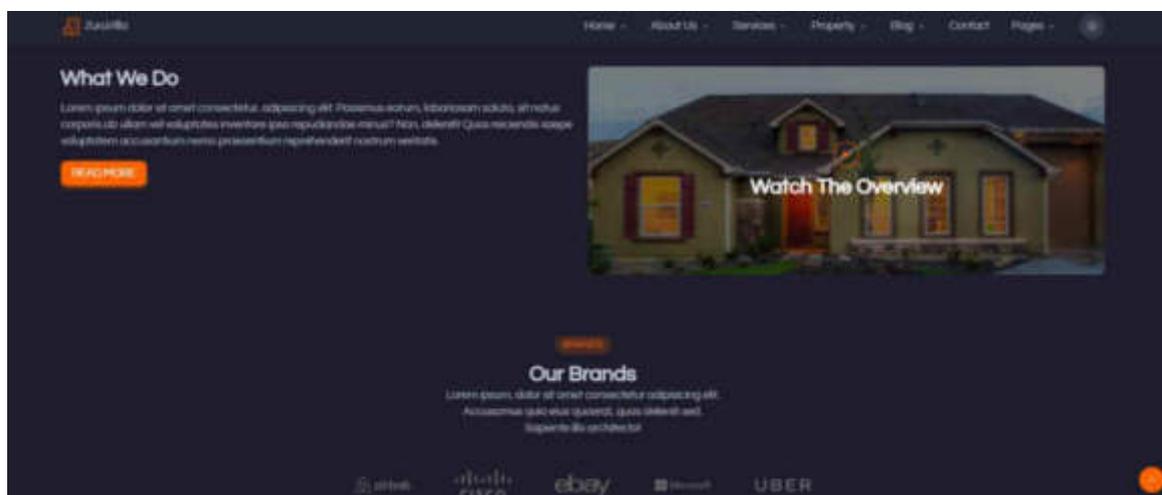
➤ The test plan is a base of every software's testing. It is the most crucial activity which ensures availability of all the lists of planned activities in an appropriate sequence.

Fig 8.1 Test Planning Work flow

8.2   TESTING STRATEGIES

➤ Software Testing is a type of investigation to find out if there is any default or error present in the software so that the errors can be reduced or removed to increase the quality of the software and to check whether it fulfills the specifies requirements or not.

➤ The main objective of software testing is to design the tests in such a way that it systematically finds different types of errors without taking much time and effort so that less time is required for the development of the software. The overall strategy for testing software includes:
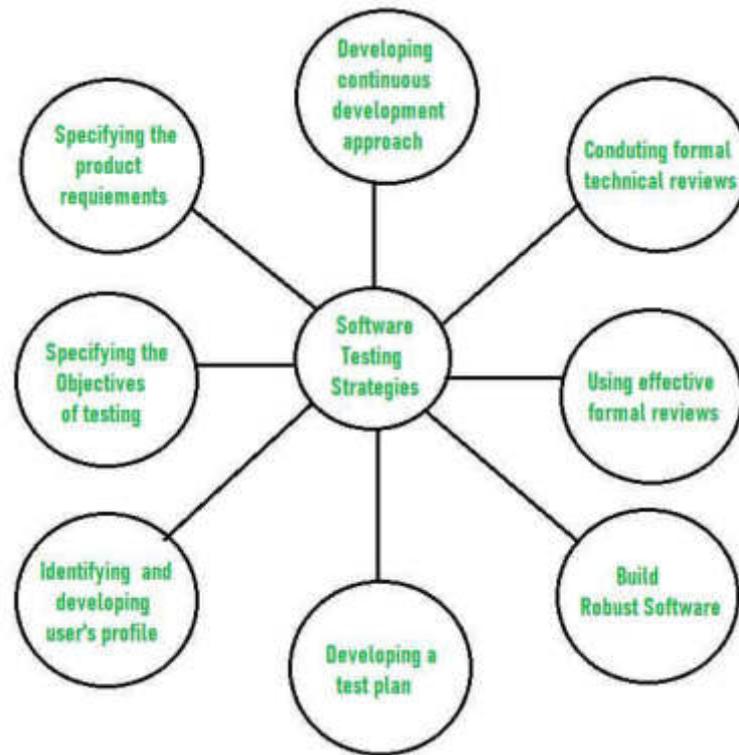
Fig 8.2 Testing Strategies

8.3 TESTING METHODS

➢ The following are common testing strategies:

1) Black box testing – Tests the functionality of the software without looking at the internal code structure.

2) White box testing – Tests the internal code structure and logic of the software.

3) Unit testing – Tests individual units or components of the software to ensure they are functioning as intended.

4) Integration testing – Tests the integration of different components of the software to ensure they work together as a system.

5) Functional testing – Tests the functional requirements of the software to ensure they are met.

6) System testing – Tests the complete software system to ensure it meets the specified requirements.

7) Acceptance testing – Tests the software to ensure it meets the customer's or end-user's expectations.

8) Regression testing – Tests the software after changes or modifications have been made to ensure the changes have not introduced new defects.

9) Performance testing – Tests the software to determine its performance characteristics such as speed, scalability, and stability.

10) Security testing – Tests the software to identify vulnerabilities and ensure it meets security requirements.

8.4 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 routes for all the front end pages.
- ✧ Testing individual module according to requirement.
- ✧ Privacy to the user who becomes the part of System.

CHAPTER 9: - CONCLUSION AND DISCUSSION

9.1 CONCLUSION

➢ In this Internship, I have gained a lot of technical knowledge including HTML, CSS, Git, etc. I have also learned JavaScript, React JS framework along with the enhancement in non-technical skills such as Teamwork, and Communication Skills, etc. This Internship has been proven very helpful for the transition of mine from a College Engineering Student to Software Developer. Also working on a project gave me insight about 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.

➢ The real-estate project was a success, achieving its goal of managing personnel data. 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.

9.2 LEARNING FROM INTERNSHIP

➢ During my Internship at ZURU Tech, 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 app development and digital marketing, I was excited to learn about their work-flow and methodologies.

➢ Throughout the Internship, I was assigned to various tasks where I was able to contribute in delivering new ideas. This hands-on experience was invaluable in helping me develop my technical skills and understand how real-world projects are managed in a professional setting.

9.3 FUTURE ENHANCEMENTS

➢ This project is in the Production phase, Project have been developed well and working on phase.

➢ In Future, we are planning to develop more customized features which are as follows :

➢ User Registration and Profiles:

  ✧ Enable users to create accounts and manage their profiles, including saving favorite properties, tracking property history, and receiving personalized recommendations.

➢ Property Comparisons:

  ✧ Allow users to compare multiple properties side by side, enabling them to assess the features, prices, and specifications of different properties to make an informed decision.

➢ Online Booking and Scheduling:

  ✧ Allow users to schedule property viewings or appointments with real estate agents directly through the website, streamlining the booking process.

➢ Virtual Tours and 3D Walkthroughs:

  ✧ Incorporate virtual tours or 3D walkthroughs of properties, allowing users to explore properties remotely and get a realistic feel for the space.

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[2]   "W3Schools" [https://www.w3schools.com/]

[3]   "MDN Docs" [https://developer.mozilla.org/en-US/]

[4]   "Javatpoint" [https://www.javatpoint.com/]

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[6]
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[9]   "GeeksforGeeks" [https://www.geeksforgeeks.org/software-testing-strategies/]

INTERNSHIP AT FLUSOCIAL PVT LTD.

AN INTERNSHIP REPORT

Submitted by

HITESHKUMAR KAMLESHBHAI PAL

190390116013

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 FLUSOCIAL MARKETING** has been carried out by **HITESHKUMAR KAMLESHBHAI PAL** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasna Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

Flu Social

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
Info@flusocial.com

January 20, 2023

OFFER LETTER

Subject: Internship Confirmation Letter for Hiteshkumar Kamleshbhai Pal

Dear Sir/Ma'am,

This is to certify that Mr. Hiteshkumar Kamleshbhai Pal, student of Information & Technology Engineering in S.P.B.Patel Engineering College (Saffrony Institute of Technology). Semester 8 has been successfully allocated to his Internship from Flu Social.

Details of student are as below:

Name of the student: Hiteshkumar Kamleshbhai Pal

College: Gujarat Technological University (S.P.B.Patel Engineering College (Saffrony Institute of Technology))

Course: Bachelor of Engineering

Branch: Information & Technology Engineering

Enrollment Number: 190390116013

Project In: Web Development & SEO, eComm Platform

Project Description: WordPress Development with HTML,CSS & PHP, Digital Marketing, SEO, Graphics Designing & Content Creation.
An Online eCommerce Platform for IT Services /Reseller Global Platform.

Project Guide: Yash Patel

Technology: WordPress + Woocommerce with Yoast SEO, Screaming Frog, UberSuggest, Google Analytics, WebMaster, Hostinger Tools, CloudFlare, Facebook Business Ads Manager.

Duration: 12 Weeks (Starting from 23 Jan 2023)

We are confident that he will be able to make a significant contribution to the success of our company.

Best regards,

Dron Joshi (Founder & CEO)

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 **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasna Leela** & **Mr. 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. **Hiteshkumar Kamleshbhai Pal**   _____

ACKNOWLEDGMENT

I would like to express my deepest appreciation to all those who provided me the possibility to complete this report. A special gratitude I give to our final year project guide **Mr**. **Yash Patel** whose contribution in stimulating suggestions and encouragement, helped me to coordinate my project especially in writing this report.

Furthermore, I would also like to acknowledge with much appreciation the crucial role of the internal guide **Prof. Upasana Leela**, who gave the permission to use all required equipment and the necessary materials to complete the task **"ONLINE JOB PORTAL".** A special thanks goes to my HOD **Prof. Akshay Kansara**, who help me to understand the parts and gave suggestion about the task **"ONLINE JOB PORTAL".** Last but not least, many thanks go to the head of the project, **Mr. Drone Joshi** whose have invested his full effort in guiding the team in achieving the goal. I have to appreciate the guidance given by other supervisor as well as the panels especially in my project presentation that has improved my presentation skills thanks to their comment and advices.

Abstract

This final year report presents the design and development of an online job portal using WordPress. The aim of this project is to create a user-friendly and efficient platform that connects job seekers and employers, facilitating the job search and recruitment process. The required software and hardware are easily available and easy to work with.

Online Job Portal. As described above, can lead to error free. secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus, it will help organization in better utilization of resources.

The design phase of the project focuses on creating a visually appealing and intuitive user interface that caters to the needs of both job seekers and employers.

The development phase involves the implementation of core features such as job listing, candidate profiles, employer profiles, and search functionality.

In conclusion, the online job portal developed using WordPress provides an effective solution for job seekers and employers to connect in a streamlined and efficient manner. The project demonstrates the capabilities of WordPress as a versatile platform for building customized web applications, particularly in the field of job recruitment.

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Chapter 1. INTRODUCTION OF COMPANY

1.1 COMPANY PROFILE:

- FluSocial was founded in 2018 by Mr. Drone Joshi in Mehsana. The company's first product was Bliss Aquaworld' site developing, initially developed for use in waterpark advertisement.
- The company began as an in-house venture of at Drone sir's house, Mehsana. Then moved headquarters to Saket business hub, mehsana.
- Covid-19 had a significant impact on the company with many of its factor to customer. FluSocial's reconstruction efforts after the Covid were hindered by the many competitors but it still makes place in market with foreign customer also.
- We are the Veteran of the IT industry. To be precise, we are a GO-GETTER team of Thinkers, Designers, and Developers. We consist of a team of eager beavers, who put their 100 percent effort in doing things successfully.

1.2 MISSION AND VISION OF THE COMPANY:

- FluSocial Marketing that provides Digital Marketing, E-Commerce, Designing & management tools software & solutions help you find. FluSocial advanced Marketing to create your professional site in an instant Experience freedom and the ability to customize your site as you wish!
- Our company provides website developing, branding, digital marketing.
- Also, company visions to make one headquarter in different nation.
- Company's main motto is Vocal for Local branding. Our Company provides facilities to possible local shops by creating websites and branding in minimum charges.
- Our company visions to collaborate with TV commercials and radio communications in case of online marketing purpose.
- The key trends are analyzed and according to trends the work allotted to the team and also accepting the projects related to the future aspects.
- We suggest Social Media posts, festival post, all type of posts in creative manner.
- PPC (Pay-per-click) is a sort of web promoting which includes publicists paying a charge each time one of their promotions is clicked. Basically, you possibly pay PPC (pay-per-click) for promoting assuming that your advertisement is really tapped on.
- We also believe in first impression is last impression so we give facilities included with respect to website designing plus logo designing combo offers to regional customers.

1.3 DIFFERENT PRODUCTS:

1.3.1 Web Development

- Iswex (Social Network Site)
- Fort villa Resorts (Travelling Site)
- Bliss Aqua World (Waterpark Site)
- Recipe by Nora (Food Blogging Site)
- Hotel ALSHAHI (Dubai Hotel Site)
- Zymeck (Pharma/Surgical Equipment Company Site)

1.3.2 Digital Marketing

- SEO (On-Page, Off-Page, Backlinks)
- Social Media (Facebook, Instagram, LinkedIn, Twitter, Google, Pinterest)
- PPC (Pay-Per-Click)
- Radio Ads (Radio FM, Radio Mirchi, Radio City etc.)

1.3.3 Branding

- Logo Design
- Package Design
- Social Media Posts

[Fig.1] Company Clients

Chapter 2. INTRODUCTION OF WORDPRESS

2.1 What is WordPress:

- WordPress is a free and open-source **C**ontent **M**anagement **S**ystem (CMS). It is an online site based on PHP and MySQL. It was mainly designed as a blogging tool but now it has evolved into a versatile CMS. Where, you can use it to create a simple blog as well as a fully operation able website and mobile applications. It is even used to create an online store using some WordPress plugins.
- But some people still misunderstand it just as a blogging platform.
- It is considered as the easiest and most popular CMS tool due to its features. The main feature of WordPress is its versatility and feasibility to use. There is no use of coding and designing skills for creating a website on this. Even a non-technical person can also create a website with the help of WordPress easily.
- WordPress is an open-source community that implies thousands of people from all over the world work on it. It is free software. You are free to download, install, modify and use it. Although, there might be some cost involved during web hosting.
- WordPress is expanding day by day. It is adding some more features in its each version.
- Currently it is the largest self-hosted blogging tool in the world with millions of users every day. According to a survey, WordPress encounters 22.5% of all websites on the Internet. Today these millions of users who may be developer, writer, blogger or designer make a living out of it.
- WordPress yet doesn't provide best use for mobile users. Currently, very few large enterprises use WordPress as their CMS. This number is gradually increasing day by day.
- All in all, we can say that future of WordPress is very bright. Matt himself said that he envisioned WordPress as the leading Operating System in coming.

2.2 Origin of WordPress:

- WordPress was released on May 27, 2003 by its founders **Mike Little** and **Matt Mullenweg**. The name WordPress was suggested by a friend of Matt Mullenweg, **Christine Selleck Tremoulet**. The name was completely her idea.
- After thousands of commits to the official SVN repository, WordPress first version 0.7 was released on May 27, 2003.
- Next version 0.1 was released in January 2004 which is also called Davis version. Name Davis was given by Matt as he has affection towards jazz. From now on, all the updates are named on jazz.
- Matt also used to include a plugin called Hello Dolly, in every release. This name is a tribute to Louis Armstrong.
- After few months of announcing work on b2, some other developers also forked.

2.3 Features of WordPress:

2.3.1 Creating a website without logical skill

- The most interesting and best part about WordPress is that anyone can create his/her own website on this without any coding or designing skills. Out of million users on WordPress, most of them are neither designers nor programmers.
- To create a website on WordPress you only need an Internet connection and a web browser.

2.3.2 Provide a range of themes

- It gives thousand types of template options to give any type of feel and look to a website. They are very easy to customize as they come with their own option panel which allows users to select colors, background, sliders, fonts, logos and many more.

2.3.3 Plugins to add functionalities

- It provides both free and premium types of plugins. These plugins add extra functionality or may give a whole new platform to a website. It allows a user to add photo galleries, shopping carts and much more.

2.3.4 Free and Open-source platform

- WordPress is a free and open-source software. It is free to install and use. As a new user you can easily create a website of your own that too absolutely free. It never has any type of hidden charges once a user started using it.
- Being an open-source, you can alter the source-code according to your need. Anyone can become a contributor to WordPress by answering questions, creating themes or writing plugins.

2.3.5 Inserting Multimedia

- A user whether writing a blog or creating a website, need to insert videos, pictures to make its content more powerful. WordPress makes it very easy to upload a multimedia file or to make some editing in files like images.

2.3.6 Security

- WordPress is a popular target for hackers, so it is important to take steps to secure your website. You can use a security plugin to protect your site from malware, brute force attacks, and other threats. WordPress software, plugins, and themes up-to-date to ensure that any security vulnerabilities are patched.

Chapter 3. WP.COM vs WP.ORG

3.1 What is WP.COM:

- **WordPress.com** is the site where you don't have to do anything. All the developing work will be handled itself. You don't have to purchase software, manage web server or pay for hosting.
- There are some limitations with this site. For example, by default your domain name includes wordpress.com, you can't modify your site's coding, upload any themes or plugins. Your site will be free for the lifetime, but you have to pay to upgrade it for more specifications.
- Upgrades also allow you to use a custom domain like you can use anything as the domain. Further upgradation also enhances appearance of your site.
- Your site will be secured and spam free as it will be under WordPress security. You only have to sign in and choose your blog name and focus on your content.
- This site is preferred by everyone but mostly bloggers, photographers, artists, etc.

3.2 What is WP.ORG:

- **WordPress.org** is the site where you have to manage your own blog or website. You can find free WordPress software and install on your web server.
- It gives full control and freedom over your site including the WordPress software. Most of the WordPress showcase sites are made on self-hosting.
- With full control it also places full responsibility of the site upon the user. From technical dealing to security issues each and everything has to be managed by the user itself.

3.3 WP.ORG vs WP.COM:

Features	WordPress.com	WordPress.org
Definition	Fully hosted version	Self-hosted version
Cost	Charges required for upgradation	No charges for upgradation
Freedom and limitations	Include more limitations	Include less limitation
Maintenance	No responsibility to maintain the site	All responsibilities come on user
Advantage	Security and backups are provided	You need to find a host to provide backup and security
Themes	Choose a theme and use it with the help of custom design	Need to install custom themes then use it with PHP and CSS

Chapter 4. Installation of WP

4.1 Download and Install WordPress

- First, we have to download the latest version of WordPress from the official WordPress site **www.wordpress.org** in our system.
- WordPress will be downloaded in zipped format. This WordPress zipped folder has to be placed in XAMPP folder **C:/xampp/htdocs**
- Unzip the WordPress folder here and name it anything. Here, we have named it as WordPress.
- WordPress can be installed using local servers like XAMPP, WAMPP, etc. Here we are using xampp for localhost. Open **phpMyAdmin** from the XAMPP server control panel and create database name WordPress. This database stores all information about our WP site.
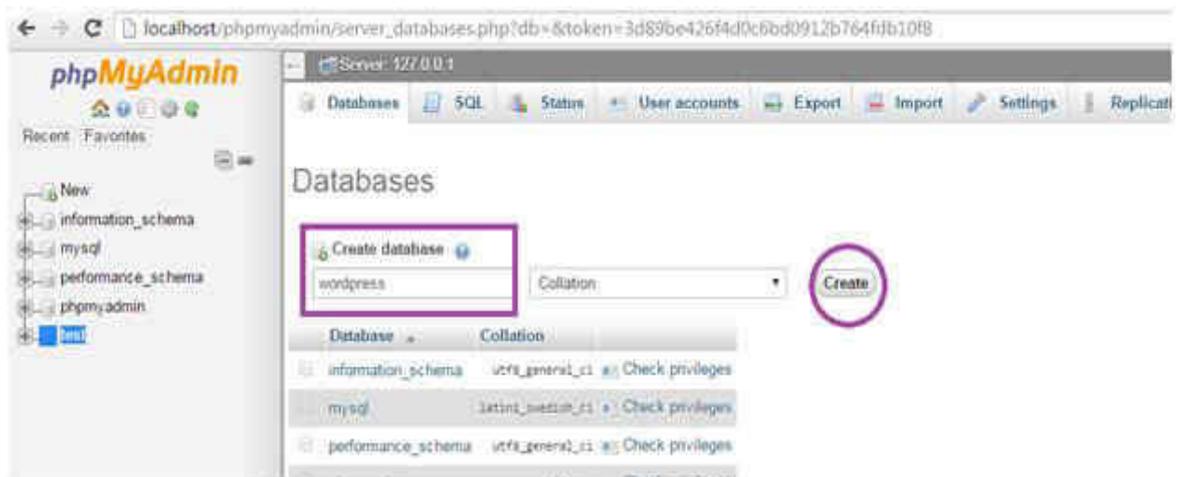
[fig.2] Download & Install WP
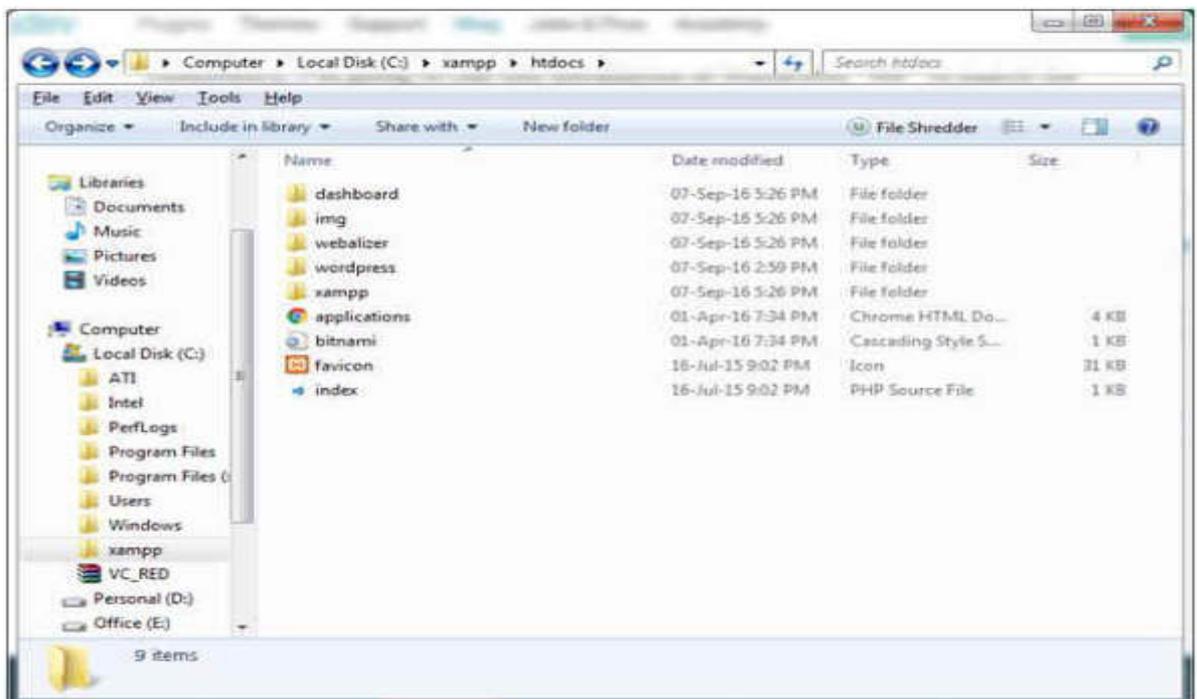
- These lines define the login credentials for your database.

- Replace "database_name_here" with your database name. In our case it is "WordPress". Replace "username _here" with your "root". "Password _here" field will remain blank. Save and close the file.

- Now, open your browser and go to **http://localhost/wordpress/**
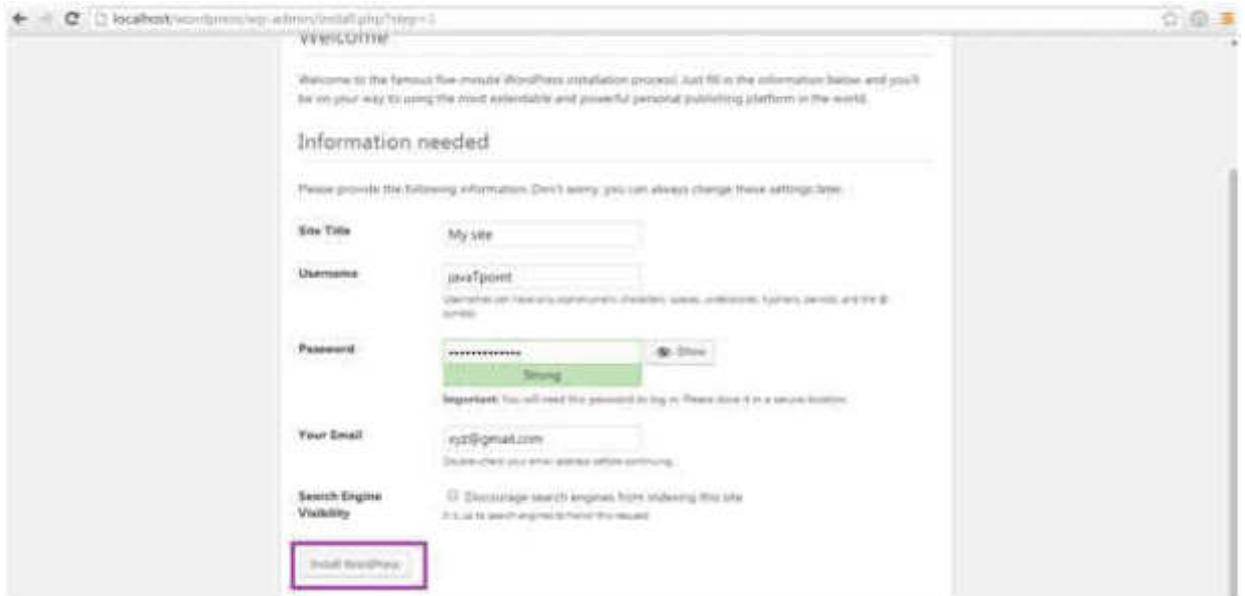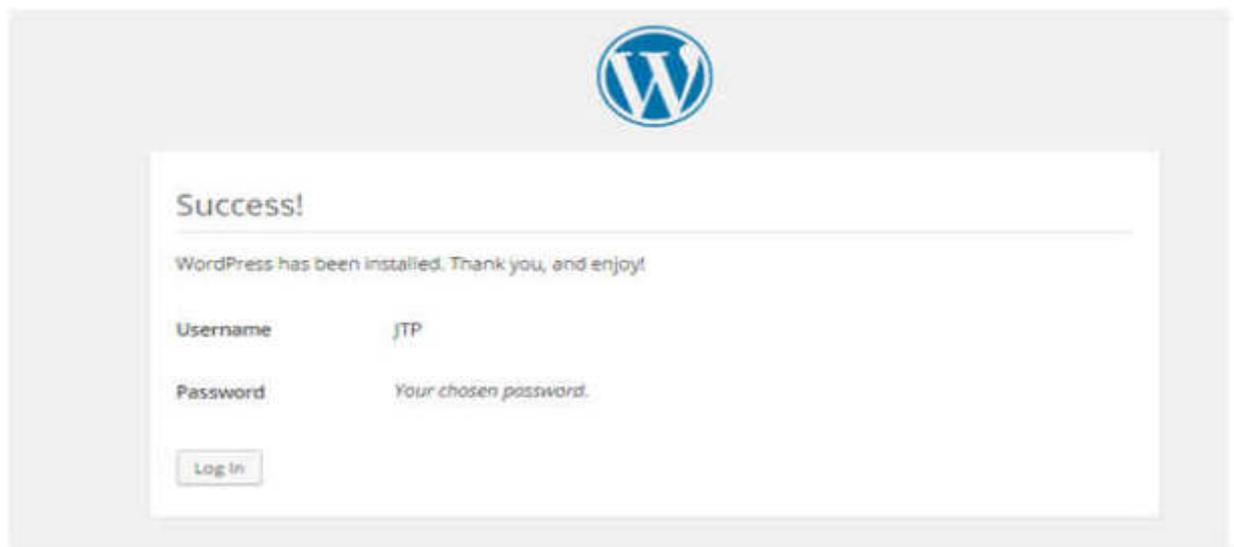

[fig.3] WP Database Configuration

4.2 WordPress Dashboard

- WordPress Dashboard allows full access to manage a website behind the scenes. It is the default page in admin panel which comes right after the login page. It mainly represents everything that is happening with your blog. You can check everything here related to your post. It gives you the updates about your website. If you want to change your password or change any type of setting this is the place where you need to come.

[fig.4] WP Dashboard
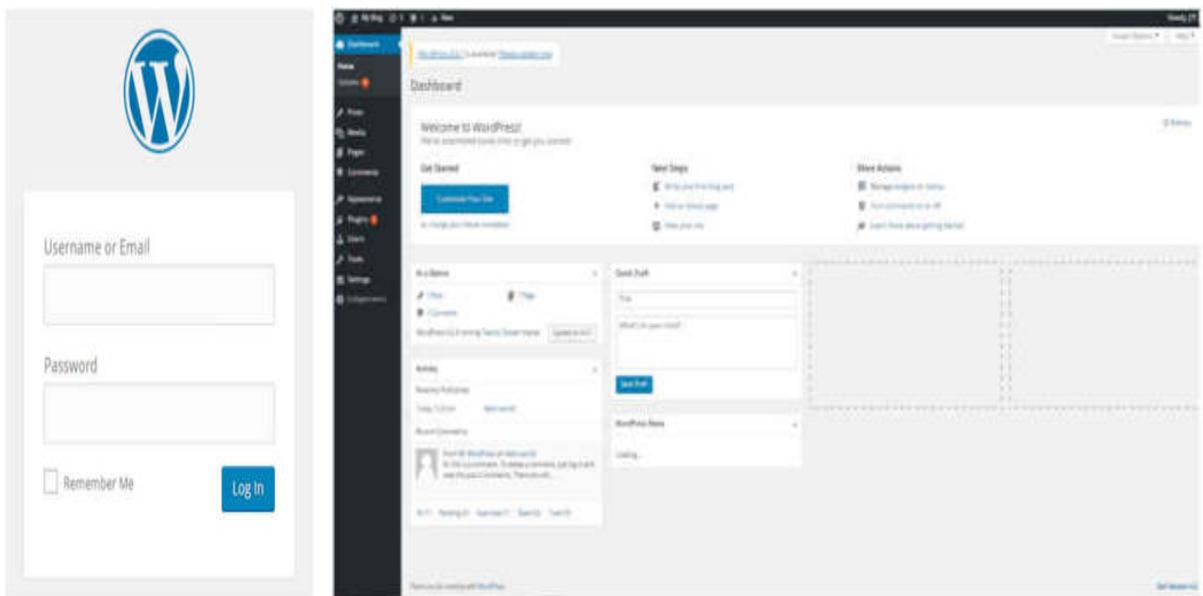
- We'll explain following points from the dashboard.

4.2.1 Admin Bar

- The black bar at the top represents admin bar. It only displays when admin is logged in. That's why this is called admin bar.

Look at the above snapshot, this is the admin bar displayed at our account.

It contains the following items:

- **A WordPress icon -** It contains information about WordPress, WordPress.org, documentation, etc.

- **Home of your site -** It brings you to the home page of your site

- **Notifications -** All the notifications will be shown here. We have 5 notifications here.

- **Comments -** Display comments on your blog where you can edit, reply or delete a comment.

- **New -** You can add up a new page, post, media or user.

- **Admin name -** It is displayed at the right end of the admin bar showing logged in user name (currently logged in user name is JTP). You can edit your profile and Logout from here.

4.2.2 Sidebar Menu
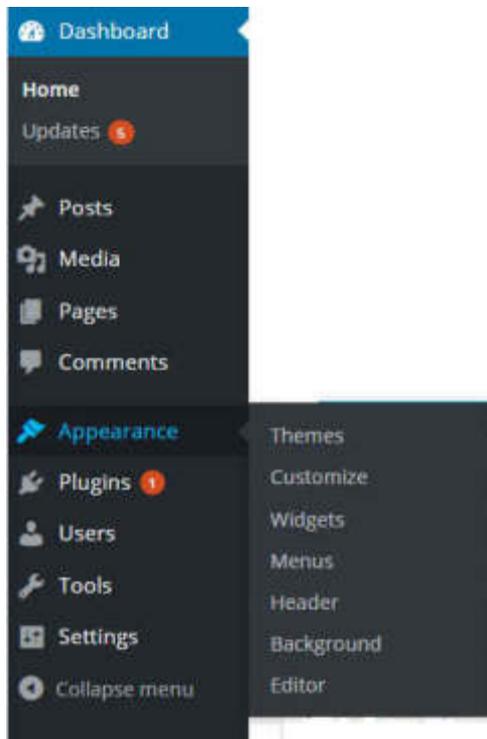
- Look at the above snapshot, it is the side menu of the dashboard which contains full menu of options. These options allow easy access to different areas of your site.
- A sub-menu list may appear on selecting an option. Like here we have shown sub-menu list of Appearance.

Menu content:

- **Dashboard -** Display received updates
- **Posts -** Manage posts on your blog
- **Media -** Manage media content library like images, audio and video
- **Pages -** creating and managing pages
- **Comments -** display all the comments on your blog
- **Appearance -** change the appearance of your site
- **Plugins -** extend capabilities of the website and manage them
- **Users -** shows all your site's users. Allows editing your site by changing password and name
- **Tools -** setting of websites

4.2.3 Screen Options

[fig. 4] Admin bar, Slide bar, Screen Options

- As we already know each of the widget can be enabled and disabled in your dashboard area. To do so, there is Screen Options widget which allows you to enable or disable different widgets.

Chapter 5. Creation of WP site

5.1 Choosing a domain name and host

- We need a domain name and a hosting space to get our website online.
- Domain name enables us to give our site our own name while hosting gives a space to our site on a server which makes sure our website loads quickly and won't go down for hours.
- Domain name should be short and easy to remember, brand able and catchy which defines our business.
- Choosing a domain name is not easy with fulfilling all the criteria as millions of domain names are active.

5.2 Choosing a theme/template

- After installing WordPress, a site appears very plain. To make it more attractive, users install best suitable themes for their site. It adds visuals and views to the front page.
- First of all, login to your WordPress site. By default, first screen will be your dashboard.

5.2.1 Accessing Free themes

- After login, we'll get access for 150 free themes.
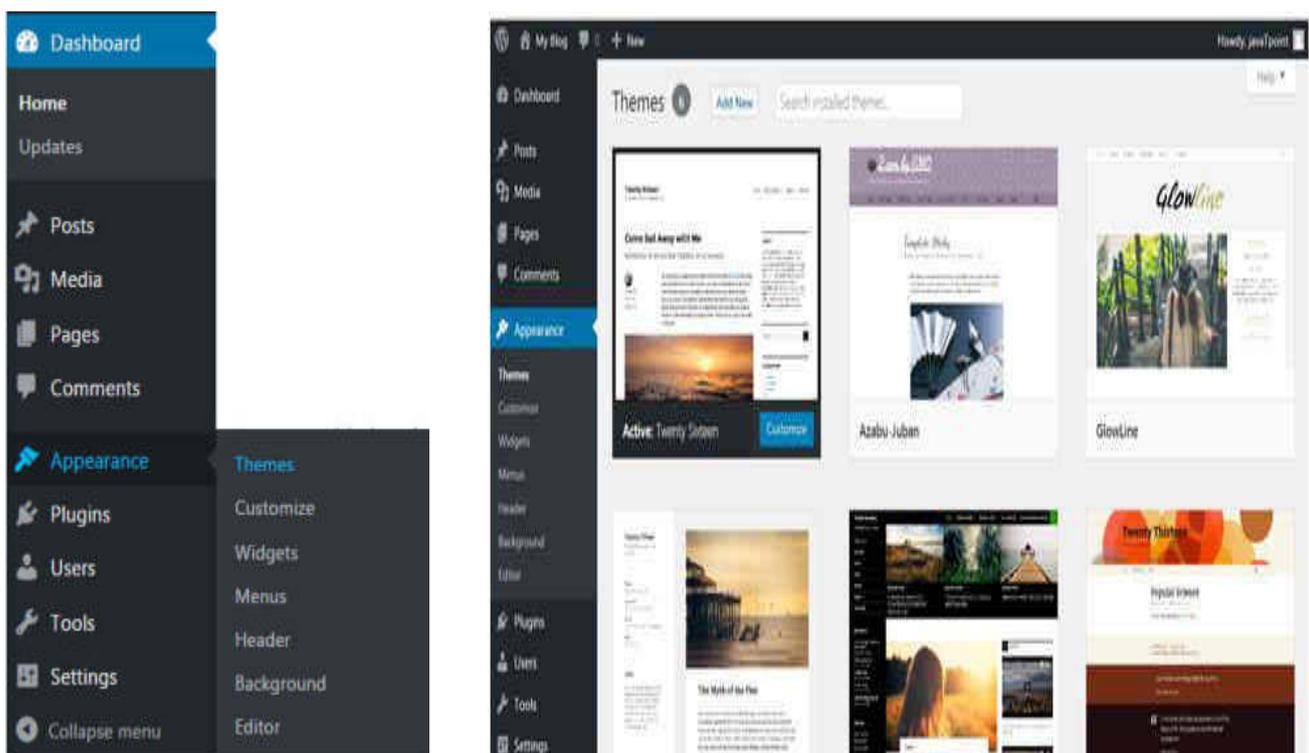
[fig. 6] Choosing Template

- Look at the above snapshot, to look at the free themes, got the side bar menu of your dashboard, select **Appearance >Themes**.
- Below screen will appear including all the installed themes.

5.3 WordPress Pages

- Pages are different from Posts. They are static and they do not change often. Some examples of pages are About, Contact, etc. you can add pages containing information about you and your site. Go to **Pages > Add New**
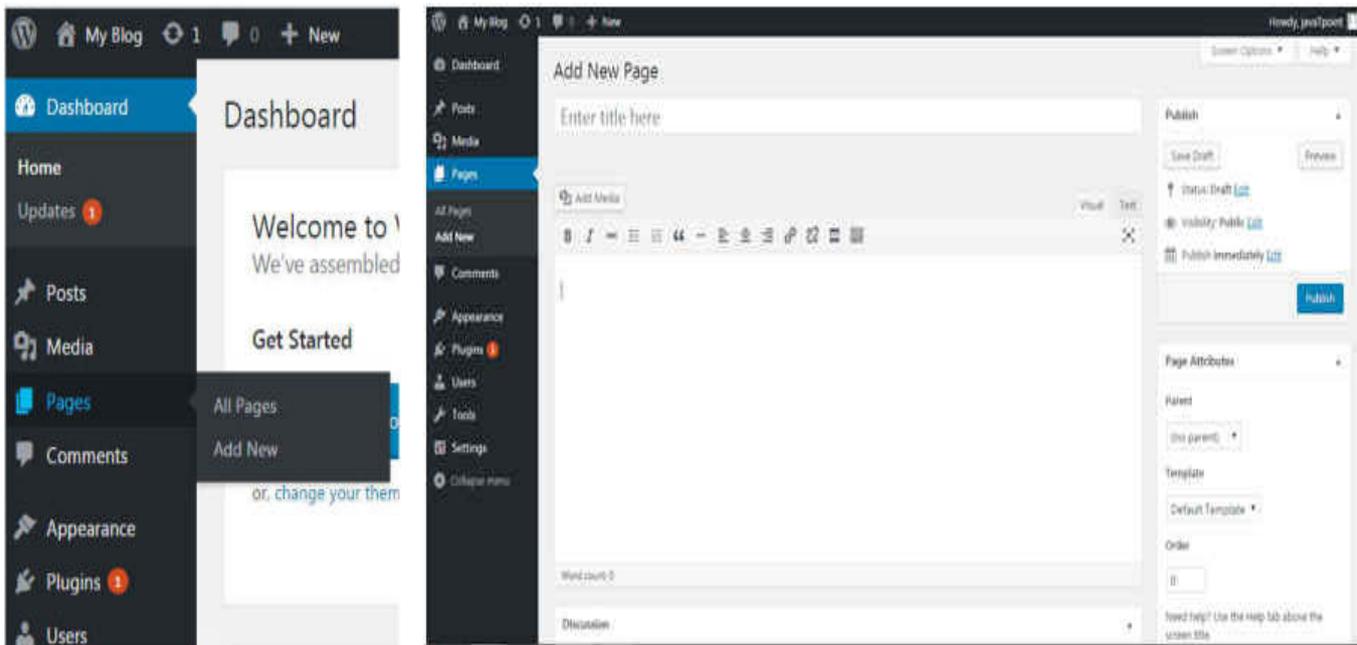
[fig.7] Edit Page

- Look at the above snapshot, this is the editorial page where we can give a title and content to our page.
- Here we can upload media, write content, add a title to our page. Click on **Publish** button once we have completed the page

5.3.1 How to Edit Page

- To edit page, go to **Pages > Add New**

- Look at the above snapshot, this is the list of all the created posts. Bring your mouse above a post, following options will appear.
- There are two options to edit. One is Edit and other one is Quick Edit.
- On clicking **Edit**, following page will appear.
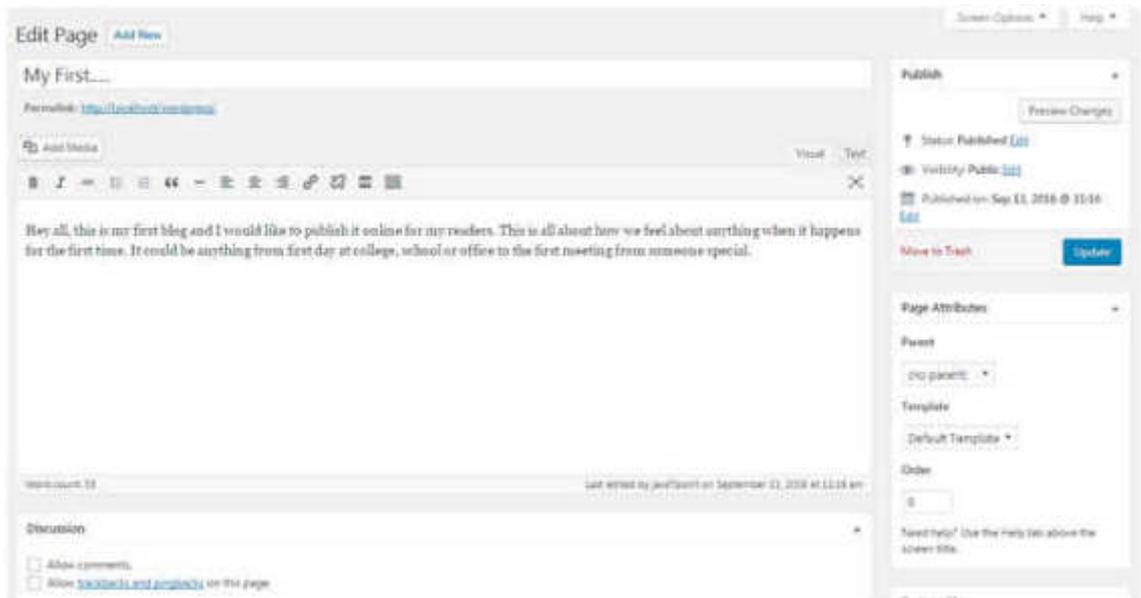
[fig.8] Delete Page

5.3.2 How to Delete a Page

- To delete a post, go to **Posts > All Pages.** Look at the above snapshot, **Trash** option will let you delete the respective post.

5.4 WordPress Appearance

- Appearance is to manage our theme. From here we can install, delete, update and activate themes. Its menus allow us to change our site's appearance and behaviour.
- Depending upon the theme, some of the appearance menu may not appear to us because some of the options under appearance are theme based.
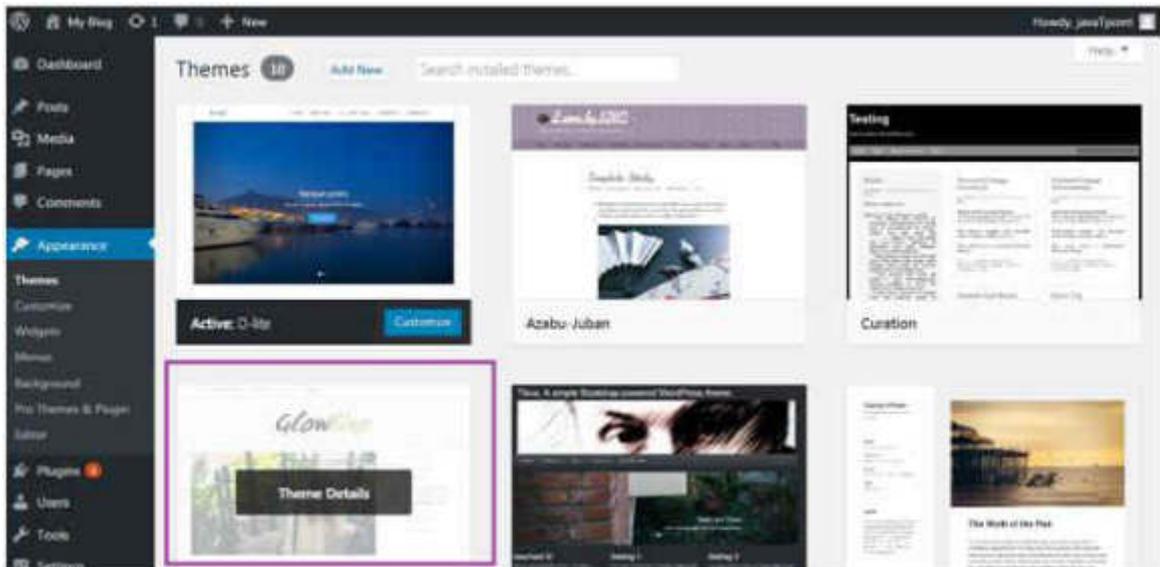
[fig.9] Themes in Appearance

- Look at the above snapshot, these are the themes installed in our site. After clicking on a theme, theme description page will appear in front of us.

5.5 How to Customize Theme

- Theme customizer allows us to design our site with our theme. It gives a new look to our site. Go to **Appearance > Customize**

5.6 WordPress Plugins

- WordPress plugins are programs written in PHP scripting language that extends the functionality or add some new features to our WordPress site. They provide additional functions to an application.
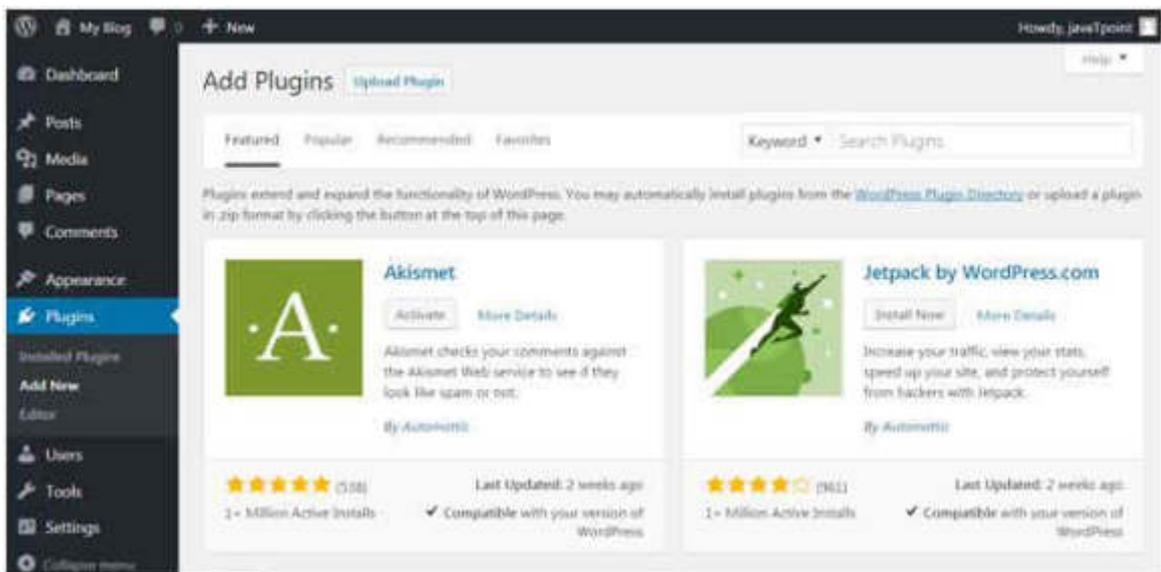- Users can add some more functions in their site without any coding skills by adding plugins. There are thousands of freely and commercially plugins available. For each and every function there is a plugin available in the WordPress.
- Login to our WordPress, and go to **Plugins > Add New.**
- We can also uninstall a plugin from our site.

[fig.10] Plugins in WP

5.7 WP Themes vs WP Plugins

- Although, themes also add some features and functionality to a site but they are different from plugins. A plugin can't change a websites design, look and feel but a theme can do everything. You can customize some functionality in themes instead of installing plugin but themes can't be replaced by plugin.
- A theme is external effect like a website's presentation and designing. Whereas, a plugin is the interior effect which add or remove some functions to a site.
- Theme organizes and displays the entire site's information to display it to the visitors.
- If you want to change the appearance of your site by changing your theme, then all the customizations done will be gone (data and information will remain safe). But you can activate or deactivate a plugin whenever you want. It will not affect the site in any way.
- Your site speed is mainly affected by designing of theme, number of images, cache power. Number of plugins installed and functionality code exist as plugin or theme does not contribute in site's speed.

Chapter 6. Summer Internship Project

6.1 Introduction of Online Job Portal

- An online job portal is a platform that connects job seekers with potential employers. It is a virtual space that enables job seekers to create profiles, search for available job opportunities, and apply for jobs online. At the same time, it allows employers to post job vacancies, review resumes, and communicate with potential candidates.

- Online job portals have become increasingly popular in recent years due to their convenience, accessibility, and time-saving features. They have revolutionized the way job seekers and employers interact with each other, making it easier for both parties to find the right match.

- Online job portals typically offer a wide range of features and services, such as job alerts, resume creation tools, interview tips, and salary calculators. They also provide valuable data and insights on job market trends, salary benchmarks, and skill requirements.

- Overall, online job portals have simplified the job search and recruitment process, making it more efficient, transparent, and effective for everyone involved.

- Typically, job seekers create a profile on the online job portal, which includes their education, work experience, and skills. They can then search for job vacancies by location, industry, job type, and other criteria. Employers, on the other hand, can post job openings and browse resumes of potential candidates.

- Online job portals have become increasingly popular in recent years due to their convenience and efficiency. Job seekers can easily search for job opportunities from anywhere at any time, while employers can reach a wider audience and receive applications from a larger pool of candidates. These portals also streamline the hiring process by providing tools for job posting, resume screening, and candidate communication.

- Overall, online job portals are a valuable resource for job seekers and employers alike, providing a convenient and efficient way to connect talent with job opportunities.

6.2 Abstract of Project

- An online job portal is a web-based platform that enables employers to advertise job vacancies and job seekers to find and apply for job opportunities online. It simplifies the job search and recruitment process by allowing job seekers to create a profile, upload their resume, and search for jobs based on various criteria such as location, industry, and job type. Employers can use the portal to post job openings, screen resumes, and communicate with applicants. Online job portals have become increasingly popular due to their convenience, efficiency, and accessibility, and have transformed the way people search for jobs and hire candidates. Overall, online job portals provide a valuable resource for job seekers and employers, making it easier to connect talent with job opportunities.

6.3 Objective of Project

- The main objective of the Project on Online Job Portal is to manage the details of Job, Vacancy, Resume, Jobseeker. Interview. It manages all the information about Job, Call Later, Interview, Job. The project is totally built at administrative end and thus only the administrator is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the Job. Vacancy, Call Later. Resume. It tracks all the details about the Resume. Jobseeker. Interview.

- Provides the searching facilities based on various factors. Such as Job, Resume, Jobseeker, Interview

- Online Job Portal also manage the Call Later details online for Jobseeker details, Interview details, Job.

- It tracks all the information of Vacancy, Call Later, Jobseeker etc.

- Manage the information of Vacancy. Shows the information and description of the Job, Resume

- To increase efficiency of managing the Job, Vacancy It deals with monitoring the information and transactions of Jobseeker.

- Manage the information of Job Editing. adding and updating of Records is improved which results in proper resource management of Job data.

- Manage the information of Jobseeker.

6.4 Scope of Project

- It may help collecting perfect management in details. In a very short time, the collection will be obvious, simple and sensible. It will help a person to know the management of passed year perfectly and vividly. It also helps in current all works relative to Online Job Portal. It will be also reduced the cost of collecting the management & collection procedure will go on smoothly.

- Our project aims at Business process automation. i.e., we have tried to computerize various processes of Online Job Portal.

6.4.1 Features of the project

- Product and Component based
- Creating & Changing Issues at ease
- Query Issue List to any depth
- Reporting & Charting in more comprehensive way
- User Accounts to control the access and maintain security
- Simple Status & Resolutions
- Multi-level Priorities & Severities.
- Targets & Milestones for guiding the programmers
- Attachments & Additional Comments for more information
- Robust database back-end
- Various level of reports available with a lot of filter criteria's
- It contains better storage capacity.
- Accuracy in work.
- Easy & fast retrieval of information.
- Well-designed reports.
- Decrease the load of the person involve in existing manual system.
- Work becomes very easy
- Update information very easily.

6.5 SRS (Software Requirement Specification) of Project

- The Software Requirements Specification is produced at the conclusion of the analysis task. The function and performance allocated to software as part of system engineering are refined by establishing a complete information description, a detailed functional and behavioural description. an indication of performance requirements and design constraints, appropriate validation criteria. and other data pertinent to requirements.
- The proposal system has the following requirements.
- System needs store information about new entry of Job.
- System needs to help the internal staff to keep information of Vacancy and find them as per various queries.
- System needs to maintain quantity record.
- System needs to update and delete the record.
- System also needs a search area.
- It also needs a security system to prevent data.

Software requirements: -

Name Of Components	Specifications
Operating System	Windows XP, Windows 7, Windows 10 above
Language	PHP, HTML, CSS
Database	MySQL
Browser	Chrome, MS Edge, Mozilla Firefox
Web Server	Xampp (Localhost), Hostinger(live)
Software	WordPress v6.2

Hardware requirements: -

| Name Of Components	Specifications
Processor	11th Gen Intel(R) Core (TM) i5-1135G7 @ 2.40GHz 2.42 GHz above
RAM	4 GB or above
Hard disk	20 GB above
System Type	X64 bits-based processor
Monitor	15''' Colour
Keyboard	122 keys

6.6 Scheduling of Project

- An elementary Gantt chart or Timeline chart for the development plan is given below. This plan explains the tasks versus the time (in weeks) they will take to complete.
- It is also known as Bar chart is used exclusively for scheduling purpose. It is a project controlling technique. It is used for scheduling. Budgeting and resourcing planning. A Gantt is a bar chart with each bar representing activity. The bars are drawn against a time line. The length of time planned for the activity. The Gantt chart in the figure shows the Gray parts is slack time that is the latest by which a task has been finished.

	January		February				March				April	
Requirement Gathering	▨											
Analysis		▨										
Design			▨	▨	▨							
Coding							▨					
Testing								▨	▨			
Implement											▨	▨
	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2

**[fig.11] Gantt/Schedule Chart of project**

6.7 PERT chart of Project

- PERT chart is organized for events. Activities or tasks. It is a scheduling device that shows graphically the order of the tasks to be performed. It enables the calculation of the critical path. The time and cost associated along a path is calculated and the path requires the greatest amount of elapsed time in critical path.
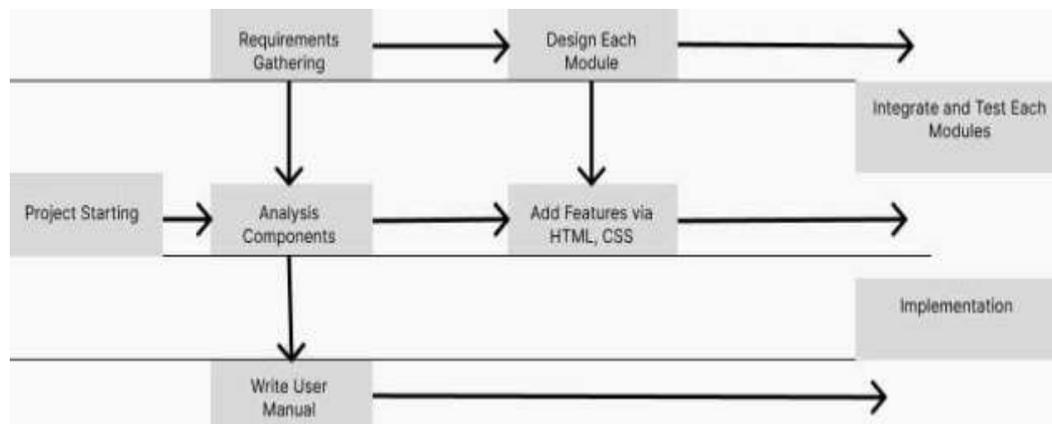

[fig.12] PERT Chart of Project

6.8 ER Diagram of Project
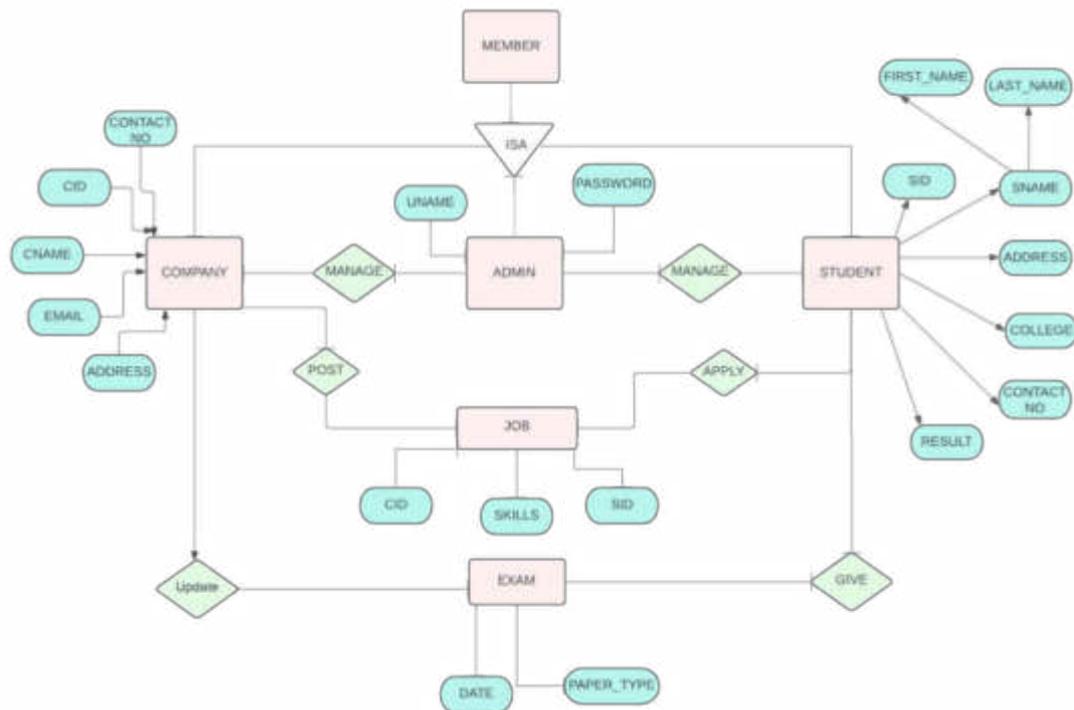
[fig.13] ER Diagram

- An entity-relationship diagram (ER diagram) is a visual representation of the relationships among entities in a database. It is used to model the logical structure of a database and helps to visualize the relationships between entities.
- An ER diagram consists of three main components: entities, attributes, and relationships.
- Entities represent real-world objects, such as customers, products, and orders. Attributes are properties or characteristics of the entities, such as a customer's name, address, and phone number. Relationships describe the associations or connections between entities, such as a customer placing an order for a product.
- ER diagrams use different symbols to represent each component. Entities are represented by rectangles, attributes are represented by ovals, and relationships are represented by diamonds. Lines are used to connect the symbols to show the relationships between entities.
- Overall, an ER diagram provides a clear and concise way to model the relationships among entities in a database, which helps to ensure that the database is designed in an organized and efficient manner.

## 6.9 Use Case Diagram of Project
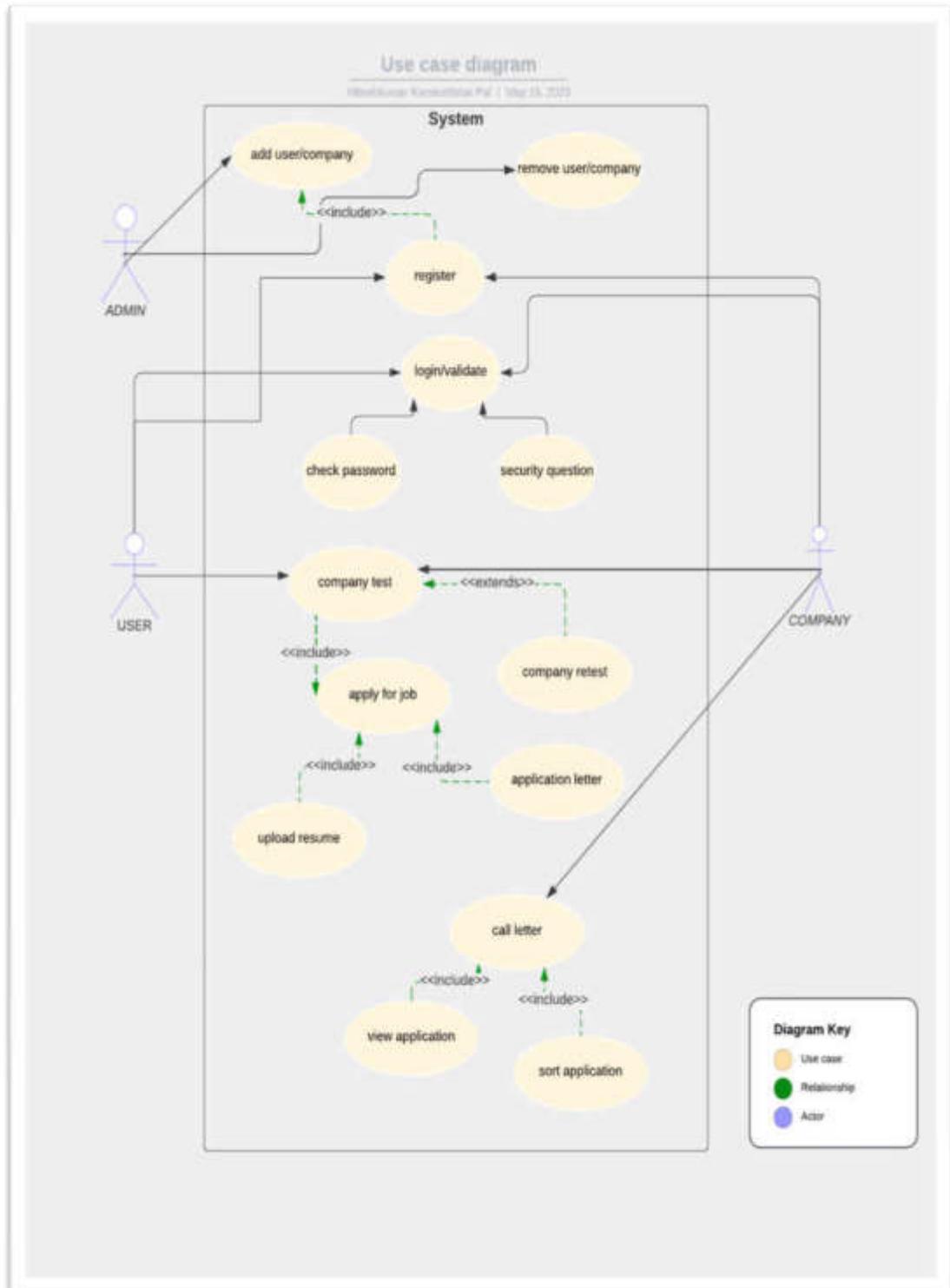
[fig.14] Use Case Diagram

- A use case diagram is a visual representation of the interactions between actors (users or systems) and a system or software application. It is used to describe

the functional requirements of a system or software application and helps to identify and organize the different use cases that the system must support.

- A use case diagram consists of actors, use cases, and relationships.
- Actors represent the users or external systems that interact with the system being modeled. They are usually represented by stick figures. Use cases represent the specific actions or tasks that the system must perform. They are represented by ovals or ellipses. Relationships describe the interactions between actors and use cases.
- There are several types of relationships that can be used in a use case diagram, including:
    - Association: A relationship between an actor and a use case that represents the actor's involvement in that use case.
    - Generalization: A relationship between two use cases that represent a parent-child relationship, where the child use case inherits the behavior of the parent use case.
    - Include: A relationship between two use cases that represents a relationship where one use case includes the behavior of another use case.
    - Extend: A relationship between two use cases that represents a relationship where one use case can extend the behavior of another use case.

- In our case we have three actors user, admin and company. Each actor has its own multiple use cases which are shown in diagram. Some of the use cases like login/validation uses generalization rule for extending functionalities of project.
- Some use cases like applying for job includes the other use cases for better announcements in future for any jobseeker.

6.10 DFD Diagram of Project
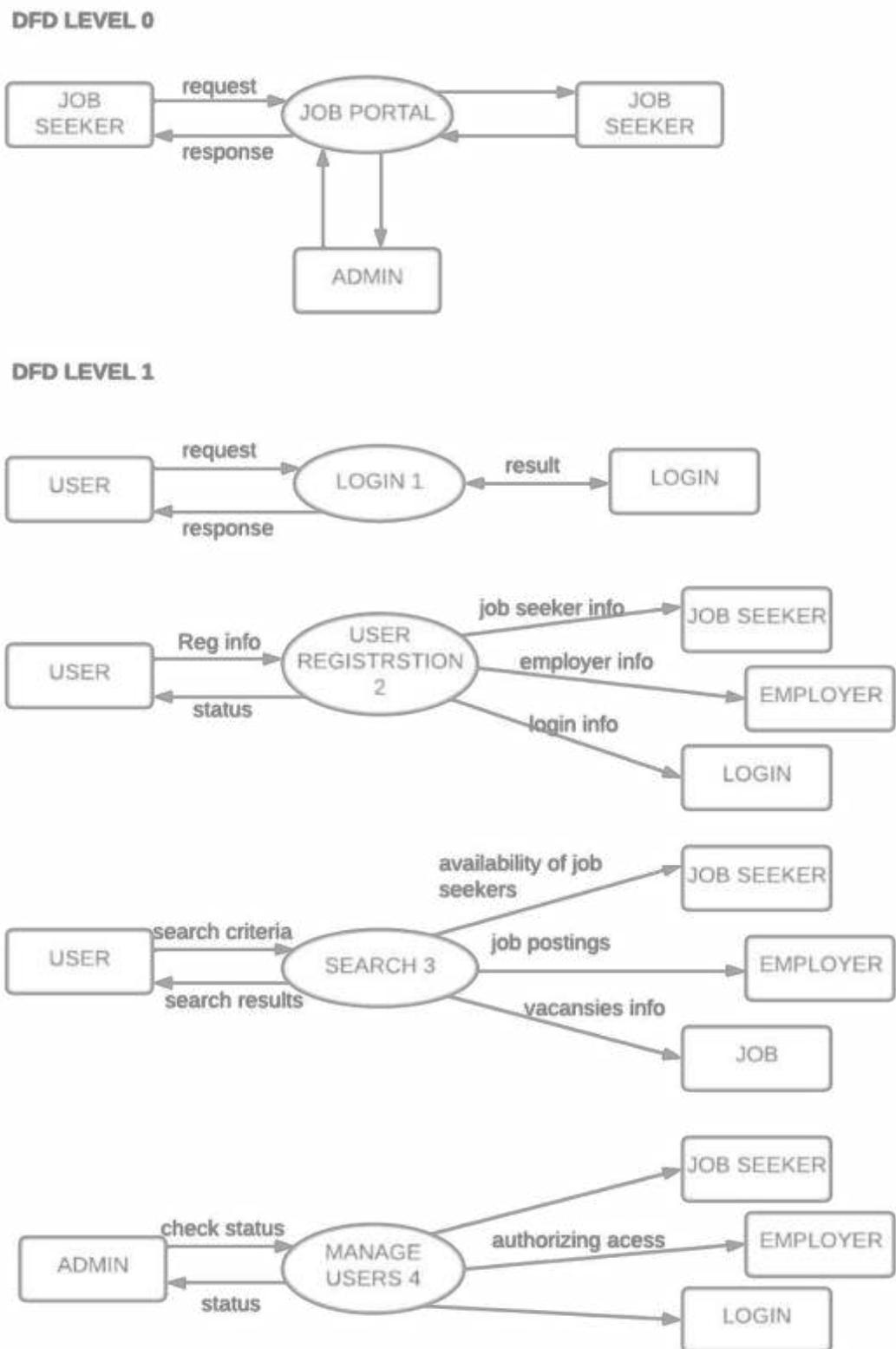
[fig.15] DFD LEVEL 0 & 1

- A data flow diagram (DFD) is a visual representation of the flow of data through a system. It is used to describe the processes and data flows within a system, and to help identify potential areas for optimization and improvement.

- A DFD consists of four main components: processes, data stores, data flows, and external entities.
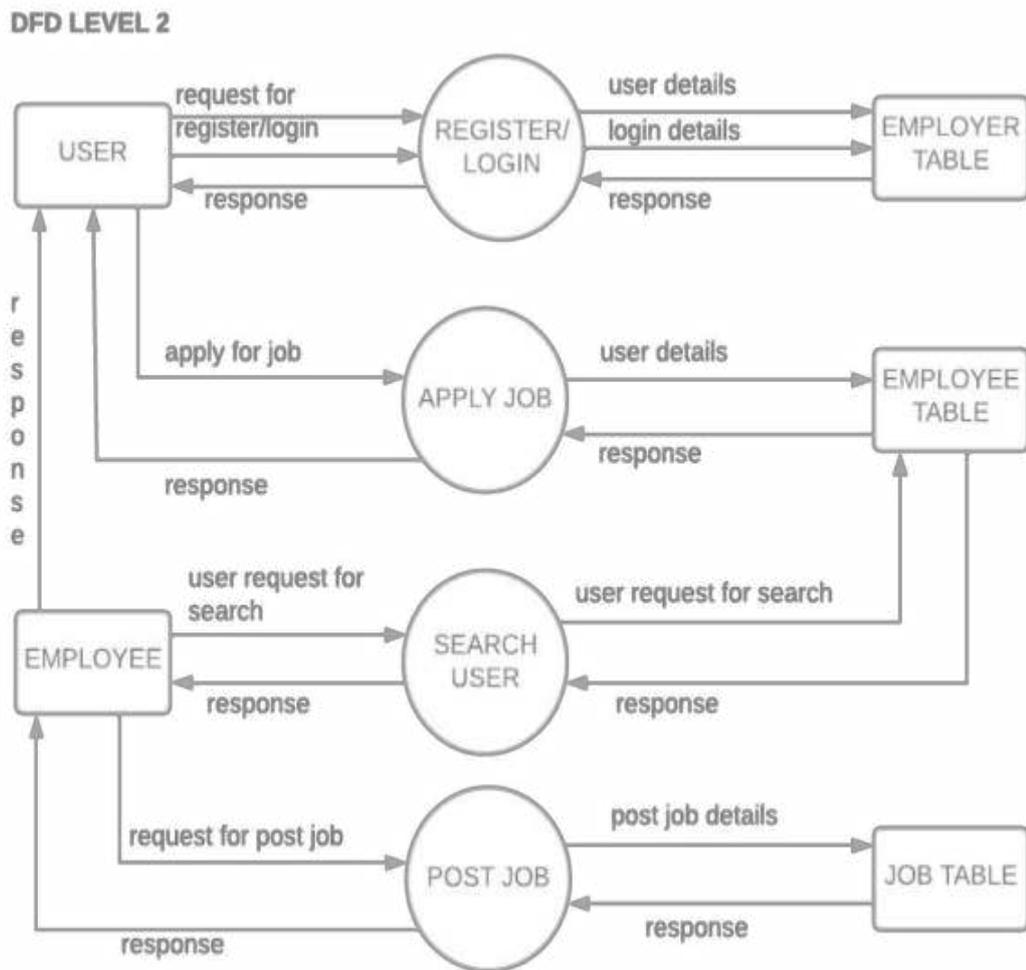

[fig.16] DFD Level 2

- Processes represent the tasks or activities that are performed within the system, such as processing data or performing calculations. Data stores represent the locations where data is stored within the system, such as a database or file system. Data flows represent the movement of data between processes and data stores, and external entities represent the sources or destinations of data that enter or exit the system.

- There are several types of DFDs, including:
  - Context diagram: A high-level DFD that shows the system as a single process and its interactions with external entities.
  - Level 0 diagram: A DFD that shows the main processes within the system and their interactions with each other.
  - Level 1 diagram: A DFD that shows the sub-processes within each process on the level 0 diagram.
  - Level 2 diagram: A DFD that shows the sub-processes within each sub-process on the level 1 diagram.
- Overall, a DFD is a powerful tool for analysing the flow of data within a system and can help to identify potential areas for optimization and improvement.
- In the case of my project data flow diagram shows the exactly features flow which really happens in original project. Like in level 0 we see the main functionalities of project which are job seeker, employer, admin basically connected with one online platform which is portal.
- In level 1 we see there have been multiple sub processes for each main process. Like login, searching jobs, registration, manage them etc.
- In level 2 we see that all sub processes having more sub processes so we declare that in level 2 diagram. In that job posting, job searching, user employer interaction all the expected area are covered mostly.

## 6.11 Activity Diagram of Project
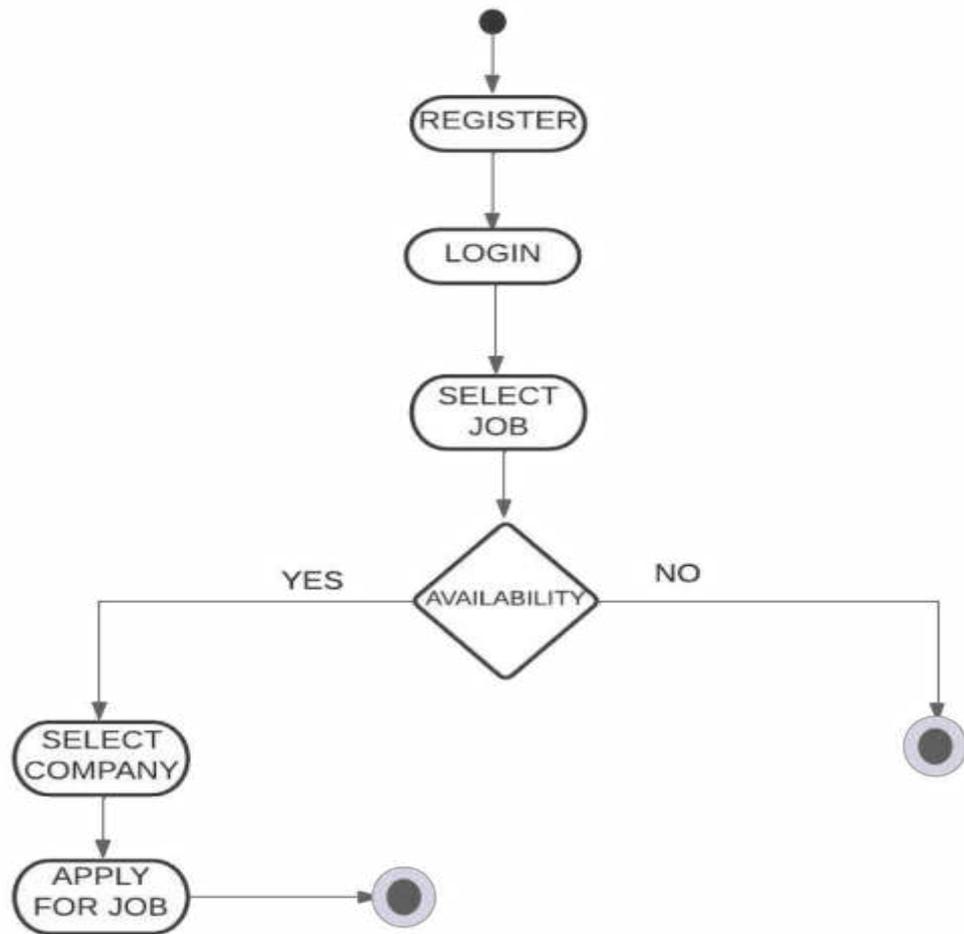
[fig.17] Activity Diagram

- An activity diagram is a visual representation of the flow of activities and actions within a system or process. It is used to model the behaviour of a system or process and helps to identify the different activities and decision points involved.
- An activity diagram consists of nodes, edges.
- Nodes represent the different activities and actions within the system or process, and edges represent the flow of control between nodes.
- There are several types of nodes that can be used in an activity diagram, including:
  - Initial node: Represents the start of the process.
  - Activity node: Represents an action or activity within the process.

- o Decision node: Represents a decision point where the flow of control can split into multiple paths.
  - o Merge node: Represents a point where multiple paths converge into a single path.
  - o Final node: Represents the end of the process.
- Overall, an activity diagram is a powerful tool for modelling the behaviour of a system or process and helps to identify potential areas for optimization and improvement.
- So, in my project there are some activities explanations as follows:

1. The job seeker starts by accessing the online job portal.

2. The job seeker enters search criteria (e.g., job title, location, industry) to find relevant job listings.

3. The system performs a search based on the provided criteria.

4. The job seeker views the displayed job listings.

5. The job seeker selects a specific job from the displayed listings.

6. The system presents the detailed information of the selected job.

7. The job seeker decides to apply for the job.

8. The job seeker uploads their resume.

9. The system receives and processes the uploaded resume.

10. The job seeker submits the application.

11. The system confirms the successful submission of the application.

12. The activity ends.

- This activity diagram illustrates the sequential flow of actions that a job seeker takes while using the online job portal, starting from searching for job listings to submitting an application. It provides a high-level overview of the steps involved and the interactions between the job seeker and the system.

6.12 Sequence Diagram of Project
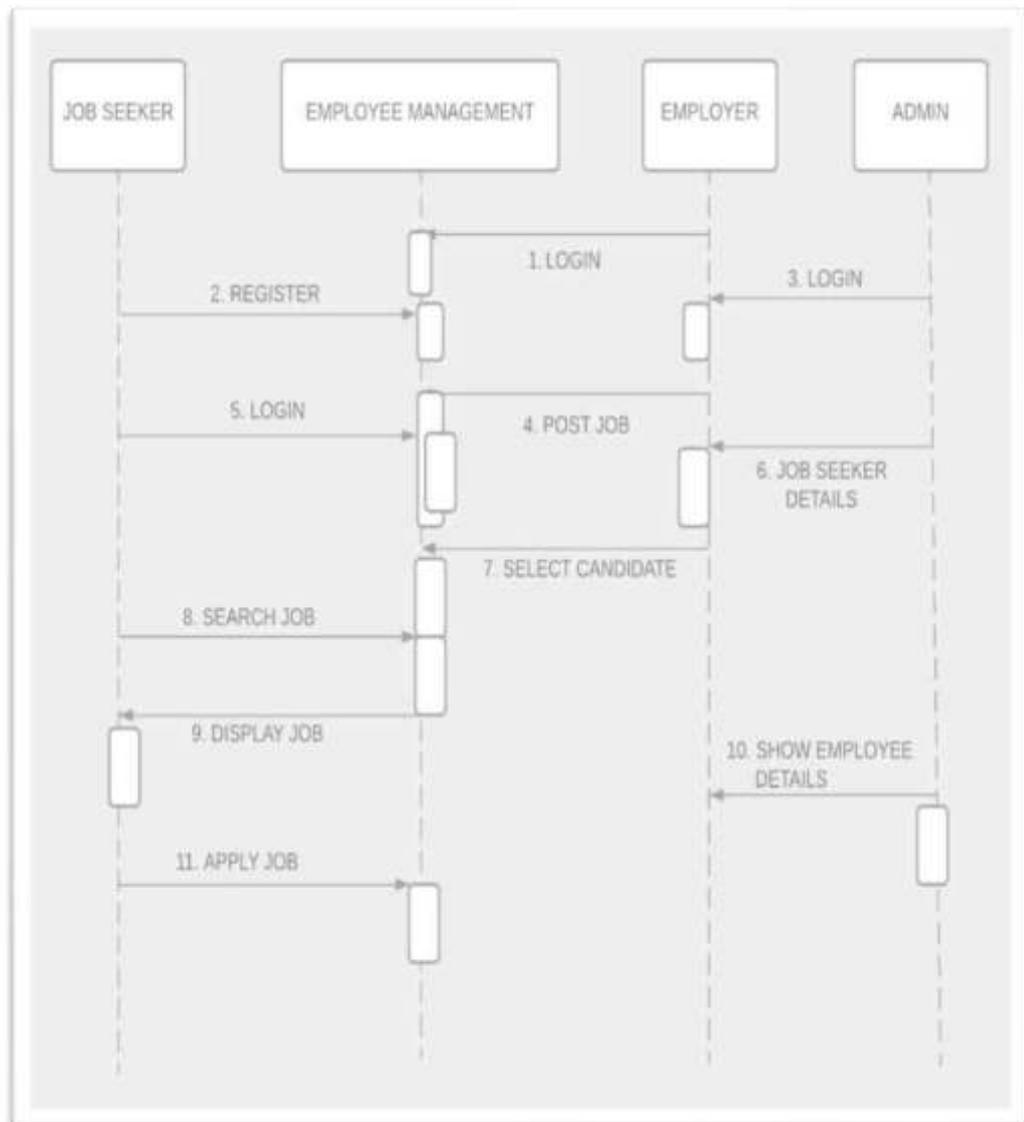
[fig. 18] Sequence diagram

- A sequence diagram is a type of interaction diagram that illustrates the flow of messages and interactions between objects or components in a system. It depicts the chronological order of events and the exchange of messages between different entities, showing how they collaborate to achieve a particular behaviours or functionality.

- In a sequence diagram, the objects or components involved in the system are represented as vertical lifelines, and the messages exchanged between them are

shown as arrows. The sequence of messages is typically arranged from top to bottom to indicate the order of execution.

- The diagram provides a visual representation of the dynamic behaviours of the system, allowing developers, designers, and stakeholders to understand and analyse the interactions between different elements. It helps to model the communication patterns, identify potential bottlenecks or issues, and validate the correctness of the system's behaviours.

- Sequence diagrams are commonly used during the analysis and design phases of software development to capture and communicate the desired behaviours and interactions of a system or a specific use case. They serve as valuable documentation and communication tools for both technical and non-technical stakeholders involved in the development process.

- So, in my project there are some tasks in sequence are followings:

1. The employer accesses the online job portal.

2. The job seeker register in the portal.

3. The admin accesses the online job portal.

4. The online job portal processes by the employer request and posts its job listings.

5. The jobseeker login in the portal.

6. The job seeker receives the job listings response from the online job portal.

7. The job seeker selects a specific job from the received job listings for application.

8. The job seeker sends a job details request to the online job portal.

9. The online job portal processes the job details request and retrieves the required information for the selected job.

10. The online job portal sends the job details response to the job seeker.

11. The job seeker receives the job details response from the online job portal.

12. The job seeker submits the job application

6.13 Sample Photos of Project

[fig.19] WP Login Credentials

[fig.20] MySQL Database

[fig.21] Plugins Page
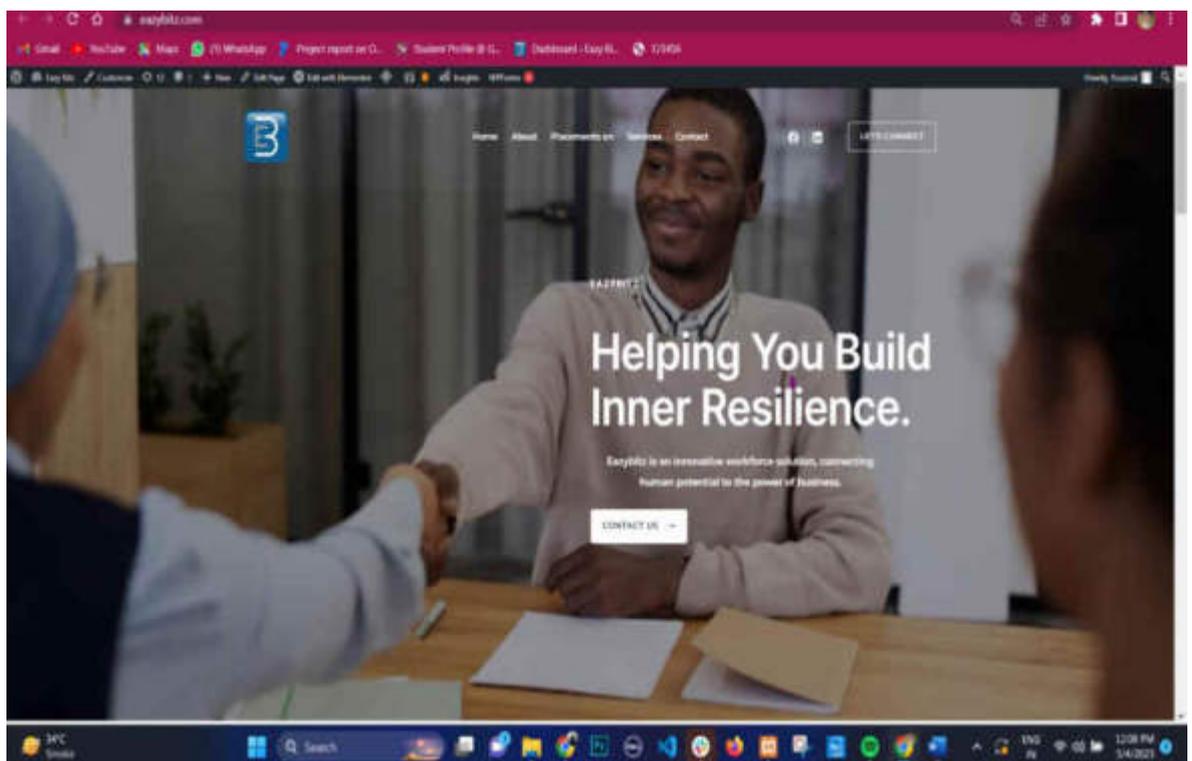
[fig.22] Home Page

[fig.23] About Us Page

[fig.24] Contact Us Page

[fig.25] Contact recruiter form

6.14 Conclusion of the Project

- Our project is only a humble venture to satisfy the needs to manage their project work. Several user-friendly coding has also ad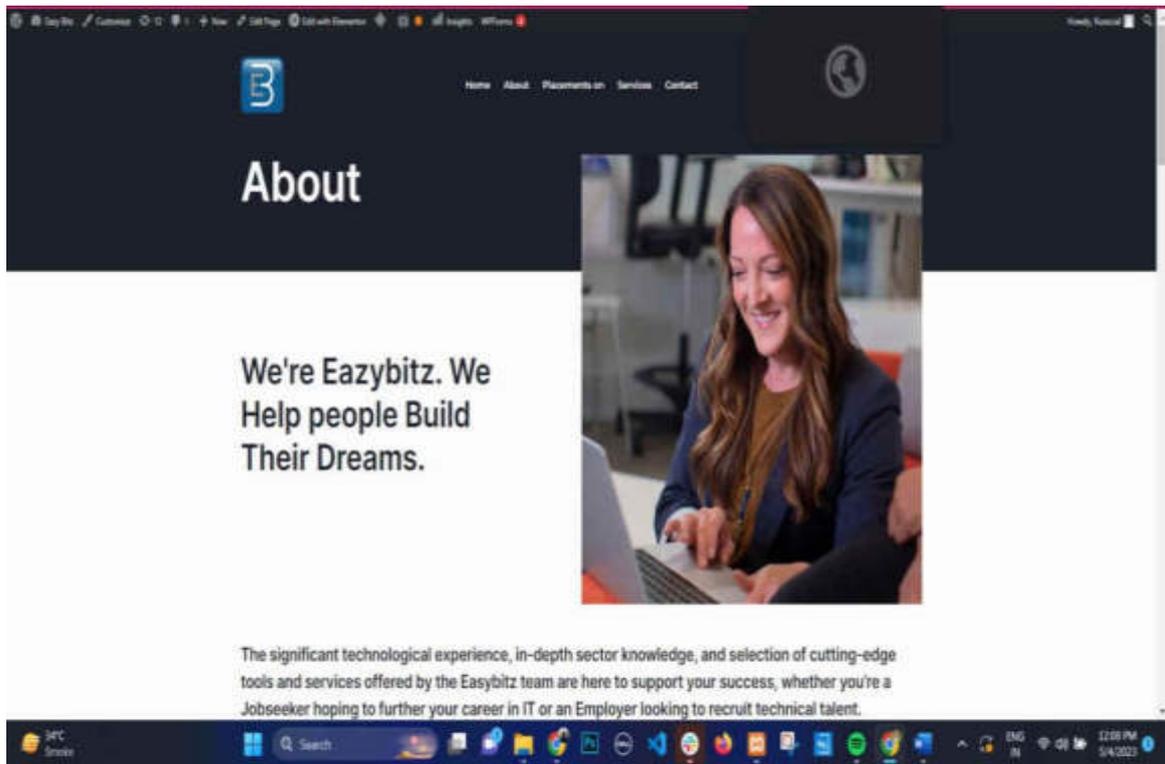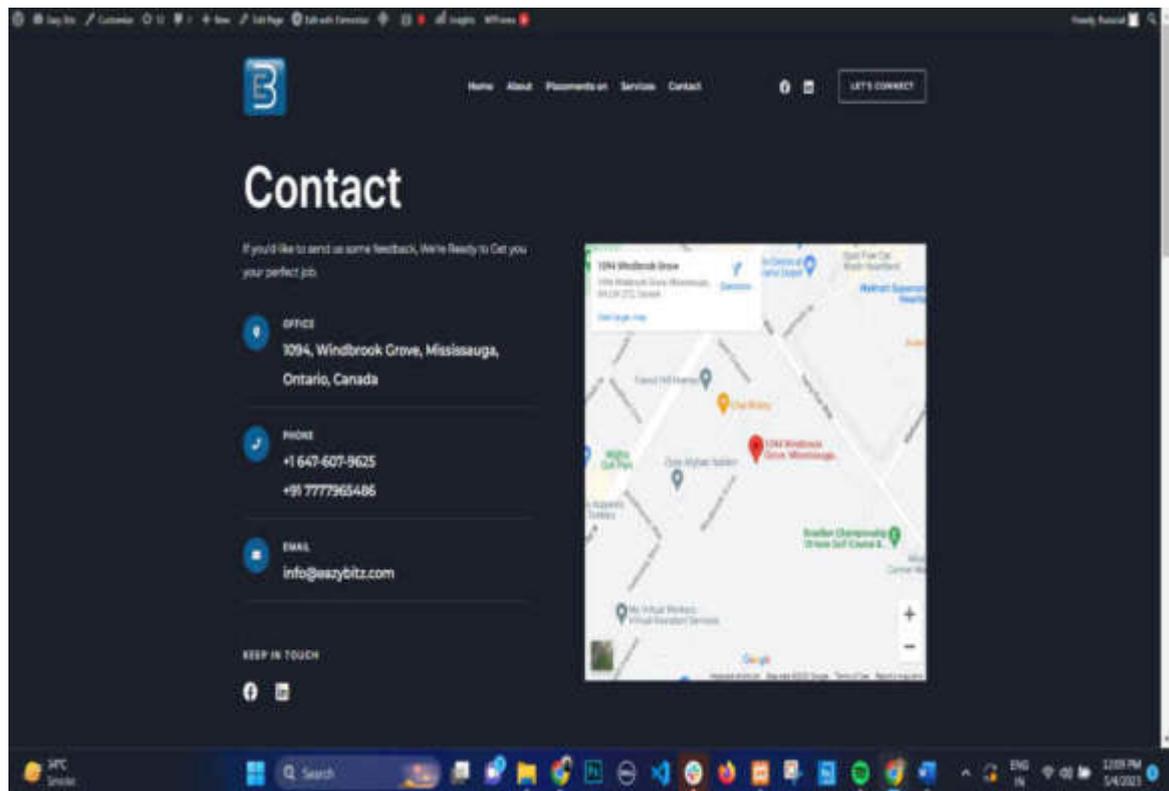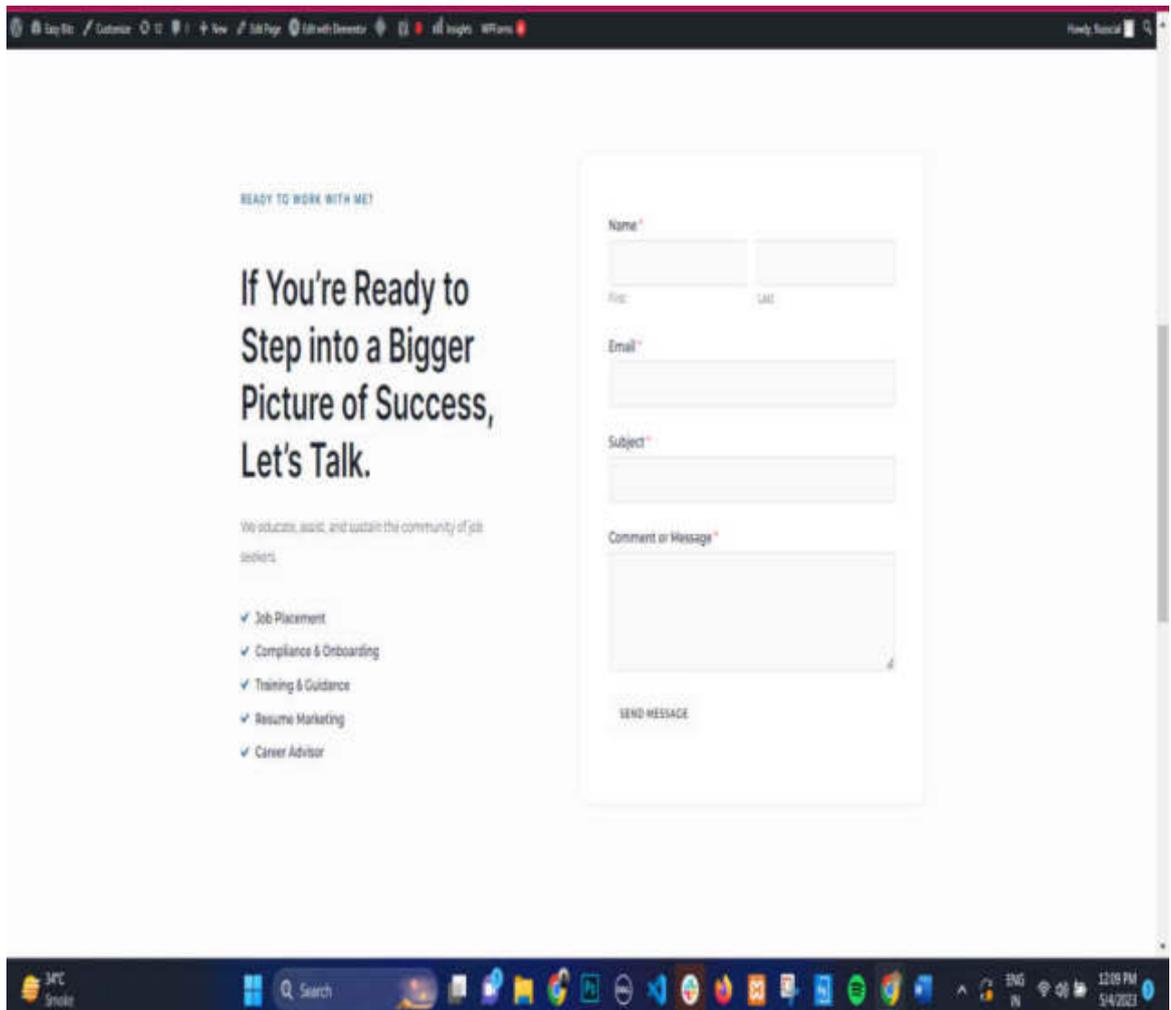opted. This package shall prove to be a powerful package in satisfying all the requirements of the school. The objective of software planning is to provide a frame work that enables the manger to make reasonable estimates made within a limited time frame at the beginning of the software project and should be updated regularly as the project progresses.

6.14.1 At the end it is concluded that we have made effort on following points...

- A description of the background and context of the project and its relation to work already done in the area.
- Made statement of the aims and objectives of the project.
- The description of Purpose. Scope, and applicability.
- We define the problem on which we are working in the project.
- We describe the requirement Specifications of the system and the actions that can be done on these things.
- We understand the problem domain and produce a model of the system, which describes operations that can be performed on the system.
- We included features and operations in detail, including screen layouts.
- We designed user interface and security issues related to system.
- Finally, the system is implemented and tested according to test cases.

6.15 Future Scope of the Project

- In a word, the project's future scope is around the preservation of information pertaining to:
- We can add printer in future.
- We can give more advance software for Online Job Portal including more facilities
- We will host the platform on online servers to make it accessible worldwide
- Integrate multiple load balancers to distribute the loads of the system
- Create the master and slave database structure to reduce the overload of the database queries
- Implement the backup mechanism for taking backup of codebase and database on regular basis on different servers.
- The above-mentioned points are the enhancements which can be done to increase the applicability and usage of this project.
- So here we left all the possible options to open for future enhancement.

6.16   Limitations of the Project

- Although I have put my best efforts to make the website flexible, easy to operate but limitations cannot be ruled out even by me. Though the software presents a broad range of options to its users some complex options could not be covered into it; partly because of logistic and partly due to lack of sophistication. Rareness of time was also major constraint; thus, it was not possible to make the website fool proof and dynamic. Lack of time also compelled me to ignore some part such as storing old result of the candidate etc.
- List of limitations which is available in the Online Job Portal.
- Excel export has not been developed for Job.
- Vacancy due to some criticality.
- The transactions are executed in off-line mode. hence on-line data for Resume, jobseeker capture and modification is not possible.
- Off-line reports of job vacancy, interview, resumes cannot be generated due to batch mode execution.

6.16 SUMMARY OF THE INTERNSHIP

- In this internship I was able to learn various skills apart from developing like communication skills since I have to communicate with my colleagues and presentation skills since in our company, we have to give presentation along with group discussion at certain time in the developing part I was able to learn frame work, various languages and database. I gained knowledge about live projects and about work management since we have to complete our work in certain time period due to the estimation made by team leader.

6.17 DATES OF CONTINUOUS EVALUATION

- All the reviews were conducted via offline mode.
- First review was conducted on 18/03/2023.
- Second review was conducted on 09/05/2023.

Chapter 7. Testing Strategies

7.1 Testing Plan

Behaviour Driven Development

- The company uses Behaviour Driven Development which encourages communication between client and teams so all members understand each feature, prior to the development process. In Behaviour Driven Development, testers, developers, and business analysts create "scenarios", which facilitate example-focused communication.
- Scenarios are written in a specific format, the Gherkin Given/When/Then syntax. They contain information on how a feature behaves in different situations with varying input parameters. These are known as "executable specifications" as they are made up of both specifications and inputs to the automated tests.
- The idea of Behaviour Driven Developments is that the team creates scenarios, builds tests around those scenarios which initially fail, and then builds the software functionality that makes the scenarios pass. It is different from traditional Test-Driven Development (TDD) in that complete software functionality is tested, not just individual components.

Sr. No.	Test Cases	Test Result
General Testing		
1	Verify if the admin login is valid or not	Positive
2	Verify if the jobseeker login is valid or not	Positive
3	Verify if password is invalid	Positive
4	Verify if the employer login is valid or not	Positive
5	Posting of jobs	Positive
6	Verify user already exist or not	Positive
7	Create Account	Positive
8	Verify that all the links are redirecting to correct pages	Positive
9	Verify that the company logo is clearly visible.	Positive
10	Verify that the product is clearly visible.	Positive
11	Verify that filter works correctly on jobs page.	Positive
12	Verify that sort works correctly on Shop page.	Positive

Employer side Testing		
13	verify that the add jobs panel is working	Positive
14	Verify panel validation for checking mandatory fields.	Positive
15	Verify that employers can update the information and fields of existing jobs.	Positive
16	Verify that jobs created by employers get visible on the website after approved from admin.	Positive
Customer side Testing		
17	Jobseeker can see jobs without creating account	Positive
18	Verify that the mandatory fields are marked with * against the field.	Positive
19	Verify that the apply for job button is working	Positive
20	Verify that jobseeker insert only pdf or doc under restricted size in resume.	Positive

TABLE 7.1 TEST CASES

References

[1] Google for problem solving

[2] https://wordpress.org/

[3] https://wordpress.org/plugins

[4] https://javatpoint.org/wordpress

[5] https://www.apachefriends.org/download.html for xampp installation

[6] https://www.w3school.com/html for html & CSS study

[7] YouTube for alternate plugins and error solving also.

Appendix

FLU SOCIAL

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Info@flusocial.com

FLU SOCIAL
MARKETING

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Pal Hiteshkumar Kamleshbhai** (Enrollment No: **19039011601ᴣ**) 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.

Dron Joshi
CEO, Flu Social

INTERNSHIP AT ALPSLOGIC IT SOLUTIONS

AN INTERNSHIP REPORT

Submitted by

Akshaykumar Pankajbhai Patel

190390116014

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information & Technology

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 AlpsLogic IT Solutions** has been carried out by **Akshaykumar Pankajbhai Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information & Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign: Sign

Prof. Upasna Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

COMPANY CERTIFICATE

ALPSLOGIC IT SOLUTIONS

415-419 - Shree Ugati Corporate Park,
Opp. Pratik Mall, Kudasan,
Gandhinagar - 382421

Issued Date: 28/04/2023

TO WHOM IT MAY CONCERN

This is to certify that **Patel Akshaykumar Pankajbhai**, a student of **S.P.B. Patel Engineering College, Mehsana,** has successfully completed his internship in the field of **Web Developer** from **30th January 2023** to **28th April 2023** under the guidance of **Mr. Yash Patel.**

His internship project work titled **"Drone FMS"** includes working with React.JS and Node.JS.

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,

AlpsLogic IT Solutions

Yash R. Patel – (Admin)

For, ALPSLOGIC IT SOLUTIONS

Authorised Signatory

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 AlpsLogic IT Solutions** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information & Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasna Leela & Jignasha 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.   **Akshaykumar Pankajbhai Patel**   _____

ACKNOWLEDGEMENT

Abstract

My experience as an intern at Alpslogic IT Solutions is elaborately summarized in this report. I have gained a lot of knowledge about front-end technologies and systems throughout my internship. I've learn a lot about how the business operates, the rules ,how to work on a project in real time, and how to collaborate well with others while carrying out all of our tasks and obligations. I also gained experience in really business-like areas where I was able to further develop both professionally and personally. My boss and other department members liked what I brought to the table. My job has a little impact on the career route I might choose because I've had the opportunity to see how the business operates and develops. The internship gave me opportunities for personal development, practical experience, and understanding how a software development firm runs. This report, however, was created in a remarkably short amount of time. Even so, I made all the effort I could to make it relevant by reflecting on my work at the corporation. I've also outlined my general experience, the difficulties I had working as an intern, and how they helped me develop throughout these months and prepare for the competition the world has to offer.

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Abbreviations

JSX	JavaScript XML
DOM	Document Object Model
FMS	Flight Management System
NOTAMs	Notice to Air Missions
TFRs	Temporary Flight Restrictions
UAS	Unmanned Aircraft System

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CHAPTER 1. INTRODUCTION

1.1 OVERVIEW OF THE COMPANY

At AlpsLogic IT Solutions, we focus on using technology to help our clients realize results for their business and their customers. Our clients have looked to us as a business partner and not as a vendor; allowing us to grow through repeat business and referrals. Each project we worked on has created compelling experiences for our client's customers and employees, enabling them to reduce costs, increase productivity and enable collaboration and enhanced agility–and ultimately improved performance.

Our people lie at the heart of our vision and values. They form the source of our expertise. We can provide a full day workshop with representative stack holders within your organization identify goals, measure, priorities and a go forward plan.

Services:

- Mobile and Web development
- Cloud Services
- Customer Applications
- Share Point Support

1.2 MISSION AND VISION OF COMPANY:

At AlpsLogic, we are committed to helping our customers upgrade their digital services to the next level.

We use innovative tools to provide path-breaking solutions and strive to be the first choice for anyone looking to upgrade their digital services.

- Our team can help you manage and share documents, set up approval workflows, THE integrate with other systems, enable search, and analyze data with SharePoint.

- We also offer website design and development services, including testing on all platforms and ongoing maintenance and support.

1.3 WHAT IS REACT?

React is a popular JavaScript library for building user interfaces(UIs)that was developed by Facebook. It allows developers to create reusable UI components and efficiently manage the state of their applications.

React is based on the concept of a "virtual DOM", which is an abstraction of the actual HTML DOM that allows for faster updates and rendering of changes to the UI. React is often used in conjunction with other libraries and frameworks, such as Redux, to create complex web applications. It has gained widespread adoption and popularity due to its ease of use, flexibility, and high performance.

➢ **Advantages**

Makes use of the JavaScript structure known as virtual DOM. Since JavaScript's virtual DOM is quicker than the conventional DOM, this will boost the speed of programs.

- Can be used with various systems and on both client and server sides is commendable.

- Components and identify trends make larger apps easier to manage by increasing clarity.

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➢ **Limitations**

1. Only addresses the app's angle and distance; as a result, additional techniques must be selected if you want a full collection of development tools.

Employs inline scripting and JSX, which some programmers might find uncomfortable.

➢ **Features of React**

- Declarative approach
- Component-based architecture
- Virtual DOM
- Efficient rendering
- JSX syntax
- Unidirectional data flow
- Large ecosystem

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CHAPTER 2. PROCESS BEING CARRIED OUT IN COMPANY

2.1 DETAILS OF PROJECT IMPLEMENTATION PROCEDURE

- Planning
- Analysis
- Designing
- Implementation
- Testing
- Deployment
- Maintenance

2.2 TECHNICAL SPECIFICATIONS OF MAJOR SOFTWARE USED IN EACH DEPARTMENT

With more than 10 years of practical experience we bring the experts in Following Web Technologies as following:-

- Cloud Services
- Application Support
- IT Strategic Planning
- Web&Mobile Development
- Managed Services
- SharePoint Support
- UI Design

➢ **Visual Studio**

Visual Studio is an integrated development environment (IDE) created by Microsoft. It provides developers with a powerful and flexible platform for building a wide range of applications, including desktop, web, mobile, and cloud-based applications.

➢ **SQL Server Management Studio (SSMS)**

SQL Server Management Studio (SSMS) is a software application developed by Microsoft that is used to manage and administer SQL Server databases. It provides a graphical user interface (GUI) for developers and database administrators to perform various tasks related to SQL Server, such as creating and managing databases, configuring security settings, optimizing performance, and executing SQL queries.

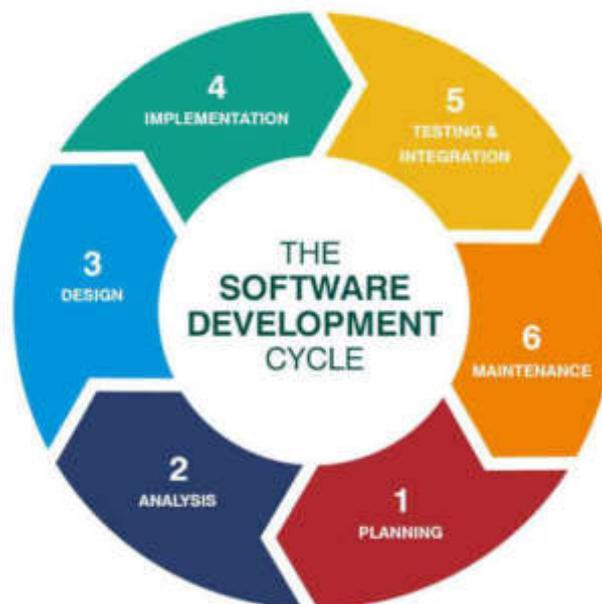## 2.3 SCHEMATIC LAYOUT OF OPERATION FOR MANUFACTURING OF END PRODUCT

Fig 2.3.1 Operation of Software Development

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2.4 DETAILS ABOUT EACH STAGE OF PRODUCTION

Planning

Planning for the quality assurance requirements and identification of the risks associated with the project is also done in the planning stage.The outcome of the technical feasibility study is to define the various technical approaches that can be followed to implement the project successfully with minimum risks.

Requirement 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.

Designing

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

Implementation/Coding

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.

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. INTERNSHIP PROJECT

3.1 PROJECT SUMMARY

The Drone Flight Management System (FMS) connects all your people, processes and devices into one efficient drone operations platform. Our interactive airspace map allows you to see regulatory air restrictions (NOTAMs and TFRs), plan flights, register pilots and pilot certificates, collaborate with crews, approve flight requests and keep a digital trace of all flight activities in a secure and reliable cloud-based set of web apps.

3.2 PURPOSE

The purpose of a drone flight management system is to enable efficient, safe, and compliant drone operations. It is a software platform that integrates a range of technologies and functionalities to facilitate planning, execution, and monitoring of drone flights, with the aim of optimizing resources, reducing operational costs, and ensuring safety.

3.3 OBJECTIVE

1. Ensure safe and legal drone operations by providing an interactive airspace map that allows users to visualize regulatory air restrictions such as NOTAMs and TFRs.

2. Simplify flight planning and management by enabling users to plan flights, register pilots, and manage pilot certificates through a centralized platform.

3. Improve collaboration and communication among team members by enabling them to work together in real-time through web apps.

4. Streamline the flight approval process by allowing stakeholders to submit and approve flight requests through the FMS.

5. Provide a digital record of all flight activities, which is useful for compliance and risk management purposes.

3.4 SCOPE

The platform provides an interactive map that displays airspace restrictions, including NOTAMs and TFRs, enabling users to plan drone operations safely. the platform allows users to create and flight plans, and The FMS facilitates flight request approval by allowing managers to review and approve flight requests. The platform for efficient, compliant, and secure drone operations management, connecting people, processes, and devices into a single platform.

3.5 LEARNING PHASE

3.5.1 Learning The Fundamentals Of WEB

Then I develop the understanding of how the web works under the hood, how browser works a query, how DNS server works and how various protocols are used to transfer variety of data. I studied web fundamentals as per below:

HTML:HTML (Hypertext Markup Language) is the foundation of the web. It's used to create the structure of web pages and includes elements like headings, paragraphs, links, and images.

CSS:CSS (Cascading Style Sheets) is used to style HTML elements and create visually appealing websites. It includes concepts like selectors, properties, and values.

JavaScript: JavaScript is used to create interactive web pages and add functionality to websites. It includes concepts like variables, functions, loops, and conditional statements.

Responsive Design: Responsive design is the practice of creating websites that work well on different screen sizes, from desktops to mobile devices. It involves using CSS to adjust the layout and design of a website based on the size of the screen.

Web Performance: Web performance involves optimizing websites to load quickly and efficiently. This includes techniques like compressing images, minifying code, and using caching.

Web Standards: Web standards are guidelines and best practices for creating websites that are accessible, usable, and compatible across different browsers and devices. This includes using standardized HTML and CSS code and following accessibility guidelines.

3.5.2 React

Components: React applications are built using reusable components that represent different UI elements. These components are structured as classes or functions, and can have their own state, properties, and methods.

JSX: JSX is a syntax extension that allows developers to write HTML-like code within their JavaScript code. This makes it easier to define and render UI components within the application.

State: State represents the current data values for a component, and can be updated based on user interactions or other events within the application. Changes to state trigger a re-rendering of the component to reflect the new data values.

Props: Props, short for properties, are values that are passed to a component from its parent component. Props can be used to customize the behavior and appearance of a component, and can be updated by the parent component as needed.

Routing: React applications can be organized into different routes or pages, each with its own set of components and functionality. Routing allows the application to handle user navigation and display the appropriate content based on the current route.

Events: Events are used to capture user interactions, such as button clicks or form submissions. React provides a simple and consistent way to handle events across all components.

Lifecycle methods: React provides several lifecycle methods that allow you to control the behavior of components at different stages of their lifecycle. These methods are used to perform actions when components are created, updated, or destroyed.

3.5.3 MS SQL Server

To learn the fundamentals of MS SQL Server, it's important to understand its core concepts such as databases, tables, columns, and rows. SQL(Structured Query Language)is used to manipulate and retrieve data from these databases. Basic SQL commands like SELECT, INSERT, UPDATE, and DELETE are essential to learn. Additionally, understanding SQL Server Management Studio (SSMS) is important for managing databases and executing SQL queries. It's also important to learn about database normalization, indexing, and data types to optimize performance and ensure data integrity. Finally, learning about backups, restores, and security features such as logins and users is crucial to maintain the reliability and security of databas

CHAPTER 4. SYSTEM ANALYSIS

4.1 INTRODUCTION

After learning key concepts of React, I was introduce to a task of working on a website called Drone FMS which is manage drone ops website that serves as the online platform for the Berkeley University of California.

4.2 GOALS

The goal of the website is to be efficient drone operations for the FMS aims to provide a comprehensive and streamlined platform for managing drone operations. By connecting all people, processes, and devices into one platform, the FMS can help to reduce the time and effort required to manage and coordinate drone flights and also to provide a secure and reliable cloud-based set of web apps, with unmatched data security management and threat protection.

4.3 CHALLENGES

- Staying up-to-date on regulations
- More risk exposure
- Reduced cost effectiveness

4.4 IDEAL SOLUTION

- An automated workflow-driven system
- Always up-to-date with the evolving regulations
- Compliant not only with national and regional regulations but also corporate policies and   procedures.

4.5 DESIRED OUTCOMES

- Enterprise drone operations compliant with laws and abide by corporate safety guidelines
- Audits tracked in a central system of record
- Participants can collaborate efficiently for flight planning and flight mission analysis activities

4.6 SYSTEM FEASIBILITY

1. **Technical feasibility:** The website appears to be technically feasible, as it is built using standard web development technologies such as React and is hosted on a reliable server.

2. **Operational feasibility:** Operational feasibility aspects of the project are to be taken as an important part of the project implementation. Some of the important issues raised are to test the operational feasibility of a project includes the following:

   1) Is there sufficient support for the management from the users?
   2) Will the system be used and work properly if it is being developed and implemented?
   3) Will there be any resistance from the user that will undermine the possible application benefits?

3. **Economic feasibility:** A system can be developed technically and that will be used if installed must still be a good investment for the organization. In the economic feasibility, the development cost in creating the system is evaluated against the ultimate benefit derived from the new systems. Financial benefits must equal or exceed the costs. The system is economically feasible.

4.7 FUNCTION OF THE SYSTEM

- The website provides a platform for user to register their UAS on the system.
- The website provides a platform for User to create flight request on their preferable date &   time.
- The user can update their profile and check their flight request was approved or rejected.

4.8 MODULES OF PROPOSED SYSTEM

Home: This is the main page of the website, which provides an overview of Use the Drone FMS to organize and plan your flight operations through a flight request to ensure compliance with your organization policies and regulations.

About Us: This module provides information about the drone FMS, it's including Technologies, features and it structure.

Login page: A login page component typically consists of a form with fields for the user to enter their credentials (such as username and password) and a submit button to authenticate their identity and grant access to the system.

UAS: This is a for managing Unmanned Aircraft Systems (UAS) that manage user interactions with the data, including editing and deleting rows from it. The component managing the UAS data.

Flight Requests: This module is use to create   flight request with the start and end date & time. Also we can check our approved or rejected flights in flight in review tab.

Setting: A settings page with tabs for user profile, user management, and roles management. It   checks for user permissions before rendering the User Management and Roles Management tabs.

New polygon: A new polygon on a Mapbox map using the AirMap API to display airspace information. The component returns a form for drawing new polygons and retrieving airspace information.

4.9 SELECTION OF HARDWARE AND SOFTWARE

Designing front-end	HTML, CSS, Bootstrap, React
Library	ReactJS
IDE	Visual studio
Database	MS SQL server
Back-end	Node.js, C#

Table 4.8.1 Software Requirements

CHAPTER 5. SYSTEM ANALYSIS

5.1 SYSTEM DESIGN

User side:

- The user can register and log in to the system.
- A user can create a flight request, but they need permission from the admin side.
- The user can create new UAS in the system.
- The user can check the schedule of flights in the flight calendar.

Administrative side:

- Admin can also login and register in the system.
- Admin can approve or reject flight request from the user side and also comment the reason why flight request is rejected.
- Admin can manage users and view the UAS information.

5.2 DATABASE DESIGN/DATABASE STRUCTURE DESIGN
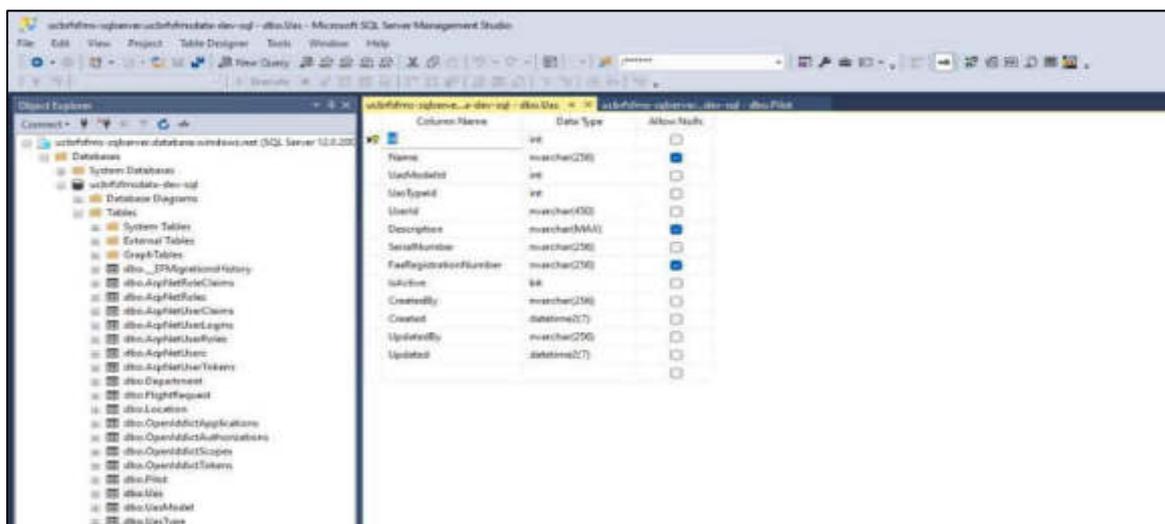
Fig 5.2.1 UAS Database
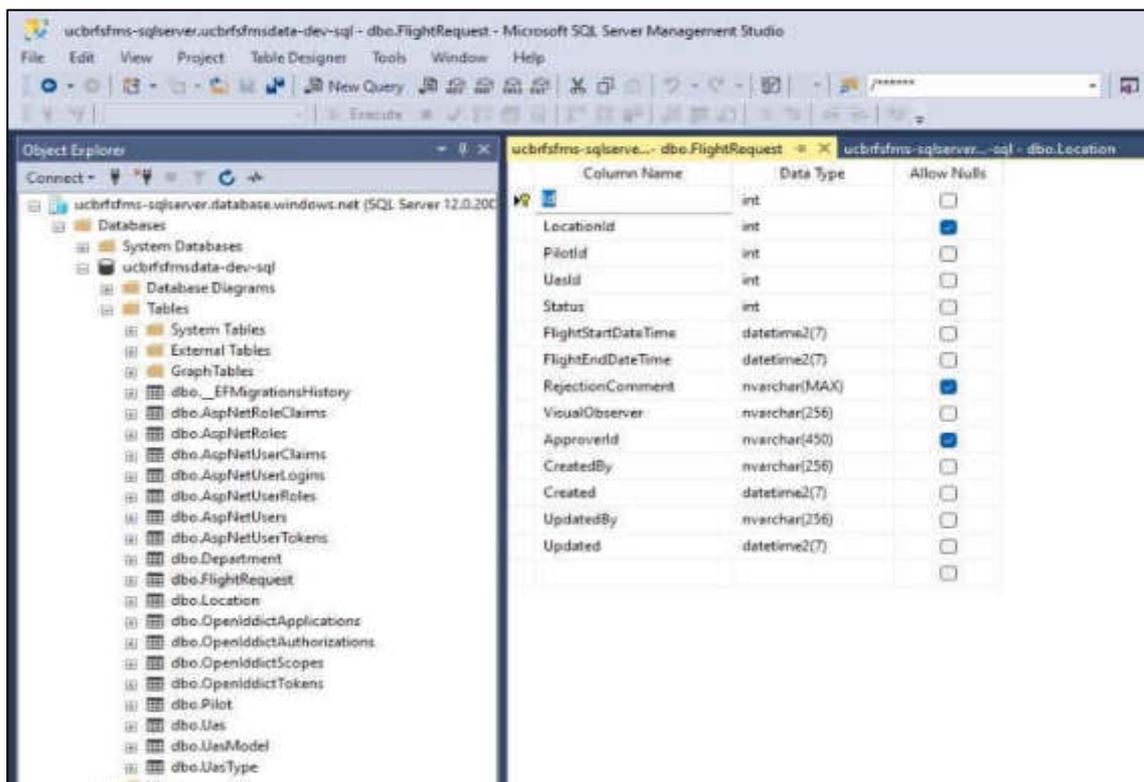
Fig 5.2.2 Flight Request Database
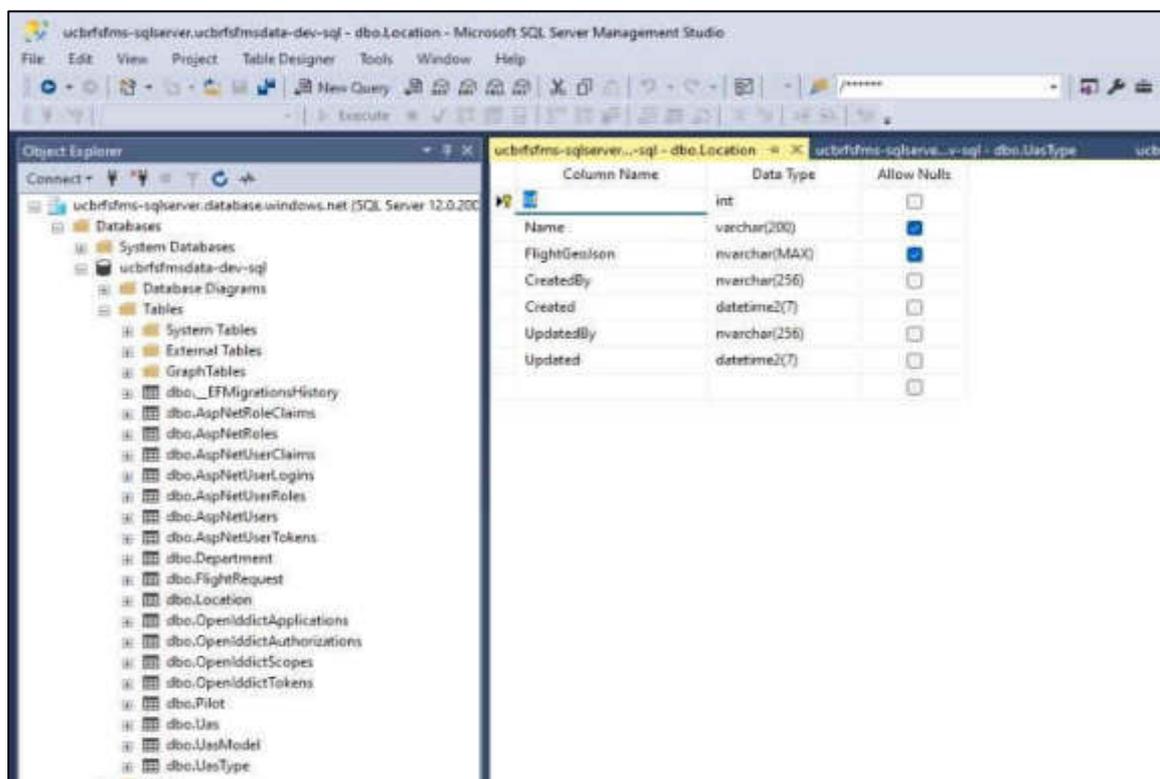
Fig 5.2.3 Location Database

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5.3 ER DIAGRAM OF FMS
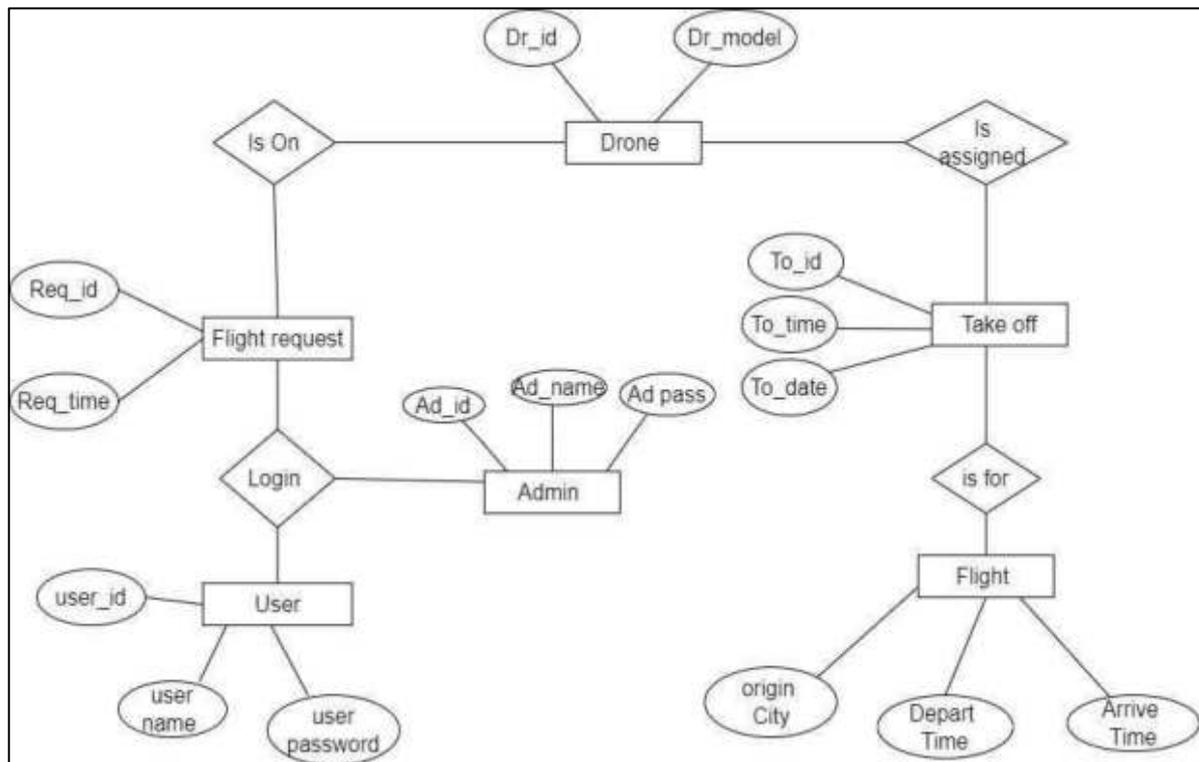
Fig 5.3.1 ER Diagram
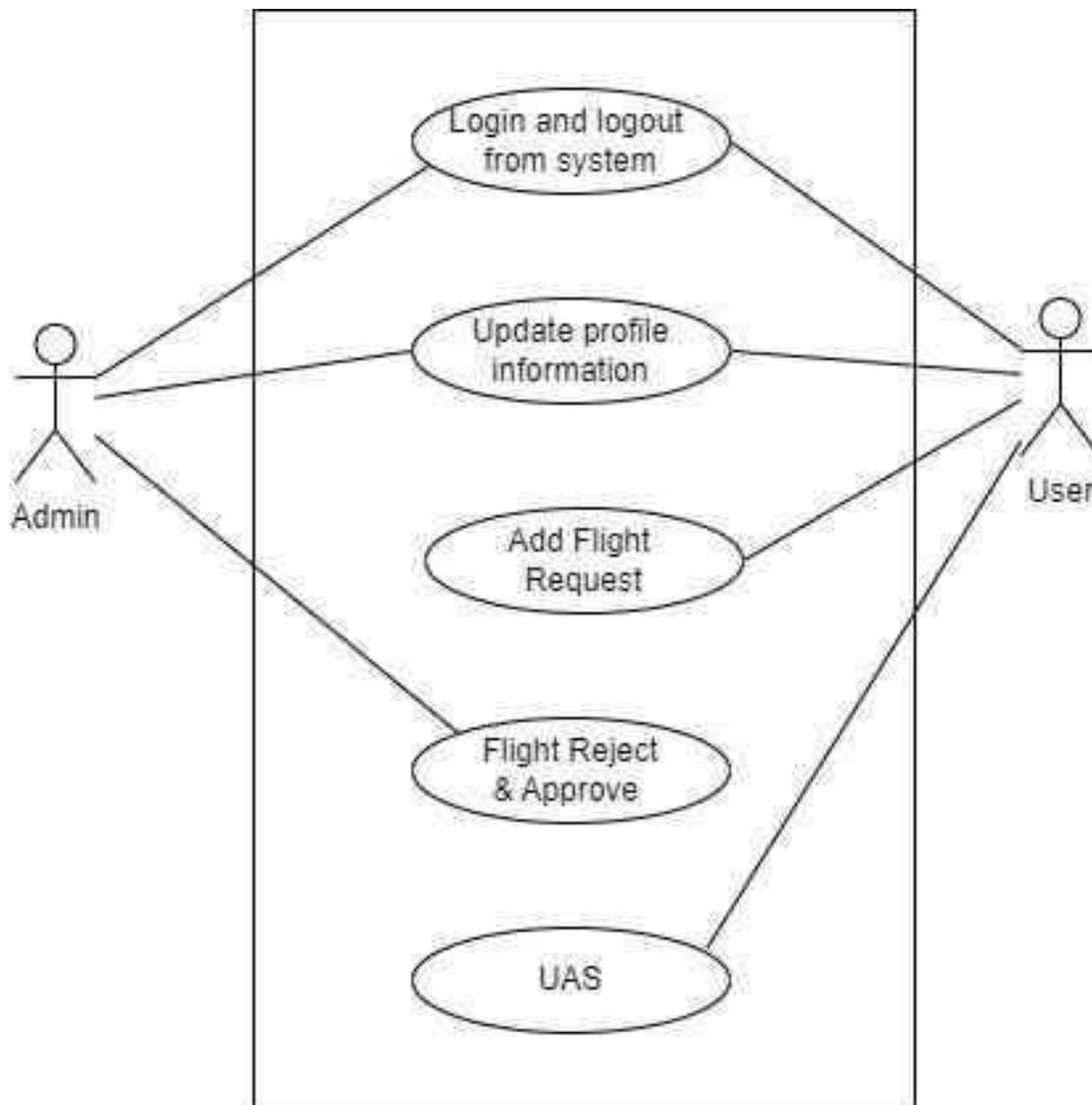
5.4 USE CASE DIAGRAM

Fig 5.4.1 Use case Diagram

5.5 ACTIVITY DIAGRAM
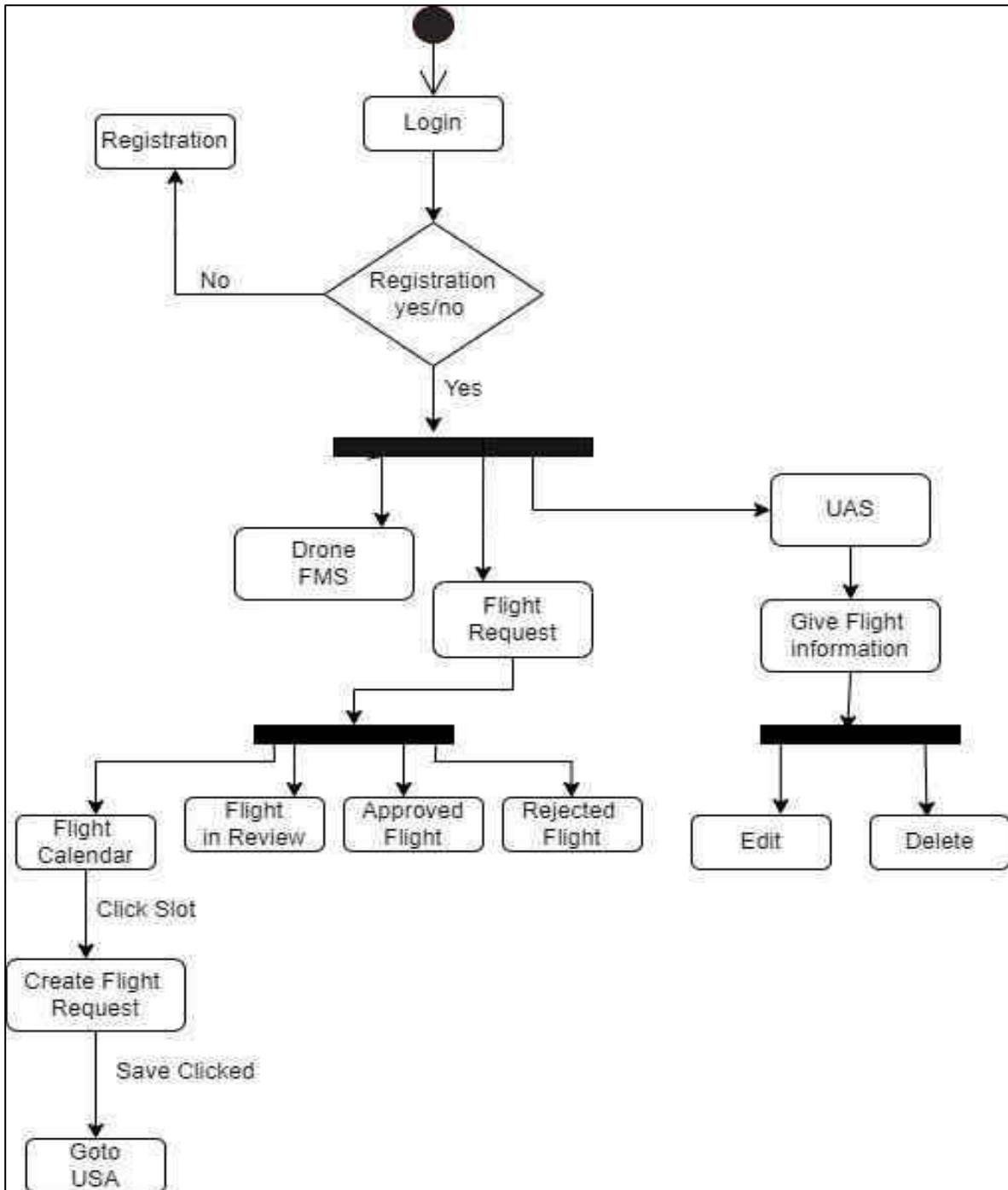
Fig 5.5.1 Activity Diagram

CHAPTER 6. IMPLEMENTATION

6.1 TECHNOLOGIES & IMPLEMENTATION ENVIRONMENT

Designing front-end	HTML, CSS, Bootstrap, React
Library	ReactJS
IDE	Visual studio
Database	MS SQL server
Back-end	Node.js, C#

Table 6.1.1 Technologies

6.2 CODING STANDARDS

- Naming conventions: Use consistent and descriptive names for variables, functions, and files.
- Indentation and formatting: Use consistent indentation, whitespace, and formatting to improve readability and maintainability.
- Comments: Use comments to explain the purpose and functionality of code.
- Error handling: Handle errors and exceptions gracefully and consistently.
- Security: Implement appropriate security measures to protect the website and user data.
- Performance: Optimize code for performance and scalability.

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6.3 SNAPSHOTS
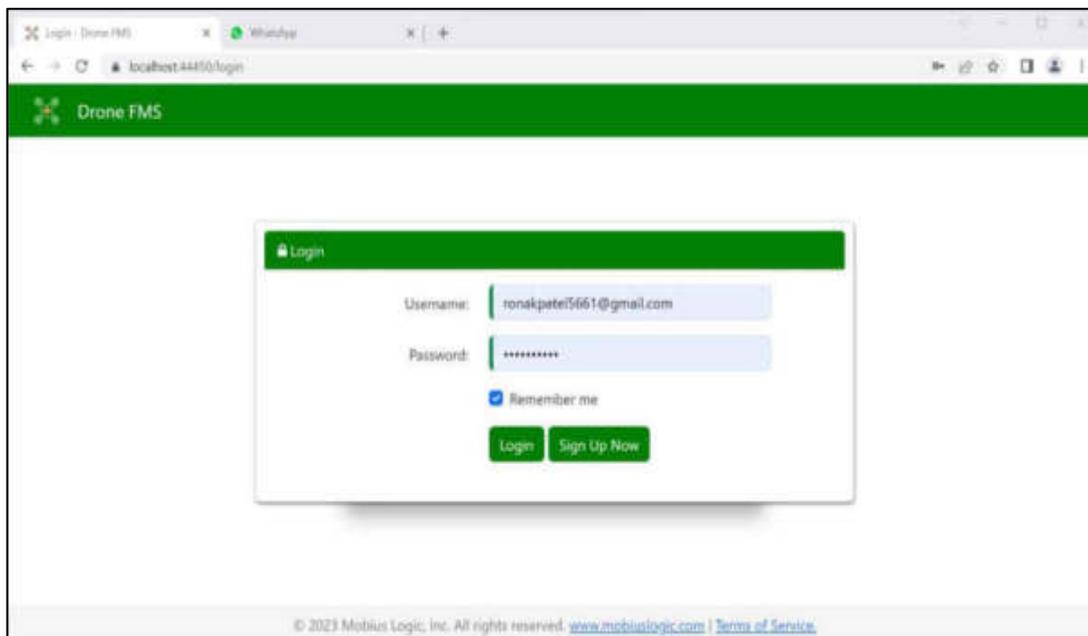
Fig 6.3.1 Login Page
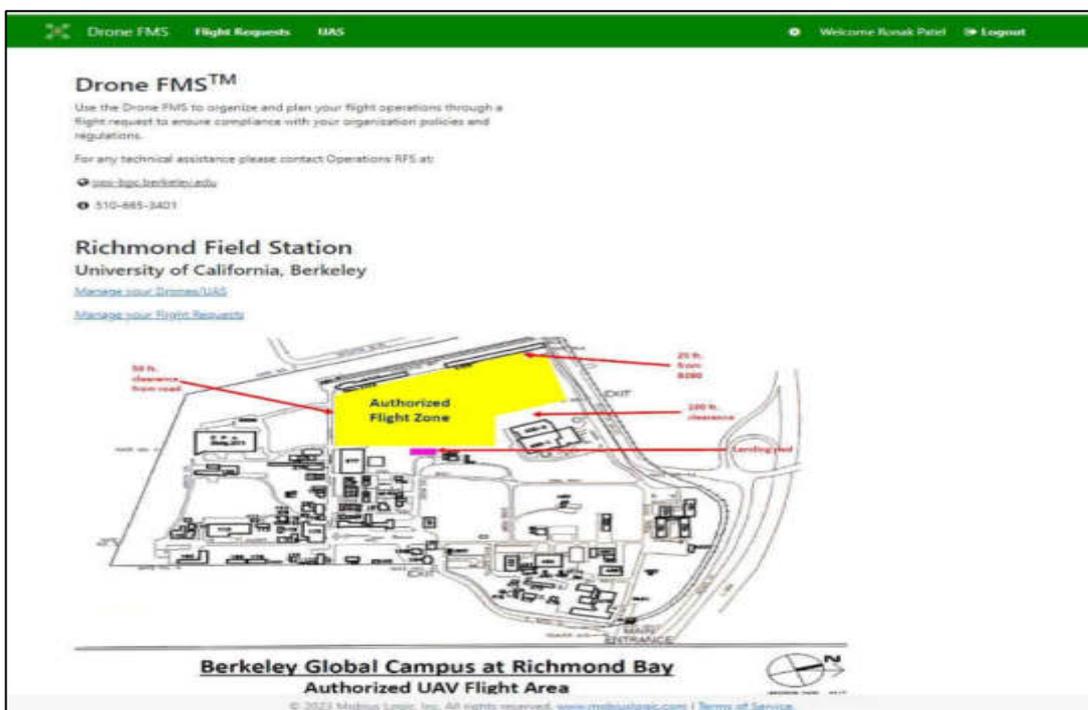
Fig 6.3.2 Home Page
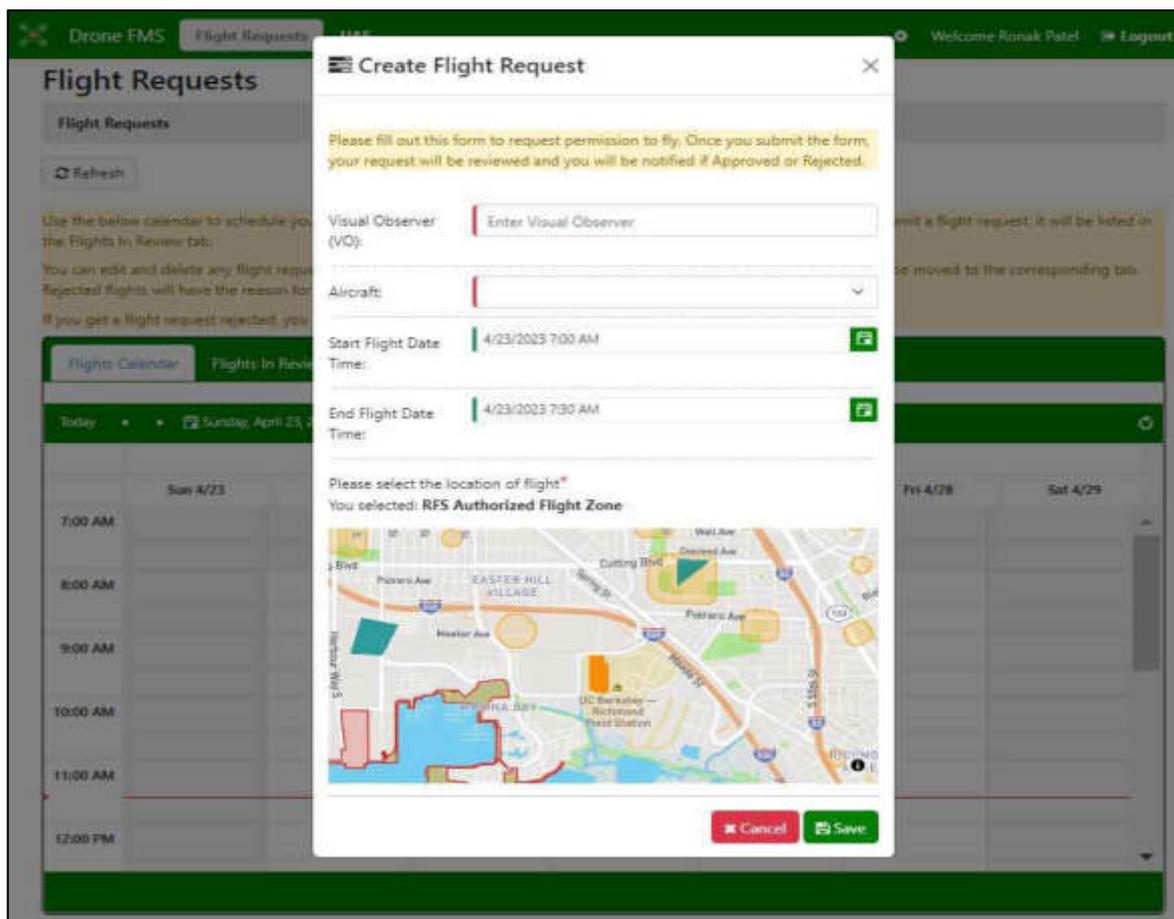
Fig 6.3.3 Create Flight Request
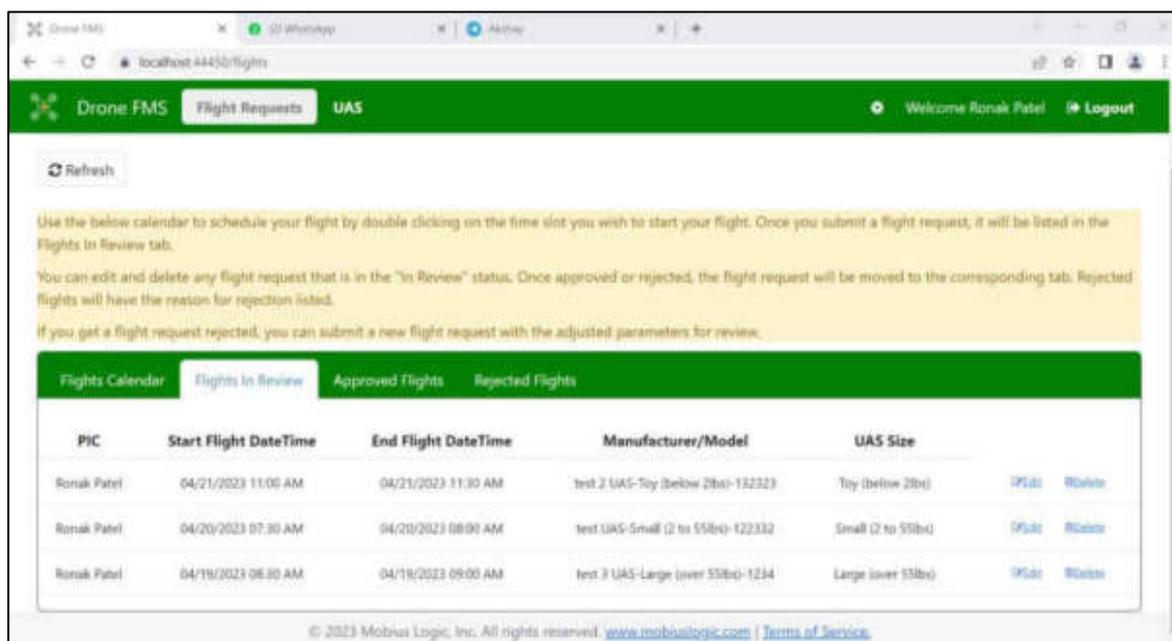
Fig 6.3.4 Flight In Review
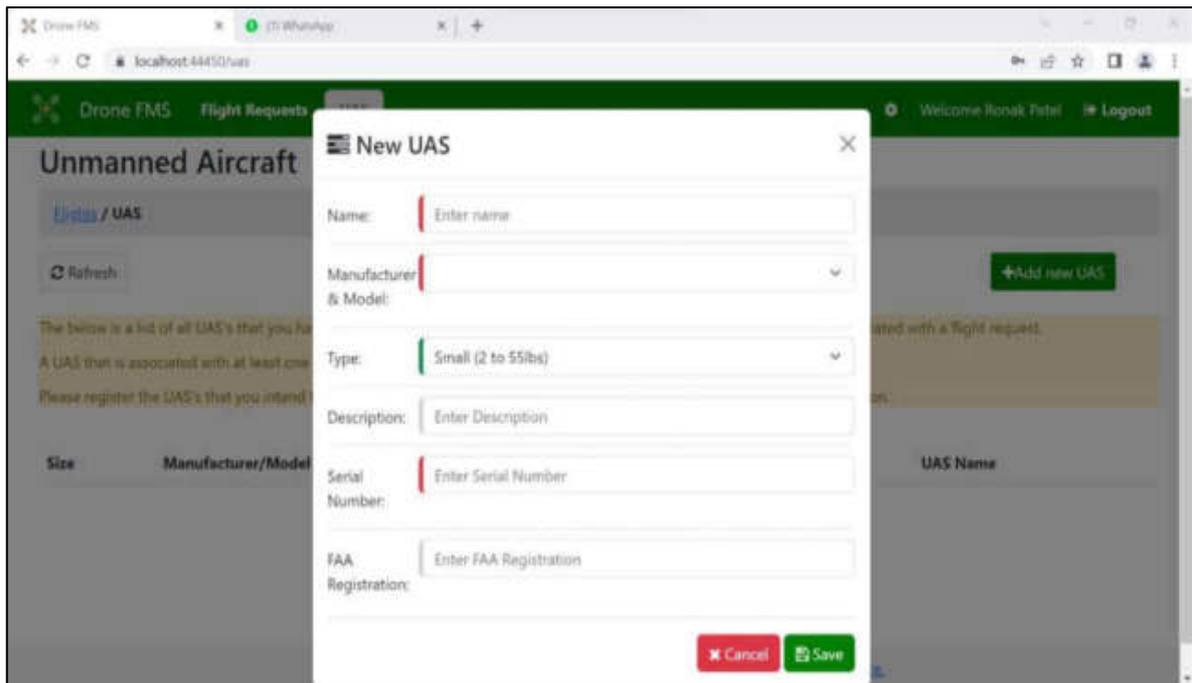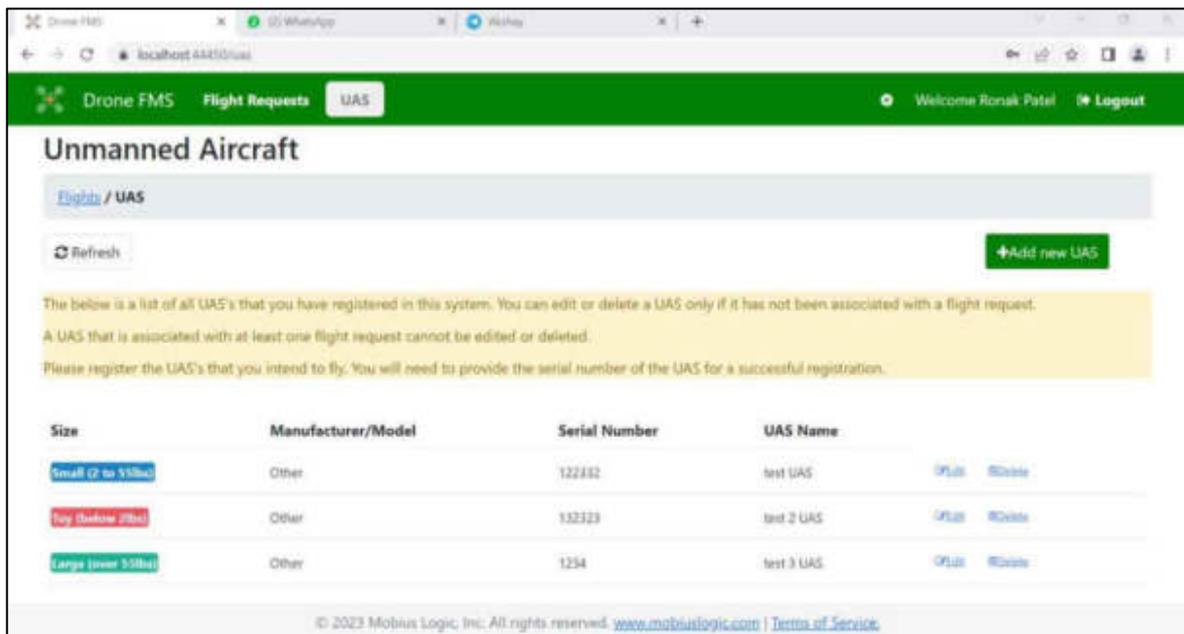
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Fig 6.3.5 New UAS

Fig 6.3.6 UAS Page

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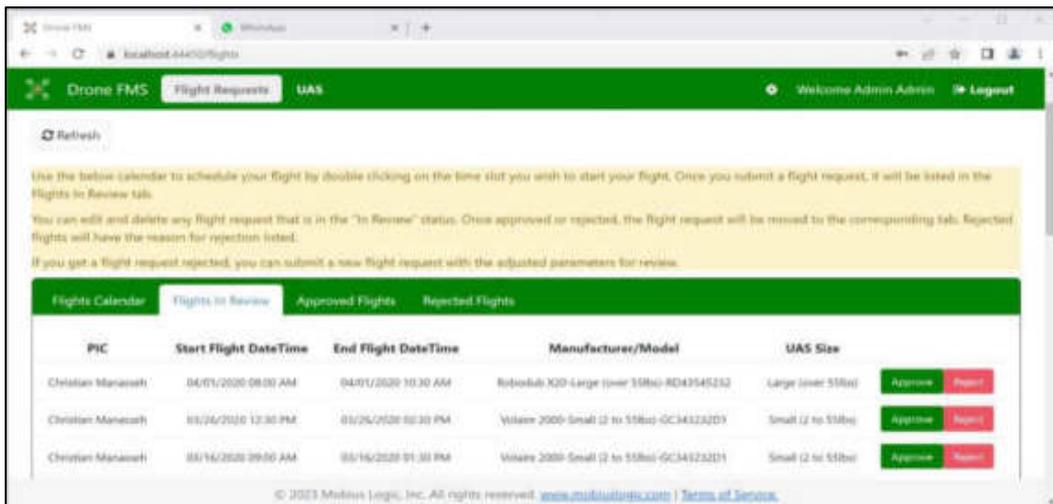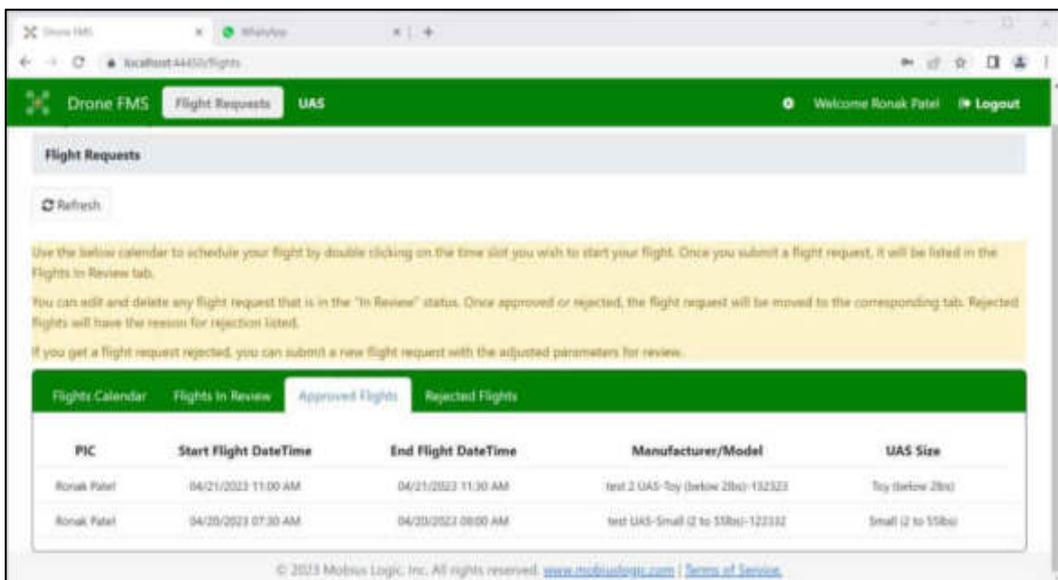
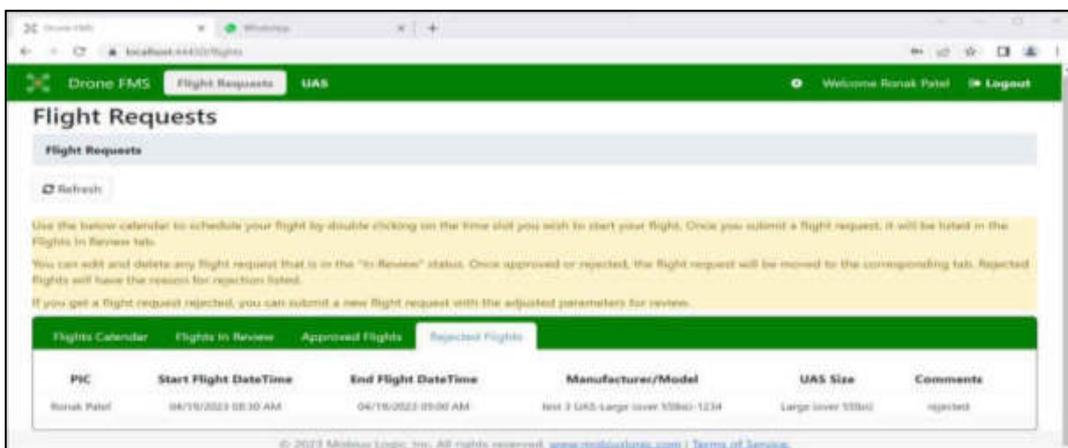Fig 6.3.7 Admin side Flight In Review

Fig 6.3.8 Approved Flights Tab

Fig 6.3.9 Rejected Flights Tab
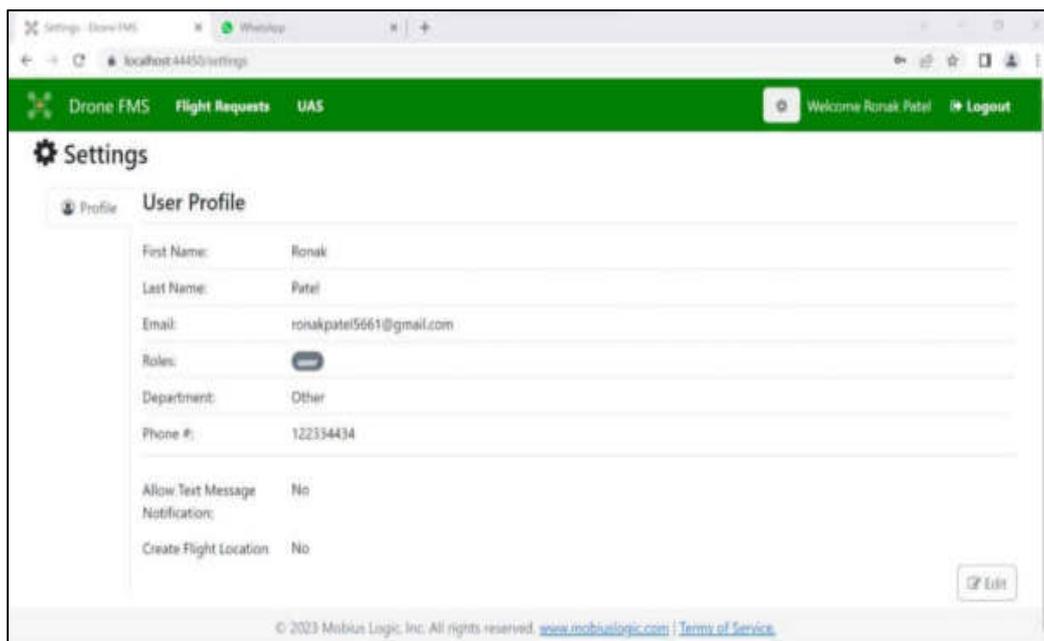
Fig 6.3.10 User Settings Page

Fig 6.3.11 Admin Settings Page

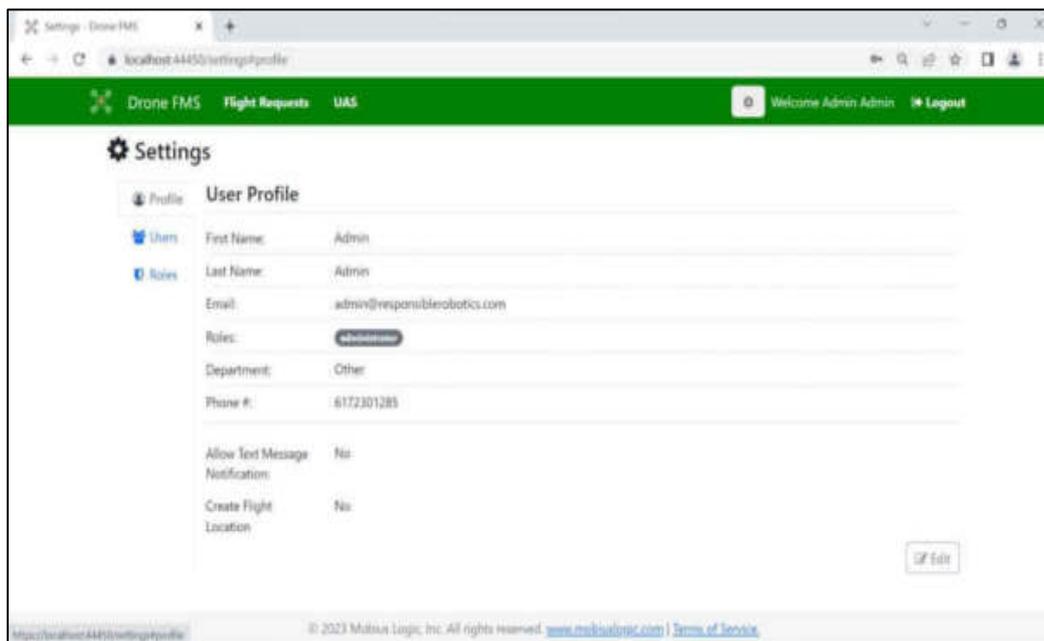Gujarat Technology University   Saffrony Institute of Technology

CHAPTER 7. TESTING

7.1 TESTING STRATEGY

- **Functionality Testing:** This testing ensures that all the functionalities of the website are working as expected. For example, registration, Login and Flight requests are accessible and working correctly.
- **Compatibility Testing:** This testing ensures that the website is compatible with different devices, operating systems, and web browsers.
- **Usability Testing:** This testing ensures that the website is user-friendly and easy to navigate.
- **Content Testing:** This testing ensures that the content on the website is accurate and up-to-date.

7.2 TEST RESULTS AND ANALYSIS

Test ID	Case	Expected Result	Actual Result	Pass/Fail
1	Login	If email or password invalid and the internet display error otherwise success.	Both are valid than successful.	Pass
2	Update user data	User data will update.	Update data and display new data.	Pass
3	Flight request	The system should successfully receive the flight request.	The flight request is successfully crated.	Pass

4	Flight Request Approval/Rejection	The flight request status should be updated in the system and can be displayed from the "Flight Review" section.	Yes,admin can approve or reject flight requests.	Pass
5	Compatibility	Website should responsive for all devices.	Website is responsive for all devices.	Pass
6	Functionality	Flight request should be updated from admin side.	Yes,admin can update flight requests.	Pass
7	Logout	Logout then redirect login screen.	Logout then redirected login screen.	Pass

Table 7.2.1 Test Case

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CHAPTER 8. CONCLUSION

My internship experience at Alpslogic IT Solutions was incredibly valuable and informative. Over the course of my time there, I gained a wealth of knowledge about front-end technologies and systems, as well as insight into how a software development firm operates. Throughout the internship, I had the opportunity to work on real projects and collaborate with others, which helped me develop both professionally and personally.

One of the most exciting projects I worked on was the Drone Flight Management System (FMS). This platform connects people, processes, and devices into a single, efficient drone operations platform. With the interactive airspace map, we were able to see regulatory air restrictions and plan flights, while also registering pilots and pilot certificates, collaborating with crews, approving flight requests, and keeping a digital trace of all flight activities in a secure and reliable cloud-based set of web apps. It was great to be part of a team that was developing such innovative technology that had the potential to make a real impact in the world.

Overall, my internship at Alpslogic IT Solutions was an incredible experience that allowed me to grow both professionally and personally. I gained practical experience in my field, built connections with colleagues and industry professionals, and learned more about what I want in a career. I'm grateful for the opportunity and am excited to see where my newfound knowledge and experience take me in the future.

CHAPTER 9. APPENDIX

INTERNSHIP OFFER LETTER

Issued Date: 30/01/2023.

Dear Akshay Patel,
AlpsLogic IT Solution is pleased to offer you an educational internship opportunity. You will begin to work as **Trainee** for the period of **3 months.**

A digital certificate will be provided upon successful completion of the Internship.

- As a **Trainee** with AlpsLogic IT Solutions you will be on probation for a period of **Three** months. This period may be extended, if found necessary, at the sole discretion of the Proprietor.
- You will not be entitled for any **Stipend/Salary/Perks/Bonus/Remuneration** or any **Other Monetary** benefits unless you are hired during or after your Trainee period which is **THREE MONTHS MINIMUM.**

With best wishes,
Yours Sincerely,

For ALPSLOGIC IT SOLUTIONS

Authorised Signatory

Yash R. Patel – (Admin)
I accept the offer on the above terms and conditions, I will report for duty on ___30 / 01 / 2023___

(Akshay Patel)

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Saffrony institute of technology

Student Name: Patel AkshayKumar Pankajbhai

Enroll No.: 190390116014

Internal Guide: Prof. Upasna Leela

Company Name: Alpslogic IT Solutions

External Guide Name: Jignasha Makwana

	Day01	Day02	Day03	Day04	Day05	Student sign	Officer In-charge sign
Week01	P	P	P	P	P	A.P Patel	J.P Patel
Week02	P	A	A	P	P	A.P Patel	J.P Patel
Week03	P	P	P	P	P	A.P Patel	J.P Patel
Week04	P	P	P	P	P	A.P Patel	J.P Patel
Week05	P	P	A	P	P	A.P Patel	J.P Patel
Week06	P	A	HOLIDAY	P	A	A.P Patel	J.P Patel
Week07	P	A	P	P	A	A.P Patel	J.P Patel
Week08	P	P	P	P	P	A.P Patel	J.P Patel
Week09	P	P	P	P	P	A.P Patel	J.P Patel
Week10	P	P	P	P	P	A.P Patel	J.P Patel
Week11	P	P	P	HOLIDAY	HOLIDAY	A.P Patel	J.P Patel
Week12	P	P	P	P	P	A.P Patel	J.P Patel

For, ALPSLOGIC IT SOLUTIONS

J.P Patel.

Authorised Signatory

190390116014

Gujarat Technology University   Saffrony Institute of Technology

10.REFRENCES

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Gujarat Technology University   Saffrony Institute of Technology

INTERNSHIP AT BRAINVIRE INFOTECH PVT. LTD.

A PROJECT REPORT

Submitted by

Charmi Kalidas Patel

190390116015

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 **EMPLOYEE MANAGEMENT SYSTEM** has been carried out by **CHARMI KALIDAS PATEL (190390116015)** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology**, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasana Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

Gujarat Technological University   S. P. B. Patel Engineering College

5th May, 2023

TO WHOMSOEVER IT MAY CONCERN

Internship Certificate

This is to certify that **Ms. Charmi Patel** has successfully completed internship from **Brainvire Infotech Pvt. Ltd.**, Ahmedabad office from **30-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, she has actively participated in various projects and assignments. Also she has shown great potential and a willingness to learn and grow, and we are confident that she will continue to excel in her 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)

Gujarat Technological University   S. P. B. Patel Engineering College

245178

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S.P.B. Patel Engineering College, Mehsana

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

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 Information Technology 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 **Ms. Upasana Leela** 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

Charmi Kalidas Patel

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, **Ms. Upasana Leela** , 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.

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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 DIFFERENET 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 messanger

- 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

Since	Team Size	Infrastructure
2000 (20 Years in Digital Transformation)	1500+ Passionate Professionals	More than 2,50,000 Sq. Ft space
Presence In USA, Canada, Middle East, Singapore, India (Mumbai, Ahmedabad)	**Resource Strength** 60% Masters in Computer Science, 30% Bachelors in Computer Science, 10% Masters in Business Administration	**Quality Management** ITIL, Prince2, OWASP
Average Age Between 25-30, Pool of young resource	**Certified Scrum Masters** 15+	**Business Dimensions** 30% Products, 40% Resources, 30% Fixed Cost
Clientele 500+ valuable clients from 40+ countries	**Proud Of** Being a Digital Enabler of Fortune 500 Companies and Top Brands of Verticals	**Websites Designed And Developed** Digitized 1500+ Businesses
Mobile Apps Published 500+ Conceptual App Development	**Client Retention Ratio** 98%	**Proven Track Record** 90% Client Retention with recurring business opportunities
Extensive In-House Programs Knowledge Enhancement Trainings and exposure to recent Technological Trends	**Employee Attrition %** 5%	**% Of Women Employees** 40%

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 majorrole in deciding the success of an organization. Employee Management Software makes iteasy for the employer to keep track of all records. This software allows the administratorto 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

Week 1	Understood the basic of linux and used tool like ubuntu,centos.
Week 2	Practice on Linux and Perform some commands to do operation on files by commandpromt
Week 3	Starting the HTML and learn tags and also practice on it and at last created web page by using tags.
Week 4	In this week we practice on CSS and giving some test in that we have sample page and we created same.
Week 5	Understood the JavaScript and some concept like Operators & Expressions,loops.
Week 6	Learn Exception handling, Try( ),Catch( ), async/await, inheritance.
Week 7	Understood the SQL, and use postgressql to perform SQL Queries.
Week 8	In this week we perform sql queries and create table, perform some operators.
Week 9	Understood the python and start from the basics so in this week the condition , loops concept we used.

Week 10	Continue with the python in that we used filter and map concept with the class and async/await function.
Week 11	Starting the oops concept with programming with the abstract method
Week 12	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

Actor	Features	Description
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.

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 shownto 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 difficultto 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 havea 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 willhave 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 wishingto 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 expertto 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.

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INTERNSHIP AT YUDIZ SOLUTIONS PRIVATE LIMITED

AN INTERNSHIP REPORT

Submitted by

Dhyey Jitendrabhai Patel

190390116017

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 YUDIZ SOLUTIONS PRIVATE LIMITED** has been carried out by **Dhyey Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasna Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

COMPANY CERTIFICATE

yudiz
Solutions Limited

Date: 28th April, 2023

To whom so ever It May Concern

This is to certify that **Mr. Dhyey Patel** a student of **Saffrony Institute Of Technology** is working as a Trainee/Intern with our Company for the duration of six months starting from 1st February, 2023 to till date, as a **Web Development Trainee** and working on a project "**Blog-Website (Backend)**".

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

YUDIZ SOLUTIONS LIMITED
formerly, Yudiz Solutions Private Limited

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DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Yudiz solution Limited** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasna Leela** & **Ms. 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

Dhyey J. Patel

ACKNOWLEDGMENT

I wish to express our sincere gratitude to our External guide **Mr. Kirtan Gajjar** for continuously guiding me at the company and answering all my doubts with patience.

I would also like to thank my Internal Guide **Prof. Upasna Leela** for helping us through our internship by giving us the necessary suggestions and advices along with their valuable coordination in completing this internship.

I also thank My friends for, 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 us 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 Company for their valuable support in completion of the project.

 Thank You

With Sincere Regards,
Dhyey Patel

ABSTRACT

This report describes the common training on core JavaScript and the practical application of this knowledge in building a Node.js application. The training covers the fundamentals of JavaScript such as data types, control flow, functions, and objects, as well as more advanced topics such as asynchronous programming and error handling. The Node.js application is built using the Express.js framework and includes features such as routing, middleware, etc.

This report also presents the development of a blog posting website's backend. The project aims to provide a platform for users to create and publish blog posts. The website is built using the Node.js runtime environment, Express.js framework, and MongoDB database. The backend of the website is designed to be scalable and modular, with a clear separation of concerns between different components. The report provides detailed information on the architectural design of the backend, including the use of RESTful API endpoints and middleware functions.

ABBREVIATION

JS	Java Script
HTML	Hyper Text Transfer Protocol
CSS	Cascading Style Sheet
DB	Data-Base
OOP	Object Oriented Programming

List of Figures

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CHAPTER 1. INTRODUCTION

1.1 Company Profile:

Yudiz Solution is a private limited service-based company established in August 2009 and situated in Ahmedabad Gujarat.

The company offers development services such as Website, Game Development, User Interface, User design, Blockchain, App Development, augmented reality, virtual reality, content management systems, artificial intelligence, search engine optimization, Cloud-based service, and many more.

Yudiz solution has different branches in different countries other than India. Yudiz's employee size is approximately more than 300+ and still motivated to increase its company size and also looking forward to completing any task smartly and programmatically.

Almost 80% of clients are repeated and always satisfied with the work delivered by Yudiz employees.

1.2 Mission And Vision of The Company:

Yudiz believes in creativity and doesn't miss any chances in terms of opportunity. And the work culture is very supportive so that every new employee gets settled down in the company very easily and comfortably. The company is seeking to help prospects so that everybody gets a chance to showcase their talents in the company and carry it towards their performance prospect.

Yudiz Solutions is recognized as an eminent company in the software industry that offers the best-in-class digital solutions and impressive services that stand out globally. The company has many campaigns such as sports leagues, donating campaigns, traveling campaigns, fitness campaigns, health campaigns, and many more.

We live every moment delightfully and enjoy every prospect very satisfied and make every moment memorable. Yudiz defines itself as a family and everybody is a family in this work culture and tries to help each other at their best and learn new things whenever and wherever possible.

1.3 Website Link and images:

Company's Website: Mobile Game & Blockchain App Development Company - Yudiz
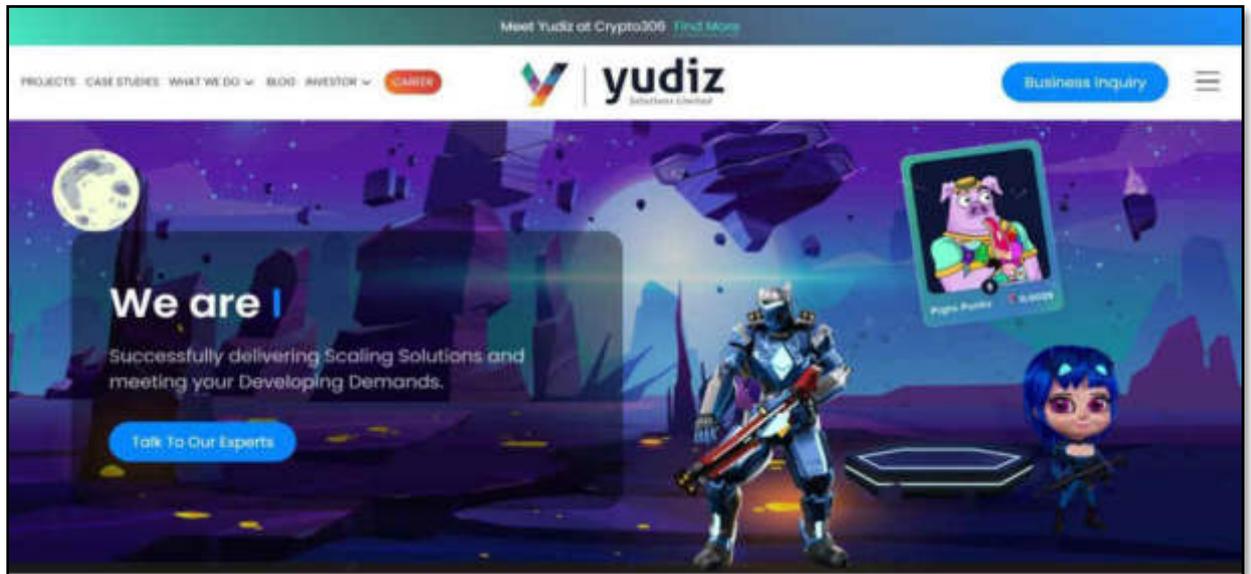
Figure 1. Company Introduction page
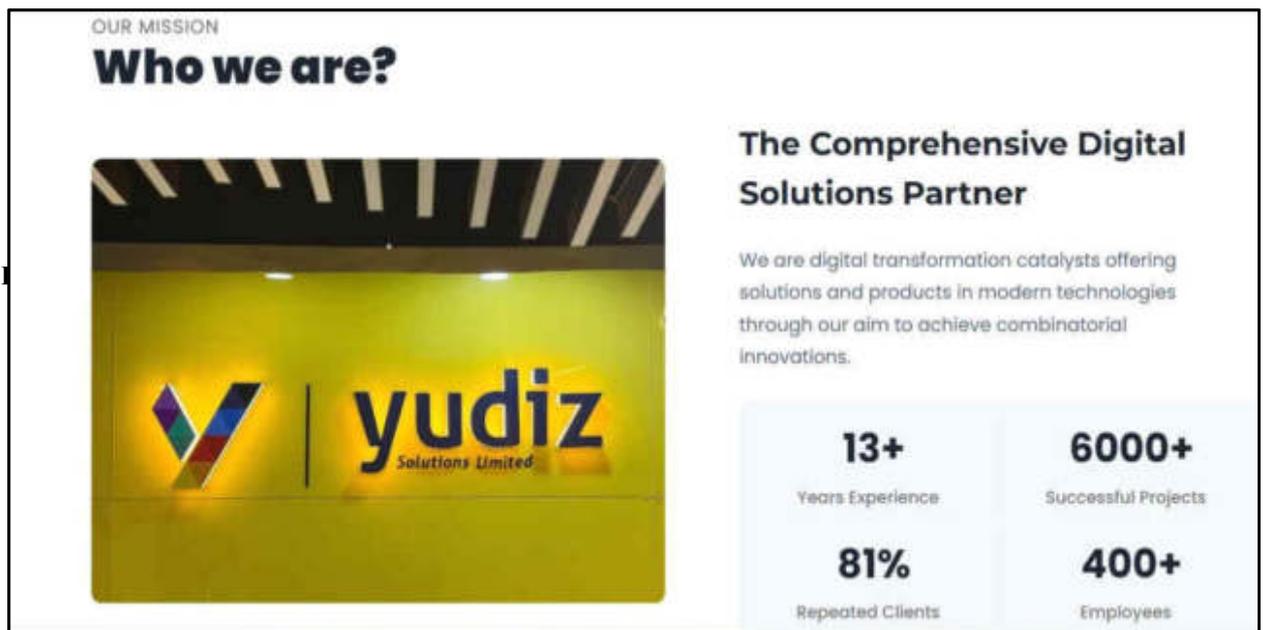
Figure 3. Company Introduction page
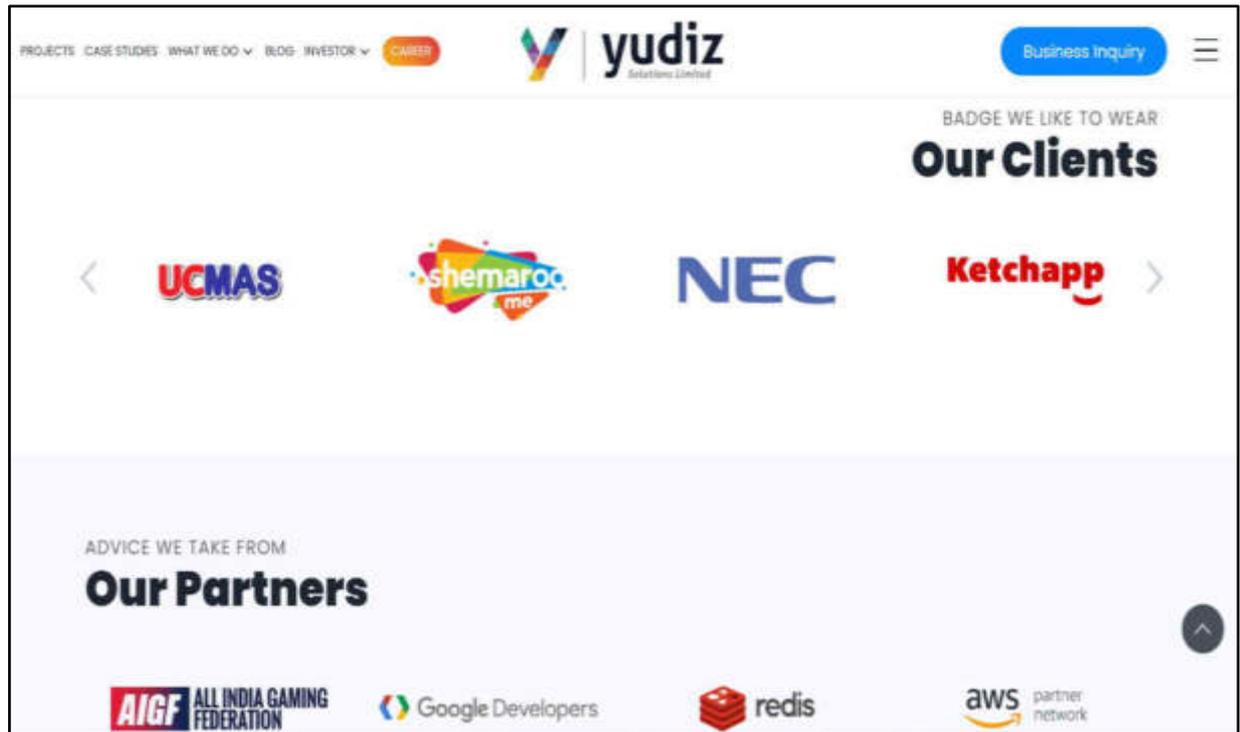
Figure 3. Company Project Client
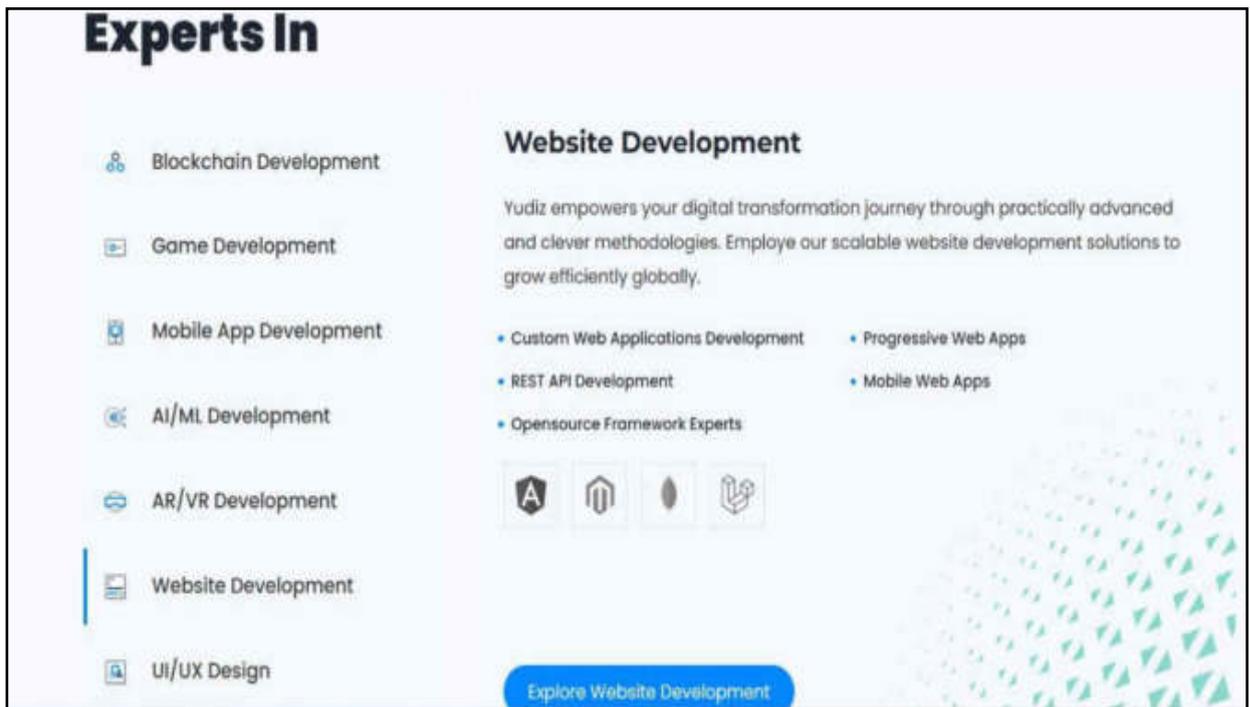
Figure 4. Company work department

1.4 Aim and objectives of the Internship

During our internship course, we were taught about various concepts of the JavaScript and Nodejs Framework from very basic.

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

1. Basic Programming (Common Training)

2. JavaScript Concepts

3. Node JS Framework

4. Make project

CHAPTER 2. INTERNSHIP PROGRAM

2.1 Learn During Common Training

Basics Of Programing

- o In this session, we learn about the basics of OOPs. Object-Oriented Programming is a paradigm that provides many concepts, such as,
- o **Object :-** Any entity that has a state and behavior is known as an object. For example, a chair, pen, table, keyboard, bike, etc. It can be physical or logical.
- o **Class :-** A class can also be defined as a blueprint from which you can create an individual object. Class doesn't consume any space.
- o **Inheritance :-** When one object acquires all the properties and behaviors of a parent object, it is known as inheritance. It provides code reusability. It is used to achieve runtime polymorphism.
- o **Polymorphism :-** If one task is performed in different ways, it is known as polymorphism. In Java, we use method overloading and method overriding to achieve polymorphism.
- o **Abstraction :-** Hiding internal details and showing functionality is known as abstraction.
- o **Encapsulation :-** Binding code and data together into a single unit is known as encapsulation.

Figure 5. OOP main pillar

Figure 6. Task output

Solid Principle:

- **SRP: The Single-Responsibility Principle**
  The Single Responsibility Principle states that a class should do only one thing and therefore, it should have only one reason to change.

- **OCP: The Open-Closed Principle**
  The open-closed principle states that software entities (Class/ Modules/ Functions.) Should be open for extension but closed for modification.

- **LSP: The Liskov Substitution Principle**
  Objects of a superclass should be replaceable with objects of itssubclasses without breaking the application.

- **DIP: The Dependency-Inversion Principle**
  High-level modules/classes should not depend on low-level modules/classes. Both should depend upon abstractions. An important detail of this definition is, that high-level and low- level modules depend on the abstraction.

- **ISP: The Interface-Segregation Principle**
  Larger interfaces should be split into smaller ones. By doing so, we can ensure that implementing classes only need to be concerned about the methods that are of interest to them.

Data Structure Algorithm

- Data Structure is a way to store and organize data so that it can be used efficiently.

 Types of Data Structures:

 1. Primitive data structure

 2. non-Primitive data structure

- We learn Topic in Data structure are;

1. Array

2. Stack

3. Queue

4. Linked List

5. Sorting Algorithm

1. Bubble sort, 2. Selection sort, 3. Insertion sort, 4. Merge sort, 5. Quick sort

Figure 7. Task output

Figma Application

Figma is a digital design and prototyping tool. It is a UI and UX design application that you can use to create websites, apps, or smaller user interface components that can be integrated into other projects.
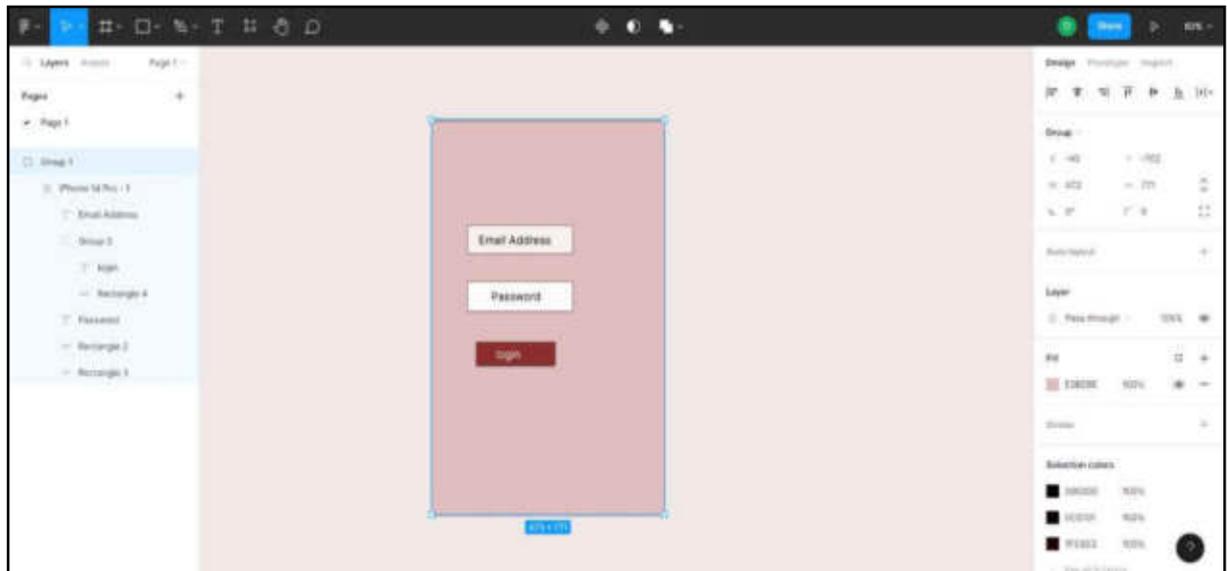
Figure 8. Figma task output

HTML And CSS

HTML

> ➤ HTML stands for Hyper Text Markup Language.

> ➤ HTML is used to create web pages and web applications.

> ➤ HTML is a widely used language on the web.

> ➤ We can create a static website by HTML only.

CSS

> ➤ CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describethe look and formatting of a document written in markup language.

> ➤ There is main three type of CSS;

1. Inline CSS

2. Internal CSS

3. External CSS

Figure 9. HTML And CSS task

Figure 10. HTML And CSS task output

Figure 11. HTML And CSS task output

2.2 Learn During JavaScript Training
Introduction to JavaScript

JavaScript (JS) is a light-weight object-oriented programming language which is used by several websites for scripting webpages. It is an interpreted, full-fledged programming language th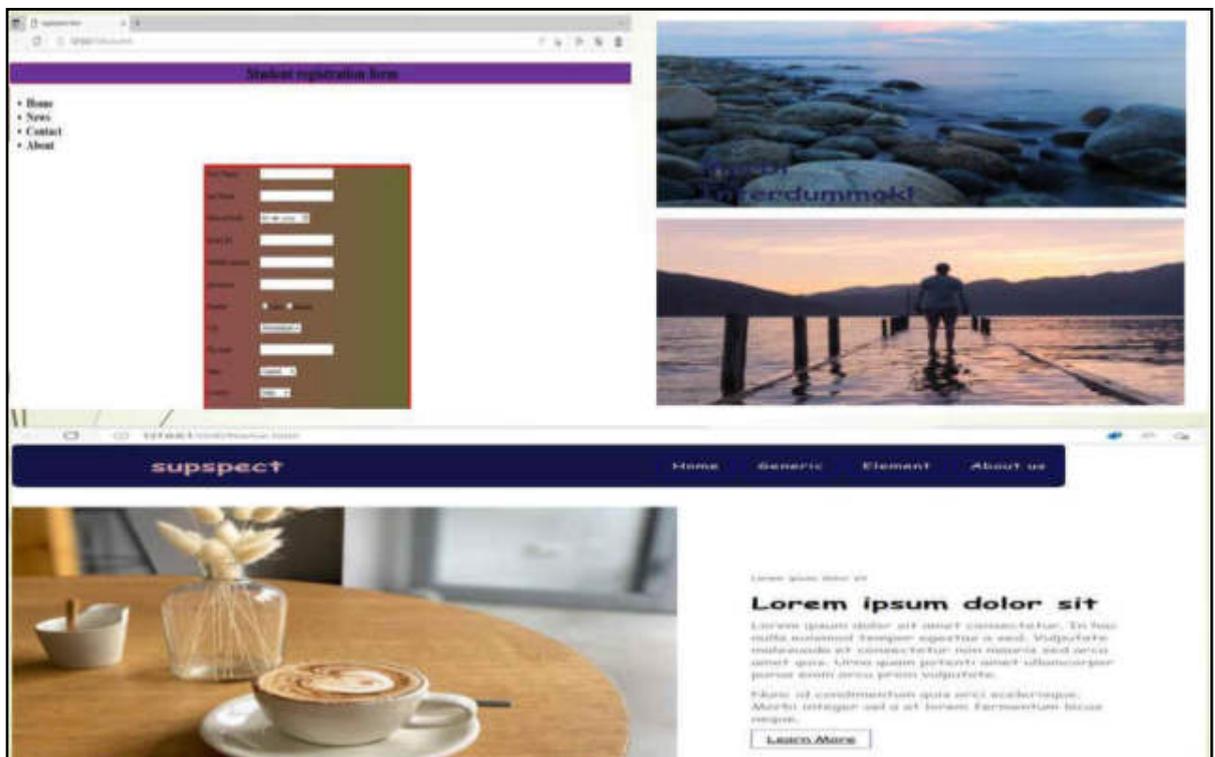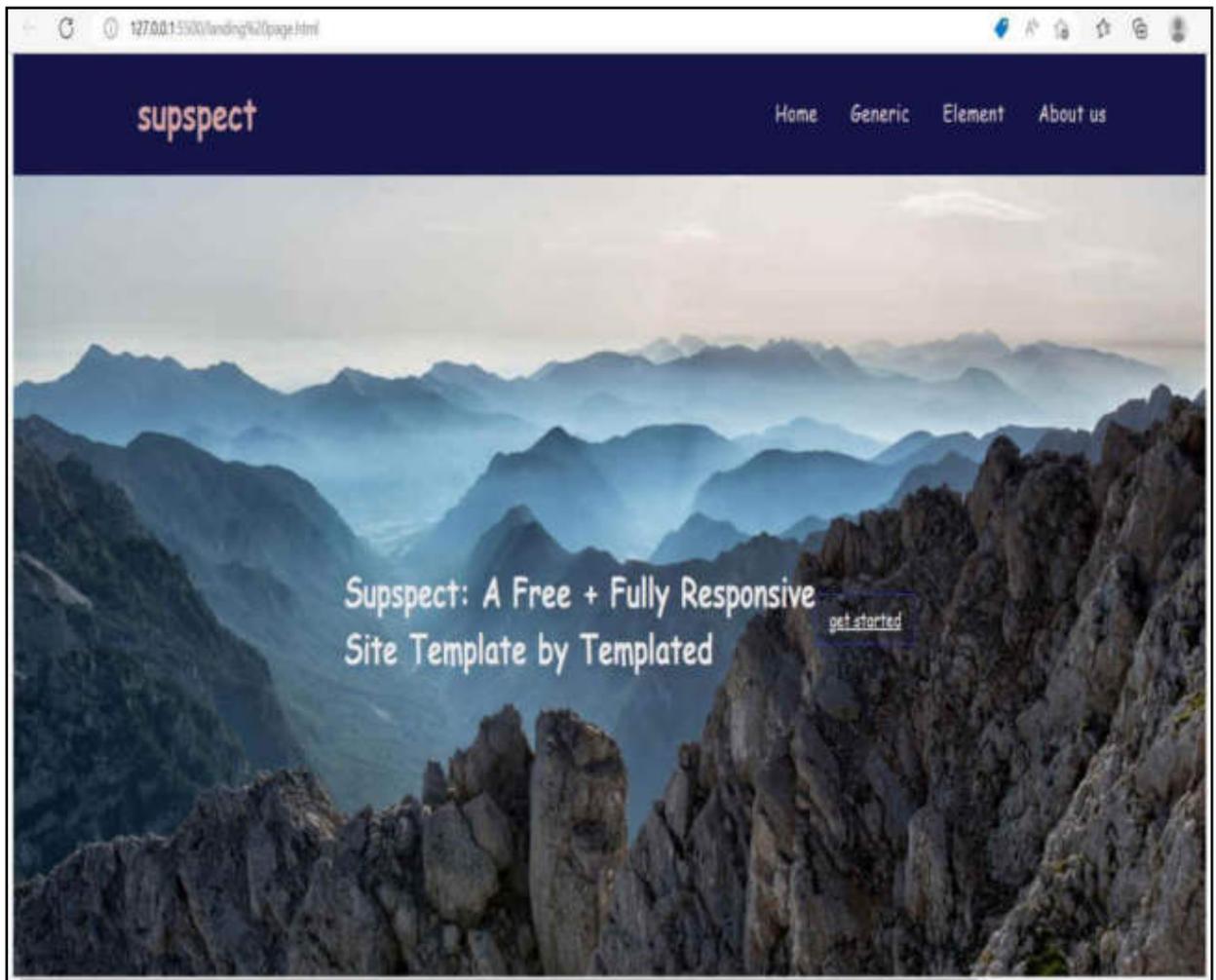at enables dynamic interactivity on websites when applied to an HTML document. It was introducedin the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the page every time. The traditionalwebsite uses js to provide several forms of interactivity and simplicity.

Features of JavaScript

1. All popular web browsers support JavaScript as they provide built-in execution environments.
2. JavaScript follows the syntax and structure of the C programming language. Thus, it is astructured programming language.
3. JavaScript is a weakly typed language, where certain types are implicitly cast (dependingon the operation).
4. JavaScript is an object-oriented programming language that uses prototypes rather thanusing classes for inheritance.
5. It is a light-weighted and interpreted language.
6. It is a case-sensitive language.
7. JavaScript is supportable in several operating systems including Windows, macOS, etc.
8. It provides good control to the users over the web browsers

Advantages of External JavaScript

1. It helps in the reusability of code in more than one HTML file.
2. It allows easy code readability.
3. It is time efficient as web browsers cache the external js files, which further reduces thepage loading time.
4. It enables both web designers and coders to work with html and js files parallelly andseparately, i.e., without facing any code conflictions.
5. The length of the code is reduced as only we need to specify the location of the JS file.

Name of JavaScript Framework Are,
❖ Node JS
❖ Angular
❖ React JS

Learn The Topic of JavaScript Training

1. **Syntax:** We learn the basic syntax of the variable, function, etc

2. **Let:** The scope of a let variable is only block scoped. It can't be accessible outside the particular block.

3. **Var:** Variable 'a' is declared globally. So, the scope of the variable 'a' is global, and it can be accessible everywhere in the program.

4. **Const:** The const keyword has all the properties that are the same as the let keyword, except the user cannot update it.

5. **Array Method:** We learn method such as to string, splice, foreach, slice, shift, unshift, etc.

6. **Callback:** Callbacks are functions that are passed as arguments to other functions and areexecuted when a specific event occurs.

7. **Event loop:** Event loop and task queues are needed in JavaScript because JavaScript is asingle-threaded language. This means that it can only execute one piece of code at a time,and if a piece of code takes a long time to execute, it can block the thread and prevent othercode from running.

8. **Synchronous and Asynchronous:** When an asynchronous operation is initiated, it is addedto the task queue, which is a queue of functions waiting to be executed. The event loop continuously checks the task queue for functions to execute. When the event loop detects that the main thread is free, it picks the next function from the task queue and executes it. This process continues until the task queue is empty.

9. **Promise:** A Promise is an object which represents the eventual completion (or failure) ofan asynchronous operation and its resulting value. we can also say that promise is a specialobject that contain two field 'state' and 'value'. where initially state is pending, and value isundefined.

10. **Async:** It simply allows us to write **promises-based** code as if it was synchronous and it checks that we are not breaking the execution thread. It operates asynchronously viathe event loop.

11. **Function Scope:** In JavaScript, a variable declared inside a function is only accessible inside that function. This is known as function scope. If you try to access the variable outside of the function, you will get a reference error.

12. **Block Scope:** Block scope refers to the area within curly braces {}. A variable declared inside a block is only accessible within that block. This is known as block scope. If you tryto access the variable outside of the block, you will get a reference error.

13. **Await:** Await function is used to wait for the promise. It could be used within the async block only. It makes the code wait until the promise returns a result. It only makes the async block wait.

14. **Worker:** A worker is a JavaScript that runs in a background thread, separate from the main execution thread of the JavaScript application. The worker thread can perform taskswithout interfering with the user interface.

15. **Export and Import Module:** In JS, we create module and it export to use in another file. File name is mjs.

Figure 12. JS Task output

2.3 Learn During Node JS Training

Introduction of Node JS

Node.js is a cross-platform runtime environment and library for running JavaScript applications outside the browser. It is used for creating server-side and networking web applications.

Node.js is a platform built on Chrome's JavaScript runtime for easily building fast and scalable network applications. Node.js uses an event-driven, non-blocking I/O model that makes it lightweight and efficient, perfect for data-intensive real-time applications that run across distributed devices.?
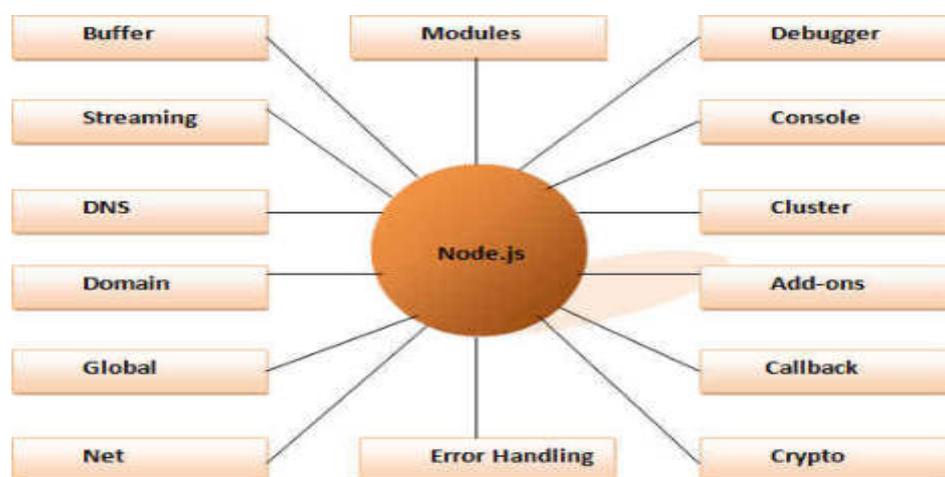
Features of Node.js

1. **Extremely fast:** Node.js is built on Google Chrome's V8 JavaScript Engine, so its library is very fast in code execution.

2. **I/O is Asynchronous and Event Driven:** All APIs of Node.js library is asynchronous i.e.,non-blocking. So, a Node.js based server never waits for an API to return data. The server moves to the next API after calling it and a notification mechanism of Events of Node.js helps the server to get a response from the previous API call. It is also a reason that it is very fast.

3. **Single threaded:** Node.js follows a single threaded model with event looping.

4. **Highly Scalable:** Node.js is highly scalable because the event mechanism helps the serverto respond in a non-blocking way.

5. **No buffering:** Node.js cuts down the overall processing time while uploading audio and video files. Node.js applications never buffer any data. These applications simply output the data in chunks.

6. **Open source:** Node.js has an open-source community which has produced many excellentmodules to add additional capabilities to Node.js applications.

7. **License:** Node.js is released under the MIT license.

Learn The Topic of Node JS Training

- Node JS process Model
- Postman Application
- What is API?
- Request and Response
- Response Status Code
- Function
- Buffer
- Module
- What is NPM
- FS (File System) Module
- Debugging
- Event Emitter
- Middleware
- Express
- Jwt Token

Figure 13. Node JS task output

```
const port = 3000;
const {add,sub,div,mul,mod}= require("./main.js")

const http = require('http');
var server = http.createServer(function(req,res){
    res.writeHead(200,{"Content-Type":"text/html"});
    let data = ''
    console.log(req.url, req.method)
    req.on('data', (chunk) => {

        data += chunk
});

 req.on('end',() =>{
    const parsed =JSON.parse(data)
    console.log(parsed)
    var n1 = parsed.n1;
    var n2 = parsed.n2;

 if(req.url=="/add"&& req.method=="POST"){
    res.end('Addition is done');
    add(n1,n2);


}else if(req.url=="/sub"&&req.method=="POST"){
    res.end('Subtration is done');
    sub(n1,n2);

}else if(req.url=="/mul"&&req.method=="POST"){
   res.end('Multiplication is done');
   mul(n1,n2);
}
else if(req.url=="/div"&&req.method=="POST"){
   res.end('Division is done');
   div(n1,n2);
}
else if(req.url=="/mod"&&req.method=="POST"){
```

Figure 14. Node JS task output
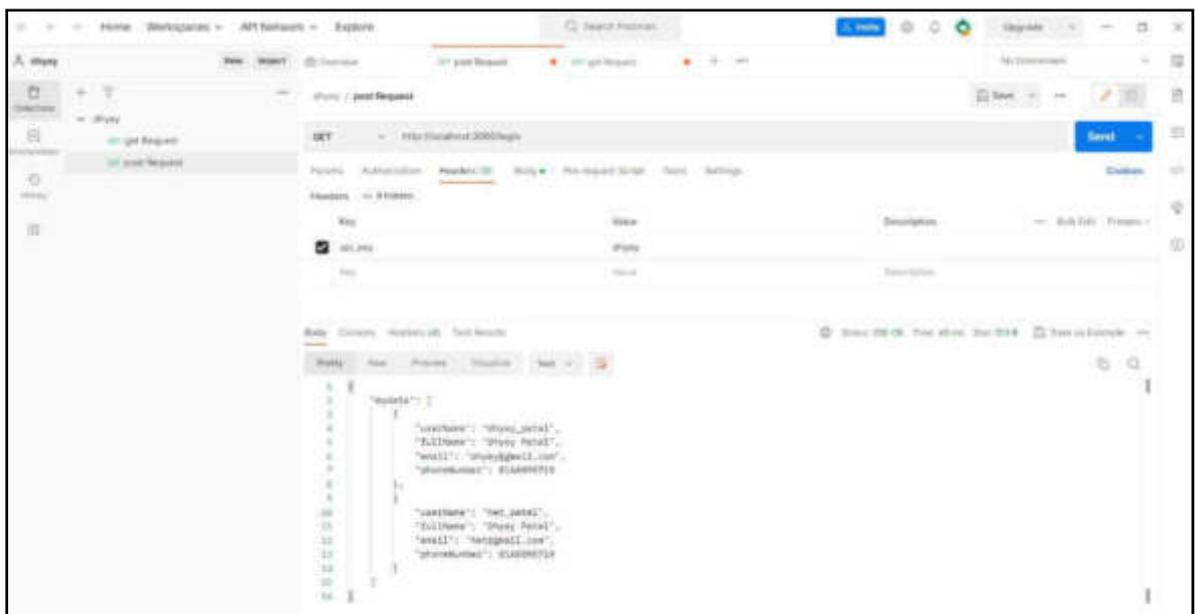
Figure 15 use postman

2.4 Description of Internship Experience:

1. Knowledge acquired:

- During this internship course I learnt a lot of things. I got to learn how to use very basic concepts of programming language in making a website. I learnt how we can use JavaScript concepts to create websites. I also got to know about the concepts of Node JS framework of JavaScript.

2. Skills learned:

- Project Planning

- Analyzing the requirement for project

- Coordination among colleagues

- How to make Responsive project

3. Observed attitudes and gained values:

- I found during our internship course that to be successful in any of our work we have to coordinate properly with our colleagues. Also, I learnt the value of being punctual on time.

4. The most challenging task performed:

- The best and most challenging thing I found during our internship course was that we had to create the same thing on our own after the lecture we were taught during the internship lecture.

CHAPTER 3 SYSTEM DESIGN

3.1 E-R Diagram

ER-modeling is a data modeling method used in software engineering to produce a conceptual data model of an information system. Diagrams created using this ER-modeling method are called Entity-Relationship Diagrams or ER diagrams or ERDs.
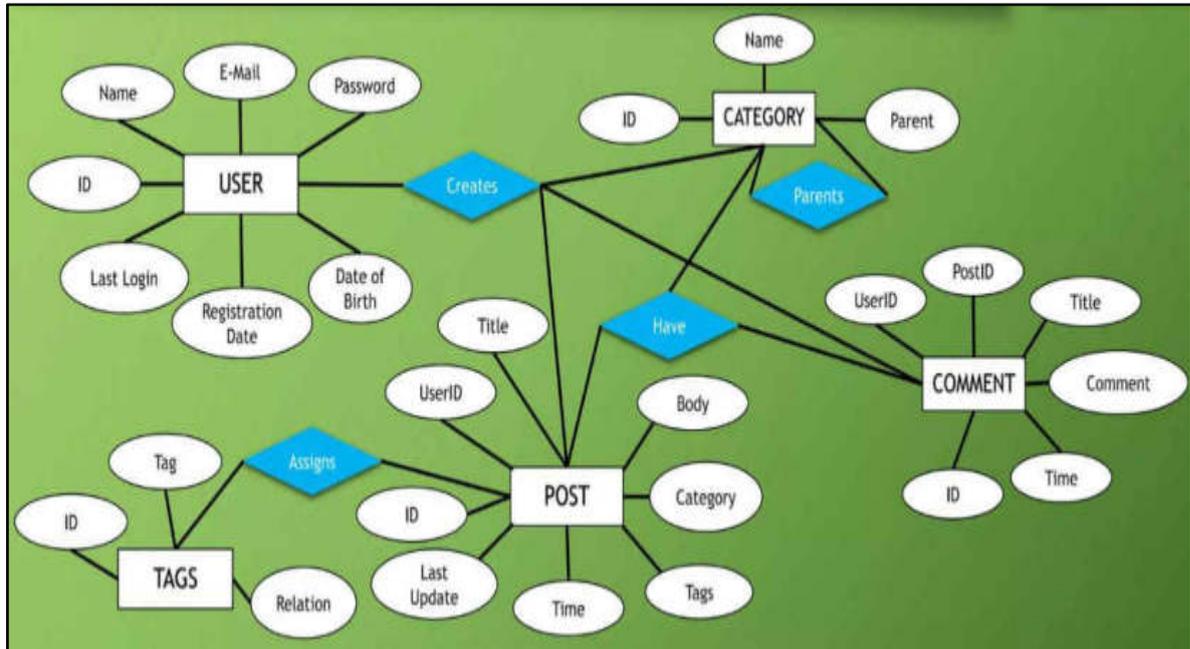
E- R Diagram

3.2 Use Case Diagram

Use Case Diagrams are graphical Representations that may be decomposed into further levels of abstraction. Use case diagram graphically represents what happens if any actor interacts with a system.

The purpose of the Use Case Diagram is to capture the dynamic aspect of a system. It is used to define a piece of logical behavior without using the internal structure of the system.
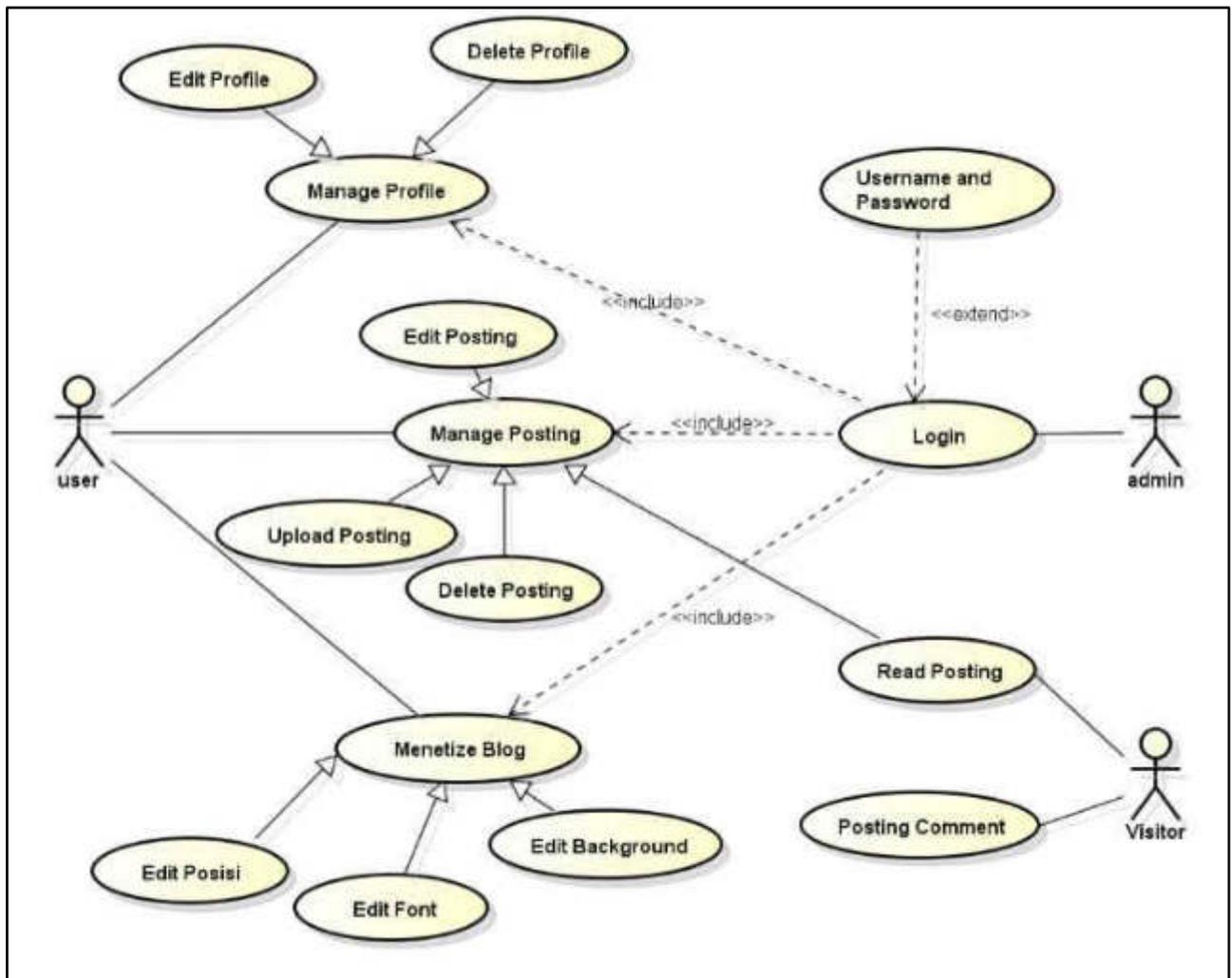
Figure 16. Use Case Diagram

3.3 DFD Diagram
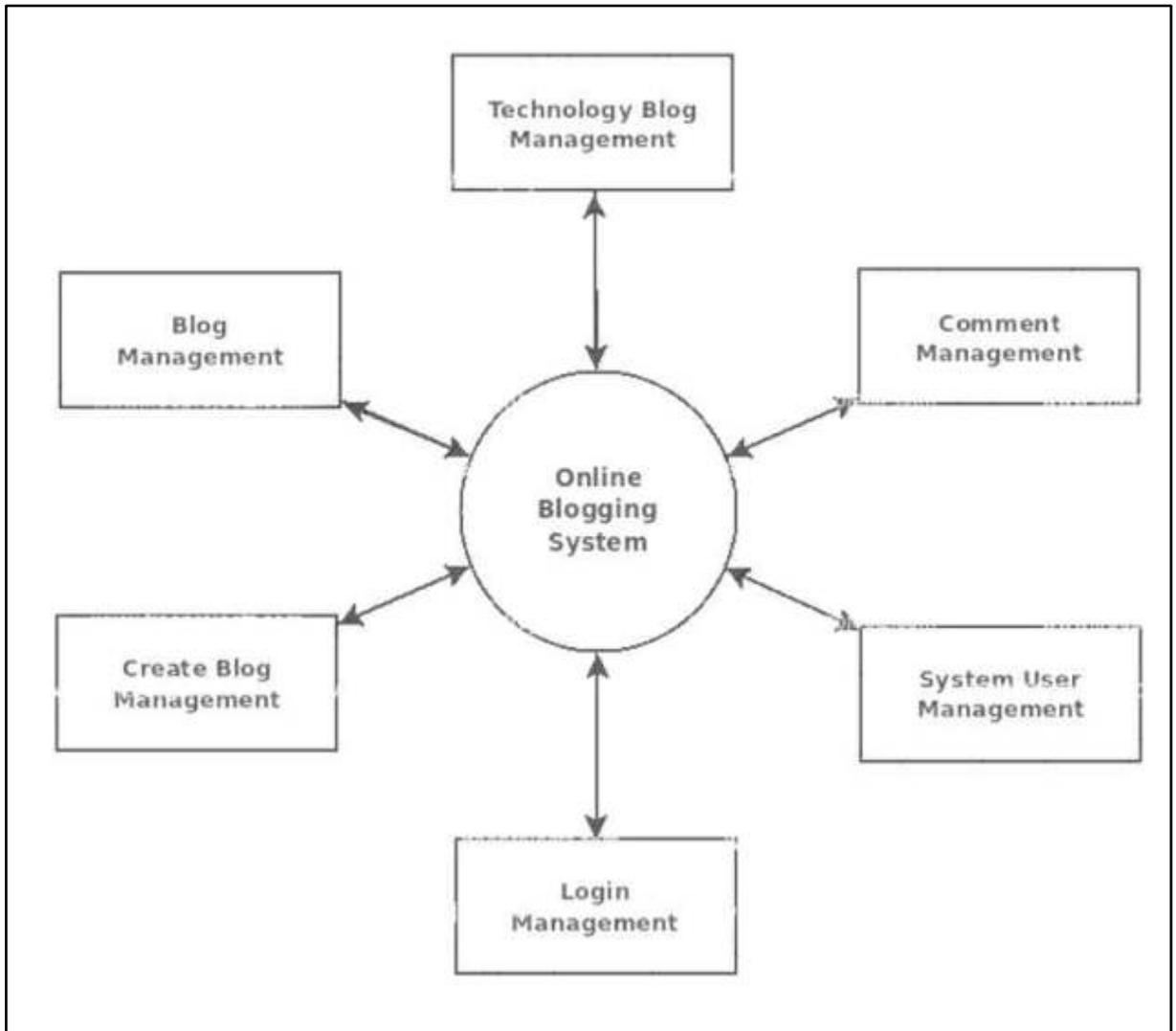
Figure 17. DFD Diagram

3.4 Sequence Diagram

Sequence Diagram is a "Connection Diagram" that represents a single structure or storyline executing in a system. It is the second most used UML diagram behind the class diagram. Sequence Diagram shows what message is to be sent and when. A sequence diagram is a good way to visualize and ratify various runtime framework.
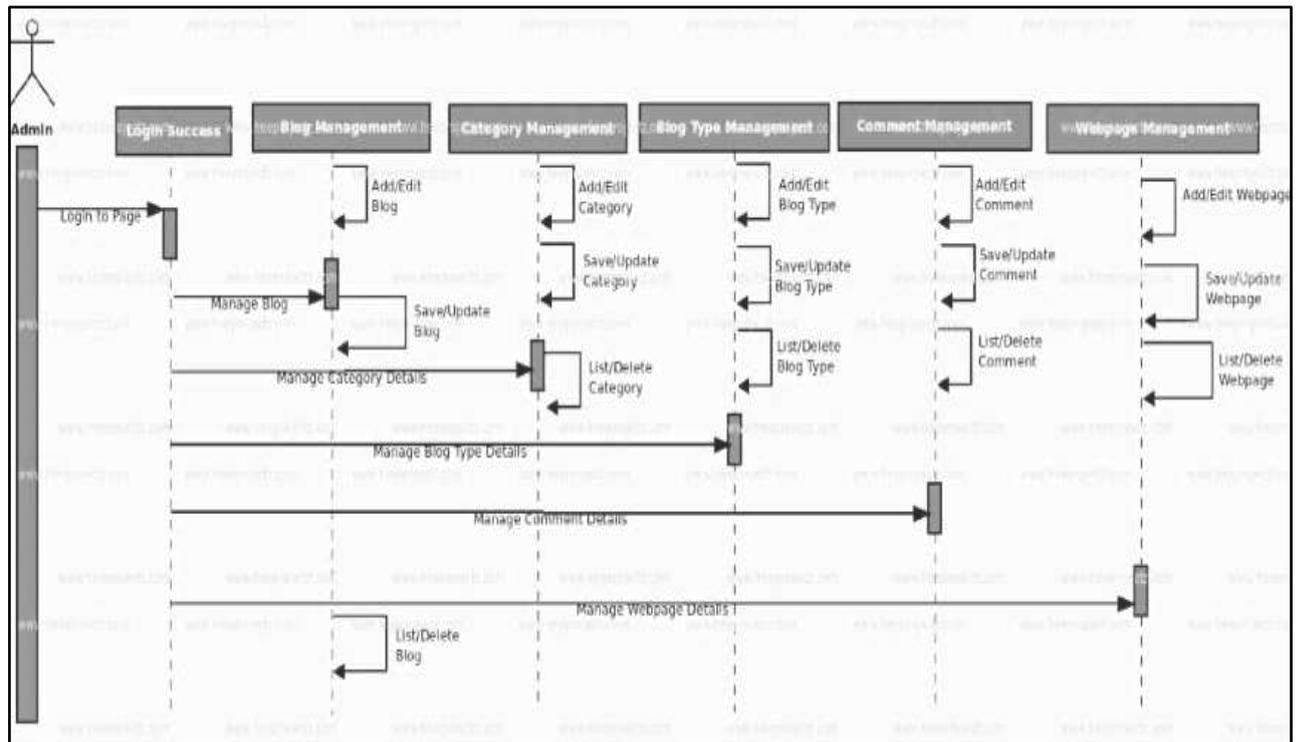
Figure 18. Sequence Diagram

CHAPTER 4 MY PROJECT WORK IN INTERNSHIP

4.1 Project Description

4.1.1 Project Summary:

The project is to make a Blog posting website. It is designed keeping in mind to have a user- friendly interface for user to search, browse as well as read blog.

This platform will consist of features like search function, different categories of blogs. Users willbe able to create accounts, save their information.

4.1.2 Project Purpose:

The main purpose of the project is to build a platform that connects the Users in one platform to read the required blog easily.

4.1.3 Project Scope:

The project is done with keeping certain conditions in mind like it should be easy to use, feasibleas well as user friendly. The system will be cost- effective, economical and hassle-free to handle and will be easy to maintain. Since the system will be having good and efficient technology it is possible to say it would be easily adaptable to the changing generations.

4.1.4 Software Scope:

User authentication and authorization: The software must allow users to register and login to the platform. Registration requires basic information such as Name, Email, Password, Username, Mobile number and Gender. Users should be able to reset their password if they forget it. Also, the platform should provide users with different access depending on their role.

User profile: The platform should allow users to view their profile, update their personal information, view their blog history, and manage their account settings.

Admin panel: The platform should have an admin panel that allows administrators to manage usersof the platform. The admin panel should provide analytics and reports on blogs.

4.1.5 Project Development Approach:

The Agile methodology is an iterative and incremental approach to software development that emphasizes collaboration, flexibility, and user satisfaction.

Planning: In this phase, the development team would work with the client to define the requirements and scope of the project. The team would also identify the stakeholders and their roles, establish the development timeline, and create a project roadmap.

Design: In this phase, the development team would design the software architecture, database schema, user interface, and other components of this platform.

Development: In this phase, the development team would write the code for the Blogs post platform using the Node JS framework and other software resources. The team would also conductcontinuous integration and testing to ensure that the code is functional and meets the requirements.

Testing: In this phase, the development team would conduct various types of testing, including unit testing, integration testing, and user acceptance testing. The team would also identify and fixany bugs or defects that are discovered during testing.

Deployment: In this phase, the development team would deploy this platform to a staging environment and conduct final testing before deploying it to the production environment. The teamwould also configure the web server and database server and ensure that the application is secureand scalable.

Maintenance: In this phase, the development team would provide ongoing maintenance and support for this platform. This includes fixing any bugs or issues that arise, providing user support,and updating the software as needed.

4.1.6 Detail Description:

User Module

The user module allows users to create their account, send and read the blog. The main features ofthis module are:

Registration/Login: It allows them to register on the website by creating their own accounts and they can login using their credentials.

Blog Module

The blog module includes the feature such as

- Create blog
- Get blog
- Update blog
- Delete blog
- Blog of logged in user
- Like blog
- Unlike blog
- Publish blog

Admin Module

The administrator module enables the websites the administrator to manage the overall operationsof the website. It includes managing accounts and monitoring the performance of websites.

4.2 Project Images
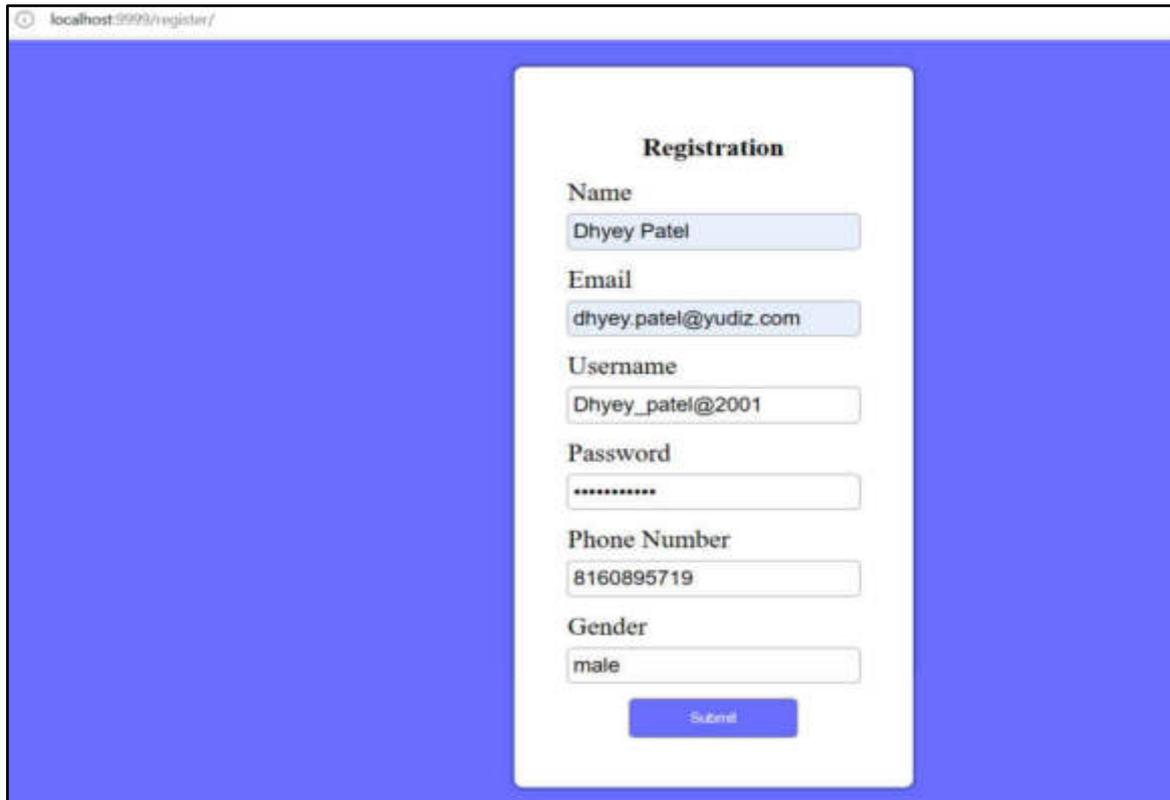
Figure 19. User Register page
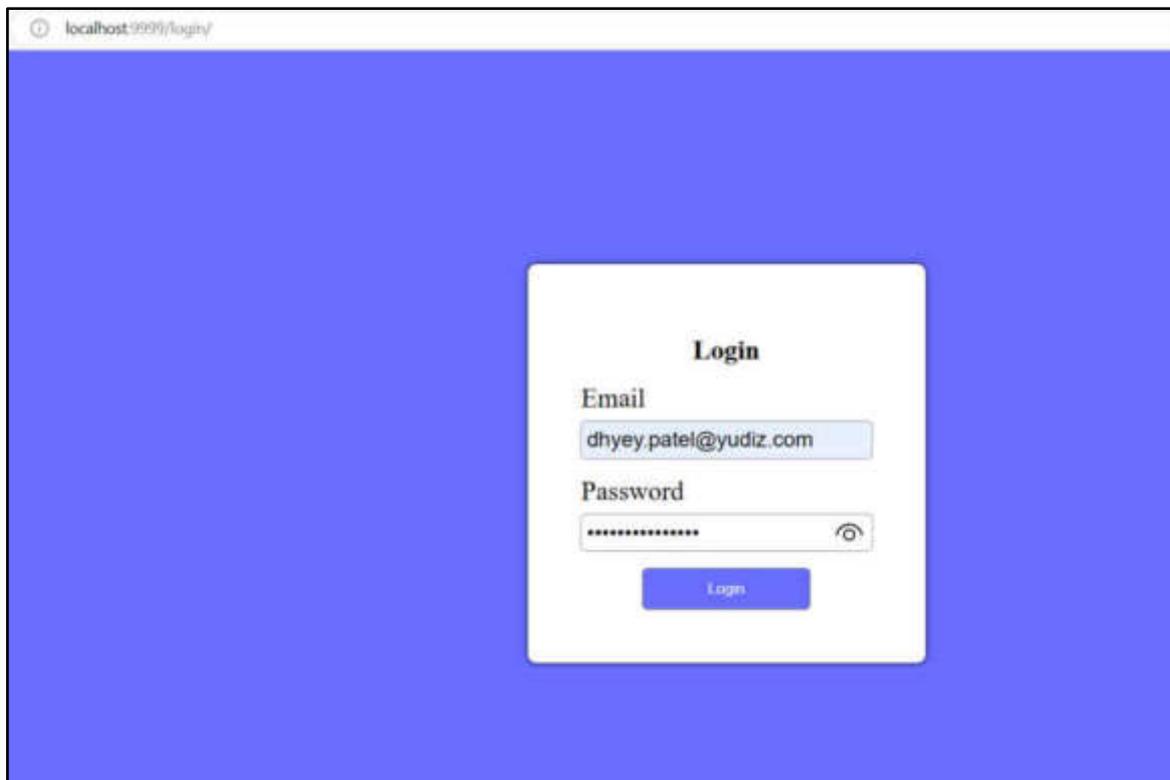
Figure 20. User login page

Figure 21. Get Blogs

Figure 22. Create Blogs
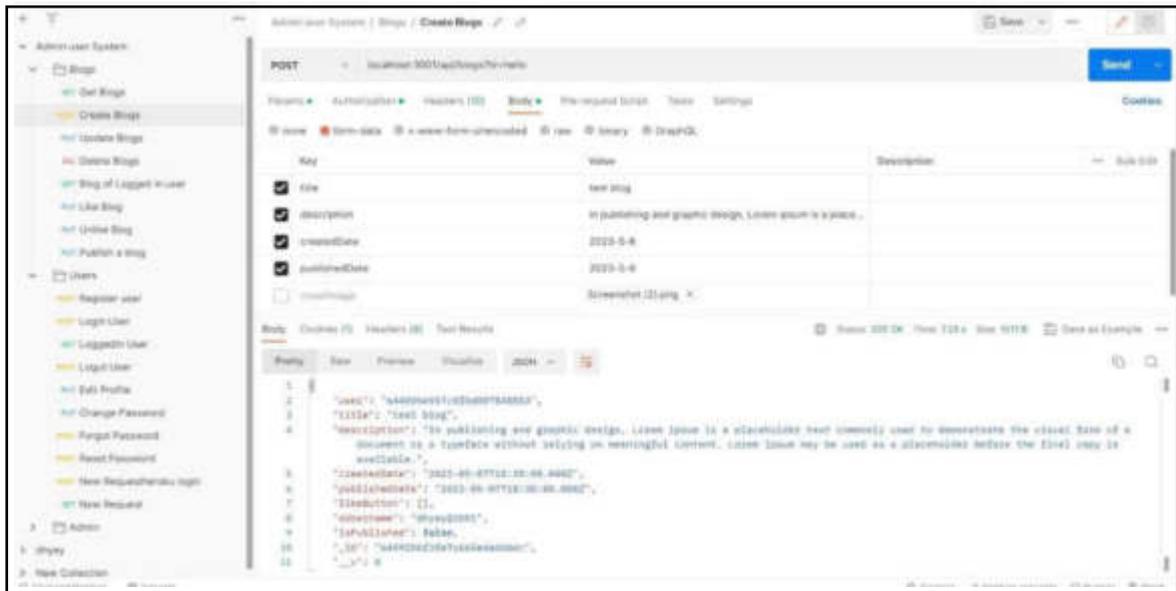
Figure 23. Create blog using postman
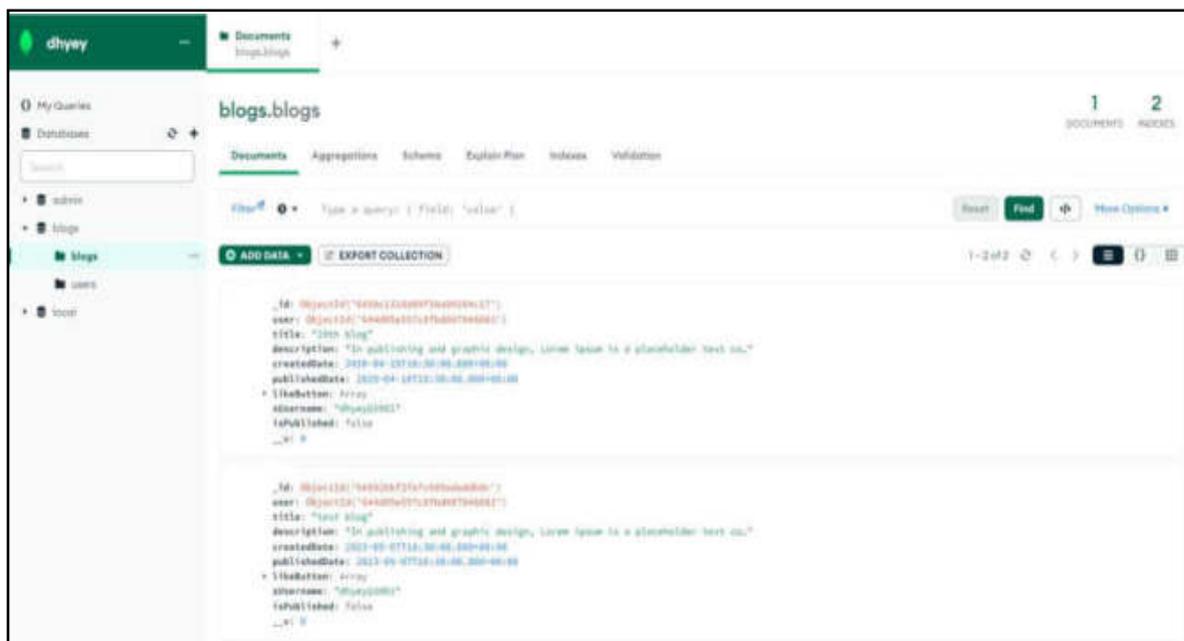
Figure 24. Blog add in DB

Figure 25. Show all Blogs in Postman

Figure 26. User login using postman
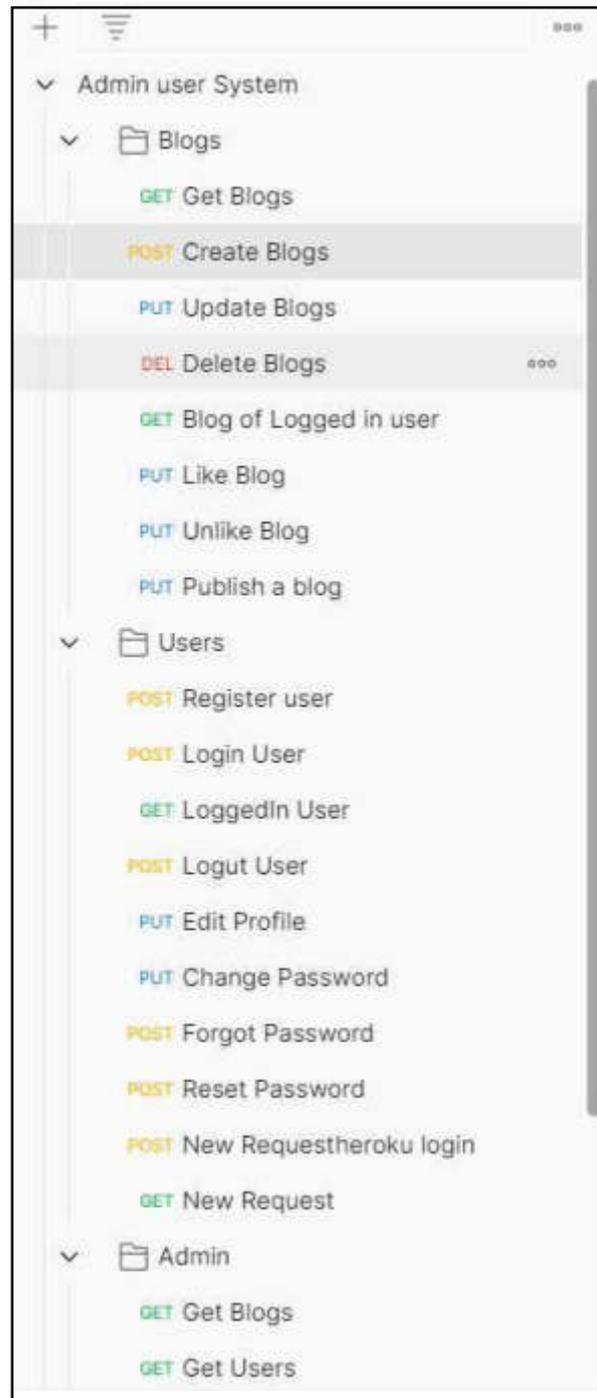
Figure 25. All feature in project
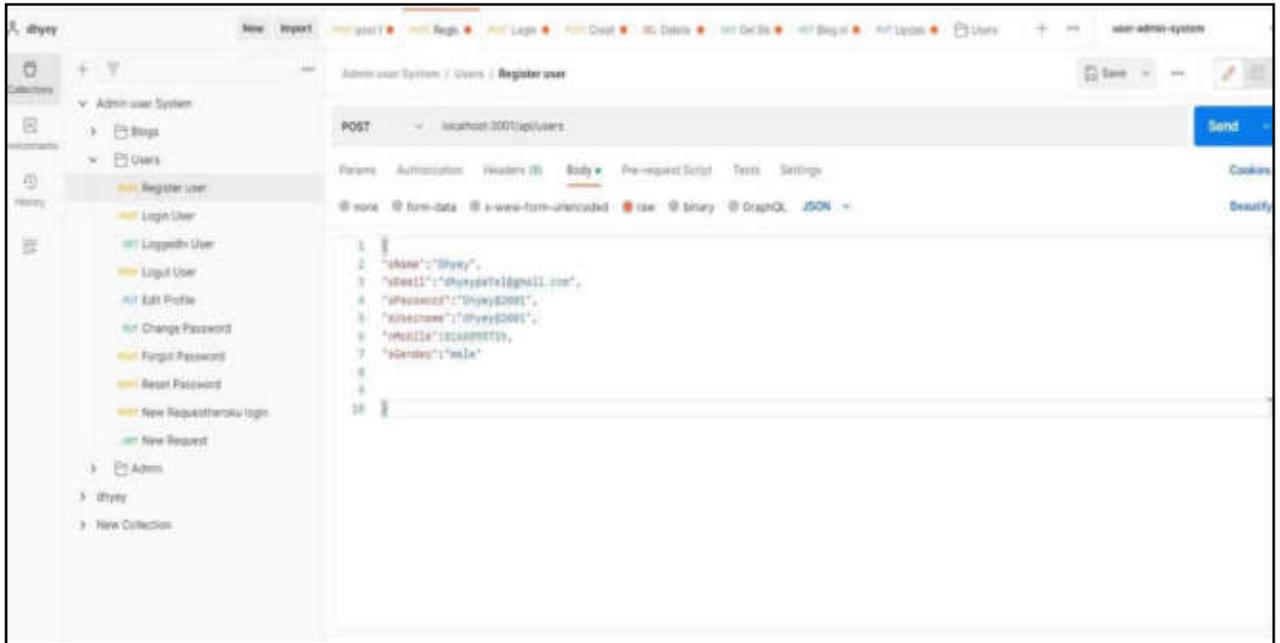
Figure 28. User Register using postman
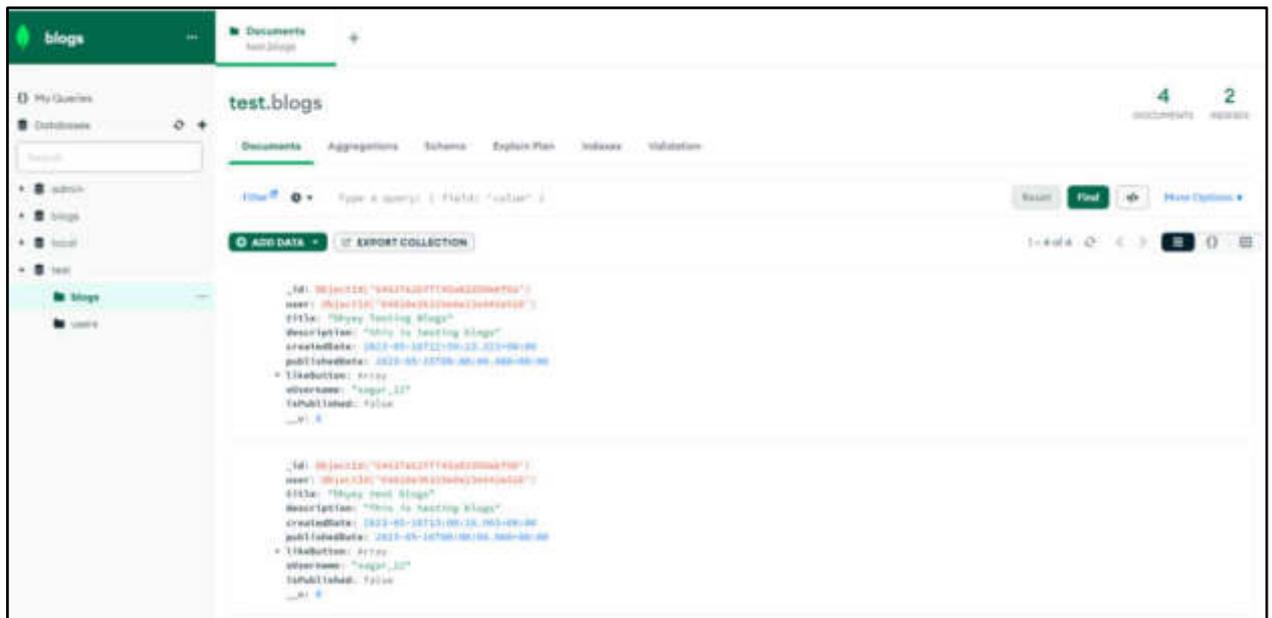
Figure 29. Show all Blogs in DB

Figure 30. Show All User in DB

4.3 Project Testing

This chapter aims to provide a brief account of testing the software. There are two principal motives of testing the software:
  1. To rectify the error in execution
  2. To check the viability of software

The testing ensures that the software is according to the required specification standards and performs the task meant for it. The testing is done by our team members that act as novice users and test the project with all possible way to find the bugs and error as well as check validation.

4.3.1 Testing Plan

> ➢ Testing is carried out at the following three stages:
>> a. Design
>>
>> b. Implementation
>>
>> c. Coding

1. Design Testing

This Testing apply after designing stage to verify product design. At this stage we test our project's all designing schema like class diagram, E-R diagram, sequence diagram etc.

2. Implementation Testing

This testing is not a proper structural testing but every time check the program after writing some code of particular function, programmer check their code by testing some edge case to check reliability of code. This testing performs during implementation of project.

3. Coding Testing

Coding testing is last stage of testing, Here We tested our project's end to end customer Satisfaction. In this testing we use black box and white box testing techniques to check technical and practical View of project.

4.3.2 Testing Strategy

A technique for programming testing coordinates programming experiment structure strategy into an all-around arranged arrangement of steps that outcome in the effective development of the product. The system gives the guide that depicts the means to be led as a piece of testing.

- We have tried our entire project utilizing bottom-up testing technique.
- Bottom-up testing includes incorporating and testing the modules to the lowerlevels in the chain of importance, and afterward stirring up progression of modules until the last module is tried.
- Bottom-up testing procedure demonstrates how genuine testing is to be finished with the entire project yet it doesn't demonstrate any insight concerning every module testing.
- For every module testing, we have chosen to test each lower-level module with white box testing system.
- When all modules are tried effectively then I will move to one stage up andproceed with white box testing technique.

When all modules will be tested successfully then I will integrate those modules and try to test the integrated system using black box testing strategy.

4.3.3 Testing Methods

1. Unit Testing

The unit testing is intended for testing the littlest unit of programming. There are two methodologies to be specific: bottom-up and top-down.

In bottom-up methodology the last module is tried and after that moving towards the principal module while top-down methodology switches the activity. In present work we select the first.

2.Integration Testing

The integration testing is intended to test every one of the modules at the same time since it is conceivable that every one of the modules may work accurately when tried separately. However, they may not work by and large and may prompt unforeseen results.

3.Validation Testing

Validation can be defined in many ways but a simple definition is what a validation succeeds when software functions in a manner that can be reasonably accepted by theuser.

CHAPTER 5. OVERALL EXPERINCERS

As an intern in the Web development at the Yudiz Solutions Private Limited, I got a list of tasks to complete every day. During the internship I also had a conversation with a fellow intern in orderto understand the requirement. The overall experience of the internship is amazing.

The tasks I undertook included:

- Converting complex data into understandable formatting
- Optimizing the code
- Peer Evaluation
- Helping the team member who have a problem or any issue.
- Debugging the code to find error

CHAPTER 6. 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 have 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 wasa way of sharing knowledge, ideas and opinions. We learnt how to make our project live and manyother things that we were not aware of. At last, this internship gave us insights and motivation to pursue a career in the right direction by learning new things.

Overall, I found the Web Development internship experience to be positive, and I'm sure I will beable to use the skills I learned in my career later.

CHAPTER 7. REFRENCES

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INTERNSHIP AT D9ITHUB SOFTWARE SOLUTIONS PVT LTD

AN INTERNSHIP REPORT

Submitted by

Divya Manojkumar Patel

190390116018

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 D9ithub Software Solutions Pvt Ltd** has been carried out by **Divya Manojkumar Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasana Leela   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 : 16 May 2023 (16:15:47)

This is to certify that, *Patel Divya Manojkumar* (Enrolment Number - 190390116018) working on project entitled with *Veracity* from *Information Technology* 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 Divya Manojkumar

Name of Guide : Miss. Upasana Pingalashibhai Leela

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

D9 ITHUB
Software Solutions PVT LTD

Date: 01/05/2023

TO WHOM IT MAY CONCERN

This is to certify that **Divya Patel**, a student of **S.P.B. Patel Engineering College, Mehsana** has successfully completed his internship in the field of **JavaScript Frontend (ReactJS)** from **01/02/20223** to **01/05/2023** (Total number of Weeks: **13**) under the guidance of Mr. Dhruv Patel.

His internship activities include **exploring the assigned technology and working on various demo projects based on learning**. He has worked on project named **Veracity, a web portal based content management project.**

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, D9ithub Software Solutions Pvt Ltd
For D9ithub Software Solutions Pvt Ltd

Authorised Signature with Industry Stamp

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📍 C-1204, A-Wing, STRATUM at venus grounds, Nr. Jhansi ki Rani statue, Nehru Nagar, Satellite, Ahmedabad, Gujarat 380015

A CARING EYE FOR YOUR SOFTWARE SOLUTIONS

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 D9ithub Software Solutions Pvt Ltd** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasana Leela** & **Mr. Dhruv 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.   **Divya Manojkumar Patel**   _____

ACKNOWLEDGMENT

I would like to extend my heartfelt thanks with a deep sense of gratitude and respect to all those who have provided me immense help and guidance during this project. I would like to express my sincere thanks to the D9ithub Software Solutions Pvt Ltd, external guide Mr. Dhruv Patel, and internal faculty guide Prof. Upasana Leela ma'am, for providing a vision of the system and for giving me an opportunity to undertake such great work. I am grateful for the guidance, encouragement, understanding, and insightful support in the development process.

I would like to extend my immense gratitude to Prof. Akshay Kansara, Head of Computer and Information Technology Engineering Department, S.P.B. College of Engineering, Mehsana, for continuous support, encouragement and motivation.

Last but not least I would like to mention here that I am greatly indebted to each and everybody who has associated with this project at any stage but whose name does not find a place in this acknowledgment.

<div align="right">

Yours sincerely,

Divya Patel
(190390116018)

</div>

ABSTRACT

The outbreak of the novel coronavirus (COVID-19) has been accompanied by a large amount of misleading and false information, ranging from the peddling of fake cures to false conspiracy theories, especially on social media. In such a case, it has become very tough to find out the correct and relevant information.

The project of an Internship "Veracity" is a web-based portal where users can explore articles on different topics with accurate information and trustworthy sources. The portal showcases the articles in chronological order with an appropriate abstract. Moreover, the users will be able to comment on the particular article, and the admin jury can review that comment before displaying it, in order to control inappropriate   commenting.

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

1. ROI - Return on Investment
2. KLOC - Kilo Lines of Code
3. CI/CD – Continuous Integration Continuous Development

TABLE OF CONTENT

CHAPTER 1: OVERVIEW OF THE COMPANY

1.1 HISTORY/ DIFFERENT PRODUCT

D9ithub Software Solution Pvt Ltd is a tech company at Ahmedabad, which was founded in February 2017 and it specializes in Web Applications, Mobile Application, Framework, Open source & E-Commerce Development. Also, Company has expertise in Web designing, Logo designing, Brand Identity Design, Digital Marketing, Software Testing and much more. Name the digital service, they have it. D9ithub does not only provide the service but our after- service approach is something that will keep you tied-up with us for a longer period of time .

1.2 SCOPE OF WORK

D9ithub is a team of people who are dedicated, experienced and motivated for providing best quality products. They believe in 100% customer satisfaction and They always try to provide excellent quality products to the customers all over the world. It does not matter which country the client belongs to, they have clients around the globe.

1.3 ORGANIZATION CHART
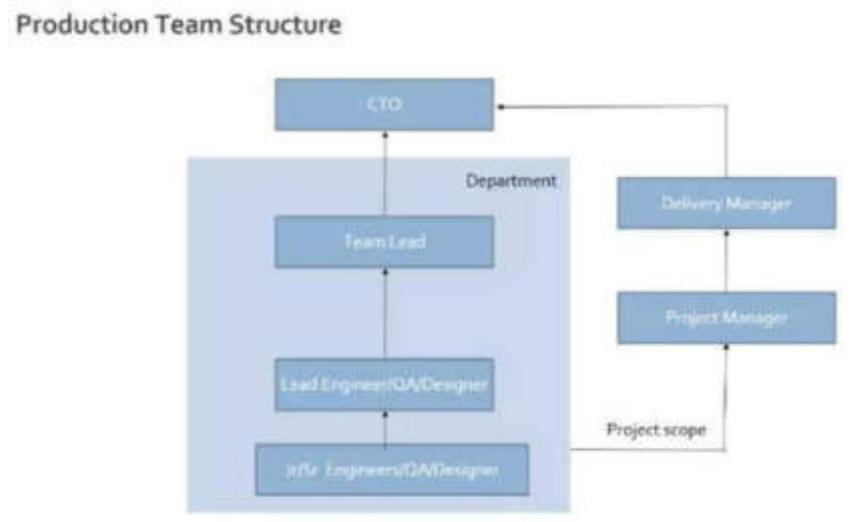
Fig. 1.1 Organization Chart

1.4 Capacity of Company

Address: A-Wing, STRATUM at Venus Grounds,
          C-1204, near Jhansi ki Rani Statue,
          Nehru Nagar, Ambawadi,
          Ahmedabad, Gujarat 380015

Capacity :   approximately 20-25 employees can work from this office

CHAPTER 2: OVERVIEW OF THE DEPARTMENTS

2.1 DEPARTMENTAL DETAILS

2.1.1 Software Development
- Custom Software Development
- Application Development
- White label software development
- Software product development services
- AI/ML development
- API Integration

2.1.2 Software Testing
- Test Automation
- API Testing
- Microservice Testing
- Performance Testing
- Load Testing
- Security Testing

2.2 TECHNICAL SPECIFICATIONS
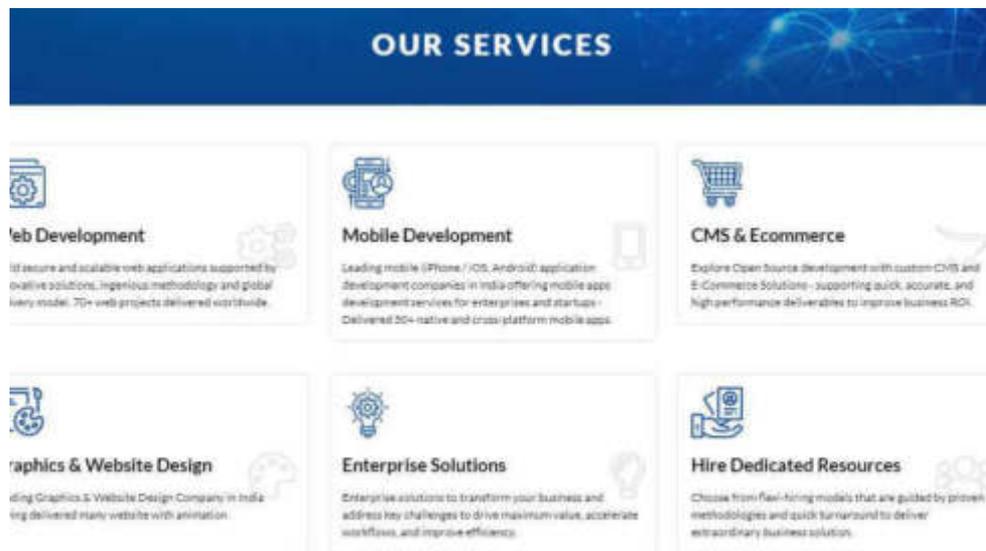
Fig. 2.1 Technical Specifications of Company

2.2.1 Software Development

- Frontend Development: ReactJS, AngularJS, VueJS, UI/UX design & development, NextJS,
- Backend Development: Python (Flask, Django, FastAPI), NodeJS, .Net, ROR
- Mobile Development: Android, Flutter
- AI/ML, Chatbot development, IOT, Blockchain AR/VR

2.2.2 Software Testing

- Jira, Selenium, Appium etc.

2.3 SEQUENCE OF OPERATION

Software Development Process

1. Choosing the team
2. Development methodology planning
3. Architecture creation
4. Periodical reviews
5. Intelligent Testing
6. Project Delivery

Development using Agile

1. Sprint Planning
2. Tech Architecture
3. Stand-Ups & weekly demos
4. Code Reviews

Reference: https://d9ithub.com/

2.4 STAGES OF PRODUCTION

Software Development Process

1. **Choosing the team**: Picking a talent pool with the right team, the right expertise, domain knowledge, and willingness to adapt and evolve to your project environment.
2. **Development methodology planning:** Choosing the suitable methodology that empowers the development process to be conducted at its best. Team members follow sprint planning and agile techniques.
3. **Architecture creation:** Handling all architecture evolution requirements ranging from UI/UX enhancement, decoupling tightly packed features by migrating to microservices or modularizing the existing architecture.
4. **Periodical reviews**: Conducting timely reviews to squash any foreseeable concern, present weekly demos, and stand-ups to address any existing bottlenecks to ensure everyone is on the same page.
5. **Intelligent Testing:** Creating useful test cases catered to identify septic storage problems, memory leaks, and security vulnerabilities. Using a variety of testing technologies and tools that best fit your project.
6. **Project Delivery**: Beyond development, we set various endpoints where at each point, we deploy the completed project in several phases to reduce reiteration and ensure smooth deployment promptly as promised.

Development using Agile

1. **Sprint Planning**: Sprint roadmap is a collective planning effort. Team members collaborate to clarify items and ensure shared understanding.
2. **Tech Architecture**: Breaking monolithic apps into microservices. Decoupling the code allows teams to move faster and more independently.
3. **Stand-Ups & weekly demos**: Stand ups, weekly demos, and weekly reviews make sure everyone is on the same page and can raise their concerns.
4. **Code Reviews**: Code reviews before release help detect issues like memory leaks, file leaks, performance signs, and general bad smells.

CHAPTER 3: INTRODUCTION TO PROJECT

3.1 PROJECT SUMMARY

| | "Veracity" is the web-based portal, where the users will be able to explore the various articles related to covid19 precautions, cures, consequential updates regarding guidelines, useful facts, and research about the covid19 spread or virus, and many more, with the accurate information and from the trustworthy sources.

| | This portal will also allow the users to explore the articles according to chronological order and distinct categories. Moreover, the users will be able to comment on the particular article, and the admin jury can review that comment before displaying it, to control inappropriate commenting.
The admin jury will be able to create & manage all the content and will be able to moderate the comments from the dedicated content management system named GraphCMS.

3.2 PURPOSE

| | The outbreak of the novel coronavirus (COVID-19) has been accompanied by a large amount of misleading and false information, ranging from the peddling of fake cures to false conspiracy theories, especially on social media. In such a case, it has become very tough to find out the correct and relevant information.

| | The sole perspective behind developing this application was to transfer the accurate information to the people. Moreover, the people will be able to get the quick solutions to their questions using the chatbot, which works on the database created by the experts.

| |

3.3 OBJECTIVE

Providing a single platform where users can get all the required and accurate information related to covid-19 virus, precautions, and even cures, directly from the doctors, researchers, and proficient of health organizations.

| | Showing all the content in the chronological order

| | Rendering widget components according to the categories as well as relation to a specific article

| | Providing the quick solutions of user's queries using the chatbot which is based on the database created by the experts.

3.4 SCOPE

Project scope for end users:

| | Users will be able to explore the different articles based on distinct categories.

| | Moreover, the user will be able to explore the content in the chronological order. Alongside that, on reading one article, users will get the suggestions for reading the related articles.

| | Users will be able to get quick solutions to their questions regarding the disease, medicines, research etc.

| |

Project scope for admin:

❘❘ Admins will be able to add the authors and full markdown content from the dedicated content management system i.e., GraphCMS.

❘❘ The admins will be allowed to approve or disapprove the user comments on particular articles to reduce the inappropriate commenting.

❘❘ Admins will have access to the dataset of chatbot, which can be modified according to the expert guidance.

3.5 TECHNOLOGY & LITERATURE REVIEW

React.js:

❘❘ React is a declarative, efficient, and flexible JavaScript library for building user interfaces.

❘❘ It lets you compose complex UIs from small and isolated pieces of code called "components".

Next.js:

❘❘ Next.js is a React framework, which aims to have best-in-class developer experience and many built-in features, such as:

    o Pre-rendering, both static generation and server-side rendering are supported on per-page basis

    o Automatic code splitting for faster page loads

    o Client-side routing with optimized prefetching

    o API routes to build API endpoints with serverless functions

Tailwind CSS:

❘❘ It is a utility-first CSS framework which is rapidly growing in the industry.

❘❘ This framework allows users to create completely custom designs and modern user interfaces extremely quickly and easily.

GraphQL:

❘❘ Query Language for APIs, which can be used to create the schemas, models, and also for retrieving the data.

❘❘ GraphQL is an alternative of Rest APIs which is the faster and lightweight framework and also allows the user to get only the information which is required by the user.

GraphCMS:

❘❘ It is a dedicated GraphQL Content Management System, which allows the user to create, enrich, unify and deliver all the content across all the different platforms.

❘❘ GraphCMS   supercharges   the   use   of   GraphQL.

Research Papers published in leading journals & conferences:

Migrating to GraphQL: A Practical Assessment
|| Published in: <u>2019 IEEE 26th International Conference on Software Analysis, Evolution and Reengineering (SANER)</u>
|| Authors: <u>Gleison Brito</u>, <u>Thais Mombach</u>, <u>Marco Tulio Valente</u>,
  o ASERG Group, Federal University of Minas Gerais, Brazil
|| https://ieeexplore.ieee.org/document/8667986

Evaluating execution strategies of GraphQL queries
|| Published in: <u>2020 43rd International Conference on Telecommunications and Signal Processing (TSP)</u>
|| Authors: <u>Piotr Roksela</u>, <u>Marek Konieczny</u>, <u>Slawomir Zielinski</u>
  o Department of Computer Science, AGH University of Science and Technology, al. Mickiewicza 30, Kraków, Poland
|| https://ieeexplore.ieee.org/document/9163501

Building a Modal Using ReactJS and TailwindCSS
|| Published in: React DEV Community
|| Author: Ayush Agarwal
|| https://dev.to/ayushdev_24/building-a-modal-using-reactjs-and-tailwindcss-38d0

Modern Web-Development Using ReactJS
|| Published in: International Journal of Recent Research Aspects ISSN: 2349-7688, Vol. 5, Issue 1, March 2018
|| Author: Sanchit Aggarwal
|| https://pdfcoffee.com/modern-web-development-using-reactjs-pdf-free.html

3.6 PROJECT PLANNING

Project Scheduling is the fulfillment of planning activity that is the primary element of software project management.

When combined with estimation methods and risk analysis, scheduling establishes a road map for project management.

Scheduling begins with the process composition. The characteristics of the project are used to adapt an appropriate task set for the work to be done.

The task network is used to compute the critical project path, a timeline chart, and a variety of project information.

3.6.1 Project Development Approach & Justification
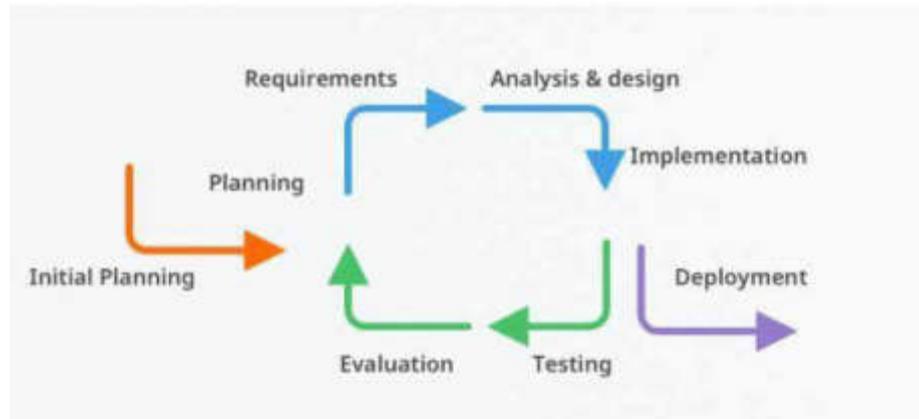
Fig. 3.1 Iterative Model

⊔ The iterative approach focuses on delivering value as fast as possible in increments, rather than all at once. This approach is especially useful in software development and product development. An iterative approach means the software or product development process is split into multiple explicit iterations or versions, each delivering some valuable improvements or additional features.

⊔ The iterative methodology allows software developers to adjust, refine, and review software development processes constantly to improve their performance incrementally. The iterative approach creates opportunities for constant evaluation and improvement in development processes. The design of an iterative approach is simple and easy to implement, regardless of the context.

⊔ The iterative paradigm, often known as the PDCA cycle, is at the core of agile development. The iterative software development initiatives follow the four-step process outlined below.

o P (Plan) – Iteration planning is concerned with the planning and discussion of project requirements and objectives. During the planning phase, software engineers review previous versions and discuss future requirements. Iteration implementation is concerned with the analysis, design, and implementation of projects.

o D (Design) - Iteration implementation is concerned with the analysis, design, and implementation of projects. During this stage of the cycle, the team creates software. During the Design phase, developers can also test the product's functioning.

o C (Check) - Iteration testing ensures that the product fulfills project specifications. If specific requirements are not met, the team can go back to the previous phases to make adjustments.

o A (Adjust) – Iteration evaluation entails a thorough examination of the iterations or cycle's work. To prepare for future iterations the software development team will   refine   its   backlog.

3.6.2 Project Effort and Time, Cost Estimation

❙❙ Fixed cost for using GraphCMS:
- o   For Community: Free Forever (For Small scale projects)
- o   Professional: $399 per month
- o   Scale: $899 per month

❙❙ Cost Based on KLOC:

T-3.1 Line of Code

File Name	Lines of Code
Components	
Author.jsx	20
Boat.jsx	29
Categories.jsx	27
Comments.jsx	44
CommentsForm.jsx	93
FeaturedPostCard.jsx	29
Header.jsx	36
Layout.jsx	13
Loader.jsx	19
PostCard.jsx	54
PostDetail.jsx	79
PostWidget.jsx	49
index.js	12
steps.js	100
Pages	
API : comments.js	29
Category : Slug.js	47
Post : Slug.js	43
_app.jsx	21
index.jsx	37
Section	
FeaturedPost.jsx	64
index.js	1

Services	
index.js	212
Styles	
globals.scss	63
Total	**1121**

Cost from above KLOC :

COCOMO calculator

Enter estimated kilo line of codes : 1.1

calculate

Effort = a*loc^b

Duration = c*effort^d

Staffing = effort/duration

	Organic	Semi-detached	Embedded
Variable A	2.4	3	3.6
Variable B	1.05	1.12	1.2
Variable C	2.5	2.5	2.5
Variable D	0.38	0.35	0.32
KLOC	1	1	1
Effort (In Person / Month)	2.4	3	3.6
Duration (In months)	3.4867457524854744	3.6722517615001844	3.7866633722353353
Staffing (Recommended)	0.6883209073357861	0.8169374527781404	0.9557520483175543

❚❚ Cost = 80 $ or 6000 Rs. PP/PM
  o   For duration with 1 member on team
    ▪   3 Months = 3* 6000 = 18000 Rs. (240 $)
    ▪   3.5 Months = 3.5 *6000 = 21000 Rs. (280 $)
❚❚ Fixed cost of Google Cloud (Per Month)
  o   For   12   Months   =   (5 $)   *   12   =   4500   Rs.   (60 $)

3.6.3 Roles and Responsibilities

1. Background Study
2. Requirement Analysis
3. Designing
4. Coding
5. Testing
6. Deployment

3.6.4 Group Dependencies

| | The above Context was not applicable as the project was carried out individually.

3.7 PROJECT SCHEDULING (GANTT CHART)

Fig. 3.2 Gantt Chart

CHAPTER 4: SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

⌐⌐Currently there isn't any dedicated Web portal in India, that allows the user to explore the various articles on covid19 precautions, cures, medicine, guidelines, research and many more from the authorized sources.

⌐⌐There are multiple blogs sharing platforms available but there is no particular dedicated platform available that allows researchers and doctors to post the accurate information.

⌐⌐Moreover, there are few government websites such as the official website of Ministry of Health and Cowin, which helps the users to explore the government guidelines, vaccine distribution & slot booking, doctor's training.

4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

⌐⌐Most of the government sites are not mobile compatible or reliable.

⌐⌐No chatbot for getting the quick solutions of the user's queries regarding medicines, disease or symptoms.

⌐⌐There are multiple blogs sharing platforms available but there is no particular dedicated platform available that allows researchers and doctors to post the accurate information.

4.3 REQUIREMENTS OF NEW SYSTEM

⌐⌐   Even though the Internet has long been the primary source of information for patients and 63% of social media users share news and information, the coronavirus has managed to elevate the "infodemic" to a new level. The novel coronavirus (COVID-19) outbreak has been accompanied by a flood of misleading and incorrect information, ranging from the sale of phony remedies to spurious conspiracy theories, particularly on social media. "We are not simply fighting with a pandemic, but we are fighting an infinitive," WHO's official remarked in February 2020. Disseminating false or erroneous information, particularly about pandemic prevention, can put the public's health at risk.

⌐⌐   With the use of this system, the users will be able to explore the various articles related to covid19 precautions, cures, consequential updates regarding guidelines, useful facts, and research about the covid19 spread or virus, and many more, with the accurate information and from the trustworthy sources. This portal will also allow the users to explore the articles according to chronological order and distinct categories. Moreover, the users will be able to comment on the particular article, and the admin jury can review that comment before displaying it, to control inappropriate commenting. The admin jury will be able to create & manage all the content and will be able to moderate the comments from the dedicated content management system named GraphCMS.

4.4 SYSTEM FEASIBILITY

4.4.1   Operational Feasibility

❙❙   The system must be user friendly and easily understandable by any user whether he/she is from technical background or not.

❙❙   The administrators might not be technical personals, so the interface used here, i.e GraphCMS will be helpful to them to understand the functionality and it will also be easy to operate.

❙❙

4.4.2   Technical Feasibility

FunctionalRequirements

❙❙   The portal should redirect the user to the correct page according to the chosen domain or the category.

❙❙   The data fetching APIs should be implemented correctly.

Non-Functional Requirements

❙❙   **Performance and scalability:** The portal should provide an easy and quick response to the user. The performance should not be affected much with the load or traffic on the software.

❙❙   **Portability and compatibility:** The web portal should be accessible on any operating system, and devices. Moreover, the UI of software should be fully responsive and compatible with mobile devices as well.

❙❙   **Reliability, availability, maintainability:** The performance of the software should not be affected by the changes in database.

4.4.3   Schedule Feasibility

❙❙   Schedule feasibility corresponds to whether sufficient time is available to complete the project.

❙❙   Factor considered:

    o   Schedule of the project

    o   Time by which project has to be completed

4.4.4   Economic Feasibility

❙❙   Economic feasibility is a measure of cost effectiveness of a project or solution.

❙❙   For declaring that the system is economically feasible, the benefits from the project should exceed or at least to be equal to the cost of development.

4.5 ACTIVITY / PROCESS IN NEW SYSTEM

Fig. 4.1 Activity Diagram

4.6 FEATURES OF NEW SYSTEM / PROPOSED SYSTEM

- Featured Posts
- Fully Marked up Posts
- Previous & Next Post
- Widget Components (Recent & Related Posts)
- Categories
- Moderated User Comments
- Medical Chatbot

4.7 LIST MAIN MODULES OF NEW SYSTEM

GraphQL APIs:

- GraphCMS will allow the owners to create and manage all the contents easily.
- GraphQL APIs will be used to fetch the data from Database and to display it over the   portal.

Website UI:

⎢⎢ It will provide the smooth User Interface with all the necessary functionalities such as search by categories, featured posts, recent posts, related articles, previous and next articles, a list of articles along with the abstract, author information, publishing details and many more…

⎢⎢ The user will also be able to find the full markdown content along with the videos, images, and author information.

Moderated Comment Section:

⎢⎢ On each article there will be a comment section, where the user will be able to add a comment and that comment will be submitted for review.

⎢⎢ The user comments will be visible to the author of the article & the admin jury, and they will be able to approve or disapprove the comment on a particular post.

Widget Components:

⎢⎢ A web widget is a web page or web application that is embedded as an element of a host web page but which is substantially independent of the host page, having limited or no interaction with the host.

⎢⎢ In this project the page of articles will be the widget components which will also have the functionalities such as option to move on the next or previous page, and the related articles.

⎢⎢ The article in the widget component will contain the featured image, full marked up content, videos, images, author introduction and distinct options to move on different articles.

4.8 SELECTION OF HARDWARE / SOFTWARE

Hardware Specifications (Development):

⎢⎢ Minimum 2.27Ghz processor

⎢⎢ RAM: 4GB minimum

⎢⎢ Minimum 100GB free space in Hard Disk storage

Software Specifications (Development):

⎢⎢ Node.js and npm installed on the system

⎢⎢ Stable internet connectivity

⎢⎢ VS Code or any other code editor

Constraints:

⎢⎢ The smooth functionality of the portal mainly depends on the speed of hardware and then on speed of the internet.

⎢⎢ It is always advisable to be updated as far as hardware is concerned. The hardware limitation occurs if the user is still using a very low MHz processor or a RAM or less than 128Mb.

⎢⎢ This will generally reduce the speed of the portal and will waste a lot of useful time,   energy   and   resources.

4.9 UNIFIED MODELING LANGUAGE (UML)

4.9.1   User Case Diagram

In software and systems engineering, the phrase **use case** is a polysemy with two senses:

|| A usage scenario for a piece of software; often used in the plural to suggest situations where a piece of software may be useful.

|| A potential scenario in which a system receives an external request (such as user input) and responds to it.

Use Case for the project:

End User Side:

|| When the user opens the website
  o The category list will be accessible from the navbar
  o The list of articles will be displayed in the chronological order with the date, author, featured image and abstract
  o Recent Post list and category list will be displayed as the widget components
  o featured post list will be displayed on the top of website body
  o Chatbot will be visible on the right side

|| When user click on "Continue Reading" button
  o The fully marked content with the author introduction
  o Related Posts list will be rendered according to the selected post
  o Related Post list and Categories will be displayed as a widget component
  o Previous Post and Next post option will be accessible
  o The user comment box will be displayed at the bottom of the post

|| When user selects any particular category
  o The post list will be displayed according to the category
  o only Recent Post list will be displayed as the widget component

|| When user click on the "Get a quick solution to the queries"
  o The chatbot will be accessible with multiple options

Admin Side:

|| User will be easily able to manage and add the posts, authors, categories from the dedicated content management system

|| When a user comments on any post, the comment will be displayed to the administrator and upon approving that comment it will be displayed on the actual post.

|| Admin will be able to add other team members in the project and will also be able to assign different roles and permissions such as contributor, developer, admin   or   editor   according   to   the   selected   plan.
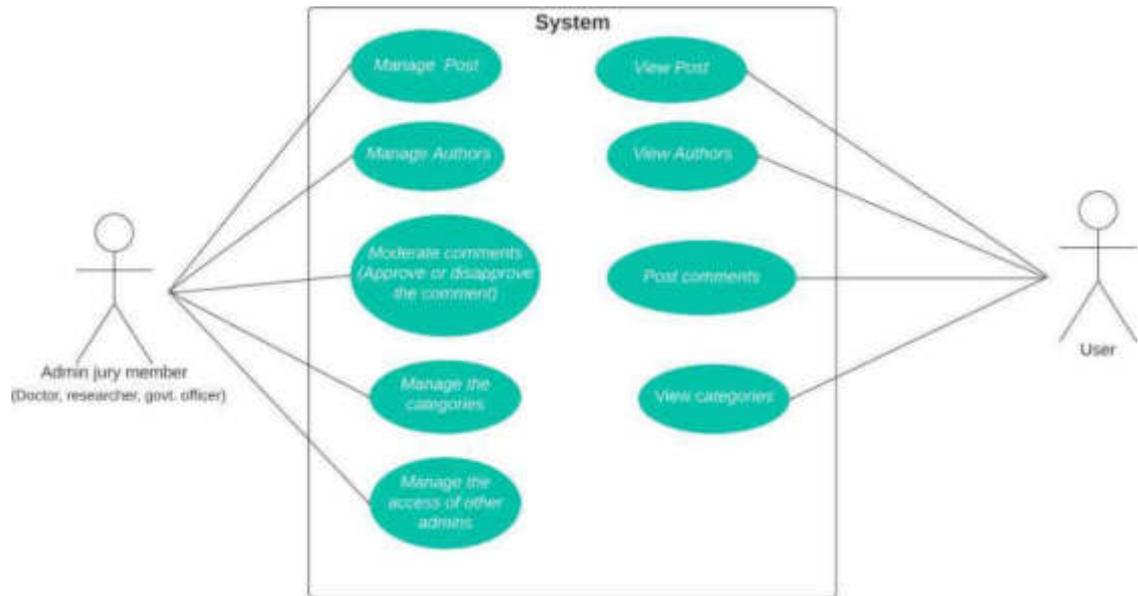
Fig. 4.2 Use Case Diagram

4.9.2   Activity Diagram

Fig. 4.3 Activity Diagram

4.9.3   Sequence Diagram

⌇⌇ The well-known Message Sequence Chart technique has been incorporated into the Unified Modelling Language (UML) diagram under the name of Sequence Diagram. A sequence diagram shows, as parallel vertical lines, different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple runtime scenarios in a graphical manner.
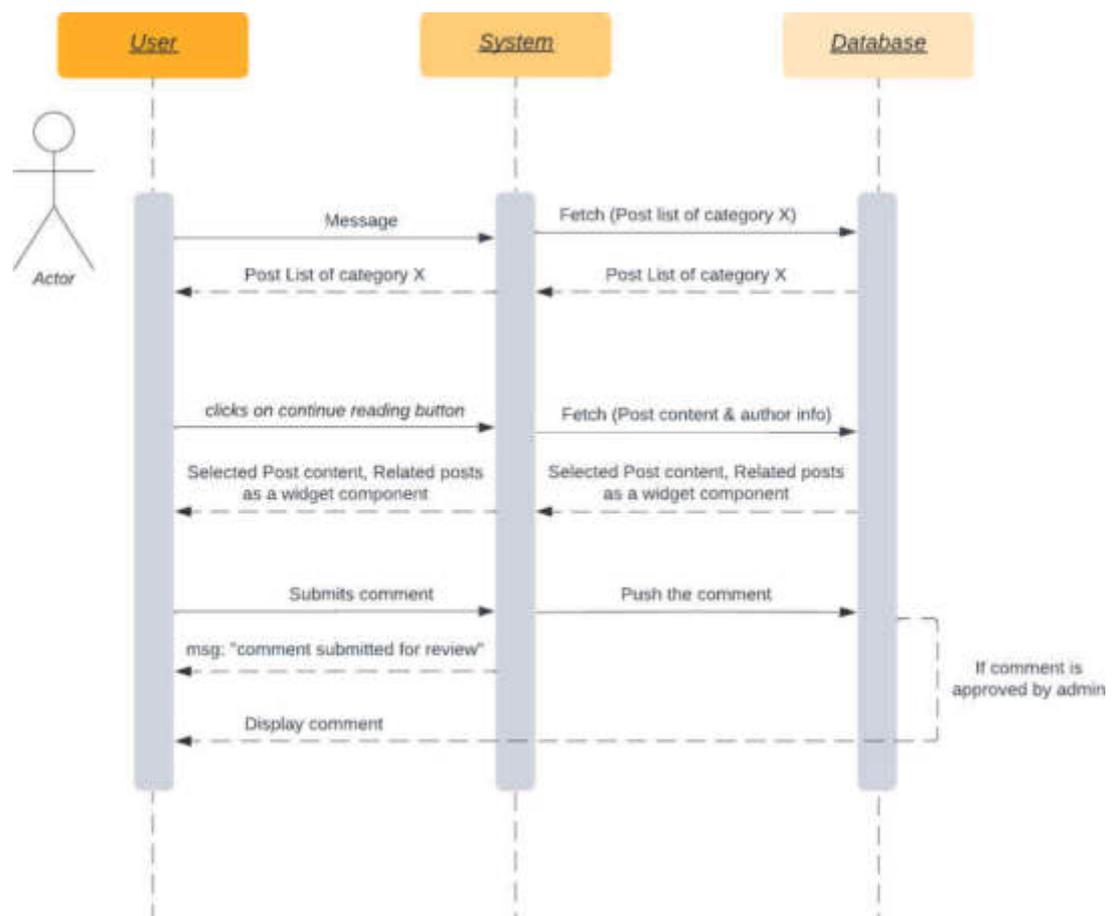
Fig. 4.4 Sequence Diagram

4.9.4   E-R Diagram

⌇⌇ Entity Relationship Model (E-R Modeling) is a graphical approach to database design. It is a high-level data model that defines data elements and their relationship for a specified software system.

⌇⌇ The main components of ER models are entities and the relationships that can exist among them, and databases.
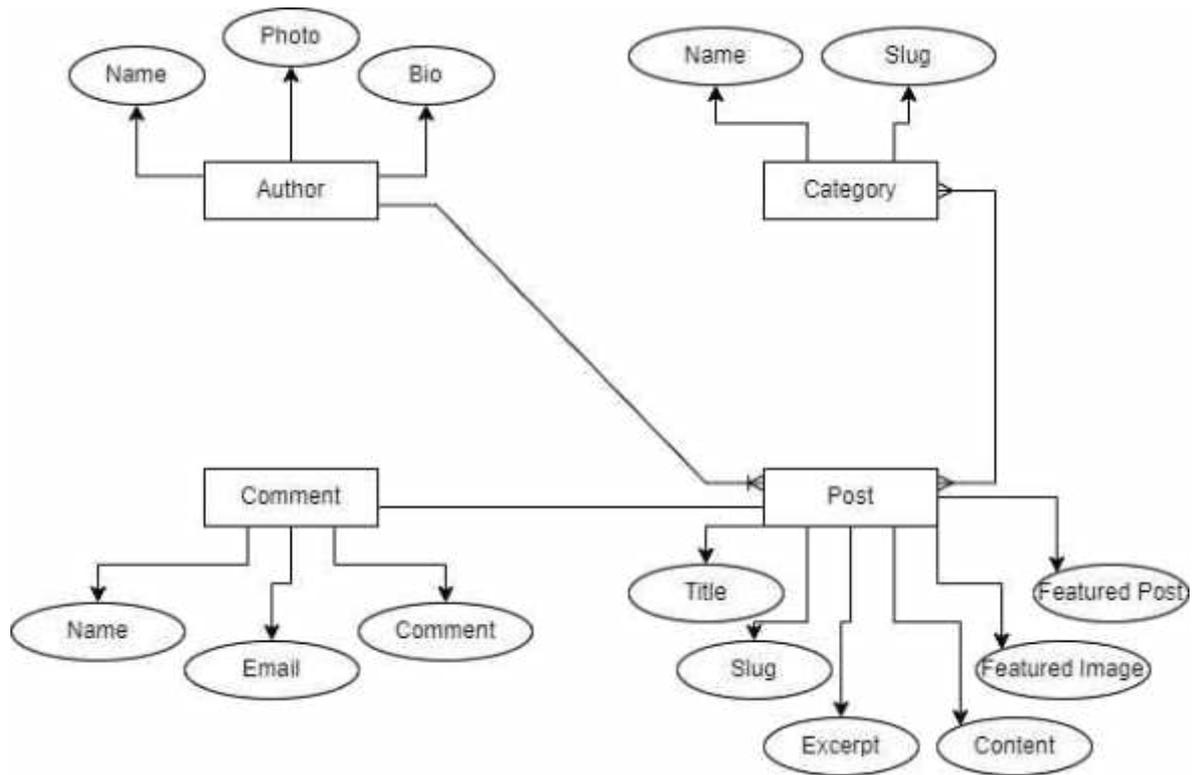
Fig. 4.5 E-R Diagram

4.9.5   Class Diagram

⊢⊣ The class diagram is the main building block of object-oriented modeling. It is used for general conceptual modeling of the structure of the application, and for detailed modeling, translating the models into programming code.

⊢⊣ Class diagrams can also be used for data modeling.
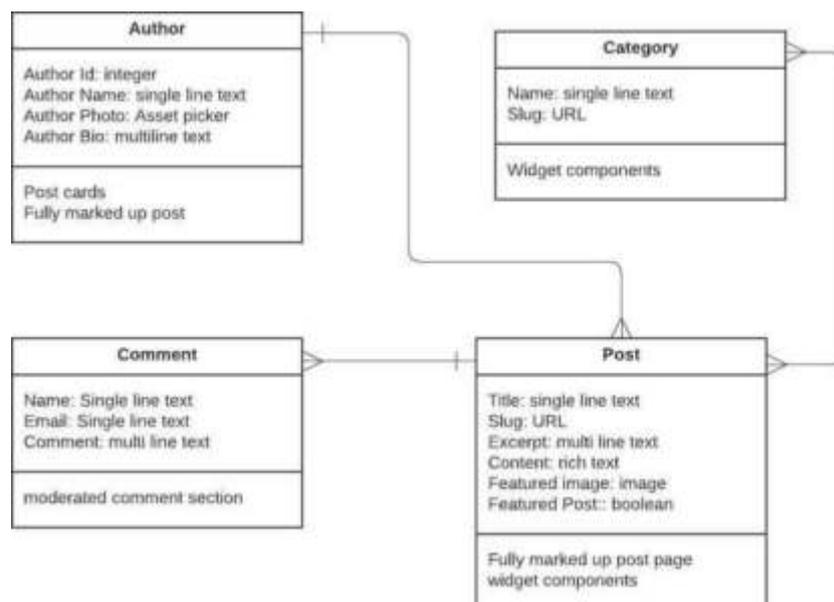
Fig. 4.6 Class Diagram

4.9.6 Data Modeling

⌐⌐ Data modeling is the process of creating a simplified diagram of a software system and the data elements it contains, using text and symbols to represent the data and how it flows. Data models provide a blueprint for designing a new database or reengineering a legacy application.
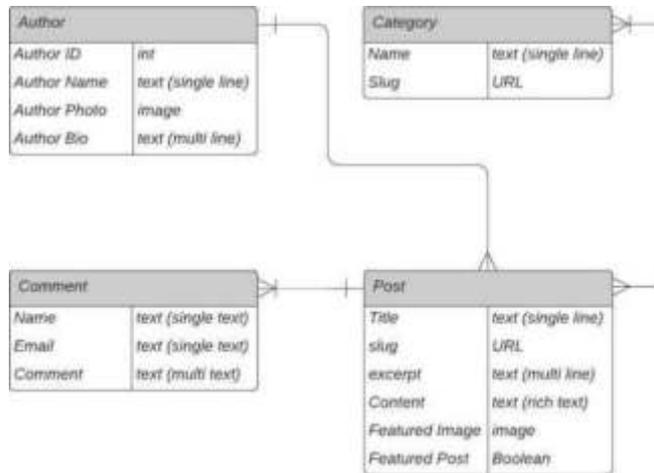
Fig. 4.6 Data Modelling

4.9.7 Data Dictionary

Author		
Field	**Datatype**	**Required**
Author Id	Integer	Yes
Name	Text	Yes
Photo	Image	Yes
Bio	Text	Yes
Category		
Field	**Datatype**	**Required**
Category Name	Text	Yes
Slug	URL	Yes
Comment		
Field	**Datatype**	**Required**
User Name	Text	Yes
User Email	Text	Yes
Comment	Image	Yes
Post		
Field	**Datatype**	**Required**
Title	Text	Yes
Slug	URL	Yes
Excerpt	Text	Yes
Content	Text	Yes
Featured Image	Image	Yes
Featured Post	Boolean	Yes

Fig. 4.7 Data Dictionary

CHAPTER 5: SYSTEM DESIGN

5.1 SYSTEM DESIGN & METHODOLOGY

5.1.1   Design Pseudocode or Algo for method or operation

⊔⊔ **User Side:**

- o   Enter the URL to open the website
- o   Home Page of the website contains the list of recent posts, featured posts and categories. It'll also display the list of posts in chronological order including abstract, author and publishing details.
- o   Choose the particular category redirected to the new page which will display the list of posts under that particular category in the chronological order.
- o   Clicking on the "Continue Reading" button the new page will be rendered, which'll contain the detailed post with author introduction. On this page, "recent post" widget component will be replaced with "related posts". Users will also get options for next and previous posts & comments.
- o   Commenting on any post comment will be passed to the admin jury and after their approval, comment will be displayed on post.
- o   Click on the "Get quick solution to the queries" Open the chatbot

⊔⊔ **Admin side:**

- o   Login option
- o   After successful login, admin will get different options to add, edit, delete post and/or add or delete another admin according to the assigned role.
- o   Admin will be able to moderate the comment from the user on a particular post.
- o   If admin approve the comment —> show on post
- o   Logout

5.2 DATABASE DESIGN

- ●   Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a Data Definition Language, which can then be used to create a database.
- ●   A fully attributed data model contains detailed attributes for each entity.
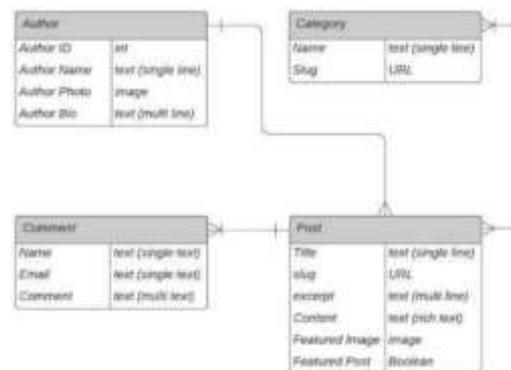
Fig. 5.1 Database Design

5.3 INPUT / OUTPUT AND INTERFACE DESIGN

5.3.1   Flow Chart Diagrams/ State Transition Diagrams:

User:

Fig. 5.1 Flowchart - user

Admin:
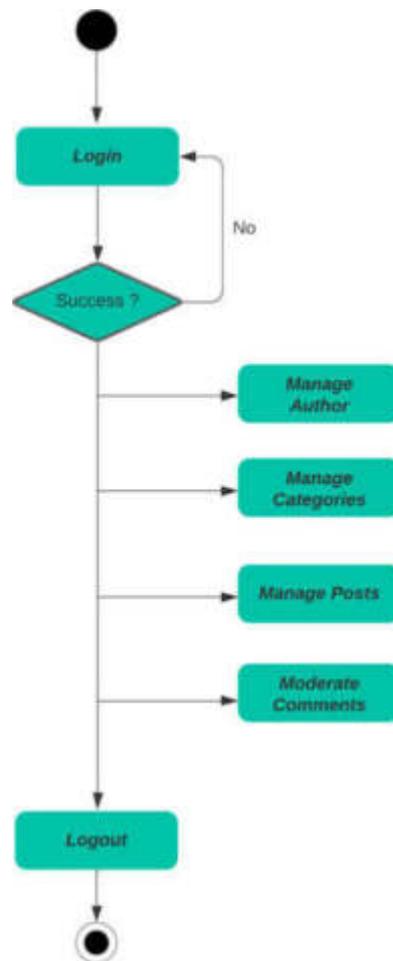
Fig. 5.2 Flowchart – admin

5.3.2   Sample of Forms, Reports & Interface

Comment Section

|| If user details are saved to local storage?
  - o   Yes: Fetch Name & Email from the local storage
  - o   No: Get the Name & Email from the user

Chatbot

|| Message from the boat
|| Selection of the relevant option from the options provided by the boat
|| Response another message or options according to the user request

5.3.3   Access Control, Mechanism & Security

|| Using   the   inbuilt   access   control   provided   by   the   GraphCMS   portal

CHAPTER 6: IMPLEMENTATION

6.1 TECHNOLOGY & IMPLEMENTATION ENVIRONMENTS

- **Technologies Used:** React.js, Next.js, Tailwind CSS, GraphQL
- **Environment Used:** VS Code, GraphCMS

React.js
- React is a declarative, efficient, and flexible JavaScript library for building user interfaces.
- It lets you compose complex UIs from small and isolated pieces of code called "components".

Next.js:
- Next.js is a React framework, which aims to have best-in-class developer experience and many built-in features, such as:
  - o Pre-rendering, both static generation and server-side rendering are supported on per-page basis
  - o Automatic code splitting for faster page loads
  - o Client-side routing with optimized prefetching
  - o API routes to build API endpoints with serverless functions

Tailwind CSS:
- It is a utility-first CSS framework which is rapidly growing in the industry.
- This framework allows users to create completely custom designs and modern user interfaces extremely quickly and easily.

GraphQL:
- Query Language for APIs, which can be used to create the schemas, models, and also for retrieving the data.
- GraphQL is an alternative of Rest APIs which is the faster and lightweight framework and also allows the user to get only the information which is required by the user.

GraphCMS:
- It is a dedicated GraphQL Content Management System, which allows the user to create, enrich, unify and deliver all the content across all the different platforms.
- GraphCMS supercharges the use of GraphQL.

6.2 MODULE SPECIFICATIONS

GraphQL APIs:

⊓ GraphCMS will allow the owners to create and manage all the contents easily.
⊓ GraphQL APIs will be used to fetch the data from DataBase and to display it over the portal.

Website UI:

⊓ It will provide the smooth User Interface with all the necessary functionalities such as search by categories, featured posts, recent posts, related articles, previous and next articles, a list of articles along with the abstract, author information, publishing details and many more…
⊓ The user will also be able to find the full markdown content along with the videos, images, and author information.

Moderated Comment Section:

⊓ On each article there will be a comment section, where the user will be able to add a comment and that comment will be submitted for review.
⊓ The user comments will be visible to the author of the article & the admin jury, and they will be able to approve or disapprove the comment on particular post.

Widget Components:

⊓ A web widget is a web page or web application that is embedded as an element of a host web page but which is substantially independent of the host page, having limited or no interaction with the host.
⊓ In this project the page of articles will be the widget components which will also have the functionalities such as option to move on the next or previous page, and the related articles.
⊓ The article in the widget component will contain the featured image, full marked up content, videos, images, author introduction and distinct options to move on different articles.

6.3 FEW FIGURES OF IMPLEMENTATION

6.4 OUTCOMES

6.5 RESULT ANALYSIS

⊓ According to the current stage of application following are the result outcomes.
- o The application does not crash and performs as intended.
- o The application performs all the activities it is supposed to.
- o The UI elements and navigation are seamlessly integrated.
- o There is a bit of lag when transforming from one activity to another one. Which will be resolved during future iteration.

CHAPTER 7: TESTING

7.1 TESTING PLAN / STRATEGY

| | Test plan is an approach to decide the sequence and procedure of a test to be performed on deliverables before delivering the product to the customer.
| | Depending on the project, the following test can be considered.
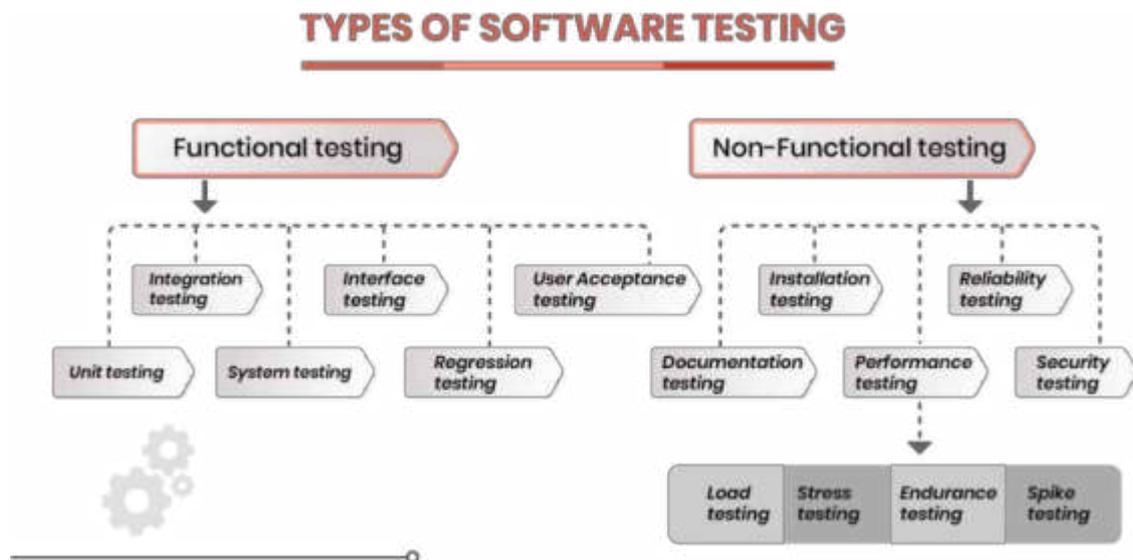
Fig. 7.1 Types of Software Testing

7.2 Test Results and Analysis

| | Initially the developer considers Unit testing, and then does Integration testing to ensure the system's overall functionality.
   o Unit testing is a software development technique in which the smallest testable pieces of a programme, referred to as units, are examined separately and independently for proper operation.
   o Individual software modules are merged and tested as a group during integration testing (also known as integration and testing, abbreviated I&T).
| | Once the project is completed, Validation Testing is carried out. Alpha and Beta are two different categories of tester.
   o The process of determining if software meets stated business requirements during the development process or at the end of the development process.
   o Testing is done once by the testing team and once by the clients.

| | After that, system testing is completed, followed by acceptance testing.
   o System testing is a type of software testing that is carried out on an entire integrated system in order to assess the system's compliance with the appropriate requirements.
   o Acceptance testing is a procedure for determining whether a specification or contract's requirements have been met.

7.2.1 TEST CASES (TEST ID, TEST CONDITION, EXPECTED

OUTPUT, ACTUAL OUTPUT, REMARK)

ID- 1
- o Choose the particular category
- o Application Status: Working fine
- o Expected output: redirected to the new page which will display the list of posts under that particular category in the chronological order
- o Actual output: redirected to the new page which will display the list of posts under that particular category in the chronological order
- o Remarks: Loading Time is significant

ID- 2
- o Clicks on the "Continue Reading" button
- o Application Status: Working fine
- o Expected output: the new page will be rendered, which'll contain the detailed post with author introduction. On this page, "recent post" widget component will be replaced with "related posts". Users will also get options for next and previous posts & comments.
- o Actual output: the new page will be rendered, which'll contain the detailed post with author introduction. On this page, "recent post" widget component will be replaced with "related posts". Users will also get options for next and previous posts & comments.
- o Remarks: Working fine

ID- 3
- o Commenting on any post
- o Application Status: Working fine
- o Expected output: comment will be passed to the admin jury and after their approval, comment will be displayed on post.
- o Actual output: comment will be passed to the admin jury and after their approval, comment will be displayed on post.
- o Remarks: Working fine

ID- 4
- o Chatbot
- o Application Status: Working fine
- o Expected output: Reply to user input
- o Actual output: The chatbot replied as intended.
- o Remarks: Working   fine

CHAPTER 8: CONCLUSION AND DISCUSSION

8.1 OVERALL ANALYSIS OF INTERNSHIP / PROJECT

VIABILITIES

| | Digitalization has generated as many, if not more, creative digital services and products, some of which have proven to be tremendous economic successes.
| |
| | To analyze the viability of the project the following six questions can be considered.
| | For the aforementioned project, respective answers for six questions are attempted to calculate the viability of the project.

T-8.1 Viability Table

Viability Table		
Sr. No	**Question**	**Answer**
1.	Does the project meet the business objectives and is socially acceptable?	The Project carried out under title "Veracity: acquire accurate information from the proficient" is socially acceptable and it grabs the business opportunity in the health sector.
2.	Will it meet the requirements of the mobile audience?	Yes, the project meets the requirement for a person who is indulging into a healthy lifestyle.
3.	What is the competitive environment? What are the opportunities and threats?	As this is the first of its kind Health Blog platform, there are enormous amounts of opportunities.
4.	Is the project viable from a technical and operational perspective?	Yes, the current development cost and operation cost is viable in accordance to the gains from the project.
5.	Will the project deliver return on investment (ROI)?	With a unique marketing strategy, this project can deliver ROI.
6.	Is the go-to-market strategy credible?	Yes, the go-to-market strategy is viable to reach the expected audience.

| | From the above table we can conclude that the aforementioned project is viable.

8.2PHOTOGRAPHS

Company Logos, its main wall, main door having office number

Photograph with mentor, working on my desk , standing besides of main wall

8.3 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS

T-8.3 Problem Encountered and Possible Solutions

Problem Encountered and Possible Solutions		
	Problem Encountered	**Possible Solutions**
1.	Database and Storage.	It can be solved by using the custom plans provided by the GraphCMS.

8.4 SUMMARY OF INTERNSHIP / PROJECT WORK

To encapsulate, The internship at D9ithub Software Solutions Pvt Ltd helped me to learn about different technologies and also the project development in a corporate environment, further applying the same techniques to my own project.The project helped me to explore unfamiliar technologies like React.js, Next.js, Tailwind CSS, GraphQL and GraphCMS. It gave me the opportunity to put my designing skills to test. Overall, the internship and project for the partial fulfillment for the award of the degree of Bachelor of Engineering under Gujarat Technological University helped me in an affirmative way.

8.5 LIMITATION AND FUTURE ENHANCEMENT

T-8.4 Limitation and Future Enhancement Table

Limitations	
1.	Static data for chatbot
2.	Friends Connect.
Future Enhancement	
1.	Creation of API for chatbot
2.	Creation of custom Admin Panel

8.6 REFERENCES

- **https://reactjs.org/tutorial/tutorial.html**
- **https://nextjs.org/learn/basics/create-nextjs-app**
- **https://tailwindcss.com/**
- **https://graphql.org/learn/**

INTERNSHIP AT FluSocial Private Ltd.

AN INTERNSHIP REPORT

Submitted by

Patel Jaiminkumar Kiritkumar

190390116019

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 FluSocial Private Ltd.** has been carried out by **Patel Jaiminkumar Kiritkumar** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasana Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

COMPANY CERTIFICATE

FLU SOCIAL

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Radhanpur Road, Mehsana
(+91) 99255 92391
www.flusocial.com
Info@flusocial.com

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Jaimin Kiritkumar Patel** (Enrollment No: **19039011601g**) 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.

Dron Joshi
CEO, Flu Social

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 : 17 May 2023 (08:19:07)

This is to certify that, **Patel Jaimin Kiritkumar** (Enrolment Number - 190390116019) working on project entitled with **INTERNSHIP AT FLUSOCIAL PVT LTD.** from *Information Technology* 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 Jaimin Kiritkumar   Name of Guide :   Miss. Upasna P Leela

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, Mehsana

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

DECLARATION

We hereby declare that the Internship report submitted along with the Project entitled **Internship at FluSocial Private Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasana Leela & Mr. 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.   **Patel Jaiminkumar Kiritkumar**   _____

ACKNOWLEDGMENT

Acknowledgement is just a way to express gratitude, something so deep that it cannot be expressed fully. Nobody is completely on their own. He/she needs someone's help in his/her life.

I would like to take this opportunity to express my sincere appreciation to S.P.B. Patel Engineering College (Saffrony Institute of Technology) and all the faculties who have helped me in completing my project.

I am deeply grateful to my project guide Prof. Upasana Leela, whose constant guidance, constructive feedback, and unwavering support have been instrumental in shaping my project and ensuring its success.

I would also like to thank the other faculties of Information Technology who have shared their knowledge and expertise with me throughout my academic journey. Their dedication, enthusiasm, and support have been an inspiration to me.

Furthermore, I would like to extend my thanks to the non-teaching staff of the college, who have always been supportive and have provided me with the necessary resources and facilities to carry out my project work efficiently.

Last but not least, I am grateful to my family and friends, who have always encouraged me and stood by me during this project.

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With Sincere regards from,

Jaimin Patel

ABSTRACT

Indicraafts is a company that provides various services related to arts and handicrafts, such as product sourcing, product development, private label solutions, interior solutions, custom made designs, export and quality control, and sourcing tours. The company works with local skilled artisans and small businesses in India and connects them with global markets. Indicraafts also supports social causes by donating a part of its profits to NGOs. The company showcases its products on its website and Instagram account, which include metal handicrafts, glass handicrafts, and furniture. Indicraafts is led by Christopher Massey, a serial entrepreneur with experience in exports and imports, hospitality consulting, and social enterprise.

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Chapter 1. OVERVIEW OF THE COMPANY

1.1 COMPANY PROFILE

FluSocial is a digital marketing agency based in Mehsana, India. It provides services such as website development, branding, SEO, social media marketing, and more. It has over 10 years of experience and has satisfied more than 1000 customers. Some of its clients include theriseonic.com, blissaquaworldresort.com, liive.org, and adatewithcharlotte.com. FluSocial aims to build and grow stronger relationships with its customers by using advanced marketing tools and creative innovation.

1.2 SERVICES PROVIDED BY THE COMPANY

The services provided by the company are as below :
- Website Development
- Digital Marketing
- Branding
- Content Writing
- Web Hosting And Migration
- Amazon Product Development
- SEOs
- Graphics Designing

1.3 Mission and vision of the company

According to the founder of FluSocial, Dron Joshi, the vision of the company is to "WOW" the world with what can be achieved online. The company aims to use advanced marketing tools and creative innovation to help its customers grow their businesses and brands online. FluSocial also wants to provide effective and affordable digital marketing solutions that suit the needs and goals of its customers.

Chapter 2. INTRODUCTION TO PROJECT

The project https://indicraafts.com/ is a website that offers services for finding, developing, branding and strategizing products related to arts and handicrafts from India. The website collaborates with local artisans and small businesses to serve their European customers and local markets. The website also showcases its collection of metal handicrafts, glass handicrafts and furniture. The website was founded by Christopher Massey, a serial entrepreneur who has experience in exports and imports, hospitality consulting, social enterprise, art, and yoga. The website is directed by Fredy Anand, who has worked in real estate development in Europe and ran a manufacturing and export company in New Delhi for over 20 years. The website also has a social media presence on Facebook and Instagram, where it showcases its products and engages with its audience. The website also has a blog where it shares stories and insights about the arts and handicrafts industry. The website aims to promote the rich traditional art, heritage and culture of India and preserve the traditional skills and talents of the artisans. The website also provides 360-degree support to its artisans and small businesses with financial aid, raw material sourcing, connecting them with global markets through outreach initiatives, information initiatives, marketing, and exports.

2.1 PROJECT SUMMARY

The project https://indicraafts.com/ is a website that provides services and products related to arts and handicrafts from India. The website works with local artisans and small businesses to serve European clients and local markets. The website also promotes and supports the art, culture, and skills of India. The website was founded by Christopher Massey and directed by Fredy Anand. The website also has a social media presence and a blog.

2.2 PURPOSE

The website https://indicraafts.com/ offers services for finding, developing, branding and strategizing products related to arts and handicrafts from India. The website collaborates with local artisans and small businesses to serve their European customers and local markets. The website also seeks to showcase the rich art, heritage and culture of India and protect the traditional skills and talents of the artisans.

2.3 OBJECTIVE

Indicraafts work closely with artisans along with govt apex bodies to promote our seven lakh skilled artisans and small businesses in India. Along with our partners and promoters, we provide 360-degree support to our artisans and small businesses with financial aid, raw material sourcing, connecting them with global markets through outreach initiatives, information initiatives, marketing, and exports.

2.4 SCOPE

The scope of https://indicraafts.com/ is to provide product sourcing, product development, private label solutions and strategy sourcing for arts and handicrafts from India. The website works with local skilled artisans and small businesses to provide their services to European clients and local markets. The website also offers interior solutions, custom made designs, export and quality control, and sourcing tours. The website has a collection of metal handicrafts, glass handicrafts and furniture.

The website was founded by Christopher Massey, a serial entrepreneur who has experience in exports and imports, hospitality consulting, social enterprise, art, and yoga. The website is directed by Fredy Anand, who has worked in real estate development in Europe and ran a manufacturing and export company in New Delhi for over 20 years.

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2.5 TOOLS AND TECHNOLOGY

The project was developed using HTML, CSS, JavaScript, and ReactJS. These tools and technologies were selected based on their versatility, ease of use, and compatibility with modern web development standards. The development team used various software tools and libraries, such as Visual Studio Code, Node.js, and React libraries, to facilitate the development process. The website was deployed on a web server using cloud hosting services to ensure optimal performance and scalability. Additionally, various web development best practices and standards were followed to ensure the website's quality and security.

HTML, or Hypertext Markup Language, is the foundation of any web page. It is used to create the structure and content of web pages, and provides the basic building blocks for creating a website. In a website, HTML would be used to create the layout and structure of the pages, including the header, navigation, footer, and main content areas. It would also be used to create forms for capturing user information and search fields for property listings.

CSS, or Cascading Style Sheets, is used to add style and visual design to a website. In a website, CSS would be used to create a consistent visual style for the website, including typography, color scheme, and layout. It would also be used to create responsive design, ensuring that the website is optimized for different screen sizes and devices. Additionally, CSS would be used to create hover and animation effects toenhance the user experience.

JavaScript is a programming language used to add interactivity and functionality to a website. In a website, JavaScript would be used to create interactive features such as property search filters, image galleries, and map integrations. It would also be used to create form validation, ensuring that user input is accurate and complete. Additionally, JavaScript would be used to create custom functionality such as mortgage calculators, chatbots, and other features that enhance the user experience.

ReactJS is a JavaScript library used to create user interfaces. It provides a component-based architecture that enables developers to create reusable UI components

that can be used across the website. In a website, React.js would be used to create reusable components such as property listings, contact forms, and search filters. It would also be used to create dynamic and interactive user interfaces that are responsive and optimized for different devices.

Overall, the combination of HTML, CSS, JavaScript, and React.js provides the necessary tools and technologies to create a visually appealing and functional website that engages and informs users.

Chapter 3. PLANNING AND DESIGN

3.1 PROJECT PLANNING AND MANAGEMENT

The first step in any software development project is planning and management. This stage involves defining the scope of the project, establishing goals, objectives and timelines, allocating resources and budget, and identifying potential risks and challenges. In the case of our frontend website development project for a firm, we started by defining the scope of the project, which included creating a website that showcases the firm's properties, services, and contact information.

We also established the project's objectives, which included developing a responsive and user-friendly website that provides an excellent user experience for visitors. We allocated resources and budget, including the tools and technologies required for the project, and established timelines for the various stages of the project. We also identified potential risks and challenges and developed contingency plans to mitigate them.The project management phase involves coordinating the efforts of all team members, tracking project progress, and ensuring that the project is completed on time and within budget.

3.2 USER INTERFACE DESIGN AND DEVELOPMENT

User interface design and development is the process of creating the front-end of a website, which is what users see and interact with. This involves writing code using front-end technologies like HTML, CSS, and JavaScript, and making sure that the website looks good and works well on different devices and browsers. The website should also be responsive, which means it adapts to different screen sizes and orientations. For our project of developing a website for a firm, we used ReactJS, a popular JavaScript library, to build the user interface. We followed some best practices such as using meaningful HTML tags for better accessibility, organizing the CSS code, and using CSS media queries to make the website responsive. We also tested the website's functionality, such as searching and filtering properties, and made sure that the website loaded quickly and smoothly. By the end of the user interface design and development stage, we had created a website that was attractive and user-friendly, and that met the project's goals. The code was optimized for speed and performance and was compatible with different browsers and devices.

3.3 PROJECT EFFORT AND TIME, COST ESTIMATION

This project took more than 3 months to complete it. However, it may take too long time for designing the website. Also, we are new in the company, so we don't know the proper workflow. Also, a lot of effort is needed to establish this website. Because we are fresher in the company, we don't have any idea related to the cost estimation of the project.

Chapter 4. SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

Furniture and craft sites are online platforms that offer various products and services related to arts and handicrafts. Some examples are Exclusive Lane, which promotes Indian crafts and supports social causes; Craftatoz, which provides quality designer furniture and custom-made designs; Induscraft, which provides solid wood and exclusive furniture; and Etsy, which allows customers to buy and sell antique, vintage, and handmade items.

4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

Here are some possible issues of current furniture and craft sites:

- Changing consumer preferences: The pandemic and the lockdown have altered the customer needs and expectations for furniture and craft products. Customers are looking for multi-functional, comfortable, and sustainable furniture that can suit their work-from-home and study-from-home scenarios. Furniture and craft sites need to adapt to these changing trends and offer products that meet the customer demands.
- Policy support for manufacturing: The government initiatives such as 'Make in India' and 'Vocal for Local' have given a boost to the domestic furniture manufacturing sector, but also increased the competition among the players. Furniture and craft sites need to differentiate themselves from their rivals and offer quality products at competitive prices. They also need to comply with the regulatory norms and standards for manufacturing and exporting furniture products.
- Rental furniture demand: With the increased financial uncertainty and economic slowdown, several customers, especially millennials, are opting for rental furniture instead of buying new ones. Furniture and craft sites need to tap into this growing market segment and offer flexible and affordable rental options for their products. They also need to ensure the hygiene and safety of their rental products amid the pandemic.
- The politics of craft exhibitions: Craft exhibitions are important platforms for showcasing and promoting craft products and practices, but they also involve various political, social, and cultural issues. Furniture and craft sites need to be aware of the power dynamics, ethical dilemmas, and representational challenges that shape the craft exhibitions. They also need to engage with the diverse audiences and stakeholders that participate in or influence the craft exhibitions.
- Online competition: The online furniture market is becoming more crowded and competitive, with several players offering similar products and services. Furniture and craft sites need to stand out from the crowd and attract customers with their unique value propositions, user-friendly interfaces, personalized recommendations,

and customer reviews. They also need to invest in digital marketing, SEO, and social media strategies to increase their online visibility and reach.

4.3 REQUIREMENTS OF NEW SYSTEM

- To adapt to the changing consumer preferences, these sites can conduct regular market research and customer feedback surveys to understand the customer's needs and expectations. They can also update their product portfolio and offer new and innovative products that cater to the customer demands. They can also highlight the sustainability and environmental benefits of their products and use eco-friendly materials and packaging.
- To benefit from the policy support for manufacturing, these sites can collaborate with local artisans and small businesses and provide them with training, resources, and market access. They can also leverage the government schemes and incentives for manufacturing and exporting furniture products. They can also adhere to the quality standards and certifications required for domestic and international markets.
- To tap into the rental furniture demand, these sites can offer flexible and affordable rental plans for their products, such as monthly, quarterly, or yearly subscriptions. They can also provide free delivery, installation, and maintenance services for their rental products. They can also ensure the hygiene and safety of their rental products by sanitizing them before and after each use and following the COVID-19 protocols.
- To deal with the politics of craft exhibitions, these sites can be mindful of the ethical and cultural issues involved in exhibiting craft products and practices. They can also consult with the craft communities and experts and respect their views and opinions. They can also diversify their exhibition platforms and formats and use online and offline channels to reach a wider audience. They can also engage with the audience and stakeholders through interactive and educational activities.
- To cope with the online competition, these sites can differentiate themselves from their rivals and offer unique value propositions, such as customization, personalization, or social impact. They can also improve their user experience and interface design and make their sites easy to navigate, search, and purchase. They can also use data analytics, artificial intelligence, and machine learning to provide personalized recommendations and customer reviews. They can also invest in digital marketing, SEO, and social media strategies to increase their online visibility and reach.

4.4 FEATURES OF NEW SYSTEM

The new website features a range of functionalities to improve the user experience. These include:

- Easy property finds functionality.

- Detailed information about each element, including features, nearby sources, and values.

- Modern design and responsive layout

- Integration with APIs to provide additional data.

4.5 LIST OF MAIN COMPONENTS

Main Modules:
Home Page:
Search product
Product category
Product Detail
Address
Product Detail
Contact
Chatbot

- Product sourcing module: This module allows the system to find and source the products that the customers are looking for. It involves processes such as market research, supplier identification, negotiation, quality inspection, and order placement. It uses techniques such as web scraping, data mining, and artificial intelligence to gather and analyze information about the products and suppliers.
- Product development module: This module allows the system to help in custom made designs for the customers' private label requirements. It involves processes such as design specification, prototyping, testing, and feedback. It uses techniques such as computer-aided design, 3D printing, and machine learning to create and improve the product designs.
- Interior solutions module: This module allows the system to help in interior solutions for the customers' properties. It involves processes such as site assessment, space planning, furniture selection, installation, and maintenance. It uses techniques such as virtual reality, augmented reality, and blockchain to provide realistic and secure interior solutions.
- Export and quality control module: This module allows the system to help in exporting the products to the customers' destinations. It involves processes such as packaging, labeling, documentation, customs clearance, transportation, and delivery. It uses techniques such as barcode scanning, RFID tracking, and GPS tracking to ensure the quality and safety of the products during transit.

- Sourcing tours module: This module allows the system to provide overseas buyers with a complete one-stop wholesale sourcing and buying service. It involves processes such as itinerary planning, travel arrangements, accommodation booking, local guide hiring, factory visits, product sampling, and order confirmation. It uses techniques such as online booking, mobile payment, and chatbot to facilitate the sourcing tours.

4.6 SYSTEM FEASIBILITY

A feasibility study is a preliminary assessment that assists management in determining if a system is viable for development or not.
• It recognizes the possibilities of enhancing an existing system, creating a new system, and producing revised estimations for ongoing system development.
• It is used to sketch out the problem and determine whether a practical or acceptable solution exists.
• The primary goal of a feasibility study is to affirm the scale of the problem rather than solving it.
• A feasibility study produces a formal system proposal, which serves as a decision document and describes the whole nature and scope of the proposed system.
There are many types of feasibility study like technical feasibility, Operational/Behavioral feasibility, Economic feasibility, Scheduling feasibility.

- Technical feasibility: The site seems to have the basic hardware, software, network, and other technologies required for its operation. It uses WordPress as its content management system and WooCommerce as its e-commerce platform. It also uses Google Analytics, Facebook Pixel, and Mailchimp for its digital marketing and analytics. However, the site could improve its compatibility and integration with other platforms and devices, such as mobile phones, tablets, etc. It could also enhance its technical skills and expertise by hiring more web developers, designers, and testers.

- Operational feasibility: The site seems to meet the needs and expectations of its users and stakeholders. It offers a variety of products and services related to arts and handicrafts, such as product sourcing, product development, private label solutions, interior solutions, custom made designs, export and quality control, and sourcing tours. It also supports social causes by donating a part of its profits to NGOs. However, the site could improve its usability, reliability, maintainability, and security by making its interface more user-friendly, responsive, and attractive. It could also update its product portfolio more frequently and provide more information about its products, such as dimensions, materials, prices, etc. It could also implement more security measures to protect its data and transactions from cyberattacks.

- Economic feasibility: The site seems to have a positive cost-benefit analysis for its operation. It has a competitive pricing strategy and a transparent fee structure for its products and services. It also has a global market reach and access to local skilled artisans and small businesses in India. However, the site could improve its return on investment, payback period, net present value, and other financial indicators by increasing its sales volume and revenue. It could also reduce its costs by optimizing its supply chain and logistics processes. It could also explore more funding opportunities from investors or grants.

- Legal feasibility: The site seems to comply with the relevant laws, regulations, policies, standards, and ethical principles for its operation. It has a clear privacy policy, terms of service, refund policy, and disclaimer on its website. It also respects the intellectual property rights of its artisans and partners. However, the site could face some legal risks and liabilities associated with its operation, such as data privacy breaches, contract disputes, export restrictions, etc. It could also monitor the changes in the legal environment and update its policies accordingly.

4.7 Does the system contribute to the overall objectives of the organization?

This is concerned with specifying equipment and software that will successfully satisfy the user requirement. The technical needs of the system may include.

4.8 SELECTION OF HARDWARE / SOFTWARE / ALGORITHMS / METHODOLOGY / TECHNIQUES / APPROACHES AND JUSTIFICATION

Software Requirement
 Operating System : Windows 10 or Linux
 User Interface : HTML, CSS, Bootstrap, Django Templates
 Client-side Scripting : Django
 Programming Language : Django, Python
 Web Technologies : Django, Python
 IDE/Workbench : Visual Studio Code
 Database : Postgres
Hardware Requirements
 Processor : Intel core i3
 Hard Disk : 10GB

 RAM : 4GB or more

4.9 Use Case Diagram
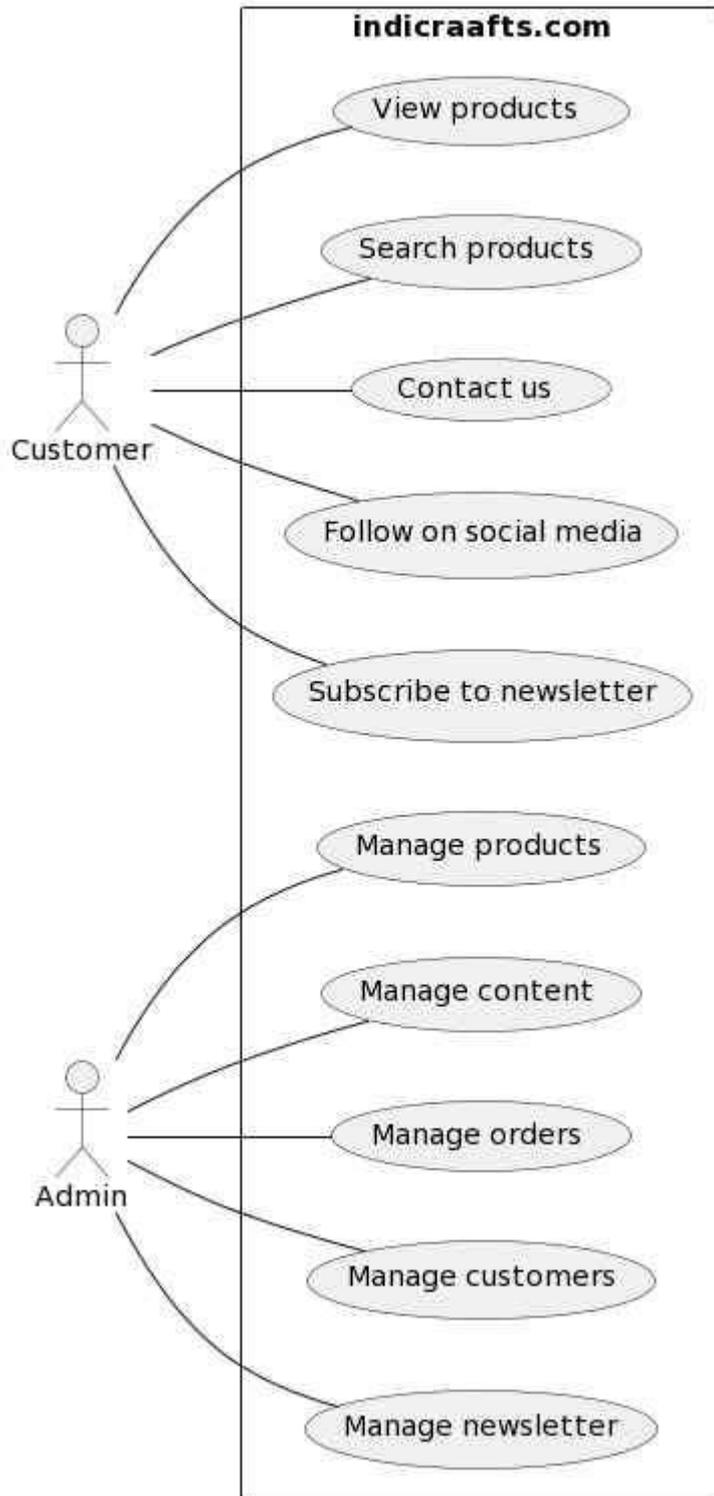
4.10 ER Diagram
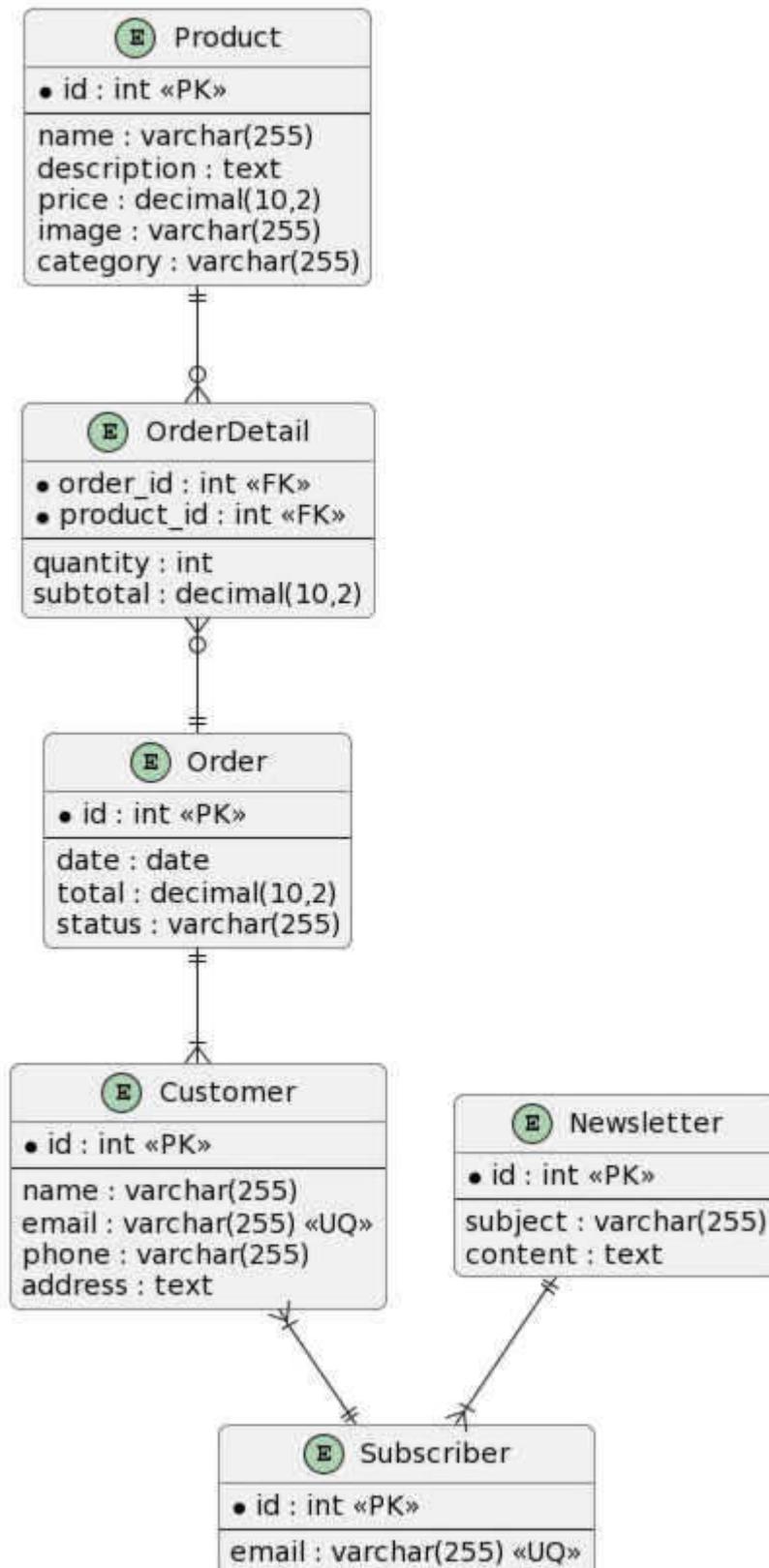
4.11 Sequence Diagram:
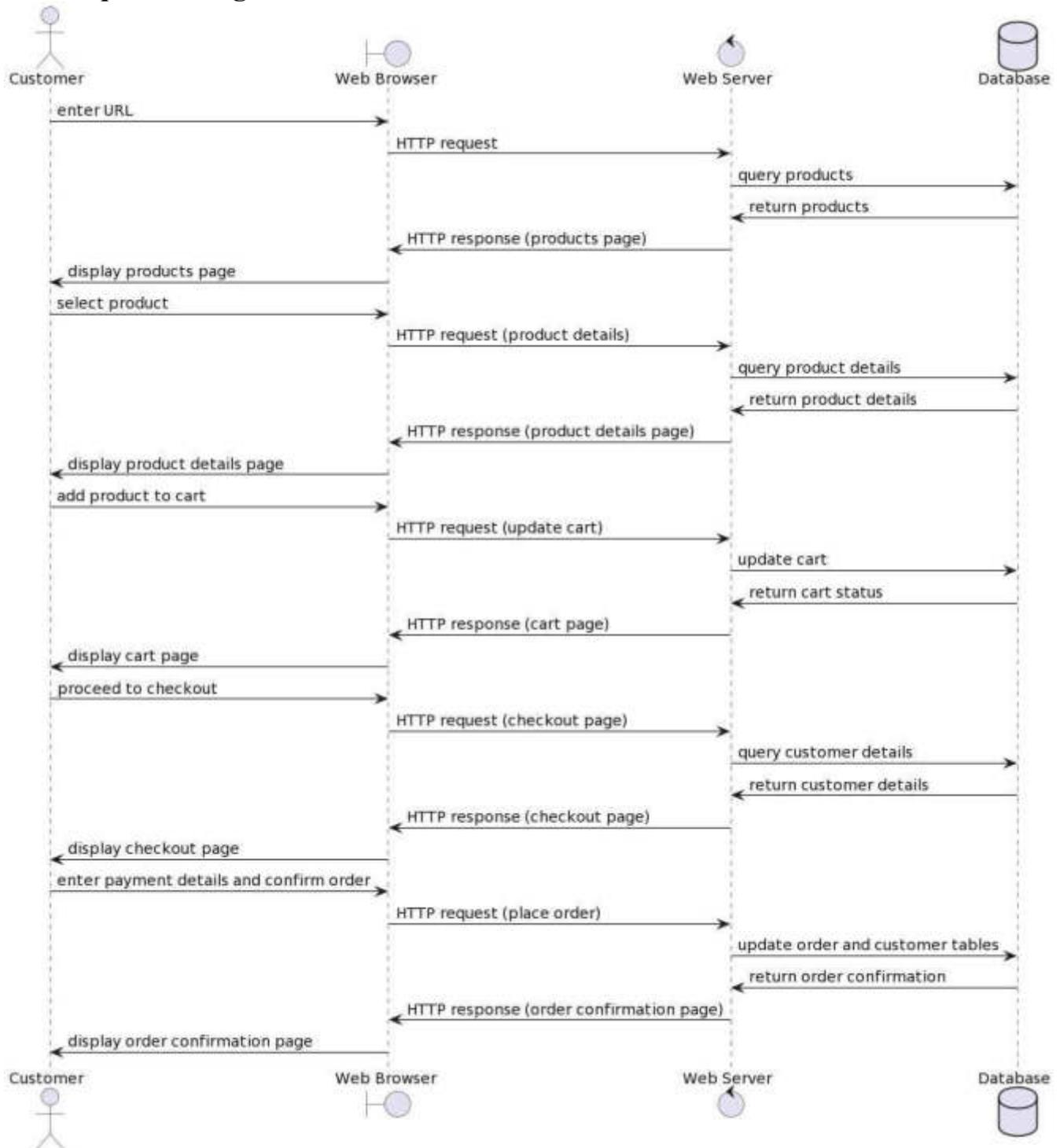
4.12 Component Diagram:

4.13 Activity Diagram:

Chapter 5. FRONTEND DEVELOPMENT

5.1 HTML AND CSS MARKUP

5.1.1 Learning HTML And CSS Concepts

1.HTML Structure

The basic structure of an HTML document includes several essential elements that define the structure and content of a web page. The following is a brief explanation of each of these elements:

<!DOCTYPE html>: This declaration at the beginning of an HTML document informs the web browser which version of HTML the document is written in. This is required for the browser to properly render the HTML code.

<html>: The <html> element is the root element of an HTML document and contains all other elements. It has two parts: the opening tag (<html>) and the closing tag (</html>).

<head>: The <head> element contains metadata about the HTML document, such as the title of the web page, links to external stylesheets, and other information that does not appear on the web page itself.

<title>: The <title> element, located within the <head> element, specifies the title of the web page that appears in the browser's title bar.

<body>: The <body> element contains all of the content that appears on the web page, such as text, images, videos, and other HTML elements.

Here is an example of the basic structure of an HTML document:

```
<!DOCTYPE html>
<html>
  <head>
    <title>My Web Page</title>
```

```
   </head>
   <body>
     <h1>Welcome to my web page!</h1>
     <p>This is the content of my web page.</p>
   </body>
</html>
```

2.HTML Tags

HTML tags and elements are the building blocks of web pages. They define the structure and content of the web page and allow web developers to create different types of content.

Headings: Headings are used to create titles or headings for sections of a web page. There are six levels of headings in HTML, ranging from <h1> (the largest and most important heading) to <h6> (the smallest and least important heading).

For example:

```
    <h1>This is a heading level 1</h1>
    <h2>This is a heading level 2</h2>
    <h3>This is a heading level 3</h3>
```

Paragraphs: Paragraphs are used to separate blocks of text on a web page. The <p> element is used to create a paragraph.

For example:

```
    <p>This is a paragraph.</p>
    <p>This is another paragraph.</p>
```

Lists: Lists are used to organize content into an ordered or unordered list. There are two types of lists in HTML: ordered lists (<ol>) and unordered lists (<ul>). List items are created with the <li> element.

For example:

```
    <ul>
    <li>List item 1</li>
    <li>List item 2</li>
    <li>List item 3</li>
    </ul>

    <ol>
    <li>Ordered list item 1</li>
```

```
<li>Ordered list item 2</li>
<li>Ordered list item 3</li>
</ol>
```

Links: Links are used to create clickable links to other web pages or resources. The <a> element is used to create a link, and the href attribute specifies the URL of the linked resource.

For example:

```
<a href="https://www.example.com">Click here to visit Example.com</a>
```

<img> tag: The <img> tag is used to insert images into an HTML document. It has only one required attribute, src, which specifies the URL or file path of the image.

For example:

```
<img src="image.jpg" alt="This is an image">
```

HTML Forms:HTML forms allow website visitors to interact with a website by providing input through various form elements, such as text fields, radio buttons, checkboxes, and drop-down lists. The information submitted through the form can then be processed on the server-side by scripts written in languages such as PHP, Python, or JavaScript.

The basic structure of an HTML form includes the following elements:

<form> tag: This is the container tag that defines the start and end of the form.

Form elements: These are the input fields that allow the user to enter data. They include <input> tag,<textarea> tag,<button> tag,<label> tag etc.

```
<form action="/submit-form" method="POST">
  <label for="name">Name:</label>
  <input type="text" id="name" name="name"><br><br>
  <label for="email">Email:</label>
  <input type="email" id="email" name="email"><br><br>
  <label for="message">Message:</label>
  <textarea id="message" name="message"></textarea><br><br>
  <button type="submit">Submit</button>
</form>
```

3.CSS

CSS, or Cascading Style Sheets, is a stylesheet language used for describing the presentation of HTML or XML documents. With CSS, web developers can control the layout, typography, color, and other visual aspects of web pages. By separating the presentation of a document from its content, CSS enables web designers to create more flexible and maintainable web pages.CSS works by defining rules that apply styles to specific HTML elements or groups of elements. Each CSS rule consists of a selector and a declaration block. The selector specifies which HTML elements the rule applies to, and the declaration block contains one or more property-value pairs that define the styles to be applied.

CSS is an essential technology for web development, and it is used in conjunction with HTML and JavaScript to create dynamic and engaging web pages. By mastering CSS, web developers can create beautiful and functional web designs that work well across a variety of devices and platforms.

4.Basic Syntax and Selectors In CSS

CSS rules are made up of a selector and a set of declarations. The selector identifies which HTML elements the rule applies to, and the declarations define the styles to be applied.Here is an example of a CSS rule that sets the font color of all paragraphs on a web page to red:

```
p {
  color: red;
  }
```

There are several ways to write CSS. Here are some of the most common methods:

Inline CSS: This involves adding CSS styles directly to individual HTML elements using the style attribute. Inline CSS is not recommended for large projects because it can become difficult to maintain and update.

Internal CSS: This involves adding CSS styles to the head section of an HTML document using the <style> tag. Internal CSS applies only to the current HTML document and is useful for small projects.

External CSS: This involves creating a separate CSS file and linking it to an HTML document using the <link> tag. External CSS allows developers to apply the same styles to multiple HTML documents, making it easier to maintain and update styles across an entire project.

There are several types of selectors in CSS, including:

Element selectors: Select HTML elements by their tag name, e.g. p, h1, ul.

Class selectors: Select HTML elements by their class attribute, e.g. .my-class.

ID selectors: Select HTML elements by their ID attribute, e.g. #my-id.

Attribute selectors: Select HTML elements by their attribute values, e.g. [type="text"].

5.Properties Used For Creating Layout

Creating layouts with CSS is an essential aspect of web development. CSS allows developers to define the layout and design of a website, including the placement of elements on the page.

One of the fundamental concepts in CSS layout is the box model. The box model describes how each HTML element is represented as a rectangular box that contains content, padding, borders, and margins. The content refers to the actual text or graphics inside the box, while padding is the space between the content and the border. Borders surround the content and padding, while margins are the space between the border and other elements on the page.

CSS positioning is another critical aspect of CSS layout. It allows you to place HTML elements exactly where you want them on the page. CSS provides several positioning options, including static, relative, absolute, and fixed positioning. Each positioning option has its own set of rules for how the element is positioned on the page. Understanding how to use positioning correctly is crucial for creating complex layouts and designs.

CSS Grid is a layout system that allows web developers to create complex and responsive layouts with ease. CSS Grid provides a powerful set of tools for creating flexible and dynamic layouts that can adapt to different screen sizes and device types.Using CSS Grid, developers can define a grid container and specify the number of rows and columns it contains. They can then place elements within the grid by specifying their location using grid lines, which define the boundaries of each row and column.

CSS animation is a technique that allows developers to add movement and visual interest to web pages using CSS. With CSS animation, developers can create smooth and responsive animations that respond to user interactions and events. CSS animation can be used to create a wide variety of effects, including transitions, transforms, and keyframe animations.

Flexbox is a layout system that provides a powerful set of tools for creating flexible and responsive layouts. With Flexbox, developers can create complex layouts with ease by defining flexible containers that can adapt to different screen sizes and device types. Flexbox provides a powerful set of tools for aligning and distributing elements within a container, including tools for centering elements, aligning them along the horizontal and vertical axes, and distributing them evenly.

The z-index property is a CSS property that specifies the stacking order of elements on a web page. It determines how elements are stacked on top of each other, with higher z-index values indicating that an element should appear on top of other elements.

Responsive design is a design approach that allows web pages to adapt to different screen sizes, including desktops, laptops, tablets, and mobile devices. It is achieved using CSS media queries. Media queries allow developers to specify different CSS styles based on the device's screen size, resolution, and other features. This allows the same web page to display differently on different devices, providing the user with an optimal viewing experience. Responsive design is crucial for creating modern web pages that can be viewed on a wide range of devices.

5.1.2 HTML And CSS

1.Developing The Product Preview Card Component

When developing a product preview card using HTML and CSS, it is important to ensure that the design is visually appealing and user-friendly. The card should display relevant information about the product in an easy-to-read format, including product name, image, price, and description. In terms of HTML structure, the card can be created using a div element with nested divs and other relevant HTML tags. For CSS styling, the card should have a clean and modern design that matches the overall theme of the website. It is important to use appropriate color schemes, typography, and spacing to ensure readability and accessibility. CSS techniques like Flexbox and Grid can be used to create a responsive and adaptable design that works well on different screen sizes.

5.2 JAVASCRIPT PROGRAMMING AND ES6

5.2.1 Learning JavaScript And ES6 Concepts

1. JavaScript Concepts

JavaScript is a high-level, dynamic, and interpreted programming language that is widely used in web development. It was first created in 1995 by Brendan Eich while he was working at Netscape Communications Corporation.It is a key technology in web development and is used in conjunction with HTML and CSS to create rich, interactive, and responsive user experiences on the web.

Variables - Variables allow you to store and manipulate data in JavaScript, making it a fundamental building block for creating functionality in web applications.

Data Types - Understanding data types in JavaScript is important because it allows you to manipulate data in the right way and avoid errors in your code.

Functions - Functions are reusable blocks of code that allow you to perform a specific task, making your code more efficient and maintainable.

Conditionals - Conditionals allow you to execute different blocks of code based on specific conditions, such as user input or system state.

Loops - Loops allow you to repeat a block of code a certain number of times or until a specific condition is met, which is useful for iterating over arrays or performing repetitive tasks.

Objects - Objects in JavaScript are used to represent real-world entities and organize related data, making it easier to create and manipulate complex data structures.

Popup Boxes - Popup boxes allow you to display alerts, prompts, and confirmations to the user, making your web application more interactive and user-friendly.

DOM - The Document Object Model (DOM) is a programming interface for web documents, allowing you to dynamically manipulate the content and structure of web pages using JavaScript.

BOM - The Browser Object Model (BOM) provides a set of objects and methods for interacting with the browser, such as manipulating the browser history and controlling the location of the browser window.

QuerySelector - The QuerySelector method allows you to select HTML elements based on their class, ID, or tag name, making it easier to manipulate specific elements on a web page.

Event Handling - Event handling allows you to create interactive web applications by responding to user actions, such as mouse clicks and keyboard inputs.

Asynchronous JS - Asynchronous JavaScript allows you to perform tasks in the background without blocking the main thread, which can improve the performance and user experience of your web application.

Promises - Promises in JavaScript allow you to handle asynchronous tasks in a more structured and manageable way, making it easier to handle errors and create more maintainable code.

Async/Await - Async/Await is a feature of ES6 that allows you to write asynchronous code in a synchronous style, making it easier to read and understand, and reducing the likelihood of errors in your code.

Callback Functions - A callback function is a function that is passed as an argument to another function and is executed when a certain event occurs or when a task is completed. Callback functions are often used in asynchronous programming, where they allow you to perform tasks in the background while the rest of the code continues to run.

2. ES6 Concepts

ES6, also known as ECMAScript 2015, is the sixth major release of the ECMAScript language specification, which is the standard for JavaScript. It introduced several new features to the language, including arrow functions, template literals, and let and const variables etc.

Here's a brief summary of some of the ES6 features and how they can be useful in website development:

Arrow functions - Arrow functions provide a concise syntax for writing function expressions, and they also have a more predictable behavior for this keyword. Arrow functions make it easier to write and read code, especially when working with complex functional programming concepts.

Template literals - Template literals provide a more concise and expressive way to concatenate strings and embed expressions within them. They can also be used for multiline strings, which can be helpful when writing HTML or other markup.

Let and const variables - ES6 introduced two new ways to declare variables: let and const. let allows you to declare variables with block scope, while const creates variables that cannot be reassigned. These new variable types help prevent common programming errors and make it easier to write maintainable code.

Spread operator - The spread operator (...) allows you to expand arrays or objects into individual elements. It can be used for copying arrays or objects, concatenating arrays, and passing arguments to functions. It's a useful tool for simplifying and improving the readability of your code.

Set - Sets are collections of unique values and are useful for eliminating duplicates in arrays, checking for membership, and performing set operations such as union,

intersection, and difference. They provide a more efficient way to handle collections of data than traditional arrays.

Destructuring - Destructuring allows you to extract values from arrays or objects and assign them to variables in a more concise and readable way. It's useful for simplifying code that deals with complex data structures.

Ternary operator - The ternary operator (? :) is a shorthand way of writing an if-else statement. It can make code more concise and easier to read, especially when dealing with simple conditions.

Fetch - Fetch is a built-in JavaScript API for making HTTP requests, which is useful for retrieving data from a server and updating the content of a web page without reloading the entire page.

WordPress:

WordPress is a free and open-source content management system (CMS) that is used to create websites, blogs, and online stores. It was initially released in 2003 by Matt Mullenweg and Mike Little as a fork of b2/cafelog. Today, it powers over 40% of all websites on the internet and is one of the most popular CMS platforms available.

WordPress is built using PHP programming language and MySQL database. It can be installed on a web server to create a website or blog without the need for coding skills. There are two main ways to use WordPress: WordPress.com and self-hosted WordPress.org.

WordPress.com is a free platform that allows users to create and host their website or blog on WordPress's servers. Users can choose from a variety of themes and plugins to customize their website, but they have limited control over the functionality of the website.

Self-hosted WordPress.org, on the other hand, requires users to download and install the WordPress software on their own web hosting servers. This option gives users complete control over their website's design, functionality, and content. Users can choose from thousands of free and paid themes and plugins to customize their website and add features such as contact forms, e-commerce functionality, social media integration, and much more.

WordPress is known for its user-friendliness, flexibility, and customization options. It comes with a built-in editor that allows users to create and edit content without any coding knowledge. It also supports multiple users with varying levels of access, making it an ideal platform for team collaboration. Additionally, WordPress is SEO-friendly and allows users to optimize their content for search engines with plugins such as Yoast SEO.

In conclusion, WordPress is a versatile and user-friendly CMS platform that allows users to create and manage their website or blog without any coding skills. It offers a range of customization options, supports multiple users, and is SEO-friendly. Whether you're a blogger, small business owner, or an e-commerce entrepreneur, WordPress can help you create a professional and functional online presence.

Definition of some plugins that has been used in site:

WordPress plugins are PHP scripts that extend the functionality of WordPress websites by adding new features or enhancing existing ones. WordPress plugins are often developed by volunteers and are usually free to the public. They can be downloaded from the WordPress Plugin Directory or installed directly from the WordPress dashboard. WordPress plugins can be categorized into different types based on their purpose and functionality. Some of the common types of WordPress plugins are:

- SEO plugins: These plugins help optimize websites for search engines by improving their speed, performance, content, and meta tags. Some examples of SEO plugins are Yoast SEO, All in One SEO Pack, and Rank Math.
- Ecommerce plugins: These plugins allow websites to sell products or services online by creating online stores, payment gateways, shipping options, and inventory management. Some examples of ecommerce plugins are WooCommerce, Easy Digital Downloads, and BigCommerce.
- Booking and scheduling plugins: These plugins enable websites to accept bookings or appointments from customers or clients by creating calendars, forms, and reminders. Some examples of booking and scheduling plugins are WooCommerce Bookings, WPForms, and BirchPress.
- Social media plugins: These plugins help websites connect with social media platforms by adding social sharing buttons, feeds, widgets, and analytics. Some examples of social media plugins are Jetpack, Social Snap, and Smash Balloon.
- Security plugins: These plugins help protect websites from hackers, malware, spam, and other threats by adding firewalls, backups, scanners, and captcha. Some examples of security plugins are Sucuri, Wordfence, and iThemes Security.
- Analytics plugins: These plugins help measure and analyze website traffic and behavior by adding tracking codes, reports, and dashboards. Some examples of analytics plugins are Google Analytics for WordPress, MonsterInsights, and ExactMetrics.
- Design plugins: These plugins help customize the appearance and layout of websites by adding themes, page builders, sliders, galleries, and fonts. Some examples of design plugins are Elementor, Divi Builder, and Smart Slider 3.

SEO (Search Engine Optimization):

- Search engine optimization (SEO) is the process of improving the visibility and ranking of a website or webpage in search engine results pages (SERPs). It involves optimizing the website or webpage's content, structure, and backlinks to make it more relevant and useful to search engine users. The goal of SEO is to increase organic, non-paid traffic to a website, which can lead to increased visibility, higher traffic, and more conversions.

- SEO can be divided into two main categories: on-page optimization and off-page optimization. On-page optimization refers to the optimization of website content, structure, and HTML code. This includes keyword research, optimization of title tags, meta descriptions, header tags, content, and images. On-page optimization also involves ensuring the website is mobile-friendly and has fast loading speeds.

- Off-page optimization refers to the optimization of external factors that can influence the website's ranking, such as backlinks, social media signals, and online directories. Building high-quality backlinks from reputable websites is an essential part of off-page optimization. Social media signals such as likes, shares, and comments can also influence a website's ranking.

- Keyword research: finding and analyzing the words and phrases that users type

into search engines when looking for information, products, or services related to your website's topic.

- Content creation: producing high-quality, original, and engaging content that answers the user's query and provides value to them.

- Technical SEO: ensuring that your website is fast, secure, mobile-friendly, easy to crawl and index by search engines, and free of errors or issues that might affect its performance or usability.

- Analytics and reporting: measuring and analyzing the results of your SEO efforts using tools like Google Analytics, Google Search Console, etc., and making data-driven decisions to improve your strategy.

- SEO is an ongoing process that requires constant monitoring, testing, learning, and adapting to the changes in the search engine algorithms and user behavior. SEO is also influenced by factors such as your industry, competitors, goals, budget, etc. Therefore, there is no one-size-fits-all approach to SEO.

- Search engines use complex algorithms to determine the relevance and quality of a website's content. These algorithms consider many factors, including the website's structure, content, backlinks, and user experience. To improve a website's ranking, SEO practitioners must stay up to date with the latest trends and best practices in SEO.

Overall, SEO is a complex and ongoing process that requires a combination of technical knowledge, creativity, and analytical skills. It involves both on-page and off-page optimization techniques, as well as ongoing analysis and refinement. By improving a website's ranking and visibility in search engine results, SEO can help businesses and organizations reach more customers, increase conversions, and ultimately grow their online presence.

Information about some important terms and plugins used in Project:
• Blogs: short for weblogs, are online platforms where individuals or organizations can publish content, such as articles, videos, podcasts, etc., on various topics and interact with their audience. Blogs can be used for personal, professional, or commercial purposes. Some examples of popular blogs are Medium, The Verge, and Mashable.

• Screaming Frog: a software tool that helps SEO professionals and web developers to crawl, audit, and analyze websites. Screaming Frog can perform various tasks, such as finding broken links, duplicate content, missing tags, redirects, etc., and provide useful data and insights for improving website performance and usability. Screaming Frog has a free version that can crawl up to 500 URLs and a paid version that can crawl unlimited URLs and has more features.

• Domain: a unique name that identifies a website on the internet. A domain consists of two parts: a top-level domain (TLD), such as .com, .net, .org, etc., and a second-level domain (SLD), which is the name chosen by the website owner. For example, in www.google.com, google is the SLD and .com is the TLD. A domain is registered with a domain name registrar and points to an IP address of a web server that hosts the website.

• Hosting: a service that provides space on a web server to store the files and data of a website and make them accessible on the internet. A web hosting provider rents out server space and resources to website owners and ensures that the website is online and secure.

There are different types of web hosting services, such as shared hosting, dedicated hosting, cloud hosting, etc., depending on the needs and budget of the website owner.

•   DNS: short for Domain Name System, is a system that translates domain names into IP addresses and vice versa. DNS allows users to access websites using human-readable names instead of numerical addresses. DNS also helps to route internet traffic and manage email delivery. DNS works by using a network of servers called name servers that store records of domain names and their corresponding IP addresses.

•   SSL: short for Secure Sockets Layer, is a protocol that encrypts the data exchanged between a web browser and a web server. SSL helps to protect the privacy and security of online transactions and communications by preventing unauthorized access or tampering. SSL also helps to verify the identity of the website owner and ensure trustworthiness. SSL works by using digital certificates that contain information about the website owner and a public key that is used to encrypt and decrypt data. Websites that use SSL have a padlock icon in the browser address bar and use HTTPS instead of HTTP.

•   Payment gateway: a service that enables online merchants to accept and process payments from customers using various methods, such as credit cards, debit cards, net banking, UPI, wallets, etc. A payment gateway acts as an intermediary between the customer's bank and the merchant's bank and ensures that the transaction is secure and authorized. Some examples of popular payment gateways in India are Paytm, Razorpay, CCAvenue, etc.
•   Speed optimization: a process of improving the loading speed and performance of a website or an app by using various techniques, such as reducing file sizes, minifying code, caching data, using a content delivery network (CDN), etc. Speed optimization helps to enhance the user experience, reduce bounce rates, and improve SEO rankings. Some tools that can help with speed optimization are Google PageSpeed Insights, GTmetrix, Pingdom, etc.
•   Security plugins: software applications that help to protect a website or an app from various threats, such as malware, hacking, spam, phishing, etc. Security plugins can perform various functions, such as scanning for vulnerabilities, blocking malicious requests, enforcing strong passwords, encrypting data, etc. Some examples of popular security plugins for WordPress are Wordfence, Sucuri, iThemes Security, etc.
•   Social media & digital marketing: a form of online marketing that uses various social media platforms, such as Facebook, Twitter, Instagram, YouTube, etc., to promote a brand, product, service, or cause to a target audience. Social media & digital marketing can help to increase brand awareness, generate leads, drive traffic, boost sales, and build customer loyalty. Some tools that can help with social media & digital marketing are Hootsuite, Buffer, Sprout Social, etc.
•   Ubersuggest: a free SEO tool that helps to find and analyze keywords, competitors, backlinks, content ideas, and more for any website or niche. Ubersuggest can help to improve SEO strategy and optimize web pages for higher rankings and traffic. Ubersuggest is developed by Neil Patel, a renowned digital marketer and entrepreneur.

Chapter 6. IMPLEMENTATION

6.1 IMPLEMENTATION ENVIRONMENT

- Operating System: The development can be done on the Windows operating system.
- Code Editor: A code editor Visual Studio Code can be used for coding and development purposes.
- Web Browser: Modern web browsers like Google Chrome and Brave can be used for testing and previewing the website.

6.2 PROGRAM AND MODULES SPECIFICATION

The website can be developed using a combination of HTML, CSS, and JavaScript. HTML is used for creating the structure and content of the website, while CSS is used for styling and layout. JS is used for adding interactivity and dynamic functionality to the website.

Some of the modules or components that can be included on the website are:

Home Page: The Home Page is the first page that a visitor sees when they visit the website. It should provide an overview of the site and its offerings, including featured products, a search bar to find specific items, and a call-to-action to encourage visitors to explore further.

About Us Page: The About Us Page should provide information about the firm, including its history, mission, and values. It may also include information about the team and testimonials from satisfied clients.

Services Page: The Services Page should provide details about the various services that the firm offers, such as sales and information. It may also include information about any unique selling points or competitive advantages that the firm has.

Pricing Page: The Pricing Page should provide information about the fees and charges associated with the firm's services, as well as any special offers or promotions that may be available.

Contact Page: The Contact Page should include the firm's contact information, such as phone number, email address, and physical address. It may also include a contact form that visitors can use to get in touch with the firm.

Definition of some plugins that has been used in site:

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- Booking and scheduling plugins: These plugins enable websites to accept bookings or appointments from customers or clients by creating calendars, forms, and reminders. Some examples of booking and scheduling plugins are WooCommerce Bookings, WPForms, and BirchPress.

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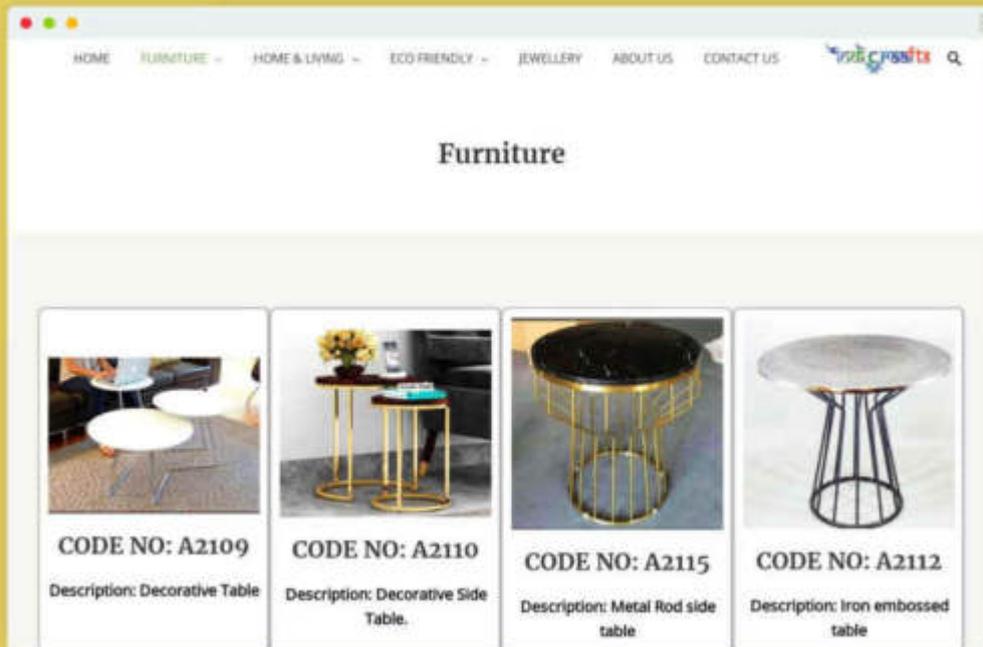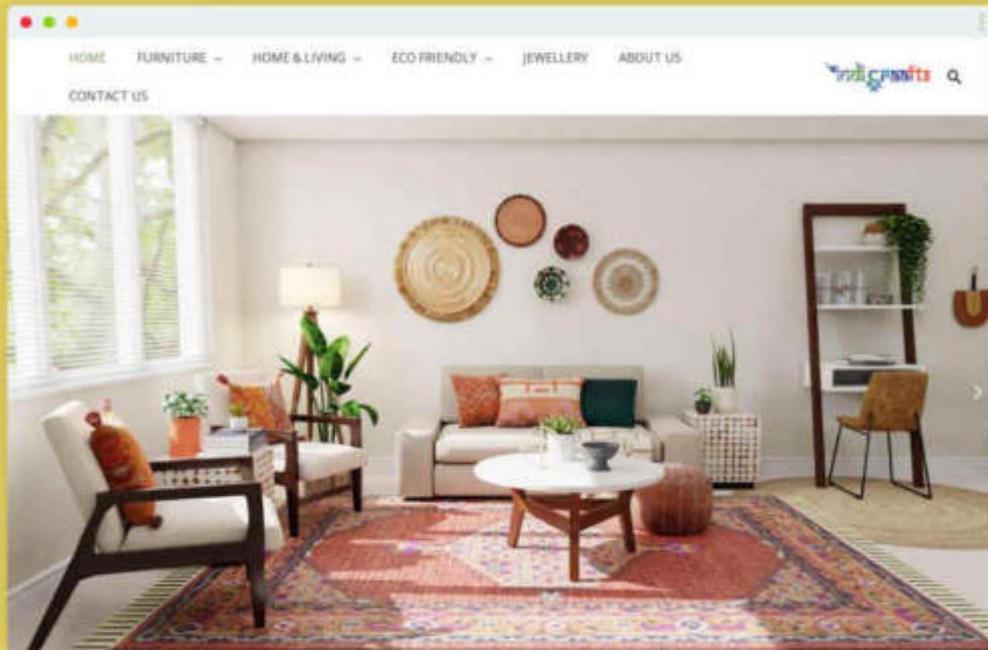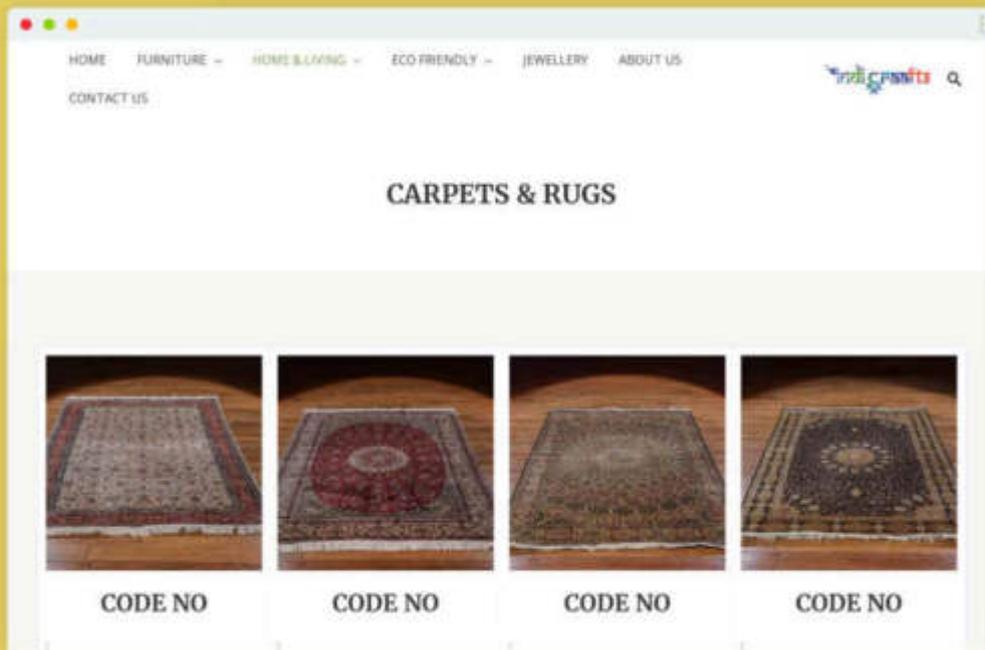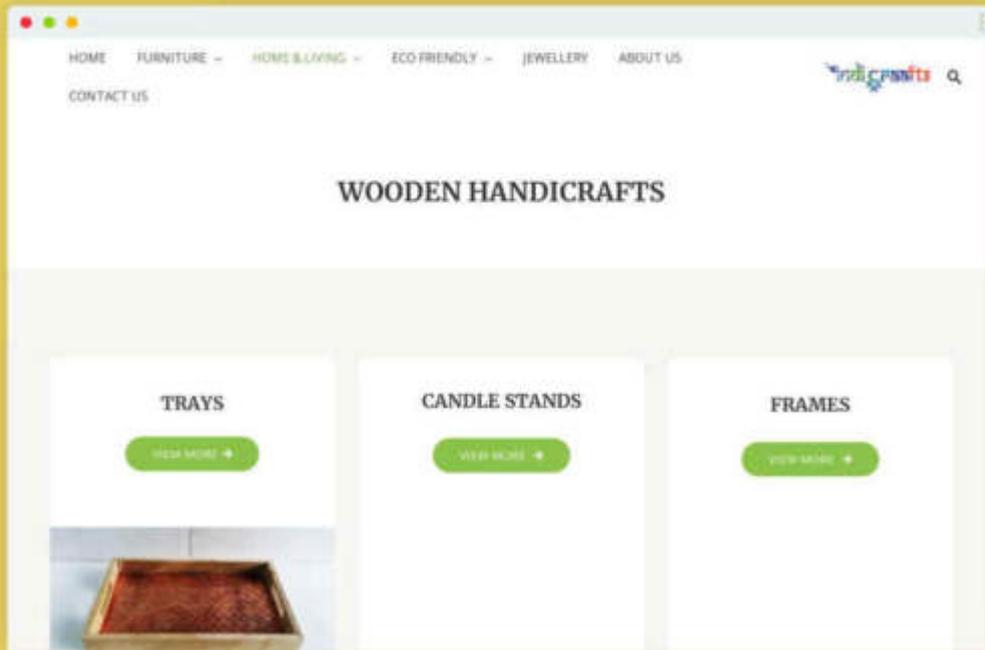
6.3 OUTCOMES

According to the website, they work with local skilled artisans and small businesses to provide their services to European clients and local markets. They also offer custom made designs, interior solutions, export and quality control, and sourcing tours. Some of their collections include metal handicrafts, glass handicrafts and furniture.
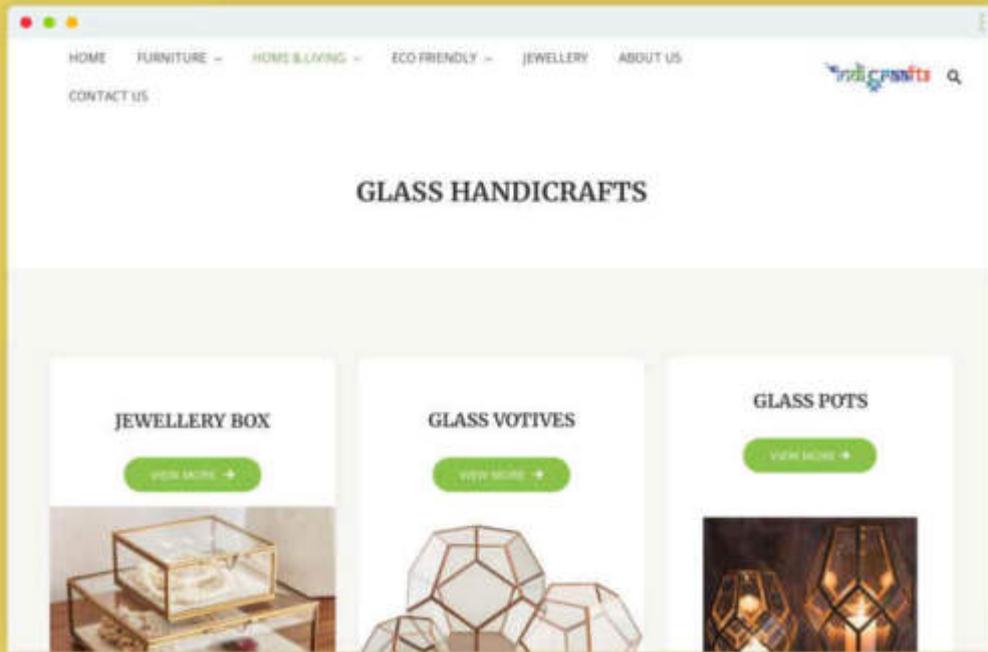
- They have partnered with the best in the industry quality control and logistics who operate globally for the past 30 years and more.
- They work closely with artisans along with govt apex bodies to promote over seven lakh skilled artisans and small businesses in India.
- They provide 360-degree support to their artisans and small businesses with financial aid, raw material sourcing, connecting them with global markets through outreach initiatives, information initiatives, marketing, and exports.
- It could help promote the rich traditional art, heritage and culture of India and preserve the traditional skills and talents of the artisans.
- It could provide employment opportunities and livelihood to a large number of rural and urban artisans, especially women.
- It could increase the exports and revenue of the handicraft sector and contribute to the country's economic development.
- It could enhance the quality and innovation of handicraft products by providing access to technology, design, marketing, and logistics support.

- It could also face some challenges such as competition from other websites or countries, lack of funds, low penetration of the internet, absence of market intelligence and poor institutional framework for growth.
- It could have some environmental impact by using natural resources such as wood, metal, glass, etc. for making handicrafts. However, it could also adopt environment-friendly and zero-waste practices to minimize the impact.

Screenshots of Site:

Chapter 7. TESTING

7.1 TESTING STRATEGY

The testing strategy for the frontend website development of the firm usingHTML, CSS and JavaScript includes the following steps:

1. Unit Testing: Testing individual components and modules for functionality and performance.

2. Integration Testing: Testing the integration of different components and modules to ensure that they work together seamlessly.

3. User Acceptance Testing: Testing the website's functionality from the user's perspective to ensure that it meets their requirements and expectations.

4. Regression Testing: Testing the website after making changes or updates to ensure that the existing features are not affected.

5. Performance Testing: Testing the website's performance under different loads and conditions to ensure that it performs well under all circumstances.

7.2 TEST RESULTS AND ANALYSIS

All tests are going very good condition. We assign the name according to the models or modules name. Also, outputs or results are satisfactory. We achieved what we wanted at the beginning of the project. It is a very good experience for me to be involved in this process.

Here are some test results provided by a site named nibbler, which is basically used for testing many aspects of the site.

The website SEO audit report for https://indicraafts.com/ is a summary of how well the website performs in terms of accessibility, SEO, social media, and technology. Nibbler is a free SEO audit tool for testing websites that scores the website out of 10 for key areas.

According to the report, indicraafts.com has a score of 6.4 out of 10, which means it has some strengths and some areas of improvement. The report also provides some suggestions and tips on how to improve the website.

The report covers the following aspects:

Accessibility: How easy it is for people with disabilities to use the website.
SEO: How well the website is optimized for search engines.
Social Media: How popular the website is on social media platforms.
Technology: How well the website uses modern web technologies.
The report also shows the pages that were tested, the date of the test, and the overall score breakdown.

Some of the strengths of the website are:

- The website has a strong social media presence, with 7,016 Instagram followers and 1,000 Facebook likes. This shows that the website is engaging with its audience and promoting its products effectively.
- The website has a catchy domain name, which is short and easy to remember. This helps the website to stand out from the crowd and attract more visitors.
- The website has a clear purpose and target audience, which is to provide product sourcing, product development, private label solutions and strategy sourcing for arts and handicrafts from India. This helps the website to showcase its unique value proposition and niche market.

Chapter 8. CONCLUSION

8.1 OVERALL ANALYSIS OF INTERNSHIP

The internship project aimed to develop a modern and responsive website for a firm using HTML, CSS, JavaScript, and ReactJS. Through the implementation and testing stages, the project successfully achieved the desired outcome and met all of the client's requirements.

As an intern at Flu Social, I was assigned to the website development team, where I worked on various projects for different clients. My main tasks included designing and coding web pages, testing and debugging websites, and updating and maintaining existing websites. I also learned how to use various tools and platforms such as WordPress, Shopify, Google Analytics, and Mailchimp.

During my internship, I gained valuable skills and knowledge in web development, digital marketing, and teamwork. I also had the opportunity to interact with other professionals in the field and learn from their feedback and guidance. I enjoyed working in a dynamic and creative environment where I could apply my theoretical knowledge to practical problems and challenges.

Overall, this project provided a great opportunity to apply the knowledge and skills gained during the internship. It also allowed for a deeper understanding of the importance of effective communication and collaboration in a team environment. The internship project provided valuable experience in website development using modern technologies and tools. The project also demonstrated the importance of communication and collaboration among team members to ensure the successful completion of the project.

Reflection

My internship at Flu Social was a rewarding and enriching experience that helped me grow as a web developer and a digital marketer. I learned how to work on real-world projects with real clients and

deadlines. I also learned how to communicate effectively with my team members and clients. I improved my technical skills in web development as well as my soft skills such as problem-solving, creativity, and adaptability.

I am grateful to Flu Social for giving me this opportunity to learn from their expertise and experience. I am also thankful to my supervisor Dron Joshi for his constant support and guidance throughout my internship. He gave me constructive feedback on my work and helped me overcome any difficulties or challenges that I faced. He also encouraged me to explore new ideas and technologies that could enhance my work.

I believe that this internship has prepared me well for my future career in web development and digital marketing. I have gained confidence in my abilities and potential as a web developer. I have also developed a passion for creating engaging and effective online solutions that can make a positive impact on people's lives.

During the project we took help from certain external sources. Some of them are as follows:

1. Bleachingearth.co
2. https://fontawesome.com/icons
3. https://reactjs.org/.
4. https://reactjs.org/docs/getting-started.html
5. https://unsplash.com/
6. https://www.pexels.com/search/apartment/
7. https://www.w3schools.com/css/
8. https://www.w3schools.com/html/
9. https://www.w3schools.com/js/
10. Dron Joshi - Founder - Flu Social | LinkedIn. https://in.linkedin.com/in/dronjoshi.
11. Flu Social – Digital Marketing | SEO | Website Development https://flusocial.com/.
12. Flu Social | LinkedIn. https://in.linkedin.com/company/flu-social.
13. https://www.glassdoor.ca/Overview/Working-at-Flu-Social

Appendix

Flu Social

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
Info@flusocial.com

FLU SOCIAL
MARKETING

January 20, 2023

OFFER LETTER

Subject: Internship Confirmation Letter for Dixesh Shaileshkumar Prajapati

Dear Sir/Ma'am,

This is to certify that Mr. Dixesh Shaileshkumar Prajapati, student of Information & Technology Engineering in S.P.B.Patel Engineering College (Saffrony Institute of Technology). Semester 8 has been successfully allocated to his Internship from Flu Social.

Details of student are as below:

Name of the student: Dixesh Shaileshkumar Prajapati

College: Gujarat Technological University (S.P.B.Patel Engineering College (Saffrony Institute of Technology))

Course: Bachelor of Engineering

Branch: Information & Technology Engineering

Enrollment Number: 190390116034

Project In: Web Development & SEO, eComm Platform

Project Description: WordPress Development with HTML,CSS & PHP, Digital Marketing, SEO, Graphics Designing & Content Creation.
An Online eCommerce Platform for IT Services /Reseller Global Platform.

Project Guide: Yash Patel

Technology: WordPress + Woocommerce with Yoast SEO, Screaming Frog, UberSuggest, Google Analytics, WebMaster, Hostinger Tools, CloudFlare, Facebook Business Ads Manager.

Duration: 12 Weeks (Starting from 23 Jan 2023)

We are confident that he will be able to make a significant contribution to the success of our company.

Best regards,

Dron Joshi (Founder & CEO)

INTERNSHIP AT SPARKS TO IDEAS

AN INTERNSHIP REPORT

Submitted by

Patel Kevalkumar Manojbhai

190390116020

In partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 Sparks to Ideas** has been carried out by **Kevalkumar Manojbhai Patel** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasna Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

INTERNSHIP COMPLETION CERTIFICATE

This is to certify that **Mr. Patel Kevalkumar Manojbhai.** has successfully completed our **React JS Internship** Program in **Sparks To Ideas** session Starting from 24th January 2023 to 24th April 2023. He completed his Internship in React JS technology. We wish him all the best wishes for his bright future.

Sincerely,

Ashish Meghani

Sparks To Ideas

Managing Director

Sparks To Ideas

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 Sparks To ideas** submitted in partial fulfilment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasna Leela** & **Ravi 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

Kevalkumar Manojbhai patel   _____

<u>ACKNOWLEDGMENT</u>

I wish to express my heartfelt appreciation to all those who have contributed guidance, encouragement and cooperation of intellectuals, both explicitly and implicitly, without the co-operation of whom, it would not have been possible to complete My Internship.

I would like to thank our H.O.D Prof. Akshay Kansara as well as (Internal Guide) Prof. Upasna Leela for constantly guiding and showing us the correct path to reach towards our desired goal. Also, I thank them for sharing their experience, knowledge and valuable time with me and showing their concern to do this wonderful internship in React and make it better.

I also thanks to Sparks to Ideas and Mr. Ravi Patel, who gave me the golden opportunity to do this wonderful internship by sharing their ideas and knowledge.

Keval Patel

190390116020

<u>ABSTRACT</u>

This report contains the work done by me during my internship at *Sparks To ideas*. It shows the work I did in the company during my internship period. In the report, this abstract is for an internship position focused on developing skills in ReactJS, a popular JavaScript library used for building user interfaces. The intern's technical skills in JavaScript, HTML, and CSS were further developed through hands-on experience with ReactJS. The intern gained a solid understanding of the ReactJS library, its concepts, and its best practices. The intern learned how to create reusable components, manage application state, and use various third-party libraries and tools commonly used in ReactJS development. The internship gave me opportunities for personal development, practical experience, and understanding how a software development firm runs. This report, however, was created in a remarkably short amount of time. Even so, I made all the effort I could to make it relevant by reflecting on my work at the corporation. Overall, the ReactJS internship provided me with a valuable learning experience and helped me develop important technical and professional skills. I am now better prepared to pursue a career in web development, particularly in front-end   development   using   ReactJS.

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ABBREVIATIONS

iv

HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
JS	JavaScript
JSX	JavaScript XML
DOM	Document Object Model
AWS	Amazon Web Service

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1. INTRODUCTION

1.1 COMPANY PROFILE

Sparks to Ideas is a digital agency based in India that specializes in web development, mobile app development, and digital marketing. The company was founded in 2016 with a mission to provide high-quality digital solutions to businesses of all sizes and industries.

Sparks to Ideas has a team of experienced developers, designers, and marketers who are committed to delivering innovative and effective solutions for their clients. The company has a strong focus on customer satisfaction and works closely with clients to understand their unique needs and goals. In terms of web development, Sparks to Ideas offers a wide range of services including website design, e-commerce development, and custom web application development. They use the latest technologies and best practices to create websites that are user-friendly, responsive, and visually appealing.

Finally, Sparks to Ideas also provides digital marketing services to help businesses increase their online presence and drive more traffic to their websites. Their services include search engine optimization (SEO), social media marketing, email marketing, and pay-per-click advertising. Overall, Sparks to Ideas is a reliable and innovative digital agency that is dedicated to helping businesses succeed in the digital world. Their combination of technical expertise, creativity, and customer-centric approach makes them a great choice for any business looking to enhance their online presence.

Services:
- Web Development
- E-Commerce Development
- Mobile App Development
- Digital Marketing
- UI/UX Design

1.2 MISSION AND VISION OF THE COMPANY

Sparks to Ideas has a clear vision to become a leading global digital agency that delivers high-quality, innovative digital solutions to businesses of all sizes and industries. The company strives to be a trusted partner for its clients and to provide them with the best possible service, exceeding their expectations and helping them achieve their business goals.

One of the core values of Sparks to Ideas is to continuously learn and innovate. The company's vision is to stay up-to-date with the latest technologies and industry trends, and to use this knowledge to develop innovative solutions that help its clients stand out in the digital world.

In summary, the vision of Sparks to Ideas is to be a globally recognized digital agency that delivers high-quality, innovative solutions to its clients while providing a positive and inclusive work environment for its team members. The company's focus on learning, innovation, and customer satisfaction will help it achieve this vision and become a leading player in the digital industry.

1.3 WHAT IS REACT

React is a popular JavaScript library used for building user interfaces (UIS). It was developed by Facebook and released in 2013. React is open-source and has a large and active community of developers contributing to its development and improvement.

React is designed to simplify the process of building complex uis by breaking them down into reusable components. These components can be combined to create sophisticated user interfaces with minimal code duplication. React also uses a virtual DOM (Document Object Model) to efficiently update the UI when changes are made, reducing the need for costly updates to the actual DOM.

One of the key benefits of using React is that it is widely used in the development of single-page applications (spas), mobile apps, and complex web applications. Overall, react is a powerful and flexible library that has revolutionized the way developers build user interfaces.

Advantages

- Reusability
- Virtual DOM
- Component-based architecture
- Large and Active Community
- Server-Side Rendering

Limitations

- Steep Learning Curve
- JSX Syntax
- Lack of Official Guidelines
- Large File Size

Features of React

- Component-based architecture
- Virtual DOM
- JSX syntax
- Large ecosystem
- ecosystem
- Efficient rendering

1.

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2. PROCESS BEING CARRIED OUT IN COMPANY

2.1 DETAILS OF PROJECT IMPLEMENTATION PROCEDURE

- Requirement gathering
- Planning
- Designing
- Development
- Testing
- Deployment
- Maintenance and Support

2.2 TECHNICAL SPECIFICATIONS OF MAJOR SOFTWARE USED IN EACH DEPARTMENT

At Sparks to Ideas, we use a variety of software tools and technologies across our different departments to support our development, design, project management, and administrative processes. Here are some of the major software tools we use in each department:

1. Development department:
   - React JS
   - Node.js
   - MongoDB
   - AWS (Amazon Web Services)
   - Git: For version control and collaboration on codebase

2. Design department:
   - Adobe Creative Suite
   - Sketch
   - In Vision
   - Figma

3. Project management department:
   - Asana
   - Jira
   - Trello

4. Administrative department:
   - Microsoft Office Suite
   - QuickBooks

➢ **Visual Studio**

Visual Studio is an integrated development environment (IDE) created by Microsoft. It provides developers with a powerful and flexible platform for building a wide range of applications, including desktop, web, mobile, and cloud-based applications.

➢ **SQL Server Management Studio (SSMS)**

SQL Server Management Studio (SSMS) is a software application developed by Microsoft that is used to manage and administer SQL Server databases. It provides a graphical user interface (GUI) for developers and database administrators to perform various tasks related to SQL Server, such as creating and managing databases, configuring security settings, optimizing performance, and executing SQL queries.

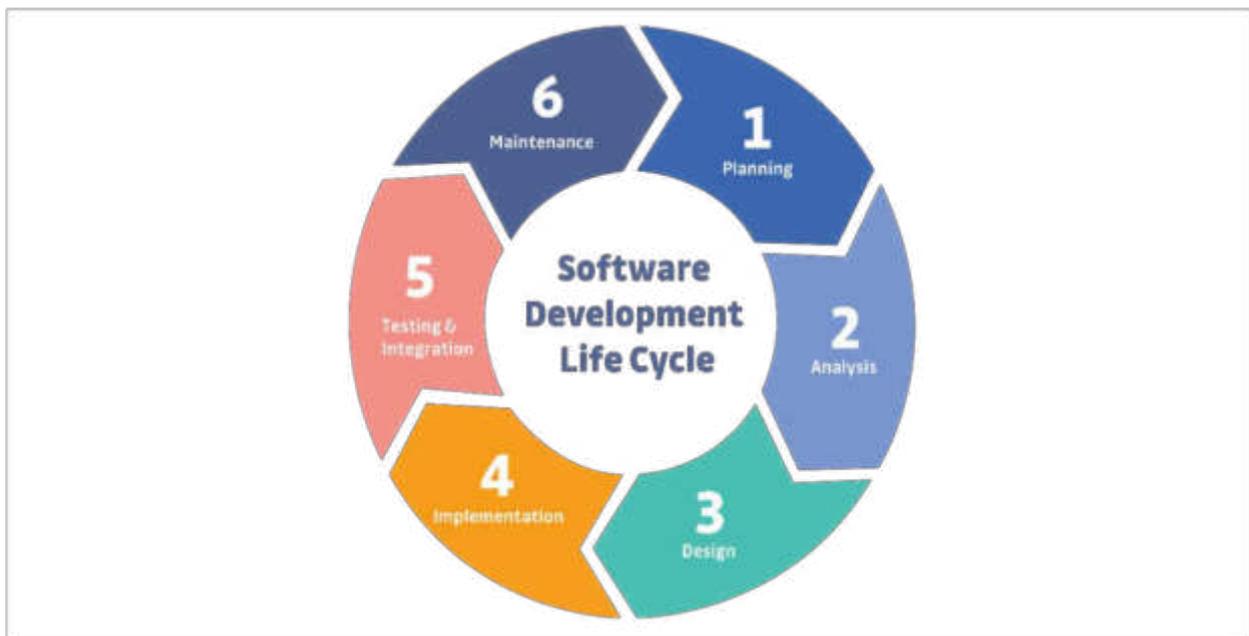## 2.3   SCHEMATIC   LAYOUT   OF   OPERATION   FOR MANUFACTURING OF END PRODUCT

Fig 2.3.1 Operation of Software Development

2.4 DETAILS ABOUT EACH STAGE OF PRODUCTION

➢ **Requirements gathering**

In this stage, the project team works with stakeholders to identify and document the software requirements. This involves understanding the business needs, defining the functional and non-functional requirements, and creating use cases.

➢ **Planning**

Planning for the quality assurance requirements and identification of the risks associated with the project is also done in the planning stage.The outcome of the technical feasibility study is to define the various technical approaches that can be followed to implement the project successfully with minimum risks.

➢ **Requirement 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.

➢ **Designing**

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:

1. **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

    2. 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

➢ **Implementation/Coding**

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**

In this stage, Once the software is complete, and it is deployed in the testing environment. The testing team starts In this stage, 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. This includes functional testing, performance testing, usability testing, and security testing.

➢ **Deployment**

In this stage, the software is deployed to the production environment. This involves installing and configuring the software, testing it in the production environment, and making it available to end-users.

➢ **Maintenance**

In this stage, the software is maintained and updated to ensure that it continues to meet the changing requirements of the business and end-users. This includes fixing bugs, making improvements, and providing support to end-users.

3. INTERNSHIP PROJECT

3.1 PROJECT SUMMARY

An event management system is a software platform that helps individuals or organizations plan, organize, and manage events such as conferences, weddings, parties, and meetings. The system provides a centralized platform where users can manage different aspects of an event, from registration and ticketing to event marketing and promotion.

The project aims to develop an event management system that enables users to create, manage, and promote events of different types and sizes.

the event management system will provide users with an easy-to-use platform to plan and manage events efficiently. The system will help event organizers save time and resources while providing attendees with a seamless event experience.

3.2 PURPOSE

The purpose of an event management system is to provide a centralized platform for event organizers to plan, organize, and manage events of different types and sizes efficiently. The system aims to simplify and automate the various tasks involved in event management, including event registration, ticketing, promotion, marketing, scheduling, attendee management, and payment processing.

3.3 SCOPE

The scope of an event management system includes all the tasks involved in planning, organizing, and managing events of different types and sizes. The system is designed to simplify and automate various aspects of event management, the scope of an event management system is to provide a comprehensive platform for event organizers to manage all aspects of event planning and management efficiently, from event promotion and registration to attendee management and analytics.

3.4 OBJECTIVE

The objective of an event management system is to provide event organizers with a comprehensive platform to plan, organize, and manage events efficiently. The system aims to streamline the various tasks involved in event management, such as event promotion, registration, ticketing, scheduling, attendee management, and payment processing. The key objectives of an event management system are:

- *Simplify event management*: The system aims to simplify event management by automating tasks such as registration, ticketing, marketing, and attendee management. This helps organizers save time and resources and focus on other critical aspects of the event.
- *Increase efficiency*: The system aims to increase efficiency by providing event organizers with a centralized platform to manage all aspects of an event. This helps organizers avoid duplicative efforts and streamline their workflows.
- *Improve attendee experience*: The system aims to improve the attendee experience by providing a seamless registration and ticketing process, promoting the event effectively, and providing attendees with timely updates and information.
- *Ensure data security*: The system aims to ensure data security by integrating with secure payment gateways, encrypting sensitive data, and complying with data protection regulations.
- *Provide insights and analytics*: The system aims to provide event organizers with insights and analytics about event performance, attendance metrics, and attendee feedback. This helps organizers make data-driven decisions and improve future events.

3.5 LEARNING PHASE

3.5.1   Fundamentals of Web Development

HTML: HTML is the language used to create web pages. Learning HTML involves understanding how to create and structure web page content using HTML tags, attributes, and elements.

CSS: CSS is the language used to style web pages. Learning CSS involves understanding how to apply styles to HTML elements, including layout, colour, font, and animation.

JavaScript: JavaScript is the programming language used to add interactivity and functionality to web pages. Learning JavaScript involves understanding concepts like variables, data types, functions, loops, and conditionals.

Web Development Frameworks: Web development frameworks like React, Angular, and Vue.js are libraries or collections of tools that simplify web development. Learning a web development framework involves understanding how to use its features to build dynamic web applications.

Server-side programming: Server-side programming involves using languages like PHP, Python, or Ruby to build web applications that run on a server. Learning server-side programming involves understanding concepts like routing, authentication, and database integration.

Database Management: Web applications often require persistent data storage, and database management involves working with database management systems (DBMS) like MySQL, MongoDB, or PostgreSQL.

Responsive Design: Responsive design is the practice of creating websites that work well on different screen sizes, from desktops to mobile devices. It involves using CSS to adjust the layout and design of a website based on the size of the screen.

Web Performance: Web performance involves optimizing websites to load quickly and efficiently. This includes techniques like compressing images, minifying code, and using caching.

3.5.2   React

JavaScript fundamentals: React is built on top of JavaScript, so a strong understanding of core JavaScript concepts like functions, objects, and arrays is essential.

Understanding of JSX: React uses a syntax called JSX, which is a combination of JavaScript and HTML. Learning how to write JSX and how it translates into JavaScript is a critical part of learning React.

React Components: Components are the building blocks of React applications. Understanding how to create and use components is fundamental to working with React.

State and Props: React provides two ways to manage data in components: state and props. Learning how to use state and props to manage data and pass data between components is essential.

React Router: React Router is a library that enables developers to add routing to their React applications. Learning how to use React Router is essential for building complex applications with multiple pages and views.

Flux and Redux: Flux and Redux are two popular state management libraries used with React. Learning how to use them is essential for managing complex application state.

Testing: Writing tests for React components and applications is crucial for ensuring quality and preventing bugs. Learning how to write tests for React is an important part of the learning phase.

3.5.3 MySQL Server

these core concepts is essential for designing, developing, and maintaining MySQL-based applications. It enables developers and administrators to work efficiently and effectively with the MySQL Server and ensure the reliability, performance, and security of the MySQL-based applications.

MySQL Server also provides features like replication, clustering, and partitioning to improve performance, availability, and scalability. Replication allows data to be copied from one MySQL Server to another, while clustering allows multiple MySQL Servers to work together to provide high availability and scalability. Partitioning allows tables to be divided into smaller partitions, which can improve performance for large tables.

MySQL Server uses a client-server architecture, which means that client applications connect to the server to access and manipulate data. Client applications can be written in various programming languages, including PHP, Python, Java, and C++. MySQL provides libraries and APIs for these languages to connect to the MySQL Server.

4. SYSTEM ANALYSIS

4.1 INTRODUCTION

In the context of an event management system, system analysis involves studying the requirements of the system, its functionalities, and its constraints. The primary goal of system analysis is to identify the key features and requirements of the system and to develop a detailed understanding of the system's behaviour and operation.

4.2 GOALS

The goal of an event management system is to streamline and automate the process of planning, organizing, and managing events. The system aims to provide a centralized platform for event organizers, attendees, vendors, and other stakeholders to collaborate and communicate effectively. The specific goals of an event management system can vary depending on the nature of the events being managed, but some common goals include Simplifying event planning, Streamlining event registration, Automating event promotion, Managing event logistics, Facilitating communication, Providing real-time data

4.3 CHALLENGES

- User adoption
- Security and privacy
- Scalability
- Integration with other systems
- User experience

4.4 IDEAL SOLUTION

- Intuitive user interface
- Customizable branding
- Comprehensive event management tools
- Marketing and promotion tools
- Communication and collaboration tools

4.5 DESIRED OUTCOME

- Improved organization and efficiency
- Increased attendee engagement and satisfaction
- Greater visibility and reach
- Real-time data and insights
- Cost savings

4.6 SYSTEM FEASIBILITY

4.6.1 Technical feasibility: This considers whether the proposed system can be developed using the available technology, including hardware, software, and infrastructure. It also considers the technical expertise required to develop, maintain, and support the system.

4.6.2 Operational feasibility: This considers whether the proposed system can be integrated with existing processes and systems, and whether it can be adopted and used effectively by stakeholders, including event organizers, attendees, and vendors.

4.6.3 Economic feasibility: This considers the cost-benefit analysis of the proposed system, including the initial investment required to develop and implement the system, as well as the ongoing maintenance and support costs. It also considers the potential return on investment, including cost savings, revenue generation, and improved efficiency.

4.6.4 Legal and ethical feasibility: This considers whether the proposed system complies with legal and ethical standards, including data privacy and security regulations, as well as ethical considerations related to the collection and use of personal data.

4.7 FUNCTION OF THE SYSTEM

Event registration: The system should provide a streamlined registration process.

Ticketing and payment: The system should allow for secure online ticketing and payment.

Event promotion: The system should provide tools for event promotion.

Event management: The system should provide tools for event management.

Attendee engagement: The system should provide tools for attendee engagement.

Reporting and analytics: The system should provide real-time data and insights into event performance, attendee feedback, and other metrics, allowing event organizers to make data-driven decisions and improve future events.

4.8 MODULES OF PROPOSED SYSTEM

Home module: the home module of an event management system serves as the main landing page or dashboard for the system, providing an overview of the upcoming events and important information about the system.

About module: the about us module of an event management system provides information about the company or organization responsible for organizing the events

User management module: this module manages user authentication and authorization, including registration, login, and password management. It also manages user roles and permissions, allowing different users to access different features and functions of the system.

Registration and ticketing module: this module manage event registration and ticketing, including attendee data collection and ticket issuance. It may also include features for discount codes, group registrations, and attendee data management.

Reporting and analytics module: this module provides real-time data and insights into event performance, attendee feedback, and other metrics, allowing event organizers to make data-driven decisions and improve future events.

4.9 SELECTION OF HARDWARE AND SOFTWARE

Designing front-end	HTML, CSS, Bootstrap, React
Library	ReactJS
IDE	Visual studio
Database	MYSQL server
Back-end	Node.js

Table 4.9.1 Software Requirements

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5. SYSTEM ANALYSIS

5.1 SYSTEM DESIGN

User Interface (UI): The UI is the front-end component of the system that allows users to interact with the system. The UI design should be user-friendly, responsive, and accessible across multiple devices.

Application Server: The application server is the back-end component of the system that handles the business logic and processing of data. The application server communicates with the database server to retrieve and store data.

Database Server: The database server is responsible for storing and retrieving data from the database. The database should be designed to be scalable, efficient, and secure.

5.2 DATABASE DESIGN/DATABASE STRUCTURE DESIGN

Fig 5.2.1 Events Database
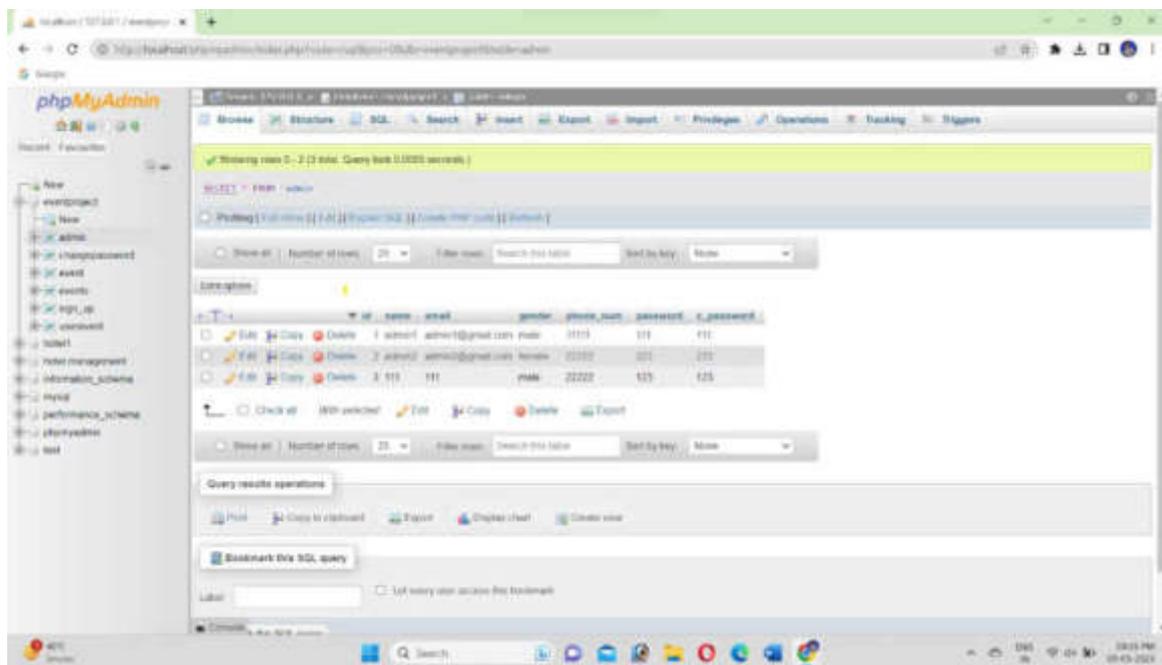
Fig 5.2.2 User Register Database

Fig 5.2.3 Admin Database
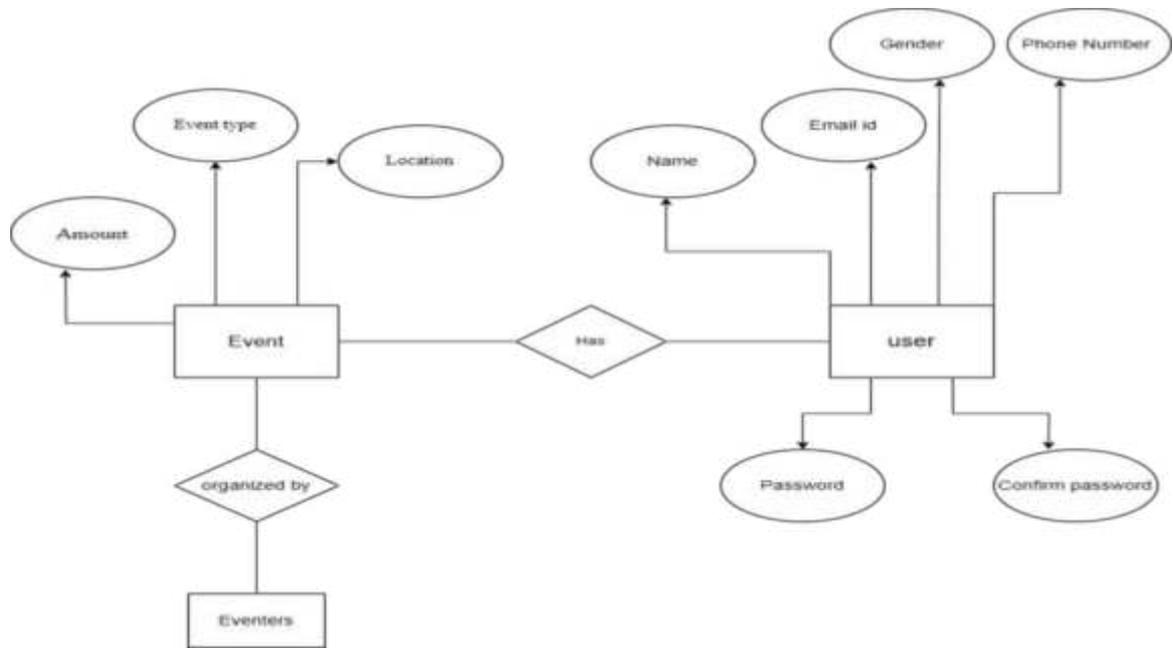
5.3 ER DIAGRAM

Fig 5.3.1 ER Diagram

5.4 USE CASE DIAGRAM

Fig 5.4.1 USE CASE Diagram
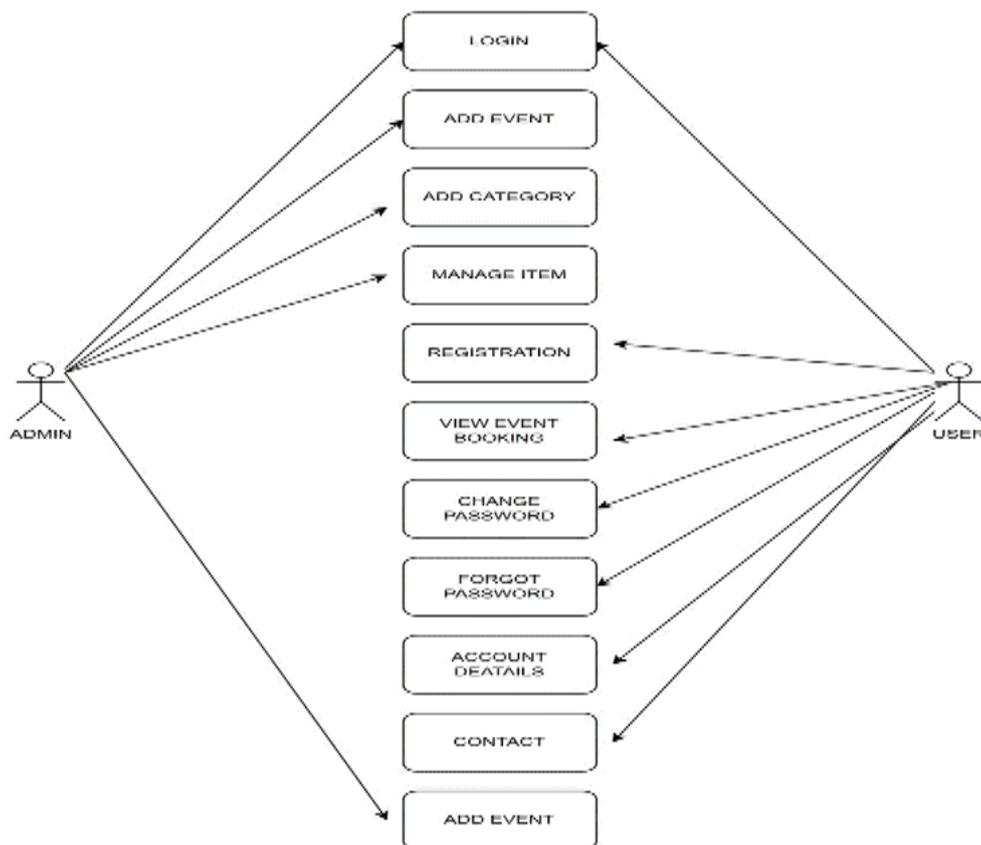
5.5 STATE DIAGRAM

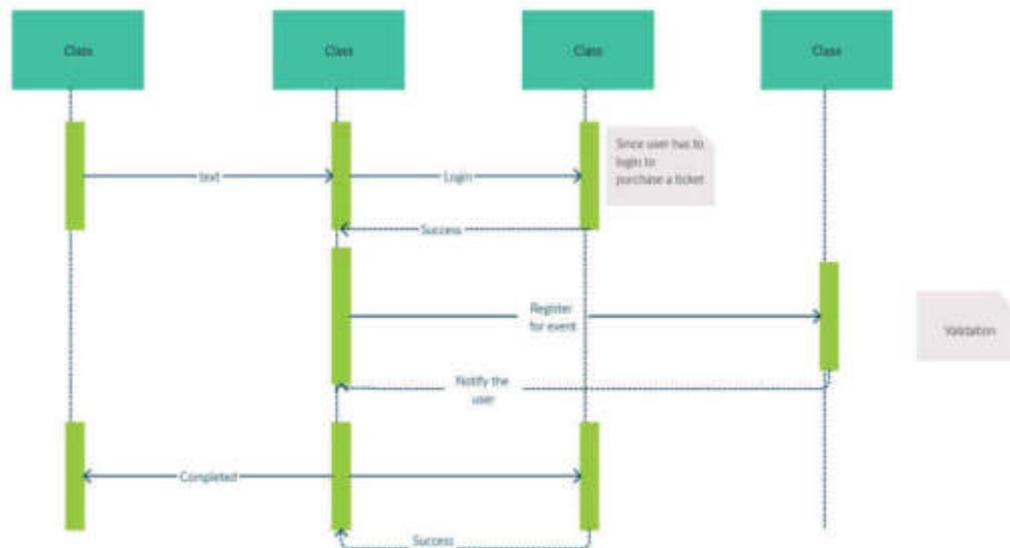GUJARAT TECHNOLOGICAL UNIVERSITY   SAFFRONY INSTITUTE OF TECHNOLOGY
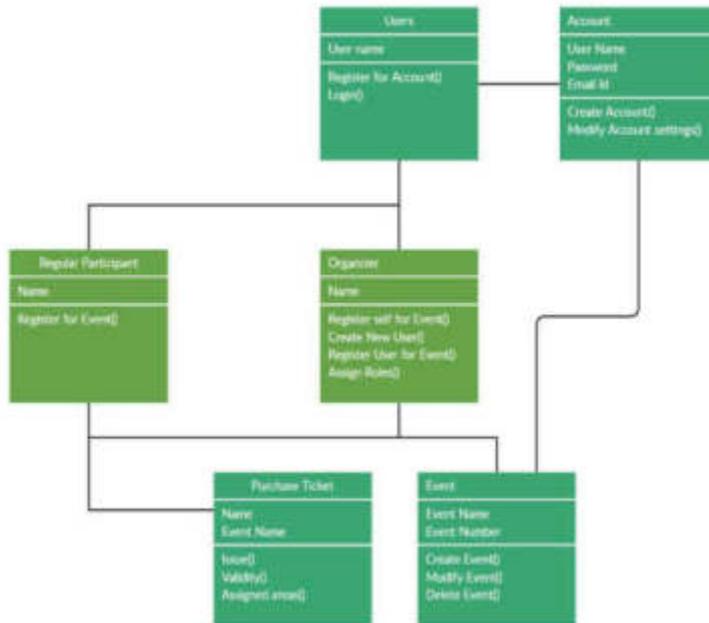
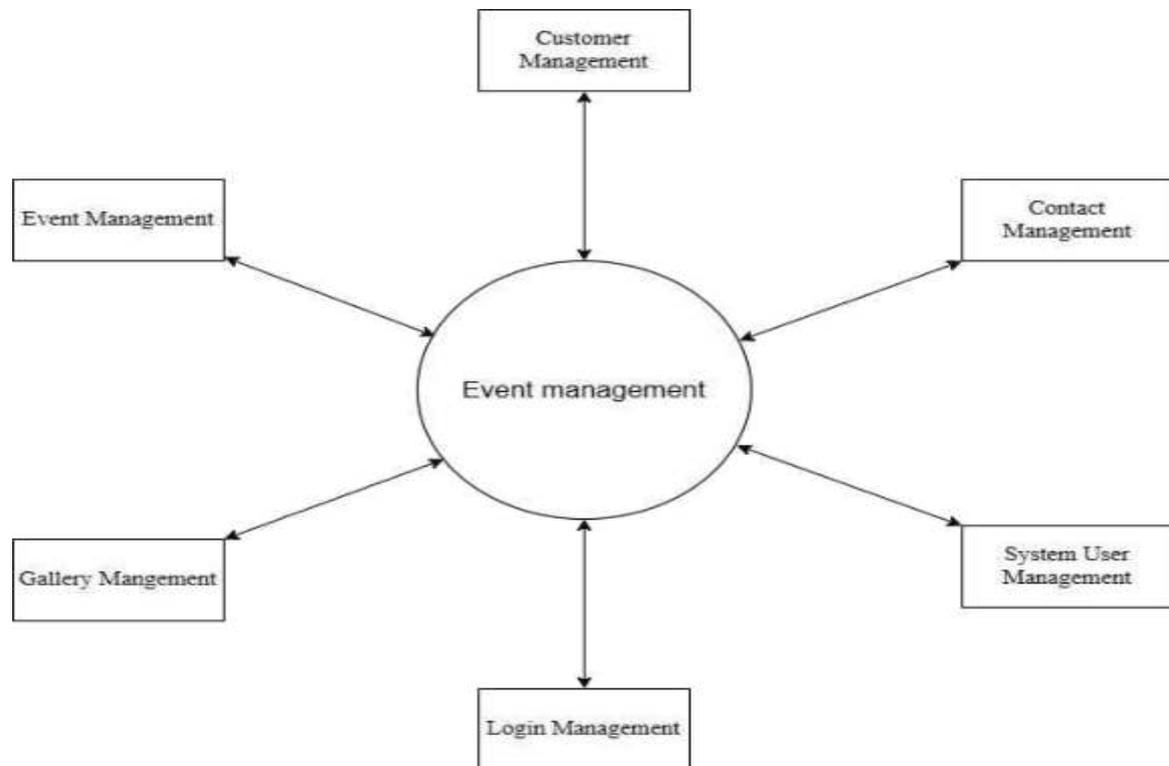Fig 5.5.1 State Diagram

5.6 DFD DIAGRAM
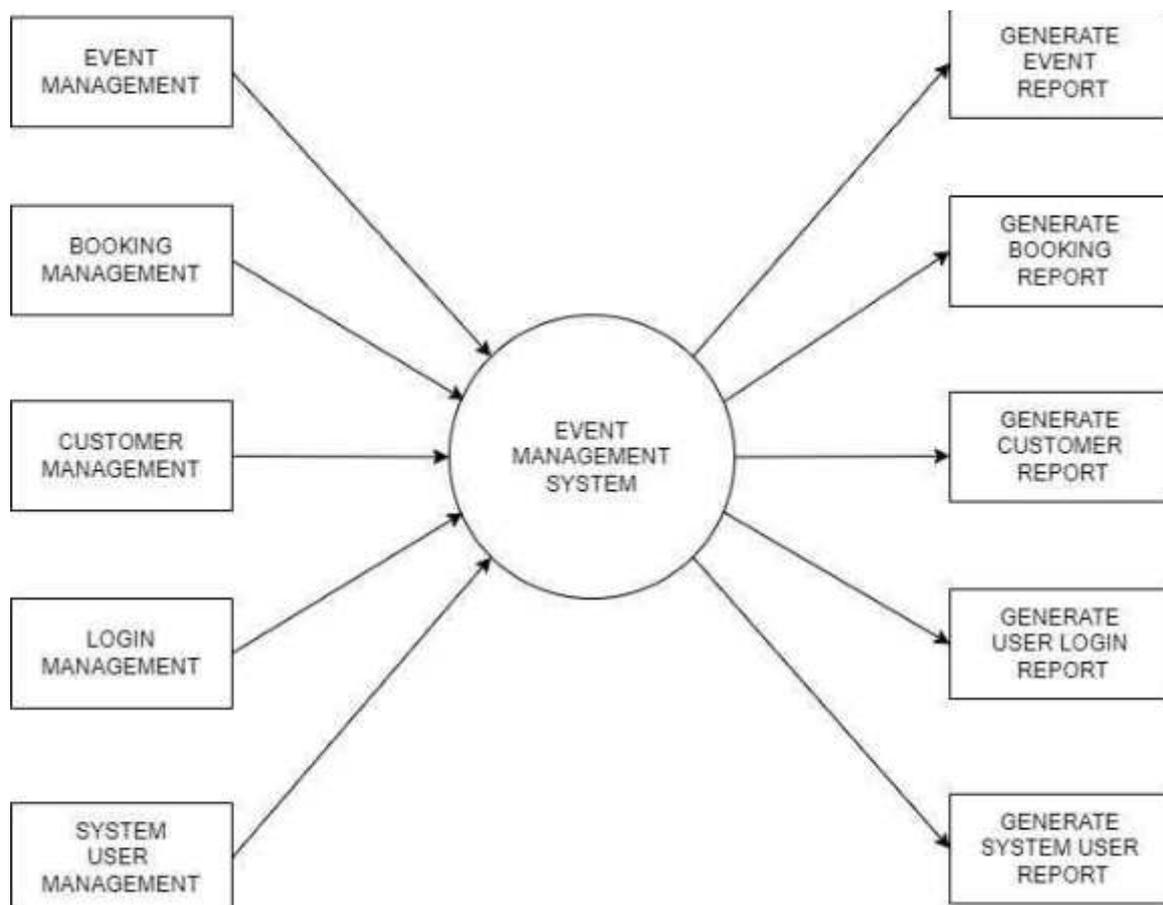
Fig 5.6.1 DFD LEVEL0 Diagram

Fig 5.6.2 DFD LEVEL1 Diagram

6. IMPLEMENTATION

6.1 TECHNOLOGIES & IMPLEMENTATION ENVIRONMENT

Designing front-end	HTML, CSS, Bootstrap, React
Library	ReactJS
IDE	Visual Studio Code
Database	MS SQL server
Back-end	Node.js

Table 6.1.1 Technologies

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6.2 CODING STANDARDS

- Naming conventions: Use consistent and descriptive names for variables, functions, and files.
- Indentation and formatting: Use consistent indentation, whitespace, and formatting to improve readability and maintainability.
- Comments: Use comments to explain the purpose and functionality of code.
- Error handling: Handle errors and exceptions gracefully and consistently.
- Security: Implement appropriate security measures to protect the website and user data.
- Performance: Optimize code for performance and scalability.

GUJARAT TECHNOLOGICAL UNIVERSITY   SAFFRONY INSTITUTE OF TECHNOLOGY
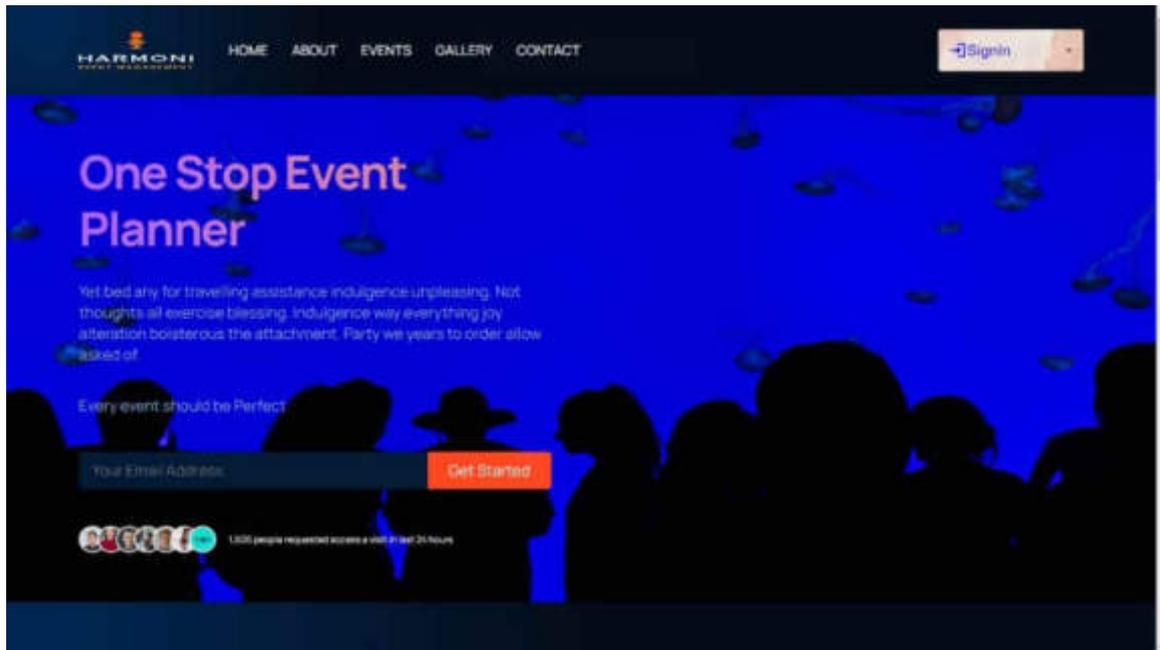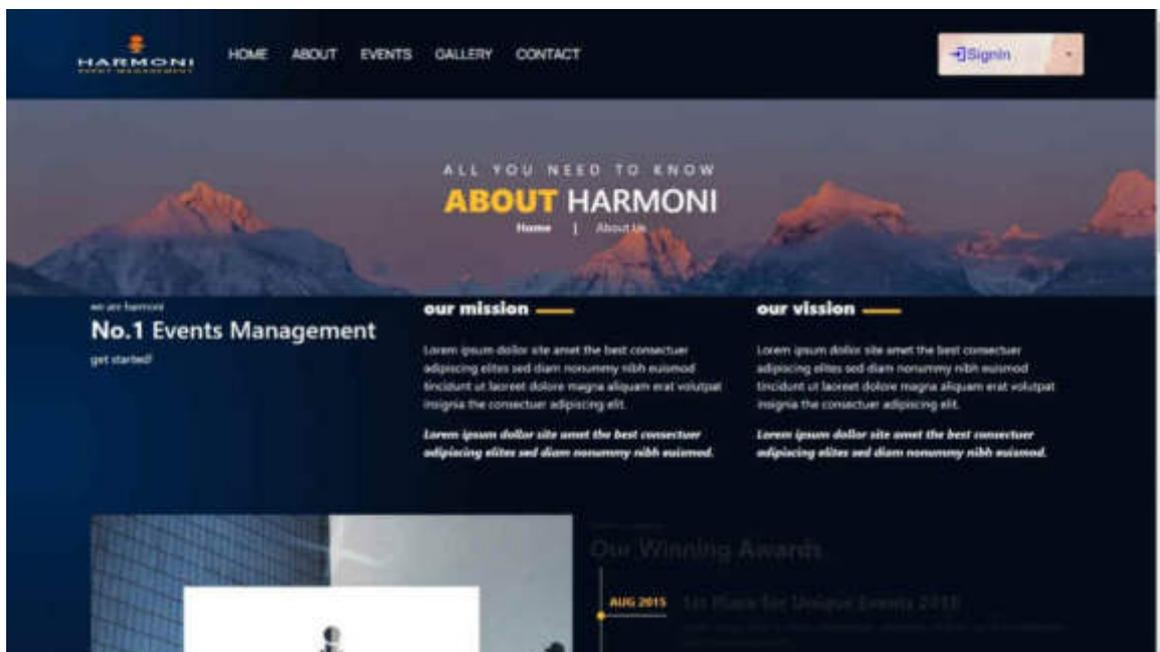
6.3 SCREENSHOTS

Fig 6.3.1 Home Page
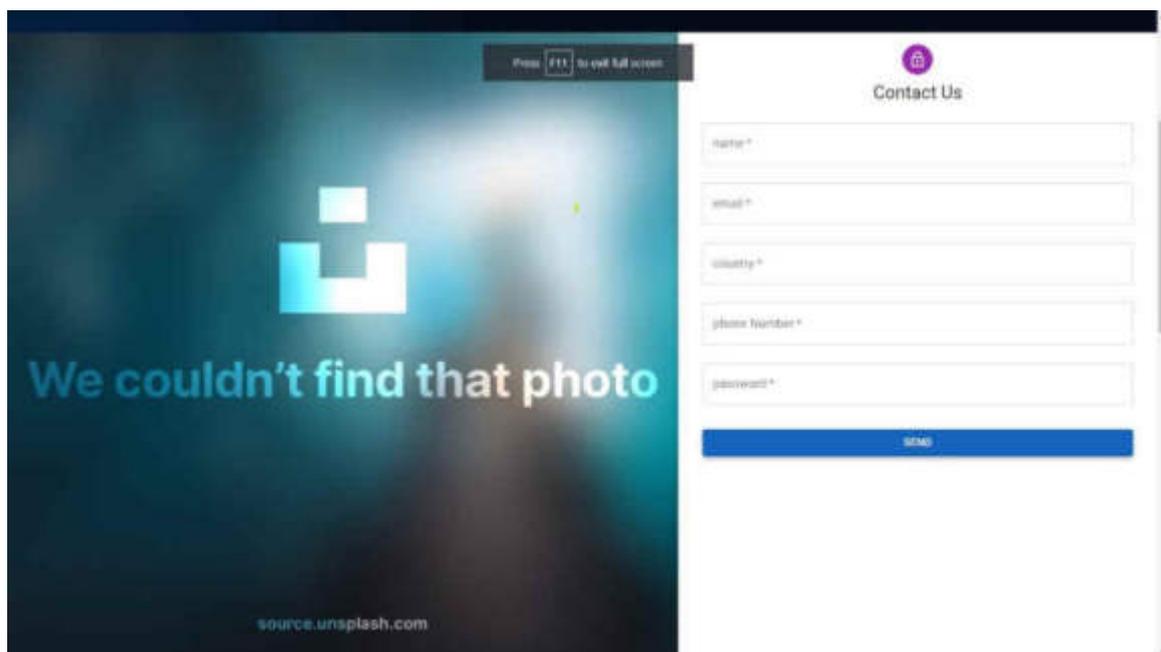

Fig 6.3.2 About Page

22
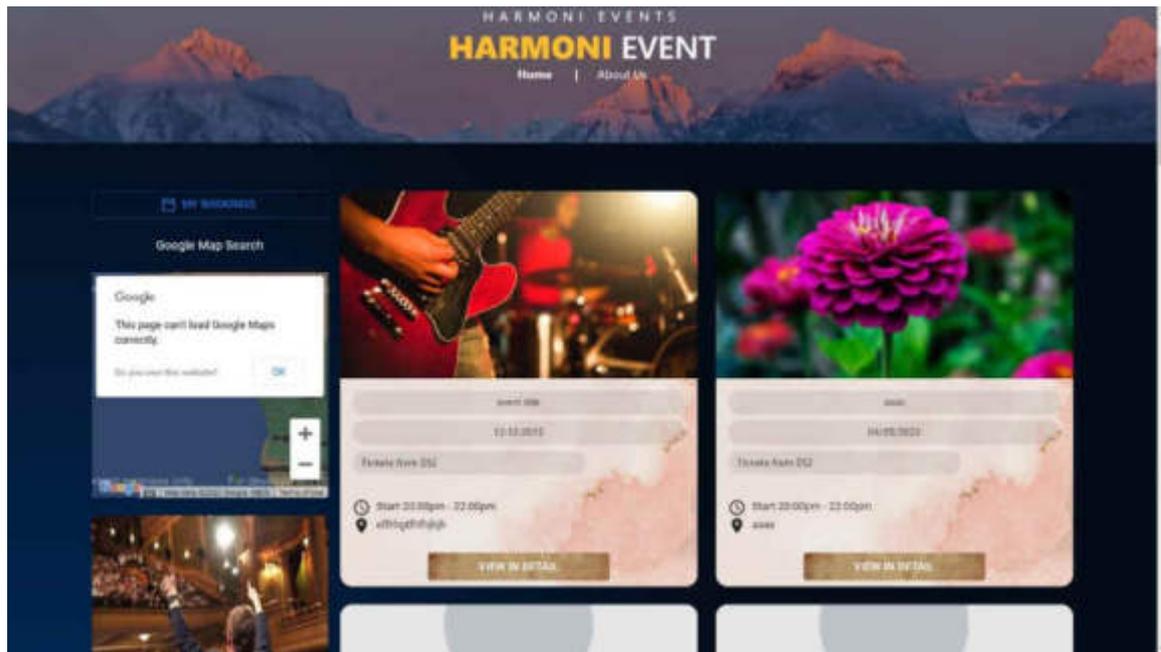
Fig 6.3.3 Events Page

Fig 6.3.4 Contact Us Page

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Fig 6.3.5 Sign Up Page

Fig 6.3.6 Admin side Add Event Page

24
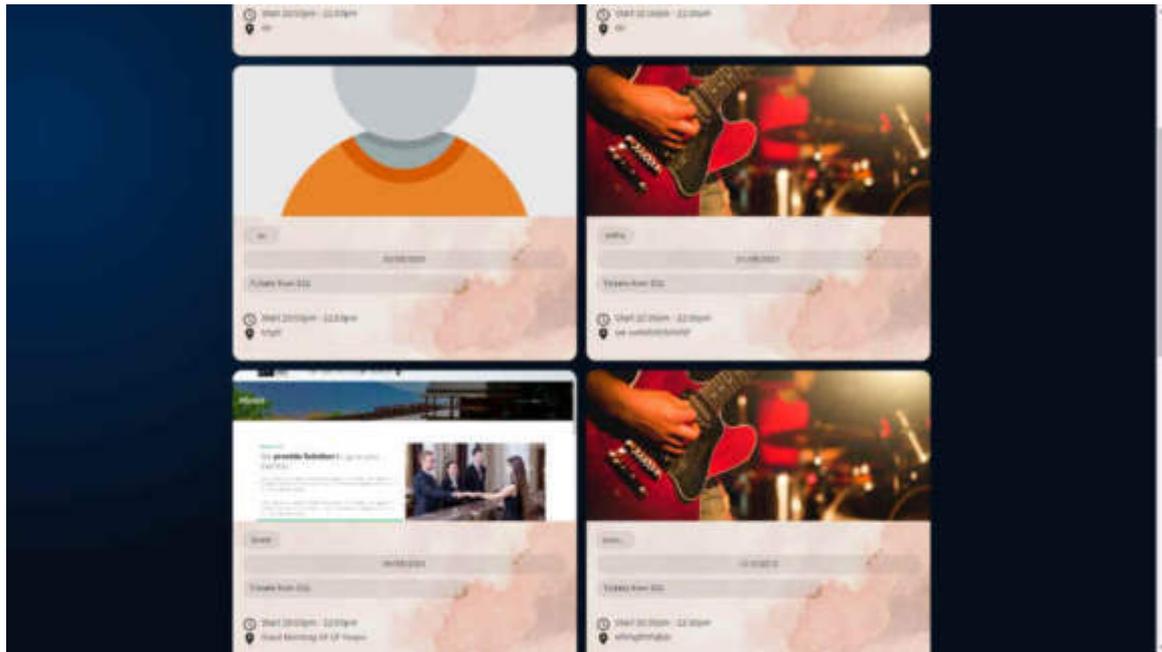
Fig 6.3.7 My Booked Event Page

7. TESTING

7.1 TESTING STRATEGY

- **Functional Testing:** This involves testing each function of the system to ensure that it performs as expected. For example, testing the registration process, event creation process, and payment processing.

- **User Acceptance Testing (UAT):** This involves testing the system from the user's perspective to ensure that it meets their needs and expectations. Users are given scenarios to perform and asked to provide feedback on their experience.

- **Integration Testing:** This involves testing the system's ability to integrate with other systems, such as payment gateways, social media platforms, or email services.

- **Performance Testing:** This involves testing the system's ability to perform under different load conditions. This includes testing response time, throughput, and scalability.

- **Security Testing:** This involves testing the system's ability to protect user data and prevent unauthorized access. This includes testing measures such as encryption, user authentication, and access control.

7.2 TEST RESULTS AND ANALYSIS

Test ID	Case	Expected Result	Actual Result	Pass/Fail
1	Login	If email or password invalid and the internet display error otherwise success.	Both are valid than successful.	Pass
2	Update user data	User data will update.	Update data and display new data.	Pass
3	Booking request	The system should successfully receive the booking request.	The flight request is successfully crated.	Pass
4	Compatibility	Website should responsive for all devices.	Website is responsive for all devices.	Pass
5	Functionality	Add event request should be updated from admin side.	Yes, admin can add event requests.	Pass
6	Logout	Logout then redirect login screen.	Logout then redirected login screen.	Pass

Table 7.2.1 Test Case

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8. CONCLUSION

My internship experience at *Sparks to Ideas* was incredibly valuable and informative. Over the course of my time there, I gained a wealth of knowledge about front-end technologies and systems, as well as insight into how a software development firm operates. Throughout the internship, I had the opportunity to work on real projects and collaborate with others, which helped me develop both professionally and personally.

In conclusion, an event management system is a powerful tool that can help streamline the planning, organization, and execution of events. By automating many of the tasks involved in event management. A successful event management system should be user-friendly, scalable, and able to handle a wide range of events and event types. It should provide a seamless user experience, with intuitive interfaces and clear, concise instructions. An event management system can be a valuable asset for event planners and organizers, helping to simplify and streamline the event management process and ensuring that events are executed smoothly and successfully.

Overall, my internship at Sparks To Ideas was an incredible experience that allowed me to grow both professionally and personally. I gained practical experience in my field, built connections with colleagues and industry professionals, and learned more about what I want in a career. I'm grateful for the opportunity and am excited to see where my newfound knowledge and experience take me in the future.

9. REFERENCES

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- ❖ https://legacy.reactjs.org/docs/getting-started.html -   React Tutorial
- ❖ https://www.javatpoint.com/mysql-tutorial -   MySQL Tutorial
- ❖ https://www.w3schools.com/nodejs -   Node JS Tutorial
- ❖ https://creately.com/lp/data-flow-diagram-software-online - Flow Diagram

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Joining Letter

To

The HOD,

Saffrony Institute of Technology,

Mehsana.

Subject :- React Js Internship

We are pleased to confirm you that **Mr. Patel Kevalkumar Manojbhai.** has been appointed for **React JS internship** Program in **Sparks To Ideas** Session starts from 24ᵗʰ January 2023. We are confident he will be able to make a significant contribution to the success of our company and we look forward to work with him.

Sincerely,

Ashish Meghani

Managing Director

Sparks To Ideas

Address: - 406 Akshat Tower near Pakwan hotel opposite rajpath club SG highway Ahmadabad.

E-Mail:- info@sparkstoideas.com

Website: - www.sparkstoideas.com

Attendance Sheet

GUJARAT TECHNOLOGICAL UNIVERSITY
(Established under Gujarat Act No. 20 of 2007)
ગુજરાતટેકનોલોજીકલ યુનિવર્સિટી
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 2

Feedback Form by Industry expert

Student Name: Patel Kevulkumar Manojbhai   Date: 21-04-2023

Work Supervisor: Title:

Company/Organization: SPARKS TO Ideas

Enrollment No: 190390116020

Internship Address: 406, Akshat Tower, New Pakwan circle, S.G. Highway, Ahmedabad.

Dates of Internship: From 24-01-2023   to 23-04-2023

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: NA

Signature of Industry person with name and Stamp:

Sparks To Ideas   Avi

Signature of the Faculty Mentor

31

Internship At ManekTech Solutions Pvt Ltd

AN INTERNSHIP REPORT

Submitted by

Kyari Patel

190390116022

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 ManekTech Solutions Pvt Ltd** has been carried out by **Kyari 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. Upasana Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

![Manektech Solutions Pvt Ltd logo]

Manektech
Solutions Pvt Ltd

To Whom So Ever It May Concern

This is to certify that **Ms. Kyari Patel** (Perusing Bachelors of Engineering (IT) from **S.P.B Patel Engineering College, Mehsana** has completed Real time age and gender detection Program with Manektech as a **Data Analyst Intern**. Which also includes Based on Data collection, Data pre-processing, Neural network model development.

She has successfully completed a Month from 23th Jan, 2023 to 28th Apr' 2023.

During this period of Internship Program with us she was found Practical, Hardworking and Inquisitive.

We wish her every success in Life.

With Regards

Ms. Kiran Punjabi

HR Head

Completion 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 (20:43:57)

This is to certify that, **Patel Kyari Girishkumar** (Enrolment Number - 190390116022) working on project entitled with **Real Time Age and Gender Recognition** from **Information Technology** 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 Kyari Girishkumar

Name of Guide : Miss. Upasana Pingalashibhai Leela

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, 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 ManekTech Solutions Pvt Ltd** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Mr. Raj Mehta (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

Kyari Girishkumar Patel   _____

ACKNOWLEDGMENT

I want to express our honest gratitude to our external guide, Mr. Raj Mehta, for continuously guiding me in the agency and answering all my doubts with persistence. I would also like to thank my inner guide, Prof. Upasana Leela, for assisting us through our internship by giving us the necessary suggestions and advice in conjunction with their valuable coordination in finishing this internship. In the end, we offer my regards and advantages to all of those who supported us in any respect at some point during the completion of the assignment and to our college for offering sources and substances. Thank you.

Yours Sincerely,

Kyari Patel (190390116022)

<u>Abstract</u>

This project is providing a way to enhance the capabilities of face detection, face recognition, emotion recognition, age detection, gender detection and headcount models. Face Recognition is a computer application that is capable of detecting, tracking, identifying, or verifying human faces from an image or video captured using a digital camera. Human emotion recognition plays an important role in interpersonal relationships.

The automatic recognition of emotions has been an active research topic from early eras. Hence extracting and understanding emotion has high importance of the interaction between human and machine communication. Two key facial attributes, age and gender, play a very significant role in social interaction, making age and gender estimation from a single face image an important task in intelligent applications such as access control, human-computer interaction,law enforcement etc. Also, providing all these services through a web-application/API.

List of Figures

Abbreviations

DL Deep Learning

AI Artificial Intelligence

ML Machine Learning

B2B Business to Business

B2C Business to Consumer

API Application Programming Interface

NL Neural Network

GPU Graphical Processing Unit

CPU Central Processing Unit

HTML HyperText Markup Language

CSS Cascading Style Script

Table of Contents

Details of Chapters

1.0 INTRODUCTION

1.1 COMPANY PROFILE

ManekTech is a Software development company based in India with proven competencies in custom software development, iPhone Mobile App Development, SharePoint, ASP.Net, Open Source, PHP, Web Application Development, and offshore IT outsourcing services. Expertise in the design and development of robust and scalable web and mobile applications development.

ManekTech is a company providing professional-level customized solutions, Web applications development, full-featured online shopping stores, Software development, Client server technology. It designs, manages, builds, and maintains high quality solutions for a wide range of businesses and individuals.

ManekTech offers Digital Solutions in various industry verticals such as Automotive, Job, Real Estate, Hospitality, Travel & Tourism, eLearning & Education, Oil & Natural Gas, Banking / Finance, Transport, Marketing, Government, Media & Entertainment, Advertising, Manufacturing and Retail.
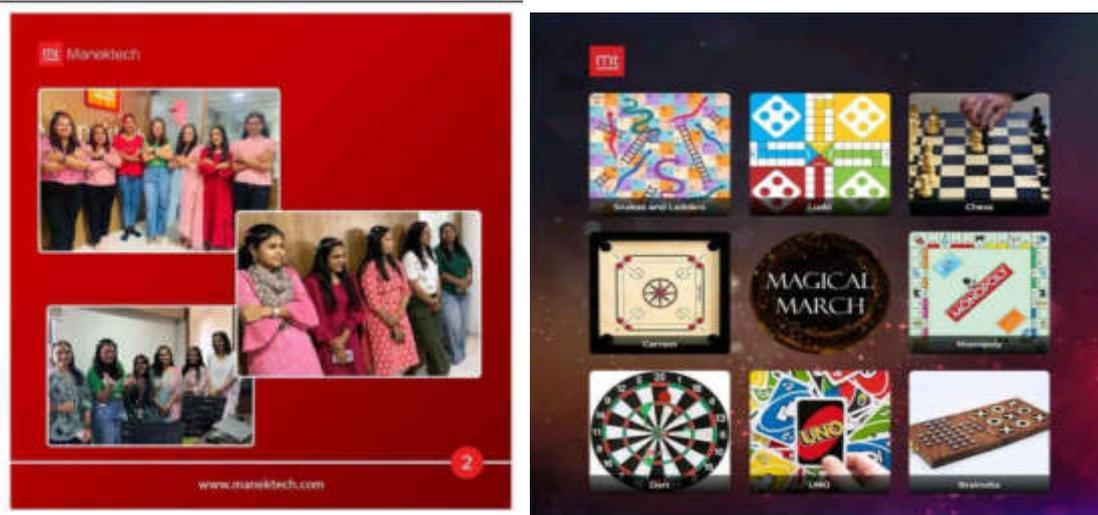
Fig 1.1 Various Celebrations at Manektech

1.2 MISSION AND VISION OF THE COMPANY

ManekTech as a one stop solution for all your technical solutions. It provides a gamut of services which includes software development, cloud services, mobile apps development, Web and CMS development and digital marketing. Our talented developers are well versed on authentic and newly updated technologies as well. It has hands-on experience in platforms of Microsoft.Net, Android, PHP, WordPress, Shopify, DotNetNuke (DNN), IOT, Angular JS, Magento, IOS, Ionic and lots more.

In addition to its main product, the company also provides custom artificial intelligence-based models to B2C and B2B customers through APIs. Additionally, the company is developing a web app where anyone can test and analyze their data using our models.

1.3 ORGANIZATION CHART
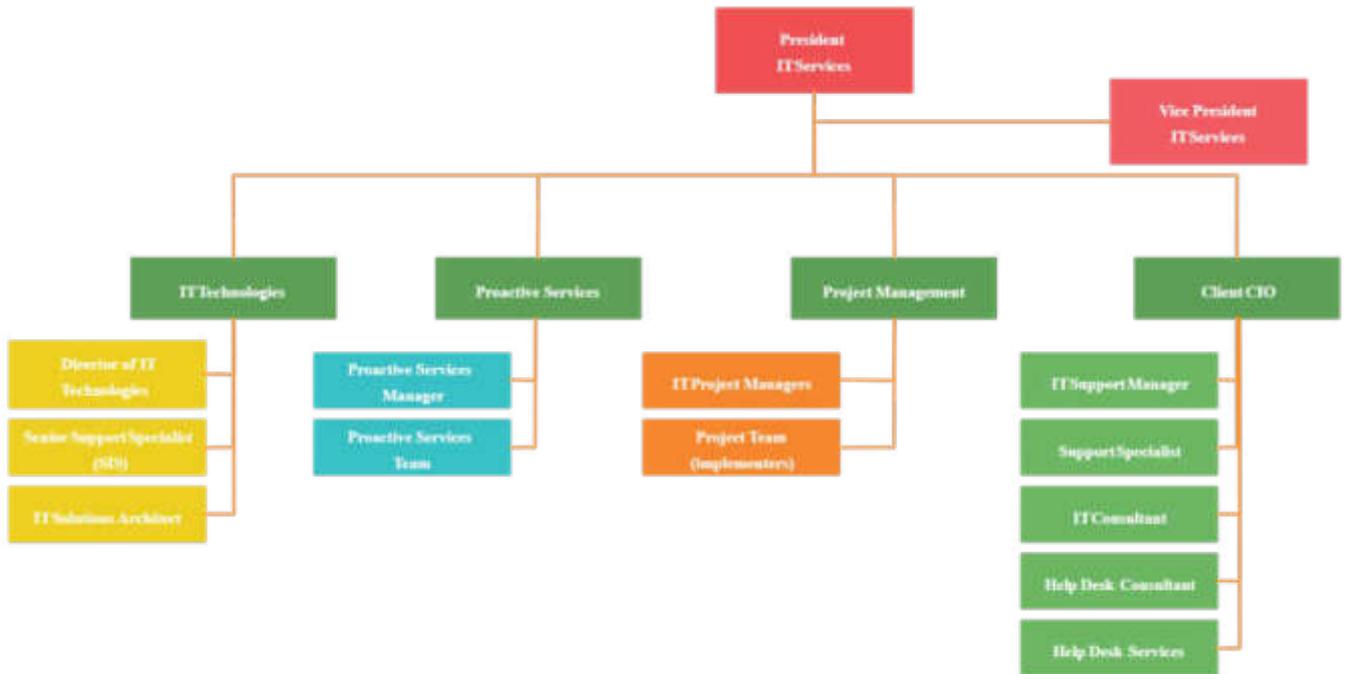
1.4 CAPACITY OF COMPANY

There are currently 350-400 employees working in this company.

2.0 OVERVIEW OF DEPARTMENTS

2.1 PROJECT IMPLEMENTATION PROCEDURE

- Planning
- Analysis
- Designing
- Implementation
- Testing
- Deployment
- Maintenance

2.2 TECHNICAL SPECIFICATIONS

Fig 2.2 Technical Specifications of Company

2.3 SCHEMATIC LAYOUT WHICH SHOWS THE SEQUENCE
OF OPERATION FOR MANUFACTURING OF END PRODUCT.
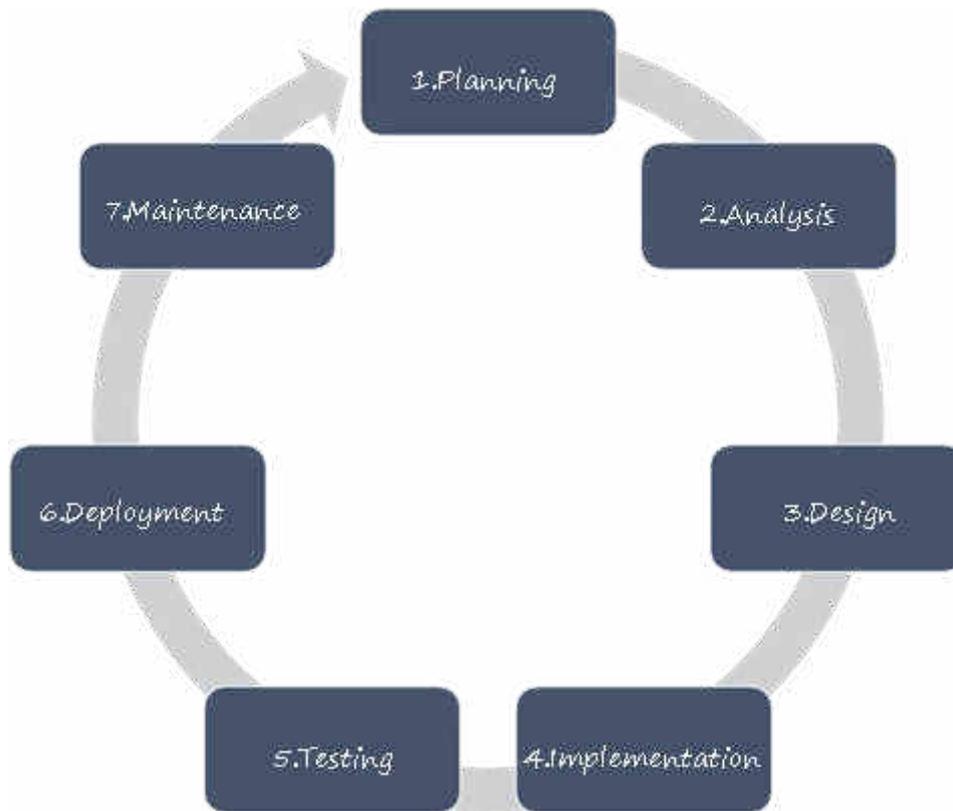
Fig 2.3 Operation Of Software Development

2.4 DETAILS ABOUT EACH STAGE OF PRODUCTION.

1. **Planning**

   Planning for the quality assurance requirements and identification of the risks associated with the project is also done in the planning stage. The outcome of the technical feasibility study is to define the various technical approaches that can be followed to implement the project successfully with minimum risks.

2. **Requirement 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.

3. Designing

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

4.   Implementation

Once the system design phase is over, the next phase is coding. In this phase, developers start to 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.

5.   Testing

Once the software is complete, 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.

6.   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.

7.   Maintenance

Once the system is deployed, and customers start using the developed system, following 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.

- 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 meet and that the system continues to perform as per the specification mentioned in the first phase.

3.0   INTRODUCTION TO PROJECT

3.1 PROJECT SUMMARY

This project is about Deep Learning (DL) methods to solve Computer Vision (CV) problems such as Face Detection, Face Recognition, Age Detection, Gender Detection, Headcount and Emotion Detection. Try to enhance the capability of the previously proposed models with help of computer vision and deep learning.

If AI enables computers to think, computer vision enables them to see, observe and understand.

3.2 PURPOSE

Create a product for the B2C and B2B customers who want analysis based on features extracted from the human face from their image/video data and get detailed analysis with different high accuracy industry level custom models.

3.3 OBJECTIVE

One of the objectives of this project is to improve the accuracy, detection range and negate other flaws of previously created models. Along with this, provide a prediction report with necessary analysis quickly, accurately and efficiently.

3.4 SCOPE

The proposed product can identify faces and give a detailed report about some of the key features which can be rectified by a human face. This product is useful in various industries to get an analysis of their customers or employees. Customers who want this product to predict in real-time, they need a powerful system with GPUs that support CUDA.

3.5 TECHNOLOGY AND LITERATURE REVIEW

Technologies:

Model Building: TensorFlow, Keras and dlib

*Image processing:*OpenCV

Website Development: Python, HTML, CSS, Bootstrap, JavaScript, jQuery

1. **TensorFlow**

   TensorFlow is an end-to-end open-source platform for machine learning. It has a comprehensive, flexible ecosystem of tools, libraries, and community resources that lets researchers push the state-of-the-art in ML and developers easily build and deploy ML-powered applications.

2. **Keras**

   Keras is a powerful and easy-to-use free open-source Python library for developing and evaluating deep learning models.

3. **dlib**

   Dlib is a landmark's facial detector with pre-trained models, the dlib is used to estimate the location of 68 coordinates (x, y) that map the facial points on a person's face.

4. **OpenCV**

   OpenCV (Open-Source Computer Vision Library) is an open-source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in commercial products. Being a BSD-licensed product, OpenCV makes it easy for businesses to utilize and modify the code.For deployment of the models on the website, TensorFlow lite is implemented. In the website creation part HTML, CSS, and js are used.

Literature Review

● OpenCV capabilities enhancement using Deep Learning models on CPU is very slow and less accurate because of that, it is necessary to use OpenCV on GPU with CUDA.

● Various pre-trained face detection models are available on the internet like Dlib, Haar Cascade classifier, TinyFace Detector, SSD MobilenetV2, MTCNN, and many more.

● These models have a few issues related to accuracy, the distance of detection, and detection on video.

● We required some custom bounding box designs which were not available over the internet.

● Models which are available on the internet for age and gender detection are for a particular race and especially not for Indian people where we can see lots of races and variations in people's skin tone.

3.6 PROJECT PLANNING

3.6.1 Project Development Approach and Justification

The agile approach of creating the project is used to develop this project. Scrum and Sprint meetings are conducted to manage and maintain project timelines and task compilation to provide a better understanding of progress on the product. After doing and exploring multiple research papers derive a conclusion on what changes or enhancements are needed.

3.6.2 Project Effort and Time, Cost Estimation

Effort

In this project I have the following tasks:

Setup: Setup OpenCV CUDA for the Nvidia GPU on a local system.

Study and analyze: Study and analyze the already available pre-trained model and draw conclusions and limitations of models.

Enhance: Enhance the Deep Learning models to eliminate previously identified limitations.

Merge: Merge created different models to build a final product.

Time

The project is scheduled in different parts with each part having its own adjectives and timelines.

Learning: Learn about OpenCV and Neural Network through YouTube for better understanding.

Configure system: Configure and make the system compatible for training Deep Learning models with higher speed.

Research and Reporting: Research previously integrated solutions for the given problem and make a report about their benefits and limitations.

Data Gathering and pre-processing:Gather enough data and pre-process it to make it compatible as per model requirement.

Coding:Create custom neural networks or enhance existing solutions to create better solutions for a given problem statement.

Testing:

o   Test every model on image and video for getting real-time accuracy.

o   Report any limitations or any accuracy issues to enhance and hyper- tune the model again.

Integrating:

Integrate various models and make the efficient solution as per product requirement.

Cost Estimation

Hardware:

●   GPU – Nvidia GeForce 2070 Super = Rs 1.5 L

●   HD Webcam - Rs 2 K Software:

●   Server cost: Pay as you go, model

3.6.3 Roles and Responsibilities

Role

●   Data Analyst Intern

Responsibilities

- Designing AI systems.
- Researching and implementing ML and DL algorithms and tools.
- Selecting appropriate data sets.
- Picking appropriate data representation methods.
- Identifying differences in data distribution that affects model performance.
- Verifying data quality.
- Transforming and converting data science prototypes.

- Performing statistical analysis.
- Running machine learning tests.
- Using results to improve models.
- Training and retraining systems when needed.
- Extending machine learning libraries.
- Developing machine learning apps according to client requirements.

3.6.4 Group Dependencies

There are no group dependencies as this project is developed by an individual person.

3.7 PROJECT SCHEDULING (GANTT CHART/PERT/NETWORK CHART)

WBS	Task Description	Start Date	Finish Date	Jan-23	Feb-23	Mar-23	Apr-23
1	Project Discussion and task allocation, CUDA setup	Jan 23,202	Jan 25,202				
2	R&D on Nueral Network construction and opencv	Jan27, 202	Jan 29,2023				
3	Learn and create pretrained models(Dib and Fast MTCH)	Jan 30,202	Jan 31,2023				
4	Data collection, Face recognition, Bounding boxes	Feb 01, 20	Feb 02, 2023				
5	Emotion data collection, Bounding box intigration	Feb 03, 20	Feb 07,2023				
6	Hyper parameter tunning and Emotion model continue	Feb 08, 20	Feb 15,2023				
7	R&D on head count model and work on opencv, Designing of website, Age detection model, landing page creation	Feb 16, 20	Feb 28, 2023				
8	Gender detection model, Form creation, Design and development of sec	March 01,	March 05,2023				
9	Login and Registration functionality, Start working on bar Carousel creati	March 06,	March 13,2023				
10	website creation, database creation, Face detection model attach Model deployment on website	March 14,	March 22,2023				
11	Test different input scenarios	March 23,	March 31,2023				
12	Optimization and documentation	April 01,20	April 09,2023				
13	Knowledge transfer whole Project	April 10,20	April 15,2023				
14	Knowledge transfer and pricing discussion about cloud e	April 16,20	April 20,2023				
15	discussion of final process of reveling	April 21,20	April 28,2023				

Fig 3.7 Gantt chart

4.0 SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

Hardware:

- Computer with 8GB ram.
- 32GB system ram.
- 1TB SSD
- Fast Processor

Software:

- Windows
- Python 3.10
- Python libraries: OpenCV 4.5.2, NumPy, Matplotlib, time
- Anaconda Navigator

PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

Memory problems while trainable parameters of the neural network are high in numbers. Higher configuration GPU provides better performance.

4.2 REQUIREMENTS OF NEW SYSTEM

All the requirements mentioned here are the minimum configurations required for model training.

Hardware Characteristics:

- Laptop or PC with a good webcam attached
- Core i3 4th Gen CPU
- 8 GB RAM
- SSD and Nvidia GPU (recommended for high speed)

Software Characteristics:

- Python 3.6
- Python libraries: OpenCV 4.2, NumPy, Matplotlib, time
- Anaconda Navigator
- Windows

4.3 SYSTEM FEASIBILITY

4.3.1 Does the system contribute to the overall objectives of the organization?

Yes, systems contribute too well to the overall objective of the organization because of its high processing power. Due to this system, we can train and test our Neural Network model with more pace. This saved lots of time in our ongoing sprint.

4.3.2 Can the system be implemented using the current technology and within the given cost and schedule constraints?

Yes, systems can be implemented using the current technology and within the given cost and schedule constraints.

4.3.3 Can the system be integrated with other systems which are already in place?

The system is capable enough to integrate with the already placed system. It can provide the same performance in different scenarios.
The required environment is the only thing that is needed to integrate this system with another system.
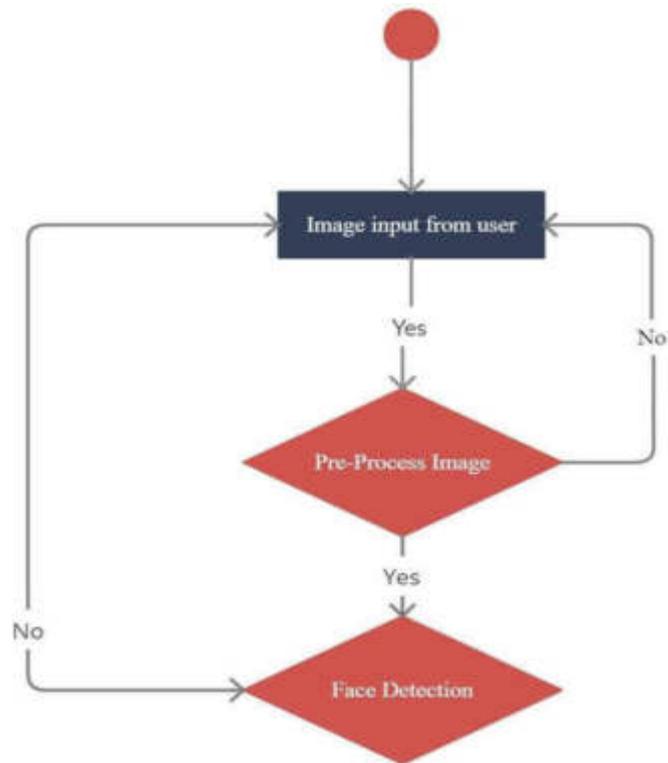
4.4 ACTIVITY PROPOSED SYSTEM

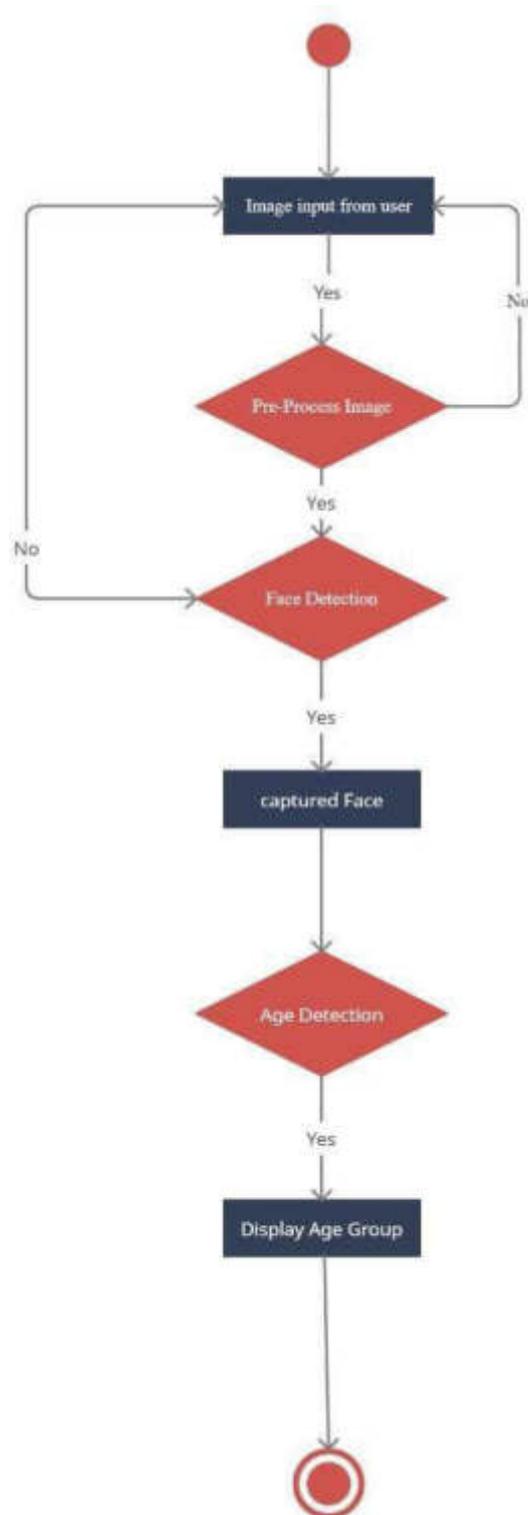Fig 4.4.1 Activity diagram face detection

Fig 4.4.2 Activity diagram age detection

4.5 FEATURES OF NEW SYSTEM

•   Website is for the end-user and B2B both.

•   Images are uploaded by end-users on the website then after it provides complete analysis on the website.

•   B2B applications are provided with API services to integrate.

4.6 MODULES OF PROPOSED SYSTEM

There are two main modules in this product.

● Website
● Deep Learning models
● Data Collection
● Data Pre-processing
● Deep Learning model training
● Model Evaluation
● Integration of DL models in the website

Module wise description:

1.   Website:

● Website is a frontend to showcase our model to an individual user or a B2B user where he can analyze and extract the result on their real-life data.

2.   Deep Learning models:

● Deep Learning models are the backbone of this product.
● These models are used to extract features from images given by users and clients.
● There are four sub-modules in this module.

    a.   Data Collection:

    o   Data was collected from various clients and open-source dataset resources.

    b.   Data Pre-processing:

    o   Data sorting, cleaning, and data augmentation were done in this submodule.

c.   Deep Learning Model Development:

o   Various neural networks are generated and trained on the pre-pre-processed data.

d.   Model Evaluation:

o   Hyper-parameter tuning and testing are done in this module.

3.   Integration of DL models in the website:

●   Integrate generated DL models into the website from where user and client can interact with them.

4.7 SELECTION OF HARDWARE, SOFTWARE METHODOLOGY,TECHNIQUES

Hardware

For end-user:

- JavaScript enabled any browser
- Minimum 4GB RAM. For B2B:
- Need GPU with minimum 4GB Ram
- Minimum 16GB system ram.
- Good Cooling system.
- Cloud Server (Alternative)

Software

For model training.

CUDA and CUDNN configuration for enabling GPU capability to train and evaluate the model to get better performance.

- The latest version of python libraries
- Keras, TensorFlow, OpenCV, Dlib, PyTorch
- For Website:
- HTML, CSS, JavaScript, bootstrap.

Age Detection:
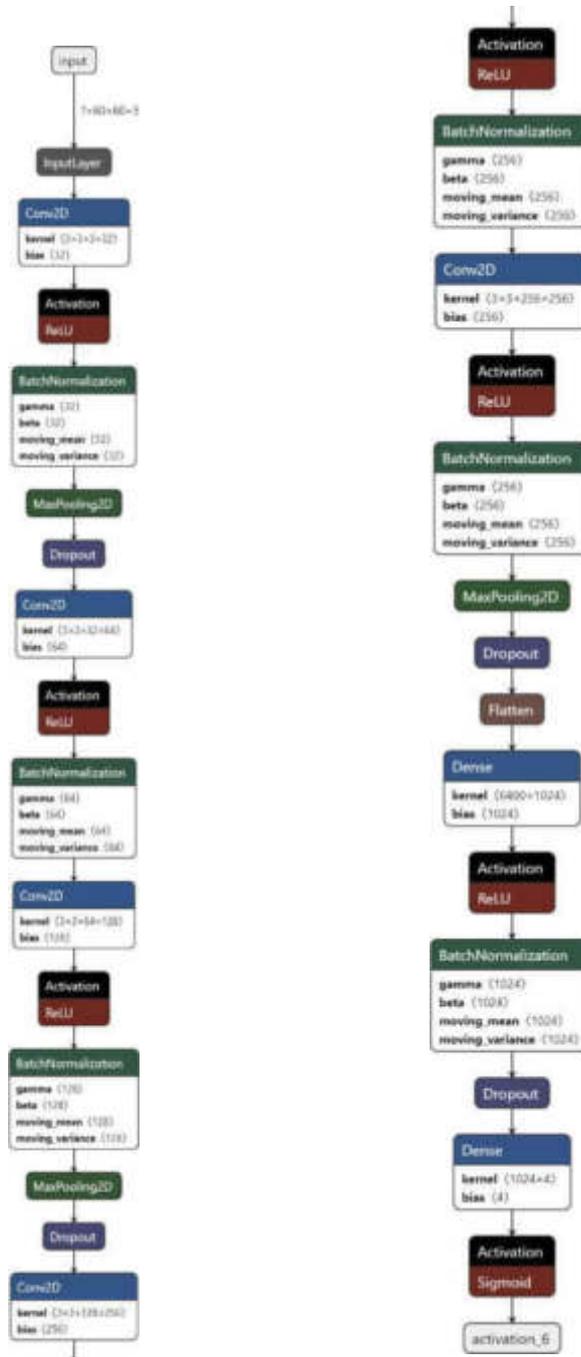
4.7.1 Age detection neural network

5.0 SYSTEM DESIGN

5.1 SYSTEM DESIGN & METHODOLOGY
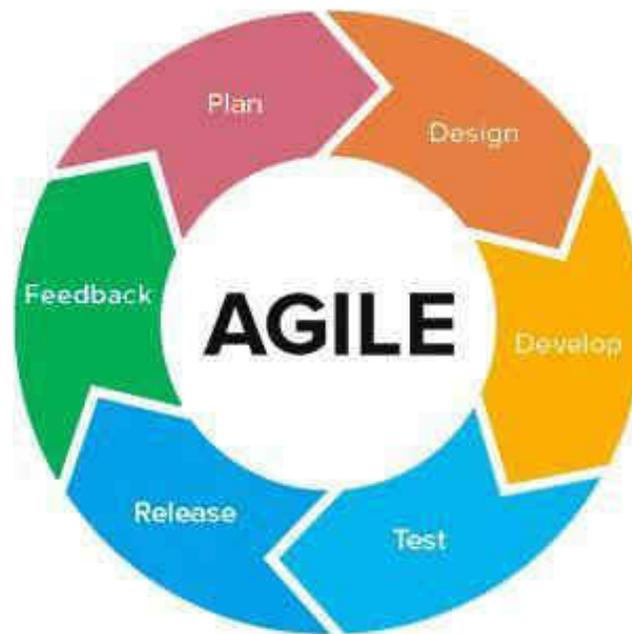
Fig 5.1 Agile methodology" Courtesy of obeya-association.com"

Agile methodologies are approaches to product development that are aligned with the values and principles described in the Agile Manifesto for software development. Agile methodologies aim to deliver the right product, with incremental and frequent delivery of small chunks of functionality, through small cross-functional self-organizing teams, enabling frequent customer feedback and course correction as needed.

In doing so, Agile aims to right the challenges faced by the traditional "waterfall" approaches of delivering large products in long periods of time, during which customer requirements frequently changed, resulting in the wrong products being delivered.

5.2 DATABASE DESIGN

The process of creating a thorough data model for a database is known as database design. This logical data model includes all of the logical and physical design options, as well as physical storage characteristics, that are required to develop a design in a Data Definition Language, which can subsequently be used to establish a database. Each entity in a properly attributed data model has extensive characteristics.

The phrase database design can refer to a variety of aspects of a database system's general design. It's best to think of it as the logical design of the basic data structures that are utilized to store the data. Tables and views are the tables and views in the relational model.

Entities and connections in an object database correspond to object classes and named relationships. The phrase database design, on the other hand, can refer to the entire process of creating not just the fundamental data structures, but also the forms and queries that make up the total database application within the database management system.

5.3 INPUT / OUTPUT AND INTERFACE DESIGN

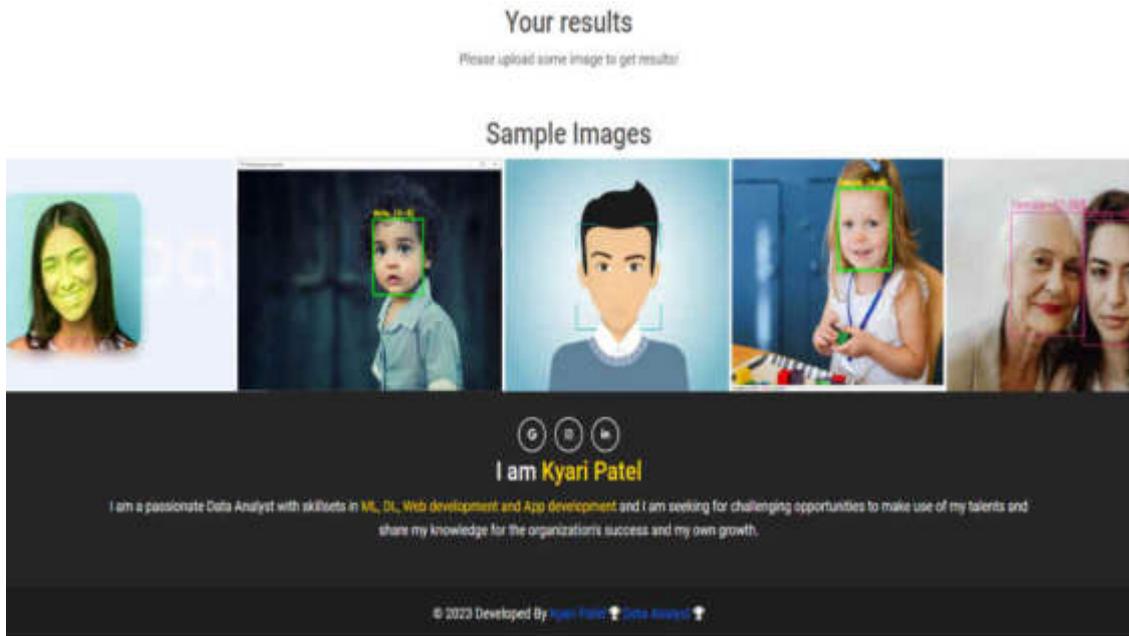**Project Interfaces:**
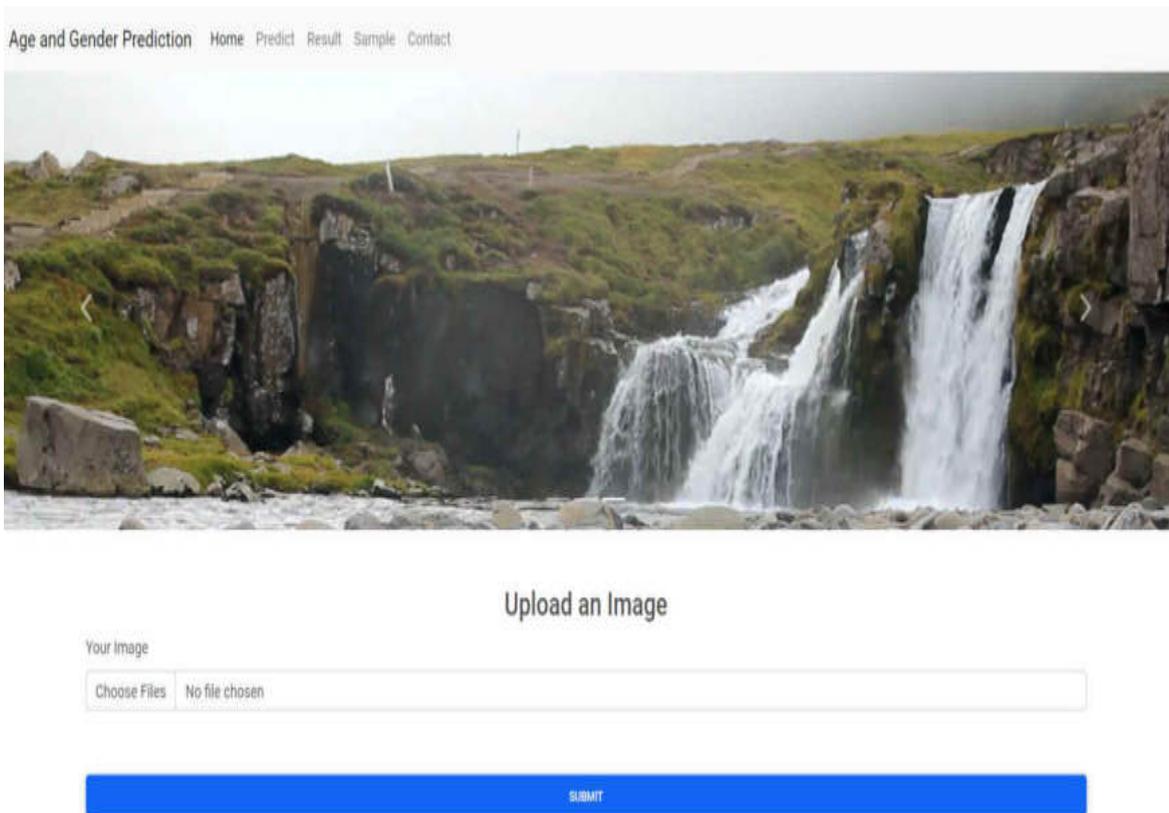
Fig 5.3.1 Interface Design

Fig 5.3.2 Interface Design
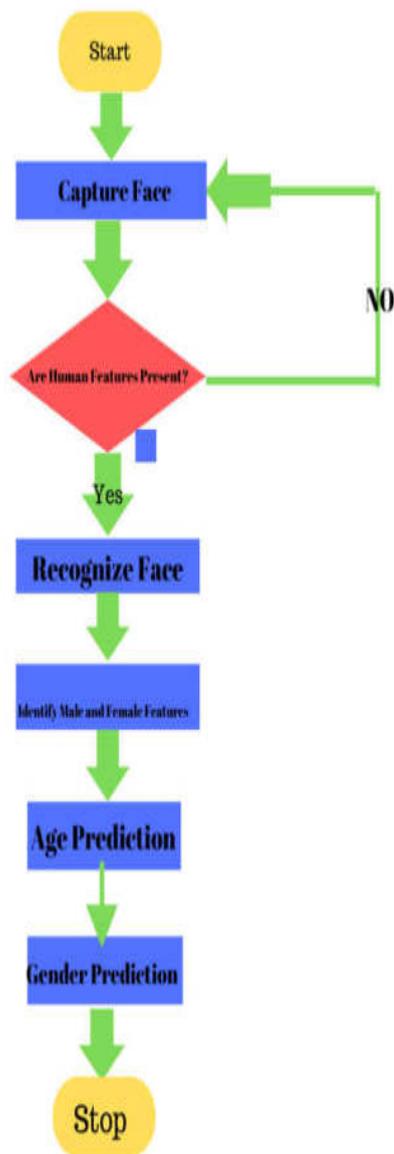
5.4 STATE TRANSITION DIAGRAM

Fig 5.4.1 State transition diagram age and gender detection

6.0 IMPLEMENTATION

6.1 IMPLEMENTATION PLATFORM

A cloud server provides the platform for deploying the website, which was deployed through a Python environment.
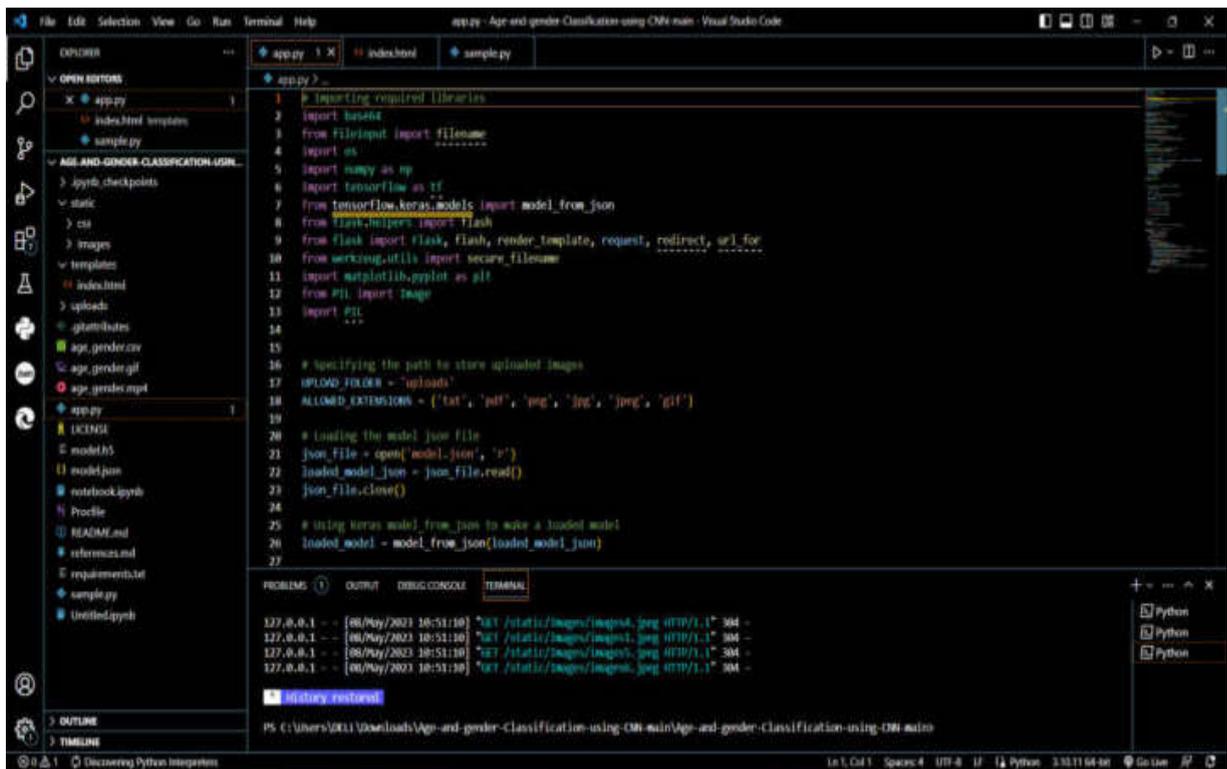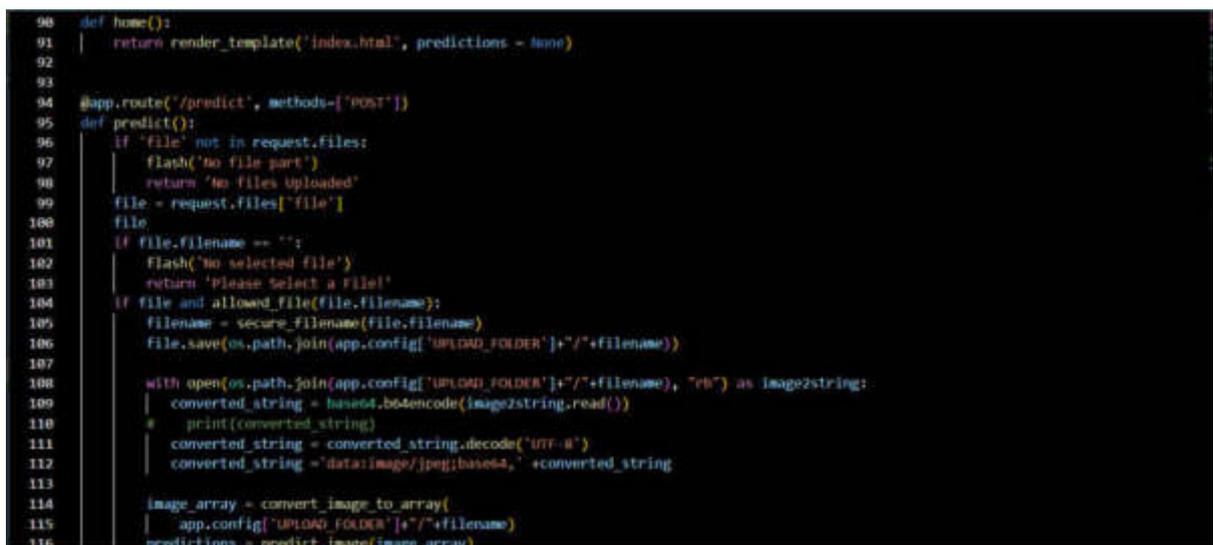

Fig 6.1.1 Python Code
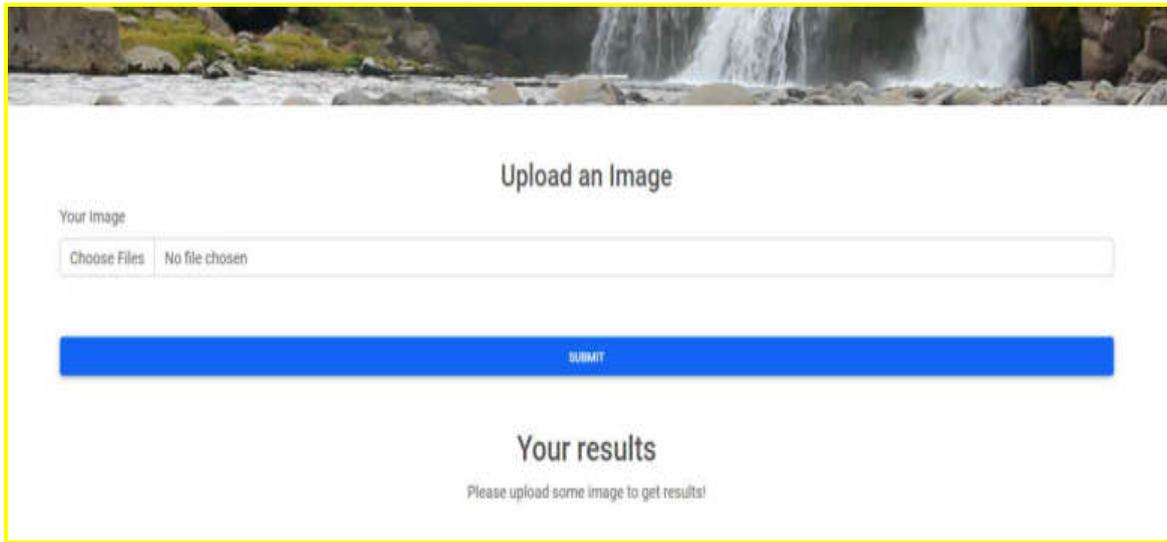

Fig 6.1.2 Python Code

6.2 PROCESS SPECIFICATION
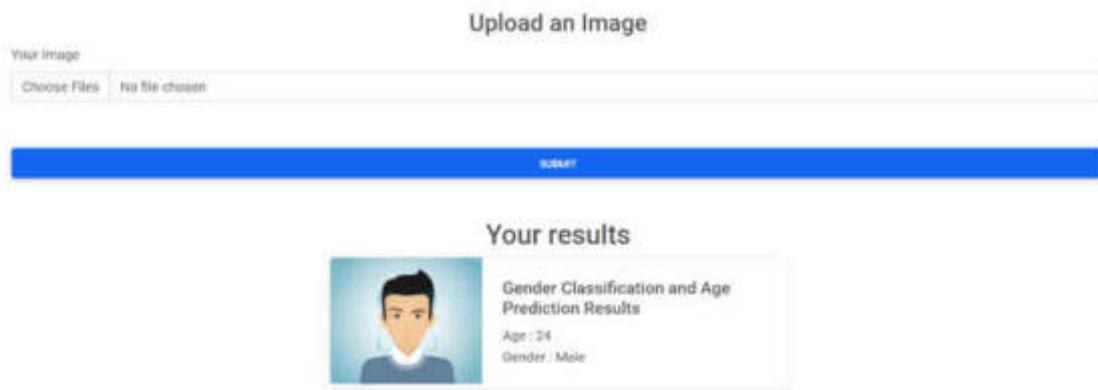
Process step1:

Fig 6.2.1

Output:

Fig 6.2.2

Neural Networks are trained using the python language and its libraries like TensorFlow, Keras, and dlib While, OpenCV provides image manipulation.

For deployment of the models on the website, TensorFlow lite is implemented. In the website creation part HTML, CSS, and js are used.

6.3 OUTCOMES

Age progression/regression: The application might generate a prediction of how a person will look in the future or how they looked in the past based on their current appearance.

Gender Detection: The application can determine the gender of a person based on facial characteristics, such as facial structure, hair, or other visual cues. It might classify someone as male or female.

Gender probability: Instead of providing a definitive classification, the application might assign a probability score for each gender, indicating the likelihood of a person being male or female.

Demographic insights: By analyzing the age and gender distribution of users, the application can provide statistical insights into the demographics of its user base.

User engagement: The application can track and analyze how different age and gender groups interact with the platform, enabling insights for targeted marketing or user experience improvements.

It's important to note that age and gender detection from images can have limitations and may not always be accurate. Factors such as image quality, lighting conditions, facial expressions, and cultural variations can affect the reliability of the results.

6.4 RESULT ANALYSIS

As a result of this analysis, the results show that custom models outperform other previously created models in terms of accuracy and deployment space on servers.

7.0 TESTING

7.1 TESTING STRATEGY

• The testing strategy followed by the company is unique in its own way.

• The developer first takes into account 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.
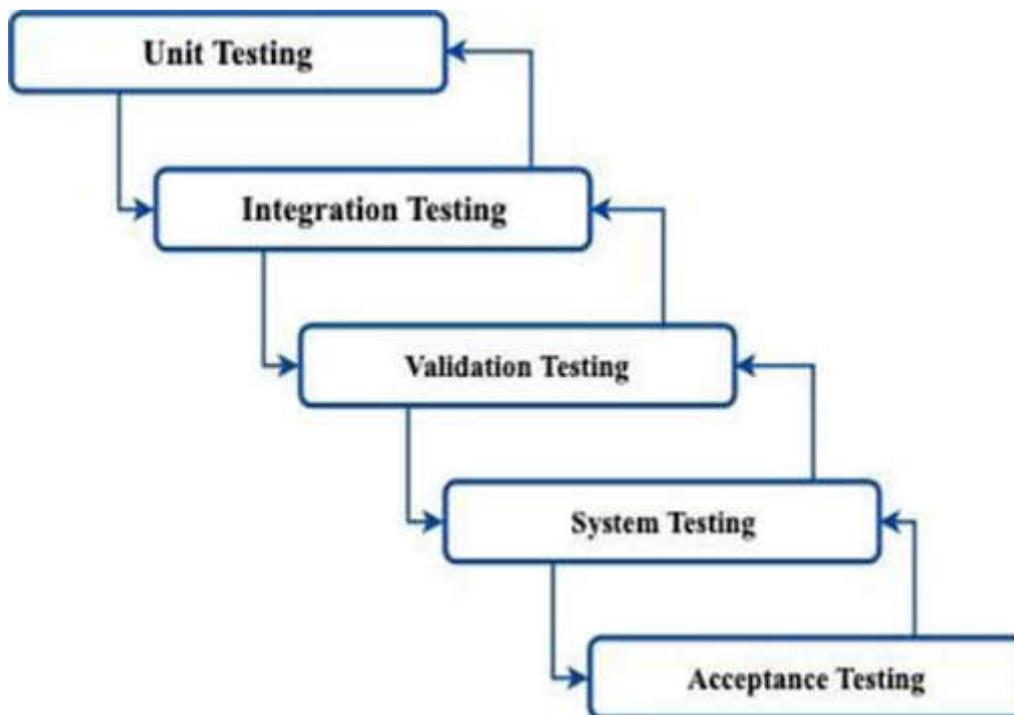
• Then the over System testing is done and after that Acceptance testing is done.

Fig 7.1.1 Testing Strategy

Unit Testing

- **Black Box Testing** - Whether the particular 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

- **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.

Validation Testing

- For the 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 a specified in the Use Case and SRS (Software Requirement Specification).

System Testing

- It is carried to see that functionality related sets of units used together function a designed.
- The system test specifications, incorrect operation of the system is narrowed down to incorrect operation of unit(s) and is taken care of by filing the units.
- Test data covers the possible values of each parameter based on the requirements.

Acceptance Testing

- After each module completion, the system tester tested the system to check user acceptance and changes are made accordingly as per requirements.

7.2 TEST RESULTS AND ANALYSIS

7.2.1 Test Cases (expected output, actual output,remark)
Unit testing:

- o   Test with different images such as those without a face
- o   Images with blurred faces.
- o   Images with small faces.
- o   Images in different lighting conditions.

Alpha testing:

- o   Test websites with different scenarios by our developers.

8.0 CONCLUSION AND DISCUSSION

8.1 OVERALL ANALYSIS OF PROJECT VIABILITIES

The internships provide a better understanding of neural networks, such as creating neural networks, choosing the right models for projects, and tuning them as needed. They also provide an understanding of integrating neural networks with web applications. In addition, it ensures that the internship provides a superb understanding of Python.

8.2 PHOTOGRAPHS

Fig 8.2.1

Fig 8.2.2

Fig 8.2.3

8.3 DATES OF CONTINUOUS EVALUATION (IT-I AND IT- II)

IT- I - 18 / 03 / 2023

IT- II- 08 / 05 / 2023

8.4 PROBLEM ENCOUNTERED AND POSSIBLE SOLUTIONS

Concurrency issue identified while testing the website on the ngrok server. When multiple users try to access the website it may provide the wrong prediction to the user. Sometimes the user may get different images that he/she did not upload to get the prediction. These issues are accurately solved by providing csrf tokens to each user while they are uploading the images on the website.

8.5 SUMMARY OF PROJECT WORK

To recapitulate, this project has many use cases in the field of AI and provides a better model which can integrate with the website easily and give an accurate answer with an increased frame rate. Having great accuracy and being lightweight are two main features of this product. In addition to that, it can also have the ability to train using transfer learning concepts. Finally, the main focus of this project is to provide models to do age detection and gender detection of the person with improved performance.

8.6 LIMITATION AND FUTURE ENHANCEMENT

Although this project does not provide live analysis directly from the camera on the website, it is one of the plans of the company to offer real-time output on the website. Additionally, the company plans to integrate new models with the website shortly. In addition to that, the company will also create a comprehensive architecture of this system to directly offer models with subscription plans.

Furthermore, some changes will be made to the website's front-end soon.

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INTERNSHIP AT FLU SOCIAL

AN INTERNSHIP REPORT

Submitted by

LoveKumar Kanubhai Patel

190390116023

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 Flu Social** has been carried out by **LoveKumar Kanubhai Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Upasna Leela   Prof. Akshay Kansara

Internal Guide   Head of Department

COMPANY CERTIFICATE

FLU SOCIAL

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Info@flusocial.com

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Patel Lovekumar Kanubhai** (Enrollment No: **19039011602**) 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.

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 Flu Social** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Upasna Leela & Mr. 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.   **LoveKumar Kanubhai Patel**   _____

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 (21:47:05)

This is to certify that, *Patel Lovekumar Kanubhai* (Enrolment Number - 190390116023) working on project entitled with *INTERNSHIP AT FLUSOCIAL PVT LTD.* from *Information Technology* 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 Lovekumar Kanubhai

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.

ACKNOWLEDGMENT

I would like to express my sincere gratitude to Yash Patel and Flu Social for giving me the opportunity to complete a 3-month internship in ReactJS, one of the most popular front-end JavaScript frameworks. During Internship at Flu Social, I gained invaluable knowledge and experience in the field of ReactJS. I would like to thank Yash Patel (supervisor) for his guidance, support, and mentorship throughout my internship. His insights and expertise have been instrumental in shaping my understanding of the industry and developing my skills. I would also like to extend my thanks to the entire team at Flu Social Marketing for their support and encouragement. They provided me with a collaborative and friendly work environment, where I felt comfortable to learn and grow.

Lastly, I would like to express my appreciation for this opportunity. My internship at Flu Social has been an enriching experience, which has helped me develop the necessary skills and confidence to pursue a career in ReactJS. I will forever be grateful to Yash Patel and Flu Social for this valuable experience.

ABSTRACT

The following internship report documents the process and outcomes of the frontend website development of a E-commerce using HTML, CSS, JavaScript, and ReactJS. The aim of this project was to design and develop a user-friendly website for a E-commerce that showcases its different product. The website includes a range of features such as a product catalog, shopping cart, checkout process, user login and registration. The website is designed to be responsive and adaptable, with a clean and modern user interface. The shopping cart feature allows customers to select their preferred products, view the total price. The navigation menu and search bar make it easy for users to browse and find specific products on the website. The product catalog showcases various products with images, prices, and ratings to help customers make informed decisions. User authentication and registration allow customers to create accounts. The website was tested thoroughly using different test cases, and the results were analyzed to ensure that the website meets the requirements . The project was completed successfully within the stipulated time frame and has met with the expectations. This report provides a detailed account of the entire development process, along with the challenges faced and the solutions implemented.

List of Figures

Abbreviations

HTML   HyperText Markup Language

CSS   Cascading Style Sheets

JS   JavaScript

Table of Contents

Chapter 1. OVERVIEW OF THE COMPANY

1.1 COMPANY PROFILE

Flu Social Company provides 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 a sustainable future. We believe in bringing Business, People and Technology together in the way forward. We have a 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 PROVIDED BY THE COMPANY

The services provided by the company are as below :
- Web Development
  - PHP
  - WordPress
  - Reactjs
  - Blogging website
  - Shopify
- Digital Marketing
- Branding
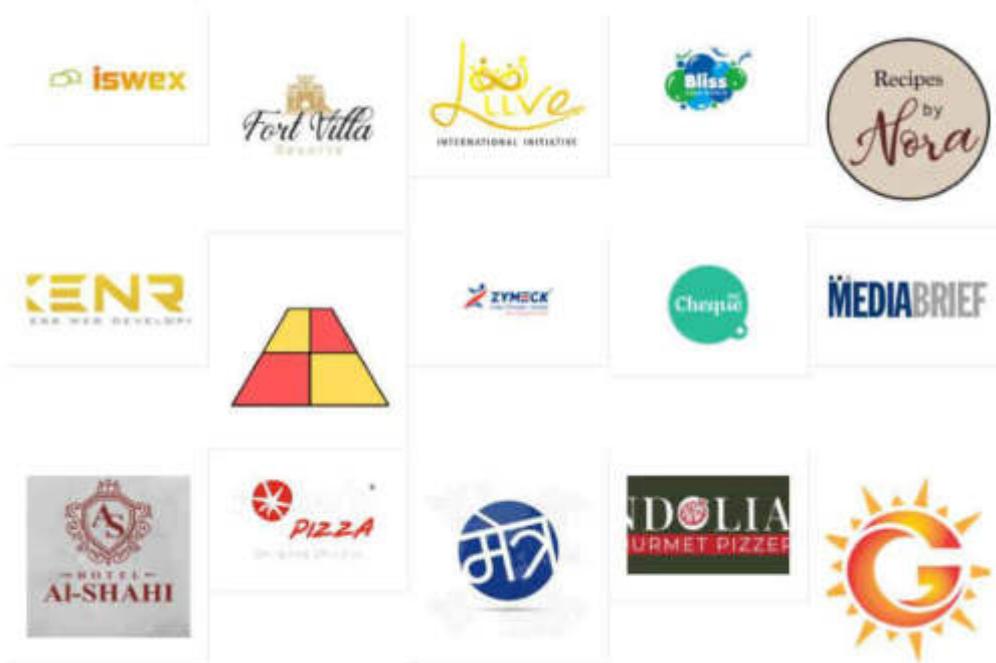- SEOs
- Social Media Engaging

1.3 COMPANY CLIENT

Fig 1.1 Company client

1.4 CAREERS

- Front-End Web Developer
- PHP Web Developer
- JavaScript Developer
- UX/UI Designer
- Wordpress

Chapter 2. INTRODUCTION TO PROJECT

2.1 PROJECT SUMMARY

This project involves the development of an e-commerce website using HTML, CSS, JavaScript, and React JS. The website is designed to offer a user-friendly and engaging online shopping experience for customers, while also providing an easy-to-use interface for manage products and orders. The website includes a range of features such as a product catalog, shopping cart, checkout process Etc.

2.2 PURPOSE

The Purpose of this project is to provide the user-friendly and engaging online shopping experience for customers, while also providing an easy-to-use interface for manage products and order and includes a range of features such as a product catalog, shopping cart, checkout process Etc.

2.3 OBJECTIVE

The main objective of the project was to develop a user-friendly and interactive website while also providing an easy-to-use interface for manage products and order and includes a range of features such as a product catalog, shopping cart, checkout process Etc.

2.4 SCOPE

The scope of the internship focused on learning the core concepts and best practices for front-end development, including markup, styling, layout, interactivity, and state management. The scope also included learning how to use tools such as vs code editors and libraries such as ReactJS , React Router.

2.5 TOOLS AND TECHNOLOGY

The project was developed using HTML, CSS, JavaScript, and ReactJS. These tools and technologies were selected based on their versatility, ease of use, and compatibility with

modern web development standards. The development team used various software tools and libraries, such as Visual Studio Code, Node.js, and React libraries, to facilitate the development process.

HTML

- HTML, or Hypertext Markup Language, is the foundation of any web page. It is used to create the structure and content of web pages, and provides the basic building blocks for creating a website.
- In a e-commerce website, HTML would be used to create the layout and structure of the pages, including the header, navigation, footer, and main content areas. It would also be used to create forms for capturing user information

CSS

- CSS, or Cascading Style Sheets, is used to add style and visual design to a website.
- In a e-commerce website, CSS would be used to create a consistent visual style for the website, including typography, color scheme, and layout.
- It would also be used to create responsive design, ensuring that the website is optimized for different screen sizes and devices.

JAVASCRIPT

- JavaScript is a programming language used to add interactivity and functionality to a website.
- In a e-commerce website, JavaScript would be used to create interactive features such as search etc. It would also be used to create form validation, ensuring that user input is accurate and complete.

REACTJS

- ReactJS is a JavaScript library used to create user interfaces.

- It provides a component-based architecture that enables developers to create reusable UI components that can be used across the website.
- In a e-commerce website, React.js would be used to create reusable components such as header, contact forms etc. It would also be used to create dynamic and interactive user interfaces

Overall, the combination of HTML, CSS, JavaScript, and React.js provides the necessary tools and technologies to create a visually appealing and functional e-commerce website that engages to the users.

Chapter 3. PLANNING AND DESIGN

3.1 PROJECT PLANNING AND MANAGEMENT

The first step in any software development project is planning and management. This stage involves defining the scope of the project, establishing goals, objectives and timelines, allocating resources and budget, and identifying potential risks and challenges. In the case of our frontend website development project for a e-commerce, we started by defining the scope of the project, which included creating a website that showcases the different product, shopping cart etc.

We also established the project's objectives, which included developing a responsive and user-friendly website that provides an excellent user experience for custom. We allocated resources and budget, including the tools and technologies required for the project, and established timelines for the various stages of the project. We also identified potential risks and challenges and developed contingency plans to mitigate them. The project management phase involves coordinating the efforts of all team members, tracking project progress, and ensuring that the project is completed on time and within budget.

3.2 USER INTERFACE DESIGN AND DEVELOPMENT

User interface design and development involve creating the website's front-end, which includes the layout, design, and functionality that users interact with. This stage involves coding the website using front-end technologies such as HTML, CSS, and JavaScript and ensuring that the website is responsive, scalable, and compatible with various devices and browsers.

In our e-commerce website development project, we used ReactJS, a popular JavaScript library, to create the website's user interface. We followed best practices such as using semantic HTML for better accessibility, organizing the CSS, and implementing responsive design using CSS media queries.

3.3 PLANNING OF FRONTEND E-COMMERCE WEBSITE

The e-commerce website dived into following part and according to make

- Navigation Bar
- Home Page
- Product Page
- Contact Page
- Registration and Login page
- AddtoCard Page

3.4 REQUIREMENT OF HARDWARE AND SOFTWARE

Operating System	Android, Windows,MacOS
Ram	1GB
Frontend	HTML, CSS, JavaScript, Reactjs
Tools	Visual Studio Code, Any Brower(Chrome, Brave, Microsoft Edge)

Chapter 4. SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

The previous e-commerce system relied heavily on older technologies like HTML and CGI scripts to build basic online stores; so today current e-commerce system uses more advanced technologies like HTML5, CSS3, JavaScript, and ReactJS. This has resulted in more sophisticated and user-friendly online stores that offer a better customer experience.

4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

The main problem with the previous e-commerce website was The technology available in the previous system was limited, resulting in slow and inefficient online stores. Websites were often built using HTML and CGI scripts, which made them difficult to navigate and less user-friendly.

4.3 REQUIREMENTS OF NEW SYSTEM

The new system needed to address the issues with the previous website and provide a better user experience. It needed to allow users to the new system should be built using advanced technologies such as HTML5, CSS3, JavaScript, and ReactJS. This will ensure a more sophisticated and user-friendly online store with faster loading times and seamless navigation. And also new system should have robust security measures in place to protect against hacking and fraud. This can include SSL encryption, two-factor authentication, and other security protocols to ensure customer data is protected.

4.4 FEATURES OF NEW SYSTEM

The new website features a range of functionalities to improve the user experience. These include:
- Modern design and responsive layout
- Integration with APIs to provide additional data
- Easy property find functionality

● Detailed information about each property, including location, nearby amenities, and property values

4.5 LIST OF MAIN COMPONENT

The main components of the new system include:
● Integration with APIs Property detail view
● User authentication and registration
● Product Catalog
● Shopping Cart
● Navigation Menu
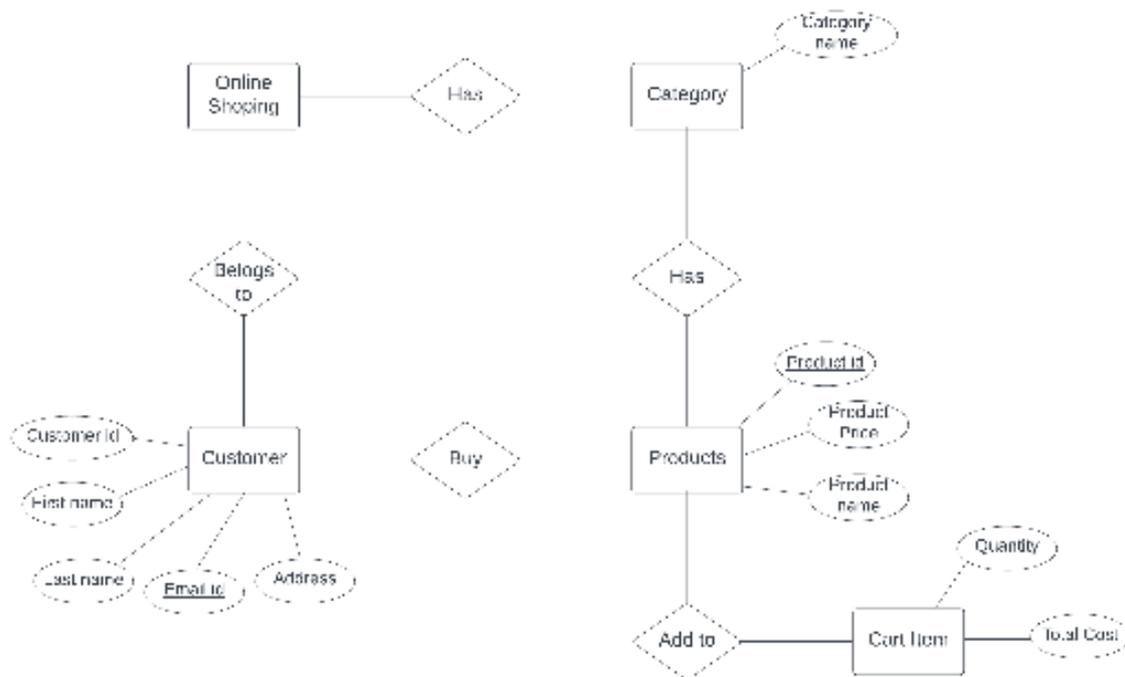● Search Bar
● Wishlist

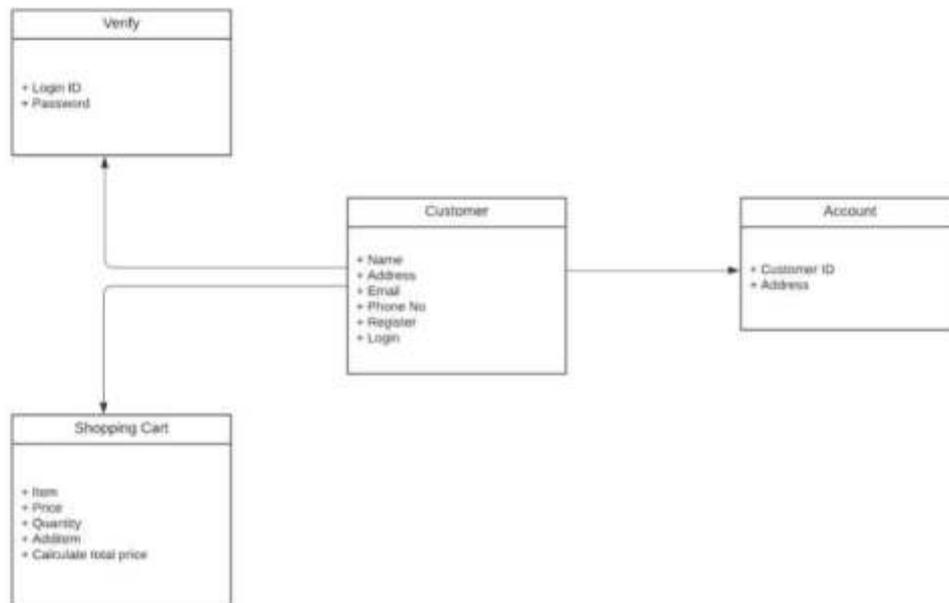## 4.6 ER DIAGRAM

Fig 4.1 ER Diagram

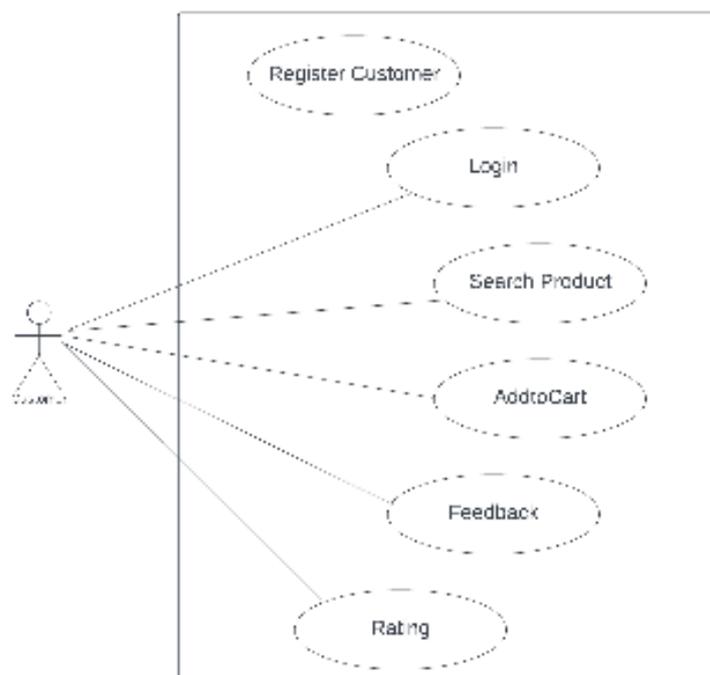## 4.7 CLASS DIAGRAM

Fig 4.2 Class Diagram

4.8 USE CASE DIAGRAM

Fig 4.3 Use Case Diagram

Chapter 5. FRONTEND DEVELOPMENT

5.1 HTML AND CSS MARKUP

5.1.1 Learning HTML Concepts

1.HTML Structure

The basic structure of an HTML document includes several essential elements that define the structure and content of a web page. The following is a brief explanation of each of these elements:

<!DOCTYPE html> : This declaration at the beginning of an HTML document informs the web browser which version of HTML the document is written in. This is required for the browser to properly render the HTML code.

<html>: The <html> element is the root element of an HTML document and contains all other elements. It has two parts: the opening tag (<html>) and the closing tag (</html>).

<head>: The <head> element contains metadata about the HTML document, such as the title of the web page, links to external stylesheets, and other information that does not appear on the web page itself.

<title>: The <title> element, located within the <head> element, specifies the title of the web page that appears in the browser's title bar.

<body>: The <body> element contains all of the content that appears on the web page, such as text, images, videos, and other HTML elements.

2.HTML Tags

HTML tags and elements are the building blocks of web pages. They define the structure and content of the web page and allow web developers to create different types of content.

Headings: Headings are used to create titles or headings for sections of a web page. There are six levels of headings in HTML, ranging from <h1> (the largest and most important heading) to <h6> (the smallest and least important heading).

Paragraphs: Paragraphs are used to separate blocks of text on a web page. The <p> element is used to create a paragraph.

Lists: Lists are used to organize content into an ordered or unordered list. There are two types of lists in HTML: ordered lists (<ol>) and unordered lists (<ul>). List items are created with the <li> element.

Links: Links are used to create clickable links to other web pages or resources. The <a> element is used to create a link, and the href attribute specifies the URL of the linked resource.

<img> tag: The <img> tag is used to insert images into an HTML document. It has only one required attribute, src, which specifies the URL or file path of the image.

HTML Forms:HTML forms allow website visitors to interact with a website by providing input through various form elements, such as text fields, radio buttons, checkboxes, and drop-down lists. The information submitted through the form can then be processed on the server-side by scripts written in languages such as PHP, Python, or JavaScript.

The basic structure of an HTML form includes the following elements:

<form> tag: This is the container tag that defines the start and end of the form.

Form elements: These are the input fields that allow the user to enter data. They include <input> tag,<textarea> tag,<button> tag,<label> tag etc.

5.1.2 Learning CSS Concepts

CSS, or Cascading Style Sheets, is a stylesheet language used for describing the presentation of HTML or XML documents. With CSS, web developers can control the layout, typography, color, and other visual aspects of web pages. By separating the presentation of a document from its content, CSS enables web designers to create more

flexible and maintainable web pages.CSS works by defining rules that apply styles to specific HTML elements or groups of elements. Each CSS rule consists of a selector and a declaration block. The selector specifies which HTML elements the rule applies to, and the declaration block contains one or more property-value pairs that define the styles to be applied.

1.Basic Syntax and Selectors In CSS

CSS rules are made up of a selector and a set of declarations. The selector identifies which HTML elements the rule applies to, and the declarations define the styles to be applied. Here is an example of a CSS rule that sets the font color of all paragraphs on a web page to red:

```
p {
  color: blue;
  }
```

There are several ways to write CSS. Here are some of the most common methods:

1. Inline CSS
2. Internal CSS
3. External CSS

There are several types of selectors in CSS, including:

Element selectors: Select HTML elements by their tag name, e.g. p, h1, ul.

Class selectors: Select HTML elements by their class attribute, e.g. .my-class.

ID selectors: Select HTML elements by their ID attribute, e.g. #my-id.

Attribute selectors: Select HTML elements by their attribute values, e.g. [type="text"].

2.Properties Used For Creating Layout

Creating layouts with CSS is an essential aspect of web development. CSS allows developers to define the layout and design of a website, including the placement of elements on the page.

One of the fundamental concepts in CSS layout is the box model. The box model describes how each HTML element is represented as a rectangular box that contains content, padding, borders, and margins.

CSS positioning is another critical aspect of CSS layout. It allows you to place HTML elements exactly where you want them on the page. CSS provides several positioning options, including static, relative, absolute, and fixed positioning.

Flexbox is a layout system that provides a powerful set of tools for creating flexible and responsive layouts. With Flexbox, developers can create complex layouts with ease by defining flexible containers that can adapt to different screen sizes and device types. Flexbox provides a powerful set of tools for aligning and distributing

CSS Grid is a layout system that allows web developers to create complex and responsive layouts with ease. CSS Grid provides a powerful set of tools for creating flexible and dynamic layouts that can adapt to different screen sizes and device types. Using CSS Grid, developers can define number of rows and columns it contains.

CSS animation is a technique that allows developers to add movement and visual interest to web pages using CSS.. CSS animation can be used to create a wide variety of effects, including transitions, transforms, and keyframe animations.

The z-index property is a CSS property that specifies the stacking order of elements on a web page. It determines how elements are stacked on top of each other, with higher z-index values indicating that an element should appear on top of other elements.

Responsive design is a design approach that allows web pages to adapt to different screen sizes, including desktops, laptops, tablets, and mobile devices. It is achieved using CSS media queries. Media queries allow developers to specify different CSS styles based on the device's screen size, resolution, and other features. This allows the same web page to display differently on different devices.

5.1.3 HTML And CSS Task

1.Developing The Flipkart Clone

A developing a Flipkart clone related to e-commerce website using HTML and CSS, it is important to ensure that the design is visually appealing and user-friendly. The website display relevant information about product in easy format and also this website create a responsive.
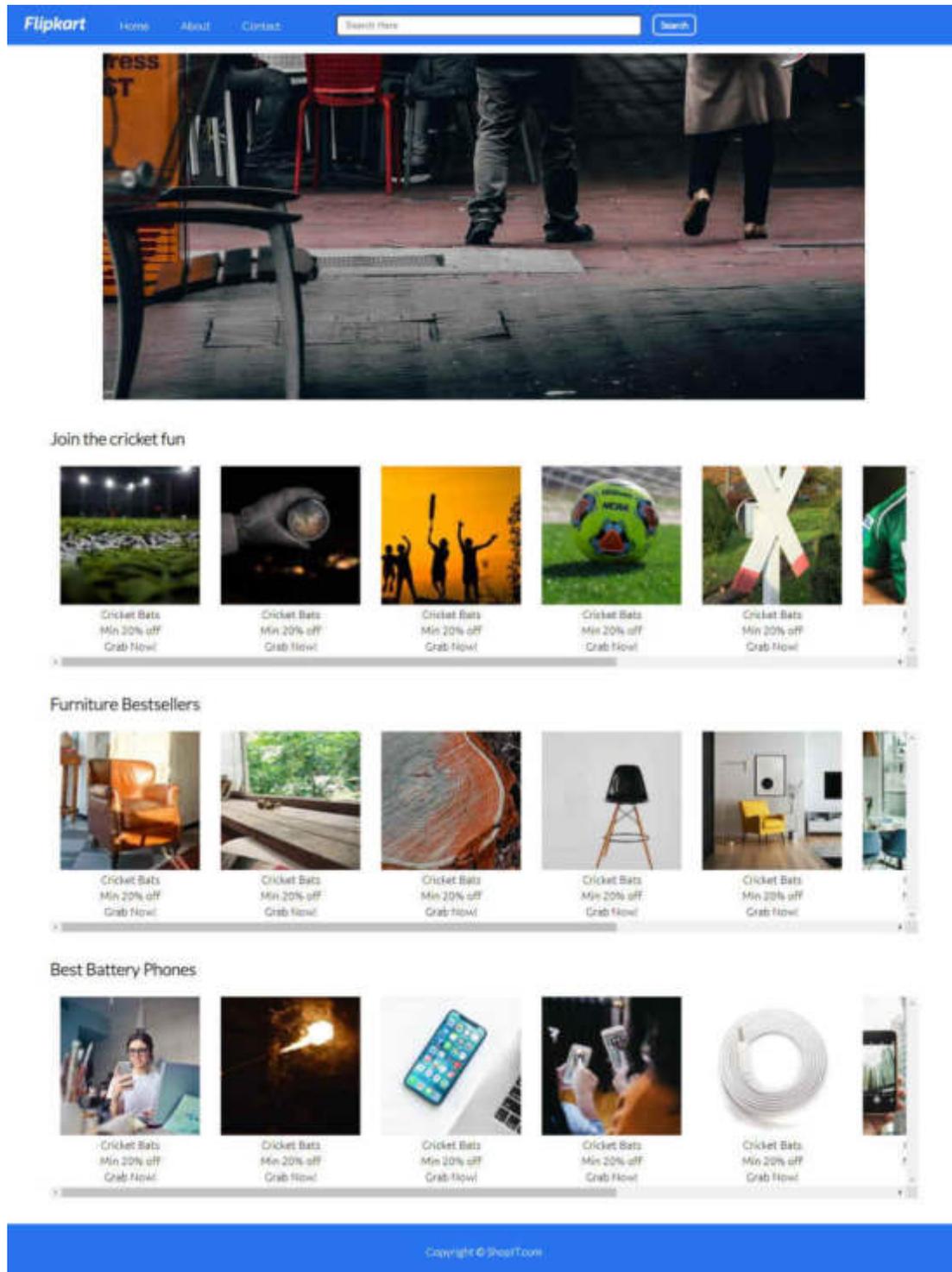

Fig 5.1 Product Preview E-commerce webpage Design

5.2 JAVASCRIPT PROGRAMMING AND ES6

5.2.1 Learning JavaScript And ES6 Concepts

1. JavaScript Concepts

JavaScript is a high-level, dynamic, and interpreted programming language that is widely used in web development. It was first created in 1995 by Brendan Eich while he was working at Netscape Communications Corporation.It is a key technology in web development and is used in conjunction with HTML and CSS to create rich, interactive, and responsive user experiences on the web.

Below show the learning topic of js :-

- Variables
- Data Types
- Functions
- Conditionals
- Loops
- Objects
- Popup Boxes
- DOM
- BOM
- QuerySelector
- Event Handling
- Asynchronous JS
- Promises
- Async/Await
- Callback Functions

2. ES6 Concepts

ES6, also known as ECMAScript 2015, is the sixth major release of the ECMAScript language specification, which is the standard for JavaScript. It introduced several new

features to the language, including arrow functions, template literals, and let and const variables etc.

Here's a brief summary of some of the ES6 features and how they can be useful in website development:

Let and const variables - ES6 introduced two new ways to declare variables: let and const. let allows you to declare variables with block scope, while const creates variables that cannot be reassigned. These new variable types help prevent common programming errors and make it easier to write maintainable code.

Arrow functions - Arrow functions provide a concise syntax for writing function expressions, and they also have a more predictable behavior for this keyword. Arrow functions make it easier to write and read code, especially when working with complex functional programming concepts.

Template literals - Template literals provide a more concise and expressive way to concatenate strings and embed expressions within them. They can also be used for multiline strings, which can be helpful when writing HTML or other markup.

Spread operator - The spread operator (...) allows you to expand arrays or objects into individual elements. It can be used for copying arrays or objects, concatenating arrays, and passing arguments to functions. It's a useful tool for simplifying and improving the readability of your code.

Ternary operator - The ternary operator (? :) is a shorthand way of writing an if-else statement. It can make code more concise and easier to read, especially when dealing with simple conditions.

Destructuring - Destructuring allows you to extract values from arrays or objects and assign them to variables in a more concise and readable way. It's useful for simplifying code that deals with complex data structures.

Map - Maps are key-value pairs that allow you to store and retrieve data based on a unique key. They're useful for storing and managing data in a more organized and efficient way, and they provide better performance than using objects for the same purpose.

Fetch - Fetch is a built-in JavaScript API for making HTTP requests, which is useful for retrieving data from a server and updating the content of a web page without reloading the entire page.

5.2.2 JavaScript Tasks

1. Developing The Random Color Generator

The task done using the Javascript random color generator involves creating a function that generates random colors. The function takes no input but returns a random color in hexadecimal format. The function makes use of the Math.random() function to generate random numbers between 0 and 1, which are then multiplied by 16^6 and rounded down to generate a 6-digit hexadecimal number. This hexadecimal number is then used to create a random color using the CSS rgb() function.

The random color generator can be used in a variety of web development tasks, such as dynamically changing the background color of a website, creating random color schemes for graphic design projects, and more. It is a simple and useful tool that can add a touch of visual interest and variety to any web project. The development of the random color generator using JavaScript involves various concepts that are essential in web development.

Fig 5.2 Random Color Generator

2. Developing The Calculator App

The task done using HTML, CSS, and JavaScript in the development of a calculator app involves creating a user interface that allows users to perform arithmetic operations such as addition, subtraction, multiplication, and division.

HTML is used to structure the layout of the calculator app, with each button and display element represented as an HTML element. CSS is used to style the calculator app, with colors, fonts, and spacing customized to improve the visual appeal of the interface.JavaScript is used to add interactivity to the calculator app. Event listeners are used to detect user clicks on the calculator buttons, and corresponding functions are executed to perform arithmetic operations and update the display value.

Fig 5.3 Calculator Interface

3. Developing The CountDown Timer

In this, a countdown timer can be developed using JavaScript to create a dynamic user interface that displays the remaining time in real-time. The timer can be triggered to start counting down from a set time, which can be specified by the user or hard coded into the code.The countdown timer can be styled using HTML and CSS to create a visually appealing and user-friendly interface. It can be customized to display the remaining time

in different formats, such as minutes and seconds or hours and minutes, and can include features such as sound effects, progress bars, or custom messages when the countdown reaches zero.

Fig 5.4 CountDown Timer

4. Developing The Custom Image Slider

A simple custom image slider with previous and next buttons is a user interface element that allows users to navigate a slideshow of images using a set of controls. It can be developed using JavaScript to create a dynamic and interactive user experience.In this a simple custom image slider with previous and next buttons can be created by utilizing HTML, CSS, and JavaScript to create a slider container, a set of slides, and navigation buttons to move between slides. The slider can be customized to display a set of images in a specific order and can be designed to respond to user interactions.

Fig 5.5 Custom Image Slider

5.3 REACTJS AND COMPONENT DEVELOPMENT

5.3.1 Learning ReactJS Concepts

1. ReactJS,Component And ReactJS File And Folder Structure

ReactJS is a popular JavaScript library for building user interfaces. It was developed by Facebook and has gained widespread adoption due to its ease of use, high performance, and ability to create reusable components.At its core, ReactJS is built around the concept of components. Components are reusable building blocks that can be used to create complex user interfaces. Each component represents a specific piece of functionality, and can be composed together to create more complex components.

ReactJS Component :
In ReactJS, components are the building blocks of your application's user interface.ReactJS components are a powerful tool for building complex user interfaces that are modular, reusable, and easy to maintain. By breaking down your application into smaller, independent components, you can build a more flexible and scalable codebase that is easier to work with over time.

There are two types of components in ReactJS: functional components and class components.

2. Props, State And Hooks In ReactJS

Props:
In ReactJS, props (short for "properties") are used to pass data from a parent component to a child component. Props are read-only, which means that a child component cannot modify the data it receives through props.

State:

In ReactJS, state is used to store data that can change over time, such as user input or the results of an API call. State is owned and managed by a single component, and can only be modified by that component or its children.Using state to manage dynamic data in your ReactJS application can help make it more interactive and responsive.

Hooks:

React Hooks are a powerful feature introduced in React 16.8 that allow you to use state and other React features without writing a class component. Hooks are functions that allow you to use state and other React features in functional components.
React provides several built-in hooks that are useState, useEffect, useContext

3. React Router

React Router is a popular third-party library for React that allows you to implement client-side routing in your application. Client-side routing allows you to navigate between different pages or views in your application without triggering a full page reload.

React Router provides several components that you can use to define your routes and handle navigation.That component are BrowserRouter component, Switch component, Route component, Link component, Redirect component

React Router enables client-side routing, which means that the routing is handled on the client-side rather than on the server-side. This makes for a smoother, faster user experience since the user doesn't need to wait for the server to reload the page for each new view.React Router allows you to create nested routes, which means that you can define multiple levels of views within a single application. This can be useful for creating complex applications with multiple views and user interactions.

5.3.2 ReactJS Tasks

1. Developing The ToDo List App

A Todo List is a common feature in many applications that allows users to create, track, and complete tasks. It can be developed using ReactJS, a popular JavaScript library for building user interfaces.A Todo List developed using ReactJS can be created by utilizing

components and state management features of React. The Todo List can include features such as adding new tasks, marking tasks as completed, and filtering tasks by their status. The design and functionality of the Todo List can be customized using CSS and other styling techniques.

The Todo List can be broken down into smaller, reusable components, such as a task input field component, a task list component, and a task item component. The task input field component can allow users to add new tasks to the list, while the task list component can display the current list of tasks. The task item component can display each individual task, allowing users to mark them as completed or delete them from the list.To manage the state of the Todo List, React's built-in state management features, such as useState and useEffect hooks, can be utilized. These hooks can store and update the list of tasks as the user interacts with the Todo List, ensuring that the interface remains up-to-date with the latest information.

Fig 5.6 Todo List App

2. Developing The Responsive Navbar Using React Router

A responsive navbar is an important component of any website that helps users navigate the site and access different pages or sections. It can be developed using React Router, a popular routing library for ReactJS that allows developers to create complex, multi-page applications with ease.To develop a responsive navbar using React Router, the first step is to define the routes and components that will make up the different pages of the application.

Each page can be defined as a separate component, which can then be rendered by the appropriate route using the <Route> and <Switch> components provided by React Router.

Once the routes and components have been defined, the next step is to create the navbar itself. The navbar can be created using HTML and CSS, with styling applied to ensure that it is responsive and adapts to different screen sizes and device types.To integrate the navbar with React Router, the <Link> component provided by React Router can be used to create links to different pages or routes within the application. These links can then be included in the navbar, allowing users to navigate to different pages or sections of the site with a single click.

Fig 5.7 Navbar For Desktop

Fig 5.8 Navbar For Mobile Device

3. Developing The Responsive Movie App Using API

A responsive movie app is a popular feature that allows users to search and discover information about movies.To develop a responsive movie app using ReactJS and MovieApi, the first step is to establish a connection to the API and fetch the data needed to populate the app. This can be done using HTTP requests and the fetch() function, which allows developers to retrieve data from external sources.

Once the data has been fetched, the next step is to create the user interface for the movie app. This can be done using ReactJS components, which can be customized and styled using CSS and other styling techniques. The app can include features such as search functionality, filtering by category or genre, and displaying information about each movie or TV show, including ratings, cast, and release dates.To ensure that the movie app is responsive and adapts to different screen sizes and device types, the app can be designed using responsive web design principles. This can include using media queries to adjust the layout and styling of the app based on the size and orientation of the device.

Fig 5.9 Movie App

4. Developing The Weather App Using API

A Weather app is a popular feature that allows users to search and discover information about weather information.To develop a responsive Weather app using ReactJS and Weather app, the first step is to establish a connection to the API and fetch the data needed to populate the app. This can be done using HTTP requests and the fetch() function, which allows developers to retrieve data from external sources.
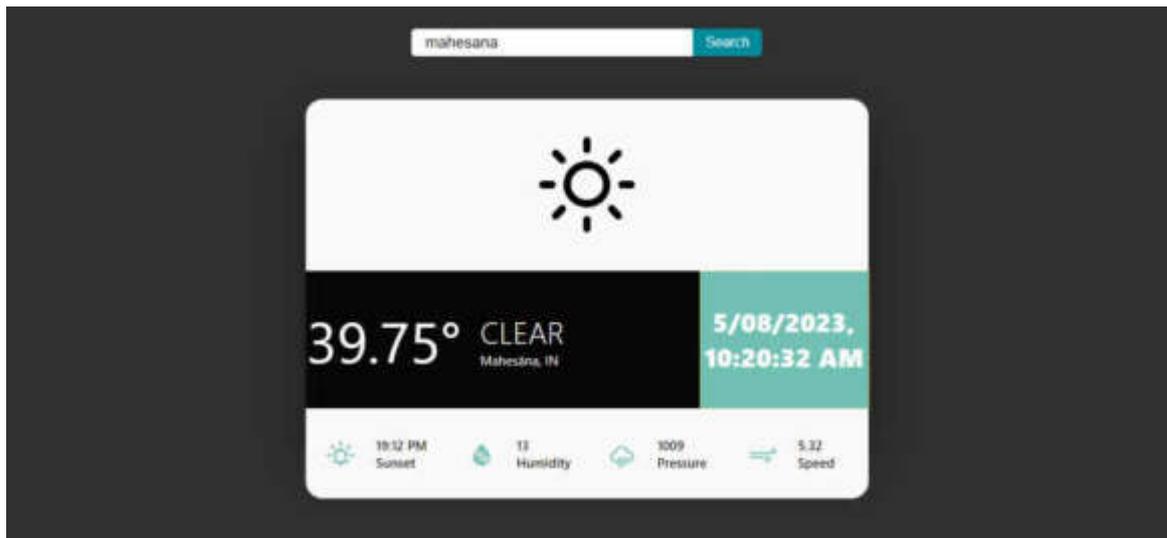
Fig 5.10 Weather App

Chapter 6. IMPLEMENTATION

6.1 IMPLEMENTATION ENVIRONMENT

- Operating System: The development can be done on Windows operating system.
- Code Editor: A code editor Visual Studio Code can be used for coding and development purposes.
- Web Browser: Modern web browsers like Google Chrome and Brave can be used for testing and previewing the website.

6.2 PROGRAM AND MODULES SPECIFICATION

The website can be developed using a combination of HTML, CSS, JavaScript, and ReactJS. HTML is used for creating the structure and content of the website, while CSS is used for styling and layout. JS is used for adding interactivity and dynamic functionality to the website, and ReactJS can be used for creating reusable UI components.

Some of the modules or components that can be included in the website are:

Home Page : The Home Page is the first page that a visitor sees when they visit the website. It should provide different product, Top Categories, New Arrivals etc.

Product : This page product different product categories like Fashion Deals, Electronic Deals, Toys Deals, Shoes and Cloths Deals, Health and Beauty Deals etc.

Contact Page: The Contact Page should include the firm's contact information, such as phone number, email address, and physical address. It may also include a contact form that visitors can use to get in touch with the firm.

Register and Login Page: The Register and Login Page is where users can create an account to access additional features, such as saving favorite properties or receiving email alerts when new properties become available. It should include a registration form and a login form, as well as links to reset passwords or retrieve lost usernames

AddtoCard Page : This page show the whatever added product of customer show that product in this page with total price

Fig 6.1 Home Page Of E-Commerce Website

Fig 6.2 Product Page Of E-Commerce Website
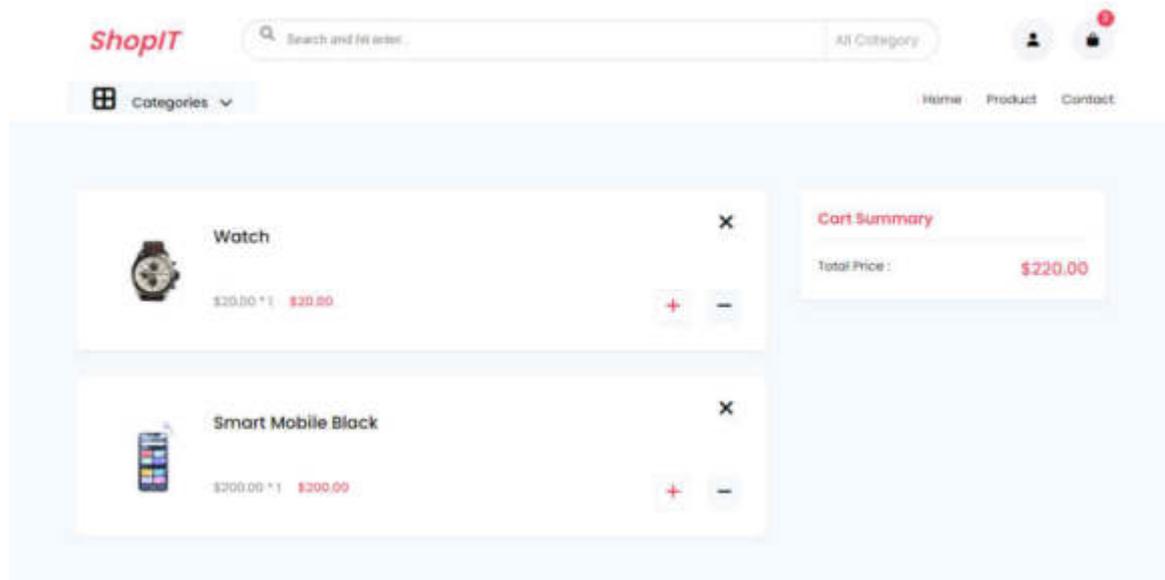
Fig 6.3 Contact Page Of E-Commerce Website

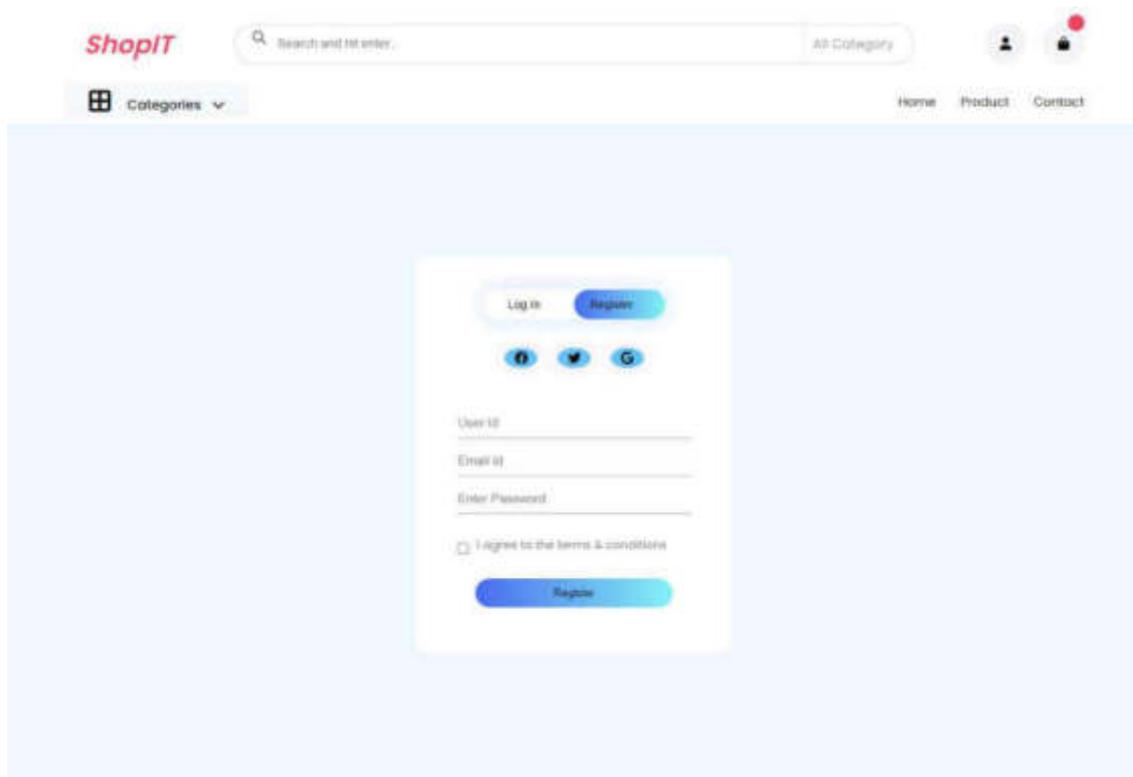Fig 6.4 AddtoCard Page Of E-Commerce Website

Fig 6.5 Register Page Of E-Commerce Website
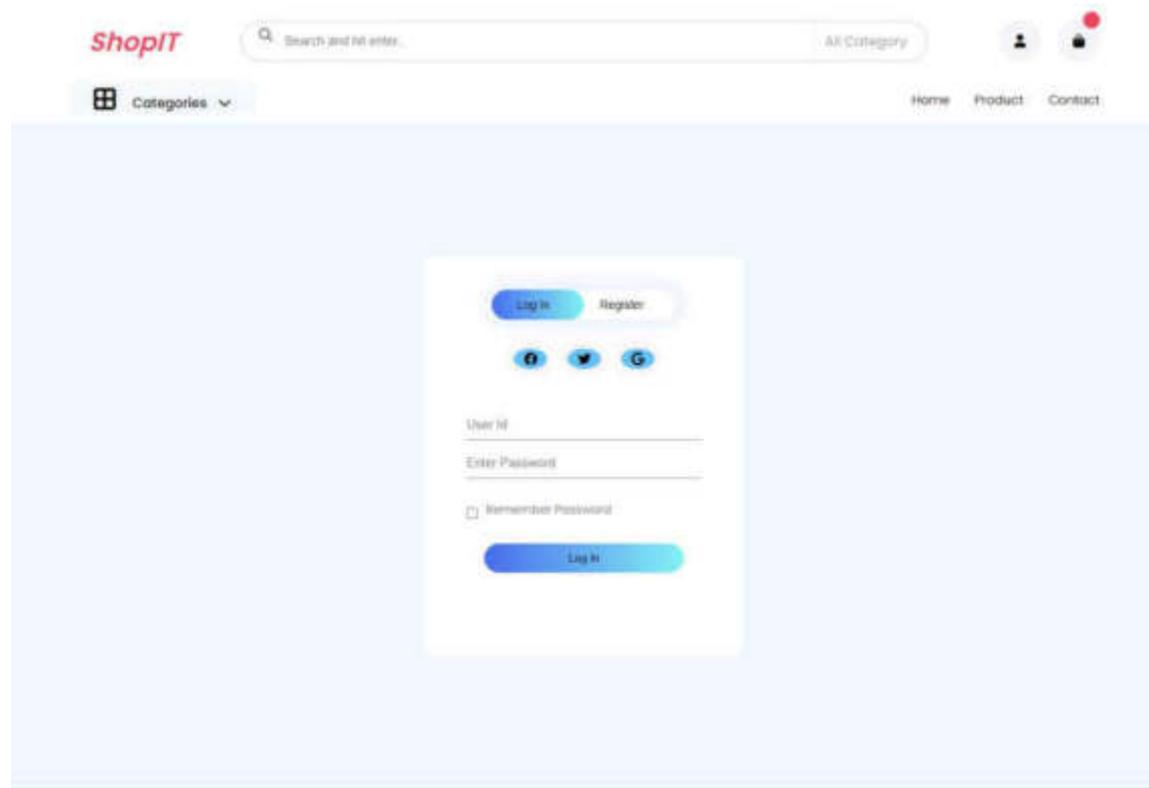
Fig 6.6 Log In Page Of E-Commerce Website

6.3 OUTCOMES

- Improved code organization: ReactJS allowed for the use of reusable components, which made it easier to organize and maintain the codebase.

- Improved user experience: By using ReactJS, the website was able to provide a better user experience by providing dynamic and responsive interfaces.

- Faster development time: The use of ReactJS and its associated libraries allowed for faster development time as compared to traditional frontend development approaches.

- Better performance: ReactJS's virtual DOM allowed for efficient updates and rendering, resulting in a faster and more responsive website.

- Cross-browser compatibility: The use of HTML, CSS, and JS allowed for the creation of a website that is compatible with all modern browsers.

- Modular and scalable architecture: The modular architecture of ReactJS allowed for easy scalability and maintenance of the website.

Chapter 7. TESTING

7.1 TESTING STRATEGY

The testing strategy for the frontend website development of the e-commerce using HTML, CSS, JavaScript, and ReactJS includes the following steps:

1. Unit Testing :- Testing individual components and modules for functionality and performance.

2. Integration Testing :- Testing the integration of different components and modules to ensure that they work together seamlessly.

3. User Acceptance Testing :- Testing the website's functionality from the user's perspective to ensure that it meets their requirements and expectations.

4. System Testing :- Testing the completed integrated system, as a whole to ensure it meets specified requirements. It check the system as a combination of modules.

5. Regression Testing: Testing the website after making changes or updates to ensure that the existing features are not affected.

6. Performance Testing: Testing the website's performance under different loads and conditions to ensure that it performs well under all circumstances.

7.2 TEST CASES

Test Case: 1
- Test Condition: Verify that the company logo and name are clearly visible.
- Expected Output: The company logo and name should be clearly visible.
- Actual Output: The company logo and name are clearly visible.
- Remark: Pass.

Test Case: 2

- Test Condition: Verify that the user is able to navigate all the different page in website.
- Expected Output: The user should able to navigate all the different page in website.
- Actual Output: The user is able to navigate all the different page in website.
- Remark: Pass.

Test Case: 3

- Test Condition: Verify that all the images – product and banner are clearly visible.
- Expected Output: Images – product and banner should be clearly visible.
- Actual Output: The images – product and banner are clearly visible
- Remark: Pass

Test Case: 4

- Test Condition: Verify that the user can add to the cart one or more products.
- Expected Output: The user should be add to the cart one or more products.
- Actual Output: The user can add to the cart one or more products.
- Remark: Pass

Test Case: 5

- Test Condition: Verify that the all add to cart product showing sum of total price is correct.
- Expected Output: The all add to cart product should be showing sum of total price is correct.
- Actual Output: The all add to cart product showing sum of total price is correct.
- Remark: Pass

Test Case: 6

- Test Condition: Verify if the Contact Us page contains a contact form.
- Expected Output: Contact Us page should contain a contact form.
- Actual Output: Contact Us page contains a contact form.
- Remark: Pass

Test Case: 7

- 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

Chapter 8. CONCLUSION

8.1 OVERALL ANALYSIS OF INTERNSHIP

The internship project aimed to develop a modern website for a e-commerce using HTML, CSS, JavaScript, and ReactJS. Through the implementation and testing stages, the project successfully achieved the desired outcome and met all of the client's requirements.

The front-end website development of the e-commerce using HTML, CSS, JavaScript, and ReactJS was a challenging yet fulfilling experience. The use of HTML, CSS, and JavaScript provided a solid foundation for building the website, while ReactJS allowed for more dynamic and efficient development. The team used HTML and CSS to develop the website's structure and style, and JavaScript and ReactJS were utilized to add interactive and dynamic elements to the website.

The website consists of a home page, product page, contact page, contact page, addtocard page, login page, and register page.

Overall, this project provided a great opportunity to apply the knowledge and skills gained during the internship. It also allowed for a deeper understanding of the importance of effective communication and collaboration in a team environment. The internship project provided valuable experience in website development using modern technologies and tools. The project also demonstrated the importance of communication and collaboration among team members to ensure the successful completion of the project.

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INTERNSHIP AT YUDIZ SOLUTIONS LIMITED

AN INTERNSHIP REPORT

Submitted by

Neel Ashwinbhai Patel

190390116024

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Techonology

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 Yudiz Solutions Limited** has been carried out by **Neel Ashwinbhai 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. Sushama Sainwar

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 : 11 May 2023 (12:05:49)

This is to certify that, *Patel Neel Ashwinbhai* (Enrolment Number - 190390116024) working on project entitled with *Internship At Yudiz Solutions Limited* from *Information Technology* 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 Neel Ashwinbhai   Name of Guide :   Miss. Sushma Sainwar

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

To whom so ever It May Concern

This is to certify that **Mr. Neel Patel** a student of **Saffrony Institute Of Technology** is working as a Trainee/Intern with our Company for the duration of six months starting from 1st February, 2023 to till date, as a **Web Development Trainee** and working on a project **"Choco-Shopping"**.

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, 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 **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Shushama Sainwar** & **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

1.   **Neel Ashwinbhai Patel**   _____

<u>ACKNOWLEDGMENT</u>

We would like to express our sincere gratitude to all those who contributed to the successful completion of this project.

First and foremost, we would like to thank our client for providing us with the opportunity to work on this project and trusting us to deliver a high-quality website.

We are also deeply grateful to our project supervisor, who provided us with guidance, feedback, and support throughout the project. Their expertise and insight were invaluable in helping us navigate the challenges we faced during the development process.

We would also like to thank our teammates for their hard work and dedication to this project. Their contributions were essential in ensuring the project was completed within the given time frame and to a high standard.

Finally, we would like to thank our families and friends for their unwavering support and encouragement throughout this project. Their understanding and patience were instrumental in helping us balance our personal and professional responsibilities.

We are grateful for the opportunity to have worked on this project and for the support of all those who helped make it a success.

<u>ABSTRACT</u>

*This report contains the work done by the author during his internship at **Yudiz Solutions Limited**. It shows the work I did in the company during my internship period. The project described in this report is a comprehensive exploration of WordPress development, covering everything from basic concepts to advanced techniques. The project team gained hands-on experience in developing custom themes and plugins, optimizing website performance, and troubleshooting issues that arise during the development process. The project also provided opportunities to develop important soft skills like communication, time management, and teamwork. The team successfully completed the project within the given time frame, delivering a high-quality website to the client. The project was a valuable learning experience, providing the team with a solid foundation in WordPress development and important skills that can be applied in future projects. This report provides an overview of the project objectives, methodology, results, and lessons learned.*

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CHAPTER 1. COMPANY BACKGROUND

1.1 COMPANY PROFILE:

Yudiz Solution is a private limited service-based company established in August 2009 and situated in Ahmedabad Gujarat.

The company offers development services such as Website, Game Development, User Interface, User design, Blockchain, App Development, augmented reality, virtual reality, content management systems, artificial intelligence, search engine optimization, Cloud-based service, and many more.

Yudiz solution has different branches in different countries other than India. Yudiz's employee size is approximately more than 300+ and still motivated to increase its company size and also looking forward to completing any task smartly and programmatically.

Almost, 80% of clients are repeated and always satisfied with the work delivered by Yudiz employees.

1.2 MISSION AND VISION OF THE COMPANY:

Yudiz believes in creativity and doesn't miss any chances in terms of opportunity. And the work culture is very much supportive so that every new employee gets settled down in the company very easily and comfortably. The company is seeking towards helping prospects so that everybody gets a chance to showcase their talents in the company and carry it towards their performance prospect.

Yudiz Solutions is recognized as an eminent company in the software industry that offers the best in class digital solutions and impressive services that stand out globally. The company has many campaigns such as sports leagues, Donating campaigns, traveling campaigns, fitness campaigns, health campaigns, and many more.

We live every moment delightfully and enjoy every prospect very satisfied and make every moment memorable. Yudiz defines itself as a family and everybody is a family in this work culture and tries to help each other at their best and learn new things whenever and wherever possible.

CHAPTER 2. INTODUCTION

2.1 PROJECT INTRODUCTION

This project is a web-based shopping system for an existing shop. The project objective is to deliver the online shopping application into a web application platform. Online shopping is the process whereby consumers directly buy goods or services from a seller in real-time, without an intermediary service, over the Internet. It is a form of electronic commerce. This project is an attempt to provide the advantages of online shopping to customers of a real shop. It helps to buy the products in the shop anywhere through the internet by using any portable devices. Thus the customer will get the service of online shopping and home delivery from his favorite shop.

2.2 PROJECT SUMMARY

The objective of the project is to make a web application on the WordPress platform to purchase chocolates from the existing factory. To build such a web application complete web support need to be provided. A complete and efficient web application that can provide an online shopping experience is the basic objective of the project. The web application can be implemented in the form of a website and can be further converted to an application using web view functionality.

The project's best practice is to sell chocolates based on requirements from different origins of the world the project requirement is to make the user much more efficient and helps to reach products to be sold in the terms of bulk way and also in the terms of single chocolate at a time so that users can get a choice whether to buy single or in a bulk with some additional features in the specific.

2.3 PROJECT PURPOSE

The central concept of the application is to allow the customer to shop virtually using the Internet and allow customers to buy specific chocolate and candy of their desire from the store.

The information about the products is stored on an RDBMS at the server side (store). The Server process the customers and the items are shipped to the address submitted by them.

The website was designed into two modules first is for the customers who wish to buy the products. The second is for the storekeepers who maintain and update the information about the products and those of the customers.

The end-user of this product is a departmental store where the application is hosted on the web and the administrator maintains the database. In the application which is deployed at the customer database, the details of the items are brought forward from the

database for the customer view based on the selection through the menu and the database of all the products are updated at the end of each transaction.

Data entry into the application can be done through various screens designed for various levels of users. Once the authorized personnel feed the relevant data into the system, several reports could be generated as per the security.

2.4 PROJECT SCOPE

E-Commerce has bloomed over the years and is one of the fastest-growing domains in the online world. Though it took some time for this to be accepted by end-users today we are at a point where the majority of people love to shop online.

The scope of the project is optimistic because If the client wants to upgrade with additional functionality like making more products and country-oriented then market capitalization can increase based on that and can gain more profits and it's flexible with browser oriented means if the domain needs to get shifted than easily can be done based on requirements.

CHAPTER 3. PROJECT MANAGEMENT

3.1   PROJECT PLANNING AND SCHEDULING

3.1.1 Project Development Approach

The project development approach from our end is the SCRUM approach in which our team focuses on combining their knowledge and efforts to build and deliver high-quality ready for use projects

It starts by discussing the main objectives and main requirements of the client. The SCRUM approach uses sprints and each sprint creates a ready-to-use product that is later improved in the next sprints. Short meetings are conducted daily to review the progress, discuss the problems, and plan the tasks for the day. Since a lot of attention is paid to teamwork, it becomes important that every team member has adequate experience and is ready to quickly respond to challenges.

3.1.2 Project Plan

- The project plan goes like the following:
- Competitor Analysis
- Clear Tracking Goals with Grippling Metrics
- Laying Out a Workflow Process
- Tracking Time
- Cost Management
- Continuous Iterating and Testing

3.2   RISK MANAGEMENT

3.2.1 Risk Identification

- Data Privacy and Online Security Risks
  - Unauthorized Access
  - Exploitation of Vulnerabilities
  - Human Error
  - Platform Downtime
  - Bad CSV Files
- Non-Compliance
  - Incompatible Software and Plugins
- Poor CX
- Loss of premises Due to Disaster

3.2.2 Risk Analysis

The major risk analysis which we identified as user and admin prospects are as follows:

- The first is with popular places which get to be known where users are interested. So, to check that there should be no broken backlinks that can affect this kind of cases majority.

- Secondly is browsing kind of issue like small cases which won't be there if user checkout and during payment gateway and login pop-up just like that.

- The buyer journey throughout the web application is one of the crucial points.

- Buyer personas are to be also kept in mind for our project

- Privacy and security are also a major concern

- The browser and mobile compatibility also need to be a major concern.

- Sales and promotion are to be kept in mind from the revenue point of view of the client.

3.2.3 Risk Planning

- Implement protocols like two-factor authentication (2FA) to add an extra layer of accountability.

- Enforce password updates across your network to mitigate unauthorized access.

- Remove and uninstall incompatible plugins and themes immediately. Enable firewalls and virus protection—but don't rely 100% on your device settings. Look into more comprehensive solutions based on your data protection needs.

- Deploy a backup and recovery solution like Rewind.

- Use software plugins and add-ons from reputable vendors. Do your research before you deploy. Update and audit regularly to ensure there are no issues.

- The idea is to make it as easy as possible for your customers to do business with you. Good CX translates to loyalty, which means more sales. And that's always the bottom line.

- Design and implement a disaster recovery plan (DRP) that covers every possible scenario.

CHAPTER-4 SYSTEM REQUIREMENT STUDY

4.1   User Characteristics

- Any user can easily use this application by just surfing the internet because there is no special requirement.
- It's a kind of application that provides a facility to buy different products and gets products without additional requirements.

4.2   Hardware and Software Requirements

- **Minimum Hardware Requirements:**
  - CPU: for web 1,6 GHz, for web and database 4 x 1,6 GHz CPU.
  - RAM: 4GB.
  - Minimum database space: 10GB.
  - CPU: Quad 2GHz+ CPU.
  - RAM: 6GB.
  - Minimum database space: 10GB

- **Minimum Software Requirements:**
  - HTML, CSS, jQuery & JavaScript
  - PHP 7.3 or greater
  - MySQL
  - Figma
  - API's
  - WordPress 5.3.2 or greater
  - WooCommerce
  - Networking Protocols.
  - VS Code / Sublime Text Editor

4.3   Constraints

- No Community Support.
- Website Becomes slower when web traffic is high.

CHAPTER-5 SYSTEM ANALYSIS

The process of gathering information, diagnosing the problems, then interpreting facts is known as System analysis. It also includes recommending system improvements needed, based on the same data. The system is observed as a whole, the inputs need to be identified first before running them and then the system is subjected to study as a whole to identify the problem areas.

Although tunning any system as a whole is a complex procedure, tunning individual statements is not the best as something correct for one input may hurt another input's performance. The solutions are given as a proposal. The suggestion is revised on user request and optimal changes are made. This loop terminates as soon as the user is gratified with the proposal.

So, on the whole, system analysis is done to improve the system performance by monitoring it and obtaining the best throughput possible from it. Therefore, system analysis plays a crucial role in designing any system.

5.1   Study of the current system

The present scenario for shopping is to visit the shops and market manually and then from the available product list one needs to choose the item he or she wants and then pay for the same item mainly in cash mode is done, as not every society is well educated and aware to use net banking or card modes or wallets etc.

5.2   Problems and weaknesses of the current system

This system is not much user-friendly as one need to go to the market physically and then select items only from the available list. So mostly it is difficult to get the product as per our desire. Descriptions about the products are less available and are mostly verbal only. For this type of shopping, one needs to have an ample amount of free time.

Also, not good markets exist everywhere, so many times good markets become out of reach for certain people. In the proposed system customers need not go to the shops for purchasing the products. He/she can order the product he/she wishes to buy through the use of this system. The shop owner can be the admin of the system.

The shop owner can appoint officials particularly to handle this, who will help the owner in managing the customers and product orders. The system also endorses a home delivery system for delivering the purchased products.

5.3   Requirements of the new system

- Enhanced Shopping Cart.
- Flexible Return Policy.
- Mobile-Friendly Website.
- Highly Customizable Themes.
- Content management system.
- Email Marketing tools.
- Social media integration.
- Third-party shipment integration.

5.4   Functions of the system

- Content management capabilities
- Promotion & discount code tools
- An easy-to-use checkout
- SEO friendly code and layout
- Advanced eCommerce SEO capabilities
- Reporting tools & custom report features
- An integrated blog or articles section
- Email marketing features or integration
- Multiple payment options (Credit card, PayPal, Stripe, PO, Terms, etc.)
- The ability to scale & add new eCommerce features.
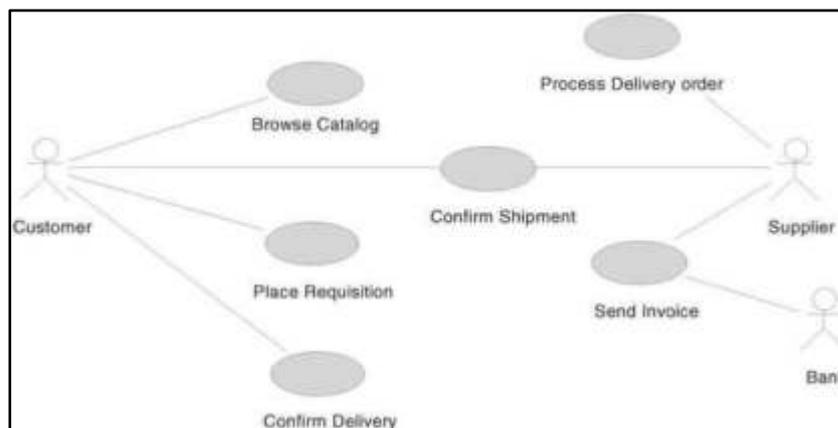
5.4.1   Use Cases Of system

Fig. 5.1   Use Case diagram

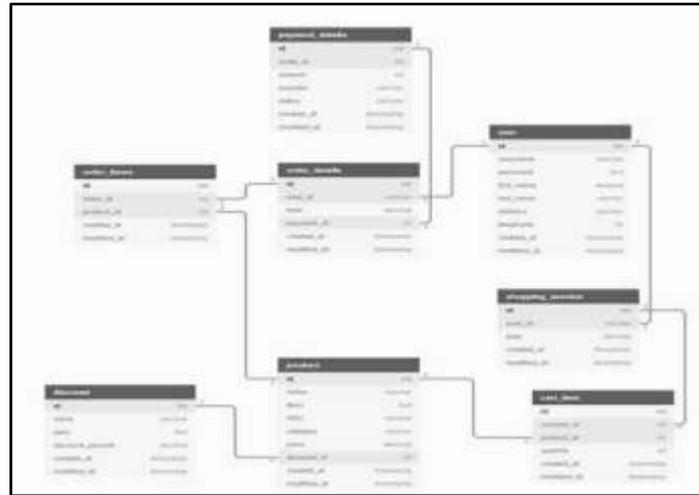## 5.5 Data Modeling

5.5.1 Data Dictionary

Fig. 5.2   Data Dictionary

5.5.2 E-R Diagrams
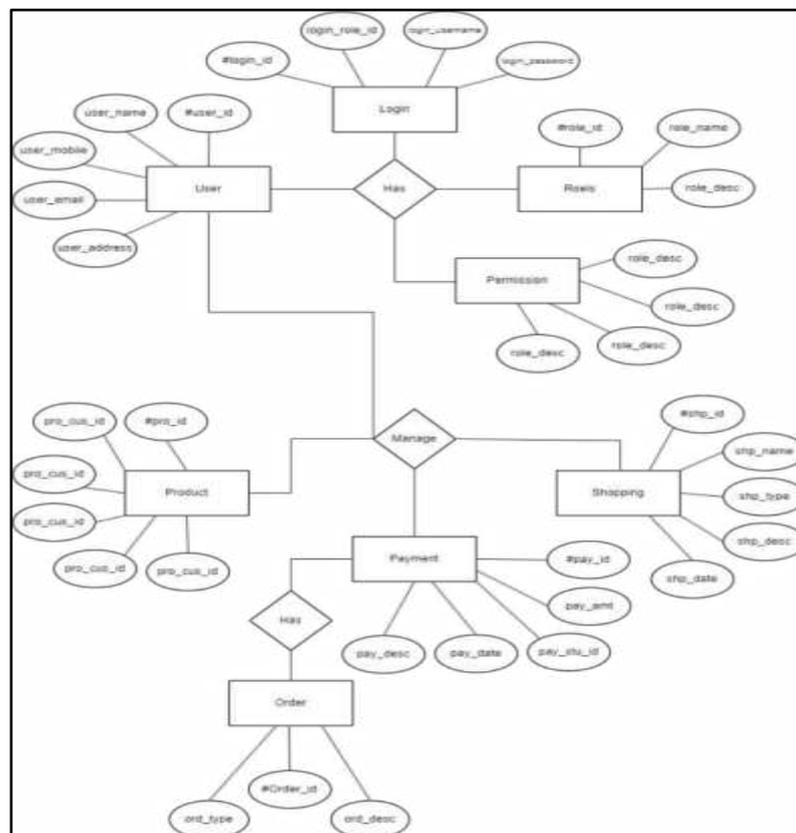

Fig. 5.3   E-R Diagram

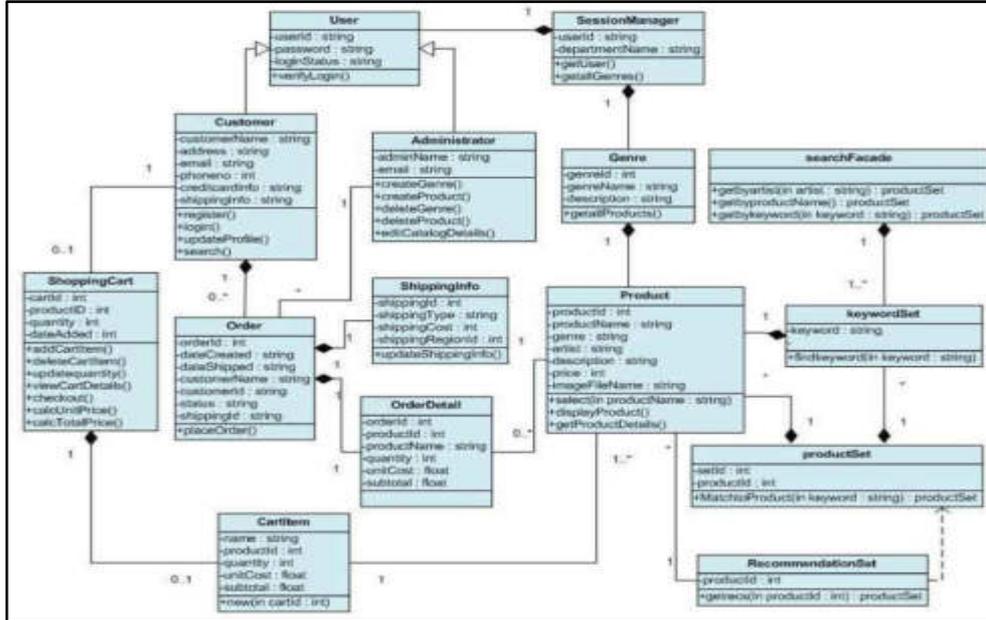### 5.5.3 Class Diagram

Fig. 5.4   Class Diagram

5.5.4 System Activity
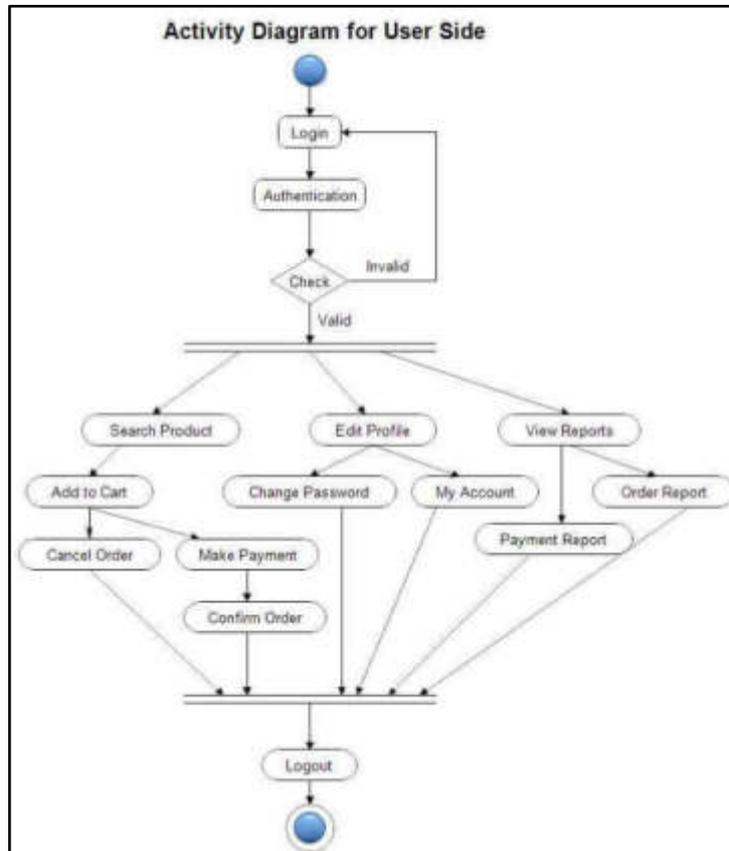

Fig. 5.5   System Activity Diagram

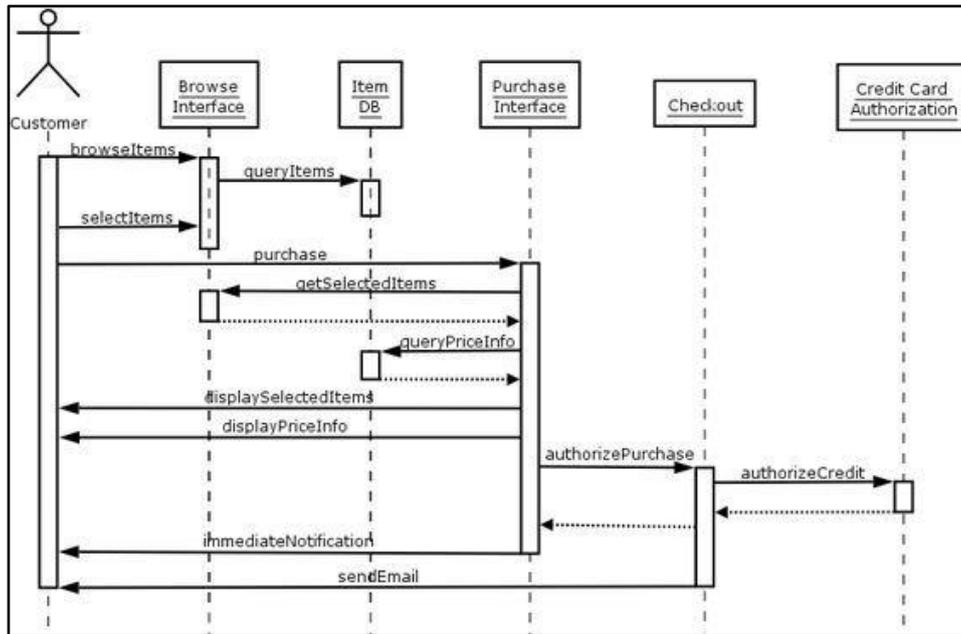### 5.5.5   Object Interaction Diagram

Fig. 5.6   Object Interaction Diagram

5.6 Functional and behavioral Modeling

5.6.1 Data Flow Diagram
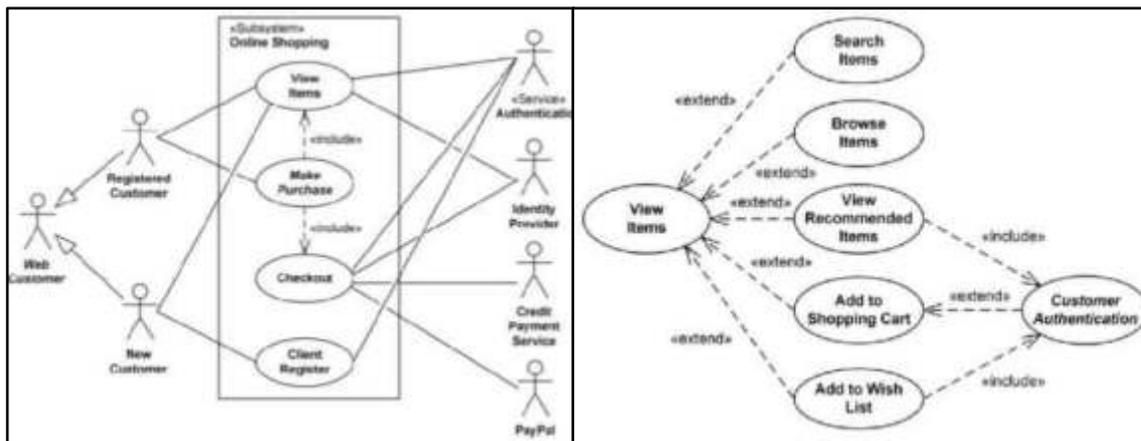
Fig. 5.7.1   Data Flow Diagram
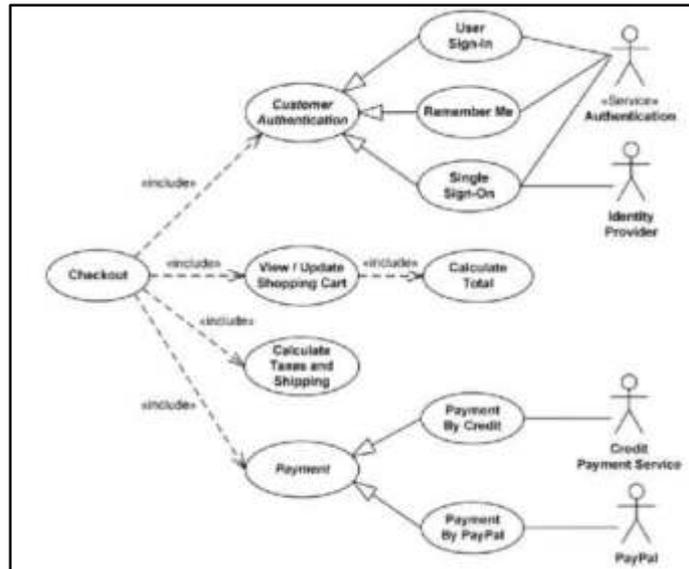
Fig. 5.7.2   Data Flow Diagram

5.7 Main Module of New System

The main module of the new system has many new features like automated discount generation via the help of the admin back-end side.

The main feature is that the user can buy a single product from the distributed product list and categorize it as per his need and can sum it up by that particular product.

The system gets much faster and SEO friendly as per the user's point of view it's been very attractive from the user's end.

CHAPTER-6 ARCHITECHTURE

6.1 System Architecture

Fig. 6.1.1   System Architecture

Fig. 6.1.2   Framework Architecture

CHAPTER-7 ENVIRONMENT

7.1   Implementation Environment

The complete website is being created in WordPress CMS which helps the user to create their customization without a single amount of coding.

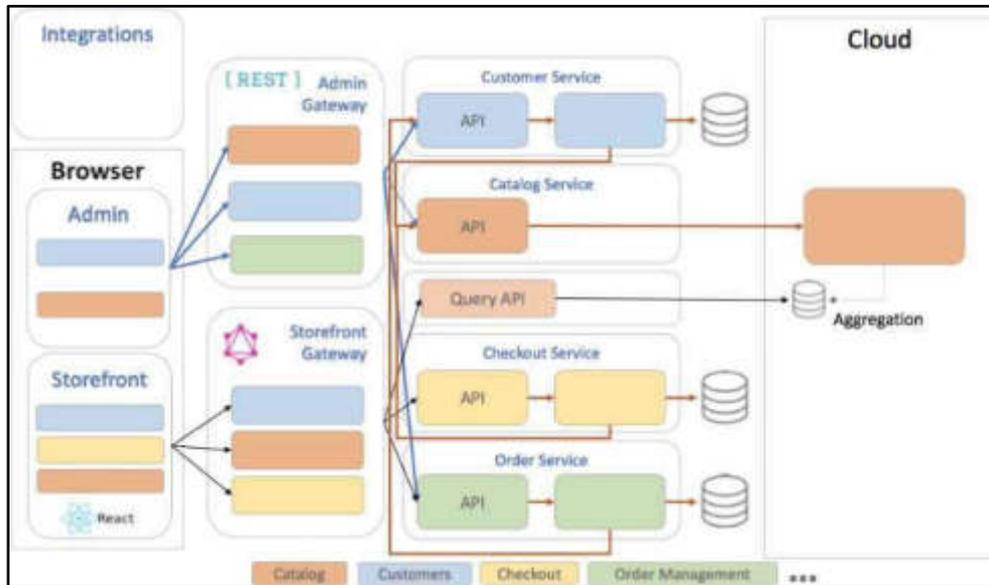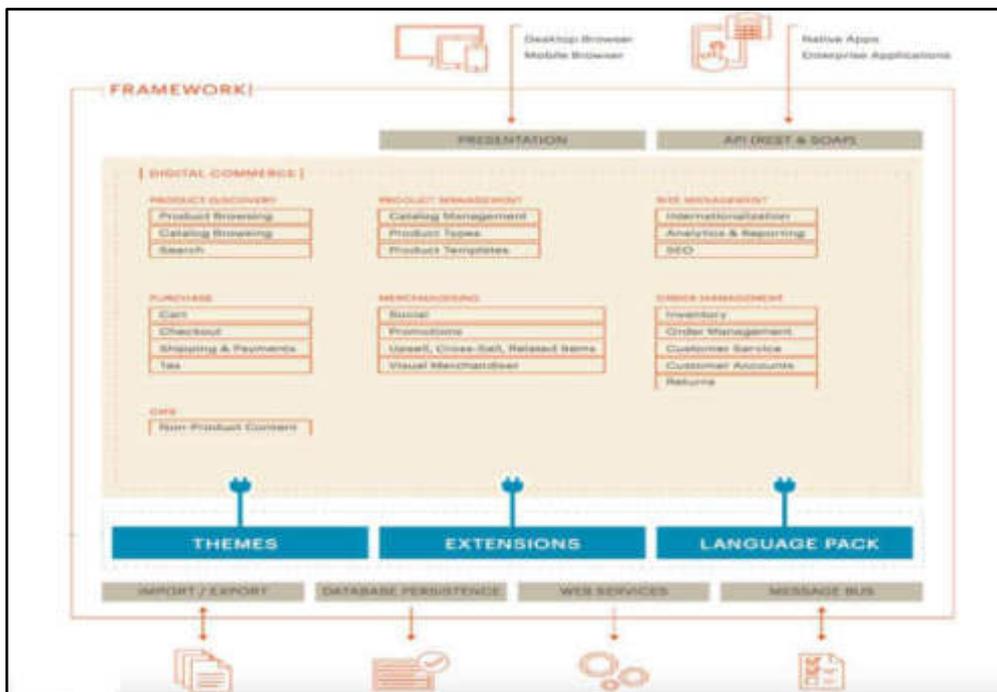It's easier to do user customization as much as they need as beautiful they can create with their functionality within its GUI.

7.2   Program/Modules Specification

The module contains many files but the main usage is of plugin section theme section and many more these help the user to make customization in frontend and developers to do backend custom hierarchy as per requirement.

7.3   Coding Standards and Sample Coding

7.3.1 PHP Coding Standards in wordpress:

LINK BREAKS

```
$my_value = 'Me';
$your_value = 'You';
$their_value = 'Them';

if ( $my_value == 'You' ) {
        echo  'It seems like you are mixed up with me';
}
```

INDENTATION

```
$arguments = array(
    'mythoughts' => array(
            'guitars' => 'I love guitars',
            'applepie' => 'Apple Pie is awesome'
            ),
    'yourthoughts' => array(
            'guitars' => 'Meh',
            'applepie' => 'Love it!'
            )
);

if ( have_posts() ) {
    while ( have_posts() ) {
            get_template_part( 'template', 'blogpost' );
    }
}
```

SPACE USAGE

```php
$number = (integer) $_GET['number'];

if ( $number === 4 ) {
        echo 'You asked for a four!';
}
```

BRACES

```php
// The usual style

        if ( have_posts() ) {
                the_post();
                the_content();
        } else {
                echo 'Steal ALL the posts!';
        }
```

```php
// Leaving out braces, in this case, is allowed.

        if ( ! has_post_thumbnail() )
                echo 'This post does not have a featured image';
```

```php
// But putting them in looks nicer and is more consistent.

        if ( has_post_thumbnail() ) {
                the_post_thumbnail();
        }
```

NAMING CONVENTIONS

```php
$event = new My_Event();
$event->save_event_to_file( 'event-file.txt', 'noformatting' );
```

7.3.2 Javascript Coding Standards in WordPress:

```javascript
class Earth {
        static addHuman( human ) {
                Earth.humans.push( human );
        }

        static getHumans() {
                return Earth.humans;
        }
}

Earth.humans = [];
```

7.3.3 HTML Coding Standards in WordPress:

```html
<div class='<?php post_class() ?>'>
        <h1> <?php the_title() ?> </h1>
        <?php if ( has_post_thumbnail() ) : ?>
        <strong>Featured Image</strong>
        <?php the_post_thumbnail() ?>
        <?php endif ?>
</div>
```

7.3.4 CSS Coding Standards in WordPress:

```css
#comment-form {
        margin: 1em 0;
}

input[type="text"] {
        line-height: 1.1;
}
```

7.3.4 SQL Coding Standards in WordPress:

```
$simple_query = "SELECT * FROM $wpdb->posts WHERE comment_count > 3
LIMIT 0, 10";

$complex_query = "SELECT * FROM $wpdb->posts WHERE
post_status = publish AND comment_count > 5 AND post_type = 'post' AND
ID IN ( SELECT object_id FROM $wpdb->term_relationships WHERE
term_taxonomy_id = 4 )";
```

CHAPTER-8 TESTING

8.1   TEST PLAN

THE TESTING PROCESS

Developer tests the software process activity such as design, implementation, and requirement engineering. Because, design errors are very costly to repair when the system has been started to operate. Therefore, it is quite obvious to repair them at an early stage of the system. So, analysis is the most important process of any project.

REQUIREMENTS TRACTABILITY

As the most interesting portion is whether the system is meeting its requirements or not, that testing should be planned so that all requirements are individually tested. Develop checked the output of certain combinations of input, which gives desirable results, or not. Strictly stick to our requirements specifications, give you the path to get desirable results from the system.

8.2   TESTING STRATEGY

A test strategy is an outline that describes the testing approach of the software development cycle. It is created to inform project managers, testers, and developers about some key issues of the testing process.

This includes the testing objective, methods of testing new functions, total time and resources required for the project, and the testing environment.

Test strategies describe how the product risks of the stakeholders are mitigated at the test level, which types of tests are to be performed, and which entry and exit criteria apply.

They are created based on development design documents. System design documents are primarily used and occasionally, conceptual design documents may be referred to.

Design documents describe the functionality of the software to be enabled in the upcoming release. For every stage of development design, a corresponding test strategy should be created to test the new feature sets.

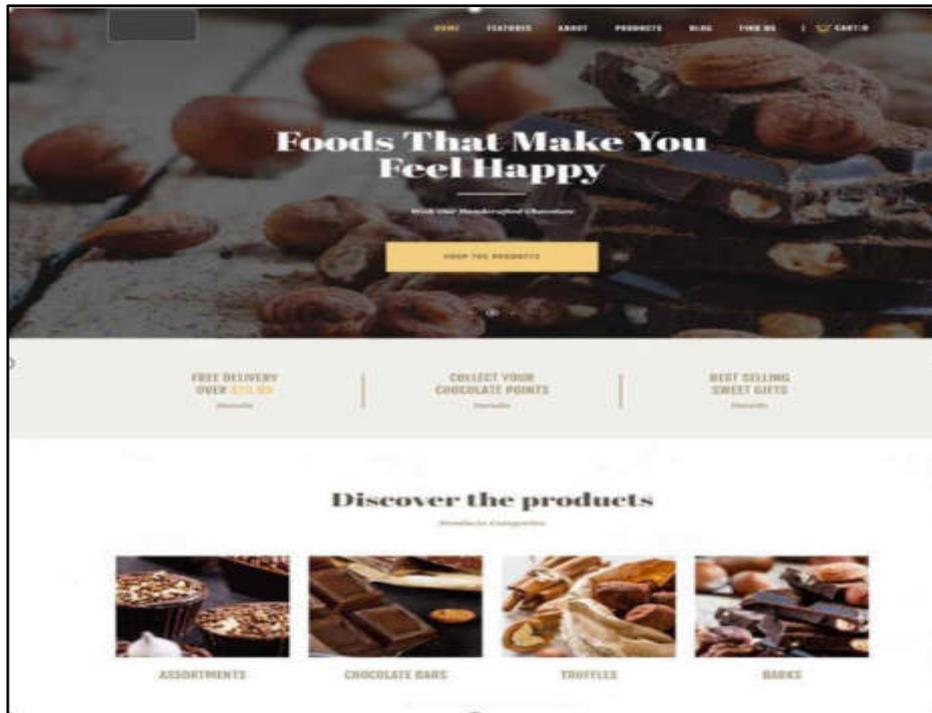# CHAPTER-9 IMPLEMENTATION

Screenshots
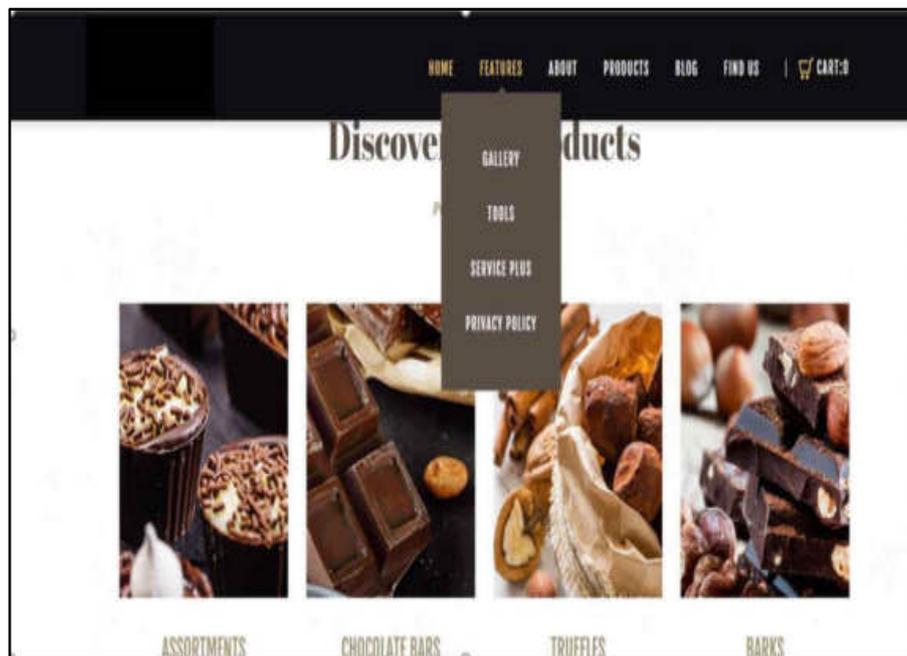

Fig. 9.1   Home Screen
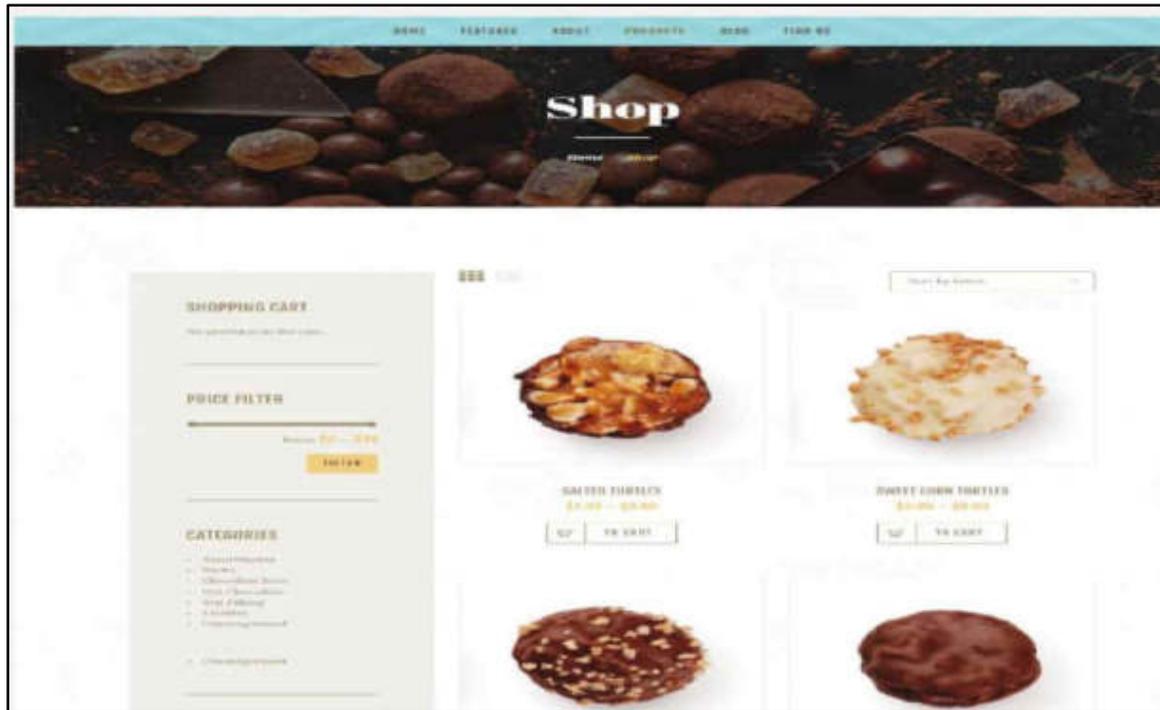

Fig. 9.2   Store Screen

Fig. 9.3   Shop Screen
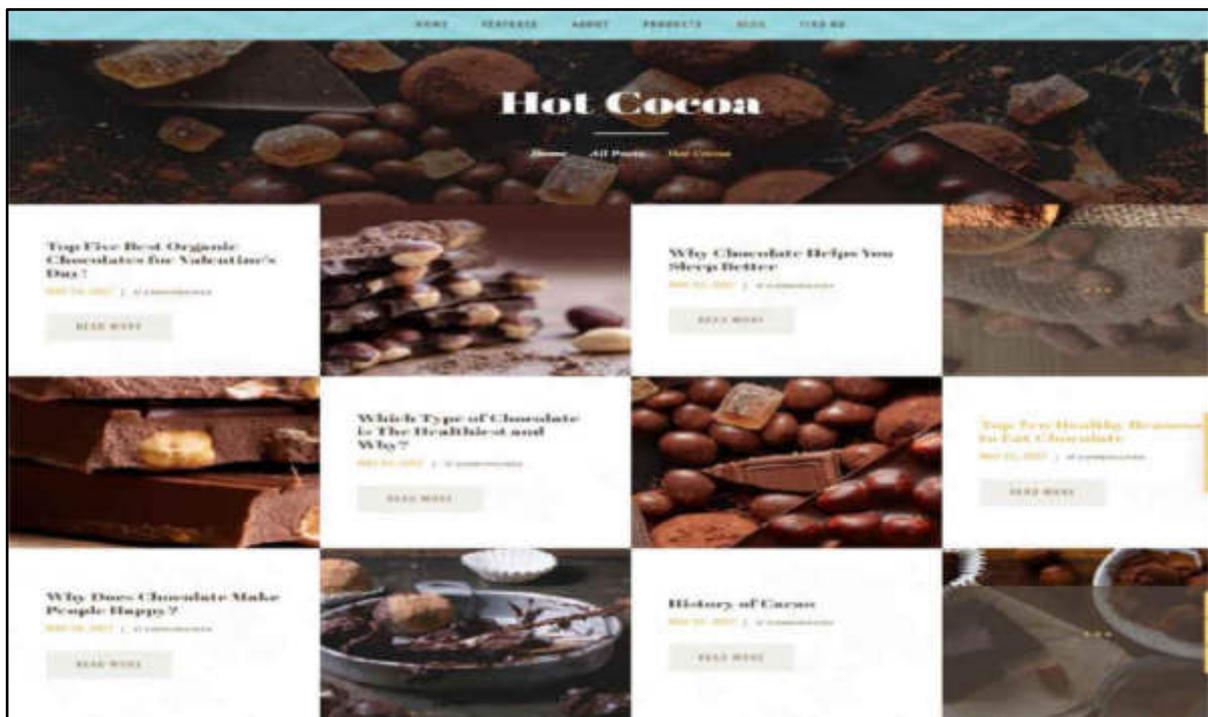
Fig. 9.4   Blog Screen
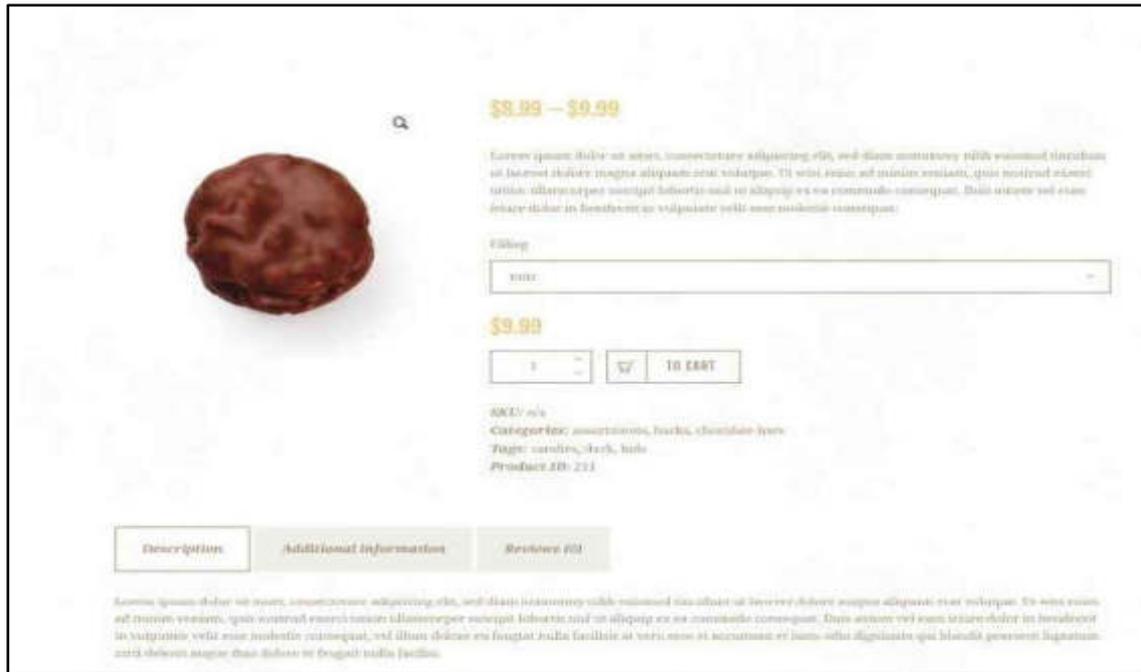
Fig. 9.5   Single Product Screen
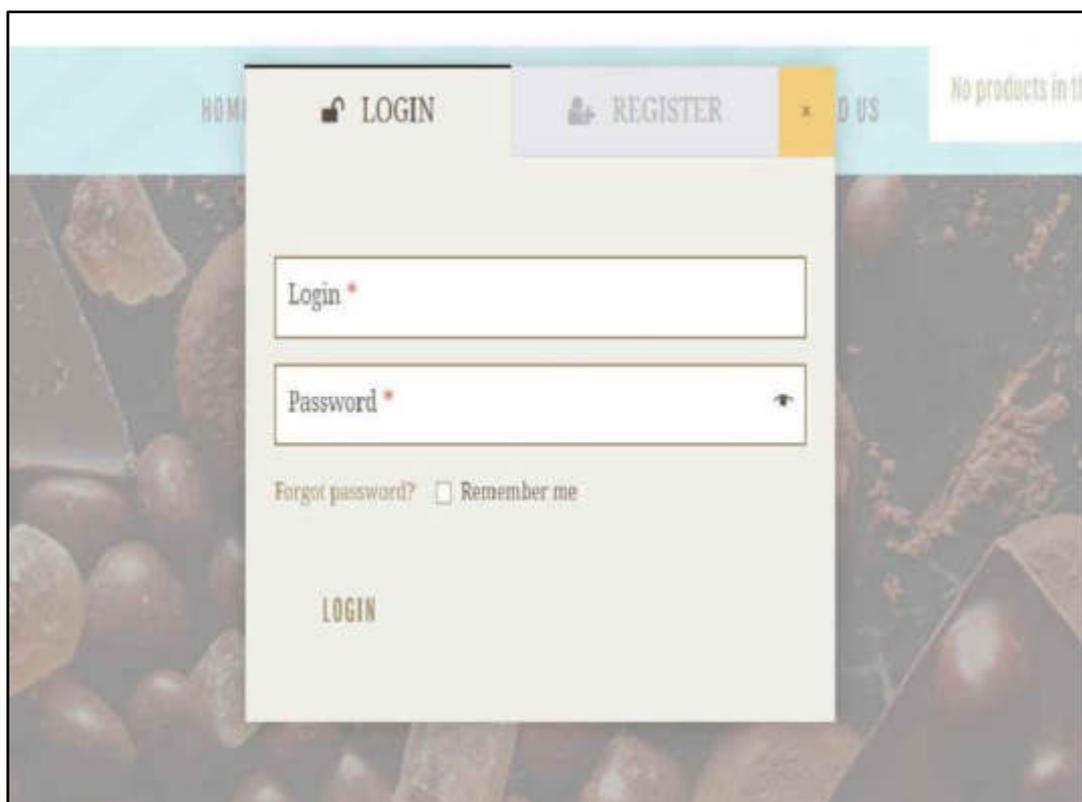
Fig. 9.6   Login Screen
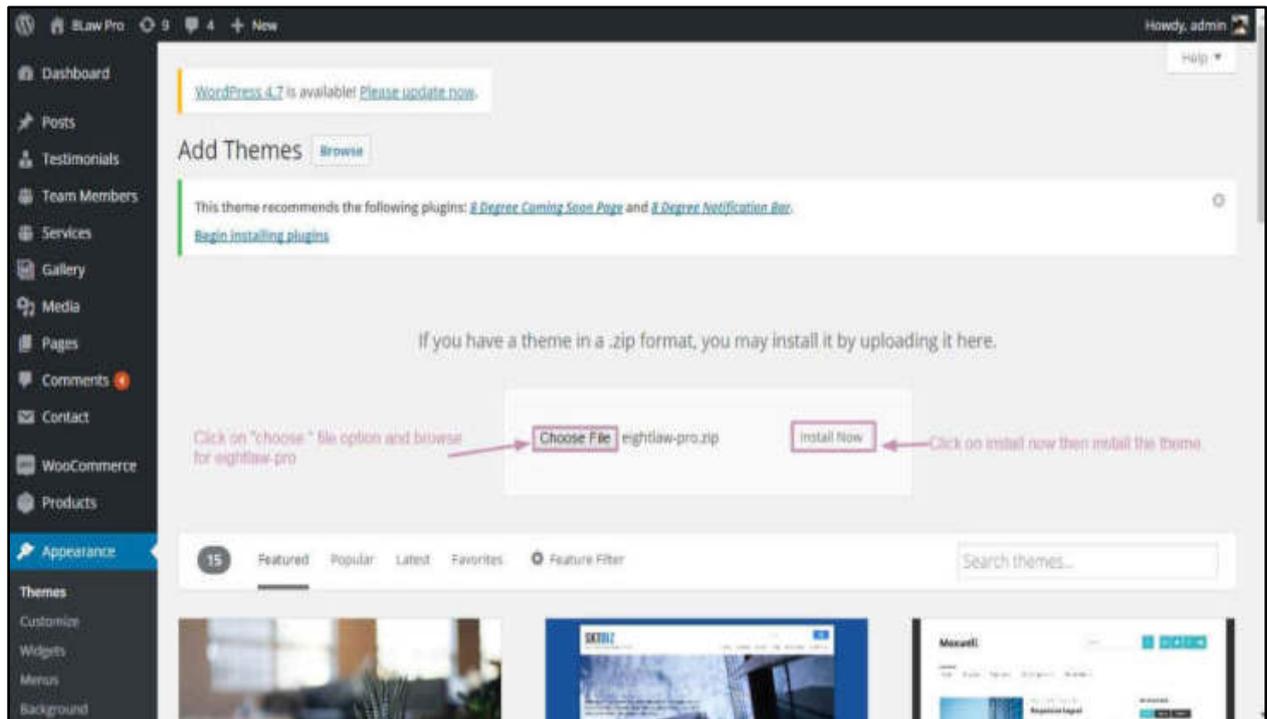
Fig. 9.7   WordPress Screen
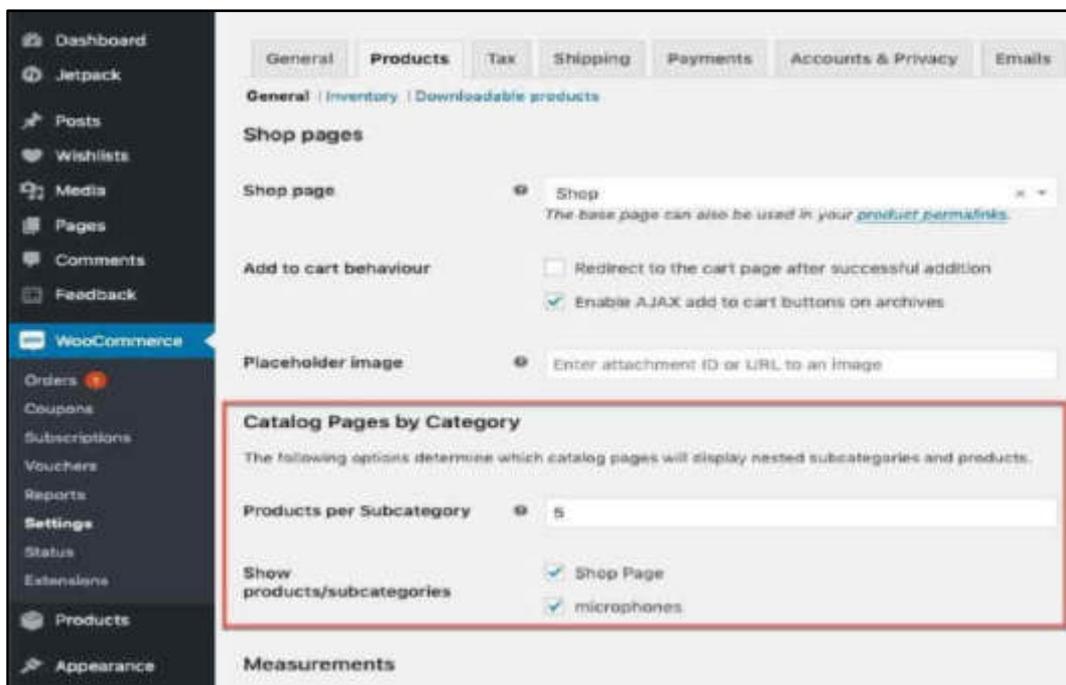
Fig. 9.8   WooCommerce Screen
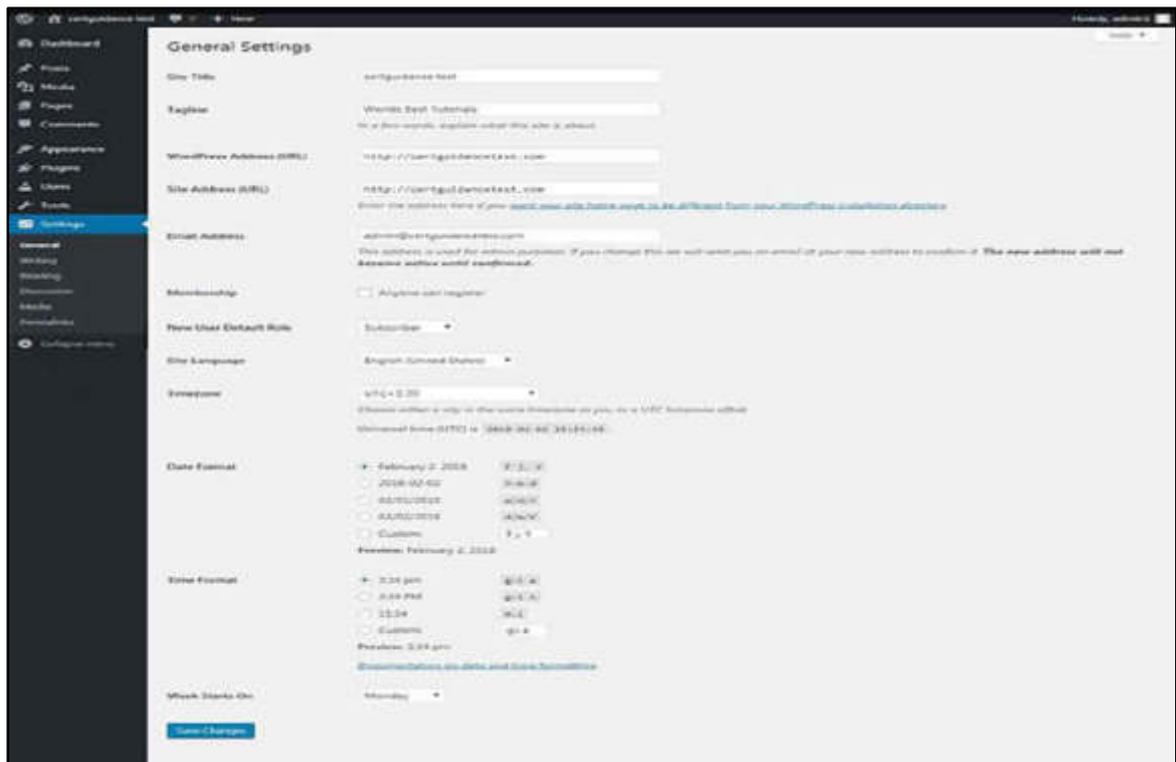
Fig. 9.9   General Settings Screen
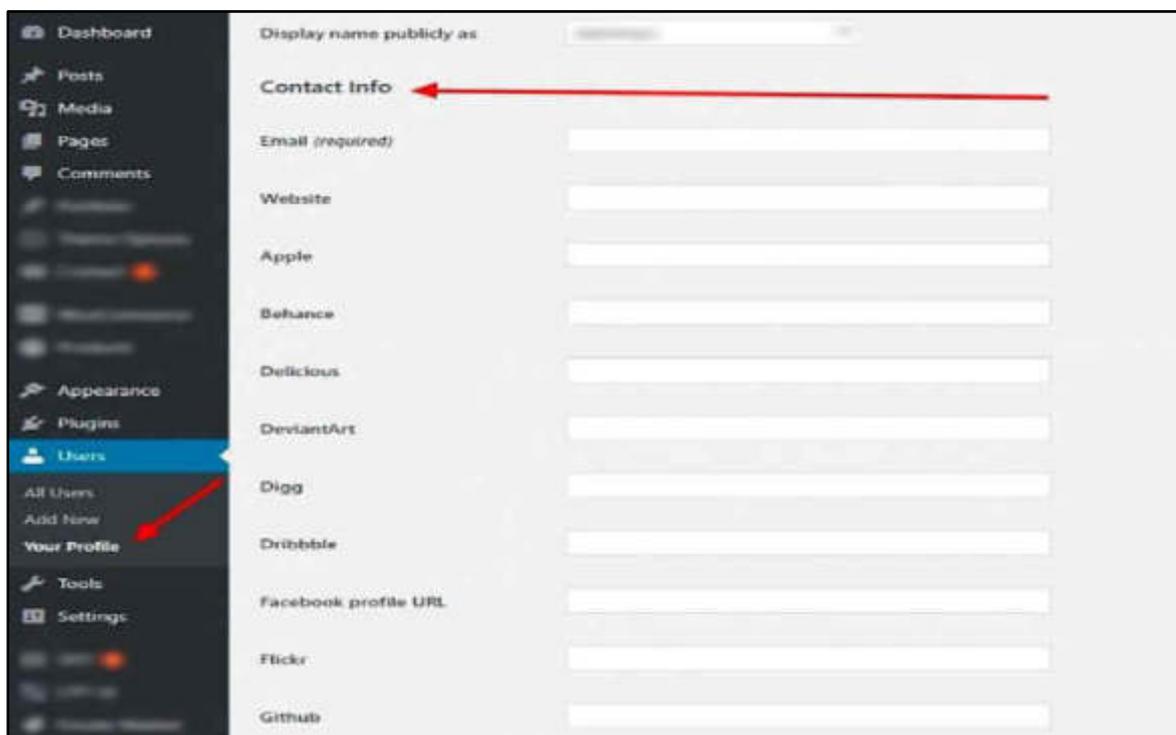
Fig. 9.10   User Profile Screen

Fig. 9.11   Checkout Screen

Fig. 9.12   ContactUs Template

CHAPTER-10 LIMITATIONS AND FUTURE ENHANCEMENT

- On this website, the user can't modify from the backend but can customize according to the user.

- Can take the load if using additional plugins other than predefined

- The website can be crashed if used broken plugins data recovery are the hardest part of these

- Search engine optimization is done but can't enhance till upgraded to the outer origin domain.

CONCLUSION

Through this project, we get the idea of how a live project works and how to deal with clients, and how to take into consideration each and small error in the user point also enhancement panel. This project tells all the basic ideas of WordPress from scratch to an advanced level and the training part from our point of view is worth it and gets some experience regarding that.

Moreover, this project also provided us with an opportunity to enhance our technical skills and learn about various tools and technologies related to WordPress. We gained hands-on experience in developing custom themes and plugins, creating and managing content, optimizing websites for speed and performance, and troubleshooting various issues that arise in the development process.

In addition to technical skills, this project helped us develop important soft skills like communication, time management, and teamwork. We learned how to effectively communicate with clients, manage our time to meet project deadlines, and work collaboratively with other team members to achieve project objectives.

Overall, this project was a valuable learning experience that helped us grow both professionally and personally. It gave us the confidence to take on more challenging projects in the future and provided us with a solid foundation in WordPress development that we can build upon as we continue to advance our careers in the tech-industry.

REFERENCES

- https://www.google.com/
- https://developer.wordpress.org/
- https://codex.wordpress.org/
- https://woocommerce.com/
- https://yoast.com/wordpress/plugins/seo/
- https://developer.wordpress.org/reference/
- https://en.wikipedia.org/

Appendix

College NOC Letter

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

SIT/SPBPEC/7/W2022/NOC/64   Date: 25th January, 2023

To,
The HR,
Yudiz Solutions Limited,
13th Floor, Bsquare 2, Iscon,
Ambli Rd, Vikram Nagar,
Ahmedabad, Gujarat 380054.

Subject: Request Letter for Internship of our student at your organization.

Dear Sir,

This is to certify that Mr. Neel Ashwinbhai Patel, with enrollment number, is 190390116024 a student of the institute since July 2019 and is currently studying in 7th Semester, Information Technology Engineering, S.P.B. Patel Engineering College, Saffrony Institute of Technology, Linch.

S.P.B. Patel Engineering College, Saffrony Institute of Technology, Linch is one of the leading Engineering Institutions in Gujarat. At present, we offer Bachelor's Degree in four engineering branches – Mechanical, Civil, Computer Engineering, and Information Technology.

As a part of the course work laid down by **Gujarat Technological University (GTU)**, the final year students of Degree Engineering are required to go for internship for their entire **8th Semester** for the period of **February 2023 to July 2023**, so as to get practical exposure and bridge the gap between academics & industry. Some of our brightest students wish to apply for the **Internship** opportunity provided by your esteemed organization, Yudiz Solutions Limited.

We request you to consider our student for this internship opportunity.

The student details are as follows:

Sr. No.	Name of Student	Enrolment No.	Mobile No.
1	Neel Ashwinbhai Patel	190390116024	7990346258

Yours Sincerely,

AkshayKansara
Head of the Department, Computer Engineering Department,
S.P.B.Patel Engineering College, Linch.
Email: akshay.kansara@saffrony.ac.in
Contact: 9925516674

Near Shanku's Waterpark, Ahmedabad-Mehsana Highway,
At & Post : Linch, Dist. : Mehsana, Gujarat-384 435. Phone / Fax (02762) 285721
www.saffrony.ac.in • E-mail : info@saffrony.ac.in

AFFILIATED TO GUJARAT TECHNOLOGICAL UNIVERSITY (YEAR 2008)
APPROVED BY ALL INDIA COUNCIL FOR TECHNICAL EDUCATION (AICTE) (YEAR 2006)

Annexure-2

GUJARAT TECHNOLOGICAL UNIVERSITY
(Established under Gujarat Act No. 20 of 2007)
ગુજરાતટેકનોલોજિકલ યુનિવર્સિટી
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 2

Feedback Form by Industry expert

Student Name: Neel A Patel   Date: 22 / 05 / 2023

Work Supervisor: Mr. Kirtan Gujjar   Title: Internship at Yudiz

Company/Organization: Yudiz Solutions Limited   Solutions

Enrollment No: 190390116024

Internship Address: 12th floor 1207, Times Square 1, Thaltej-Shilaj Road, Ahmedabad

Dates of Internship: From 01 | 02 | 23   to 30 | 05 | 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: NIA

Signature of Industry person with name and Stamp: Kirtan Gujjar

Signature of the Faculty Mentor

Attendance Sheet

Name: Neel Patel
Enrollment No.: 190390116024
Branch: Information Technology
Department: Wordpress

Date	February	March	April
1	P	P	P
2	P	P	SUNDAY
3	P	P	P
4	P	SATURDAY	P
5	SUNDAY	SUNDAY	P
6	P	P	P
7	P	P	P
8	P	DHULETI	SATURDAY
9	P	P	SUNDAY
10	P	P	P
11	SATURDAY	P	P
12	SUNDAY	SUNDAY	P
13	P	P	P
14	P	P	P
15	P	P	SATURDAY
16	P	P	SUNDAY
17	P	P	P
18	SATURDAY	SATURDAY	P
19	SUNDAY	SUNDAY	P
20	P	A	P
21	P	P	P
22	P	P	SATURDAY
23	P	P	SUNDAY
24	P	P	P
25	SATURDAY	SATURDAY	A
26	SUNDAY	SUNDAY	P
27	P	P	P
28	P	P	P
29	-	P	SATURDAY
30	-	P	SUNDAY
31	-	P	-

Kinjal Shah
Functional Manager

INTERNSHIP AT YUDIZ SOLUTIONS LTD.

AN INTERNSHIP REPORT

Submitted by

Raj Kamleshkumar Patel

190390116026

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 Yudiz Solutions Limited** has been carried out by **Raj Kamleshkumar Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

Date: 28th April, 2023

To whom so ever It May Concern

This is to certify that **Mr. Raj Patel** a student of **Saffrony Institute Of Technology** is working as a Trainee/Intern with our Company for the duration of six months starting from 1st February, 2023 to till date, as a **Web Development Trainee** and working on a project **"Cricket Game"**.

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, 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 **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar & 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

1.   **Raj Kamleshkumar Patel**

    _____

ACKNOWLEDGEMENT

Abstract

My experience as an intern at Yudiz Solutions Ltd. is elaborately summarized in this report. I have gained a lot of knowledge about JavaScript and more about front-end technologies and systems throughout my internship. I've learned a lot about how the business operates, the rules, how to work on project in real time, and how to collaborate well with others while carrying out all of our tasks and obligations. The internship gave me opportunities for personal development, practical experience, and understanding how a software development firm runs. This report, however, was created in a remarkably short amount of time. Even so, I made all the effort I could to make it relevant by reflecting on my work at the corporation. During the internship I complete one project which one is, Cricket. This game is with the software features of the Phaser editor Game engine, I have curate 2D visualizations for the game. The project aims to simulate a real-life cricket game and includes features such as scoring, ball speed, and a graphical user interface for user interaction.

List of Figures

List of Table

Abbreviations

HTML   Hyper Text Markup Language

2D   Two - Dimensional

RAM   Random Access Memory

CPU   Central Processing Unit

UI   User Interface

Table of Contents

Chapter 1. INTRODUCTION TO COMPANY

1.1 COMPANY PROFILE:

Organization: Yudiz Solutions Ltd.

About: Yudiz Solutions Pvt. Ltd. is an ISO 9001:2015 certified company having long years of quality global exposure in web development and leading mobile apps development platforms like Android and Apple iOS. Our qualified and experienced developers have contributed to create industry benchmarks in different niche areas including custom apps, business apps, web apps, game apps and much more. Years of sustained focus and exposure in enterprise web solutions and mobile apps has set us apart as a truly future ready web and mobile apps developer company on the web.

Year of Establishment: 2009

Employees: 400+

1.2 SERVICES PROVIDED BY COMPANY:

- Website Development
- Game Development
- Blockchain Development
- Mobile App Development
- UI/UX Design
- AR VR Development
- AI Development

Chapter 2. INTRODUCTION TO PROJECT

2.1 PROJECT SUMMARY:

Cricket is HTML5 sports type game, sports game is a popular type of games. The objective of Cricket is to play the cricket which we used to play on the real ground.

2.2 PURPOSE:

Android and iOS and web are three major and widely accepted platforms for the mobile technologies and mobile gaming, so I have chosen this platform to stand alone my game for the final year project. And it could possibly come out a good game that gives user a fairy experience.

2.3 SCOPE:

As Android and iOS are the fastest growing mobile technologies for mobile game platforms. We are working on the game for our final semester project. The game just for the user entertainment and adventure of the space. It's hard to predict the future of the game but it must be considered in connection of all the parts: The level environment, the story, character movement, game play, design and graphics, etc.

2.4 TECHNOLOGY AND TOOLS:

Technologies:

- Game Development Studio/Engine: Phaser Editor
- Designing Studio: Adobe Illustrator
- Sound Editing Tool: Audacity(free)

Literature Review:

- Phaser Official Video Tutorials

Introduction to Phaser:

Phaser is a 2D game framework used for making HTML5 games for desktop and mobile. It is free software developed by Photon Storm. Phaser uses both a Canvas and WebGL renderer internally and can automatically swap between them based on browser support. This allows for fast rendering across desktop and mobile.

Advantages of Phaser:

- **Workflow**

  Rapidly assemble your scenes in an intuitive, extensible Editor workspace. Play, test and edit for fast iteration towards your finished game.

- **Quality**

  Create a game with AAA visual fidelity, audio and full-throttle action that performs smooth and clean on any screen.

- **Mechanism**

  Phaser is uniquely powerful and flexible animation system brings any character or object to life with incredibly natural and fluid movement.

- **Performance**

  Reliable performance, smooth frame rate, and superb game play experiences across target platforms.

Introduction to Adobe Illustrator:

Adobe Illustrator is a professional quality graphic art program. Its applications are diverse, from creating print to web graphics and, for our purposes, posters. Although the program is complex and requires a significant amount of time to truly master, it is quite easy to learn the basics and create work with a professional appearance. Designing a poster does not require any special artistic talent or skills; it just requires having the patience to get acquainted with the program. As with most computer applications, I recommend using the trial-and-error methodology to figure out the intricacies of this program.

Chapter 3. PROJECT MANAGEMENT

3.1 PROJECT PLANNING AND SCHEDULING:

Project Development Approach:

"Cricket" can't be done in a single phase. It repeats every phase of the approach by the time so as per the process we have implemented spiral model for the same.
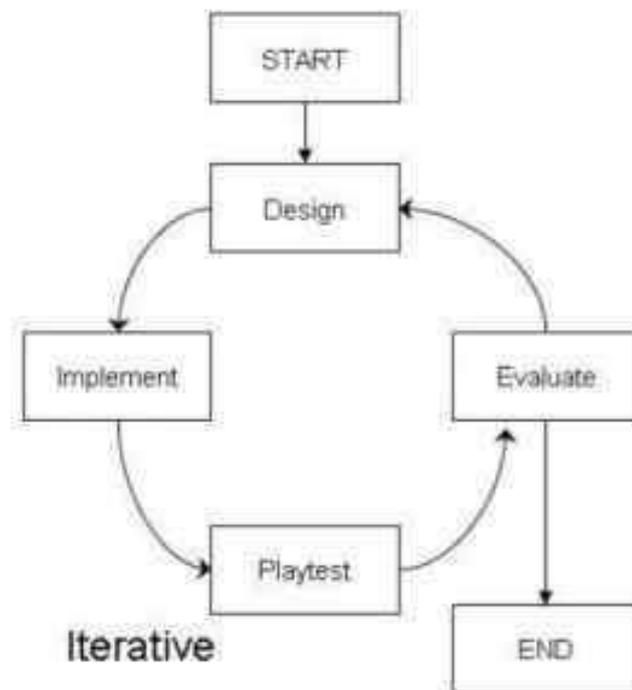
Figure 3.1.1 Project Development Approach - Spiral Model

 Spiral Model: The spiral model combines the idea of iterative development with the systematic, controlled aspects of the waterfall model. This Spiral model is a combination of iterative development process model and sequential linear development model i.e., the waterfall model with a very high emphasis on risk analysis. It allows incremental releases of the product or incremental refinement through each iteration around the spiral.

Phases of Spiral Model: The spiral model has four phases. A software project repeatedly passes through these phases in iterations called Spirals.

- **Identification:** This phase includes gathering information of the game play requirements. This phase also includes to continuously understanding the next level of the game, architecture of the game, physical design of the game, and the final design in the subsequent spiral.

- **Design:** The Design phase starts with the conceptual design in the baseline spiral and involves architectural design, logical design of modules and the final design in the subsequent spirals.
- **Implement/Construct/Build:** The Implementation stars after completion of the game final design, and it includes construction of the basic game play. It goes to evaluate after completion of certain steps of building the game.
- **Evaluation/Risk Analysis:** The Evaluation part includes the identification of the error, bug problem, checking through various devices with different resolutions. At the end of the evaluation if there is risk found the Spiral repeats.

Pros:

- Changing requirements can be accommodated.
- Allows extensive use of prototypes.
- Requirements can be captured more accurately.
- Users see the system early.
- Development can be divided into smaller parts and the risky parts can be developed earlier which helps in better risk management.

Cons:

- Management is more complex.
- End of the project April is not known early.
- Not suitable for small or low risk projects and could be expensive for small projects.
- Process is complex.
- Spiral April goes on indefinitely.
- Large number of intermediate stages requires excessive documentation.

Project Plan:

Milestones: At the time of project planning, we have planned a series of milestone which is an end points of the throughout process cycle. It a point which handles the phases of the project cycle and that must be completed on time. Each milestone reports a formal output, its April be large document, or its April be a short report. Each completing phase raises the project work 10-15% towards last product expected.

Roles and Responsibilities: Roles and responsibilities are divided between the group or

people who is assigned to that project.

3.2 RISK MANAGEMENT:

Risk Identification:

Risk identification can be defined as the effectors taken to specify threads to project Plan. Risk identification can be done by identifying the known and predictable risks. The risk items can be identified used following known and predictable component.

- **Product size** – the risk item based on the overall size of the software product is identified.
- **Customer characteristics** – Risk associate with customer-developer communication can be identified.
- **Development environment** – The risk associated with the technology and tool being for developing the project.

Risk Analysis:

- **Requirement changes –** As project work proceeds April requirement changes. Users April changes their requirement.
- **Project timeline non completion** – in event of not being to complete project in provided time, it would be difficult to face clients of the project. Also, financial problem can arise from project being delayed.
- **Project Risk** - for long term projects, the project risk register should be reviewed at least once a year to identify new and emerging risks.
- **Technical risk** – this type of risk can threaten the quality and timelines of the software to be proceed. If a technical risk became a reality, implementation April became difficult or impossible.
- **Increase complexity risk** – in event of project become too complex for uses to understand, it would be difficult to implement it.

Risk Planning

- **Accept Risk** – Simply take the chance that the negative impact will be increase.

- **Avoid risk –** Changing plane in order or prevent the problem from arising.
- **Matching risk** – Lessening its impact throat intermediate stapes.
- **Transfer risk –** Outsource risk to a capable third party that can manage the outcome.

Chapter 4. SYSTEM ANALYSIS

4.1 USER CHARACTERISTICS:

- From Child to older people are allowed to play this Game. There are no boundaries for anyone.
- It does not create an addiction to playing this game.
- It is completely harmless for children as well as older ones.

4.2 HARDWARE AND SOFTWARE REQUIREMENTS:

Hardware Requirements:

- RAM (Random Access Memory): 256 MB
- CPU (Central Processing Unit): 1.0 GHz of processing power
- Display: Touch screen Displays

Software Requirement:

- Phaser Editor 2D
- HTML 5
- Database
- Browser

4.3 CONSTRAINTS

Software Limitations:

- Our Game work on minimum - 2.3.1. Gingerbread
- Need latest version of Phaser Editor 2D - v3.34.0
- Need proper support of https

4.4 STUDY OF CURRENT SYSTEM:

Game is published and live on Google.

PROBLEM AND WEAKNESSES OF CURRENT SYSTEM:

- Sufficient memory is available in Windows phone to loading the game otherwise game will be slow.

REQUIREMENT OF NEW SYSTEM (PROPOSED SYSTEM):

- It reduces mental stress, some time it is very difficult to wait for train at railway station you can easily start the game that would be helpful just relax yourself.

- Sometime in organization you have work load and you need small break to concentrate on work, then you can easily start the game and easily relax yourself.

4.5 FEASIBILITY STUDY:

The game development will consist of five parts. The first part will be devoted to data gathering and software requirements specification. Consequently, Different systems of the same kind will be studied. There are plenty of android games that uses the same kind of approach that we are using. Each one has some various features. The second part will be dedicated to the design phase, including the Game Pattern and Environment. Also, in this phase, the software tools to be used will be specified. For example, the Game Engine and various assistive plugins and SDKs needed. The third part will be the implementation phase; here the design will be converted to code in order to develop the targeted game. The fourth step will be devoted to testing the game. The last phase will be the deployment phase.

4.6 REQUIREMENT VALIDATION:

Requirements validation is the process of checking that requirements defined for development, define the system that the customer really wants. To check issues related to requirements, we perform requirements validation. We usually use requirements validation to check error at the initial phase of development as the error April increase excessive rework when detected later in the development process.

Chapter 5. FUNCTIONS OF SYSTEM
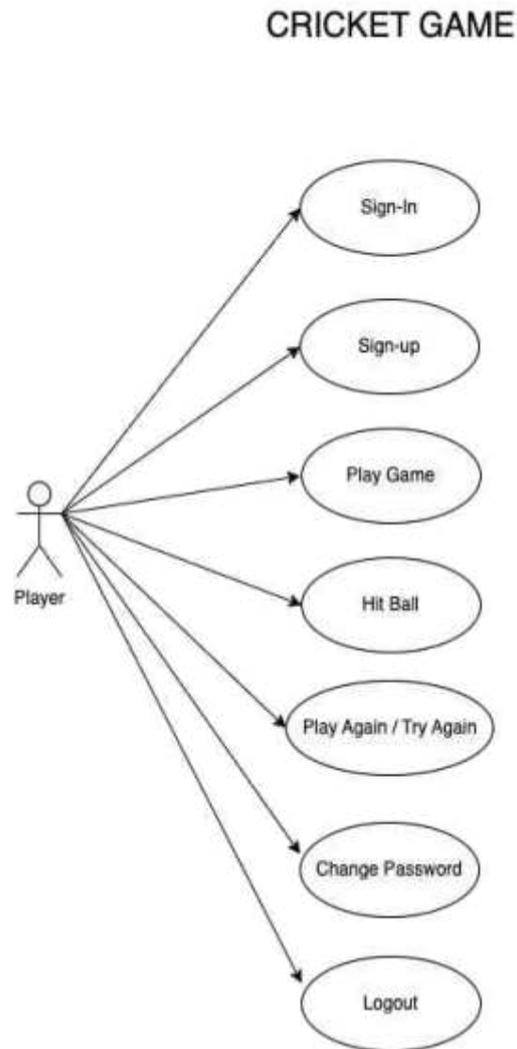
5.1 USE CASE DIAGRAM:

CRICKET GAME

Figure 5.1.1 Use Case Diagram

5.2 DATA FLOW DIAGRAM:
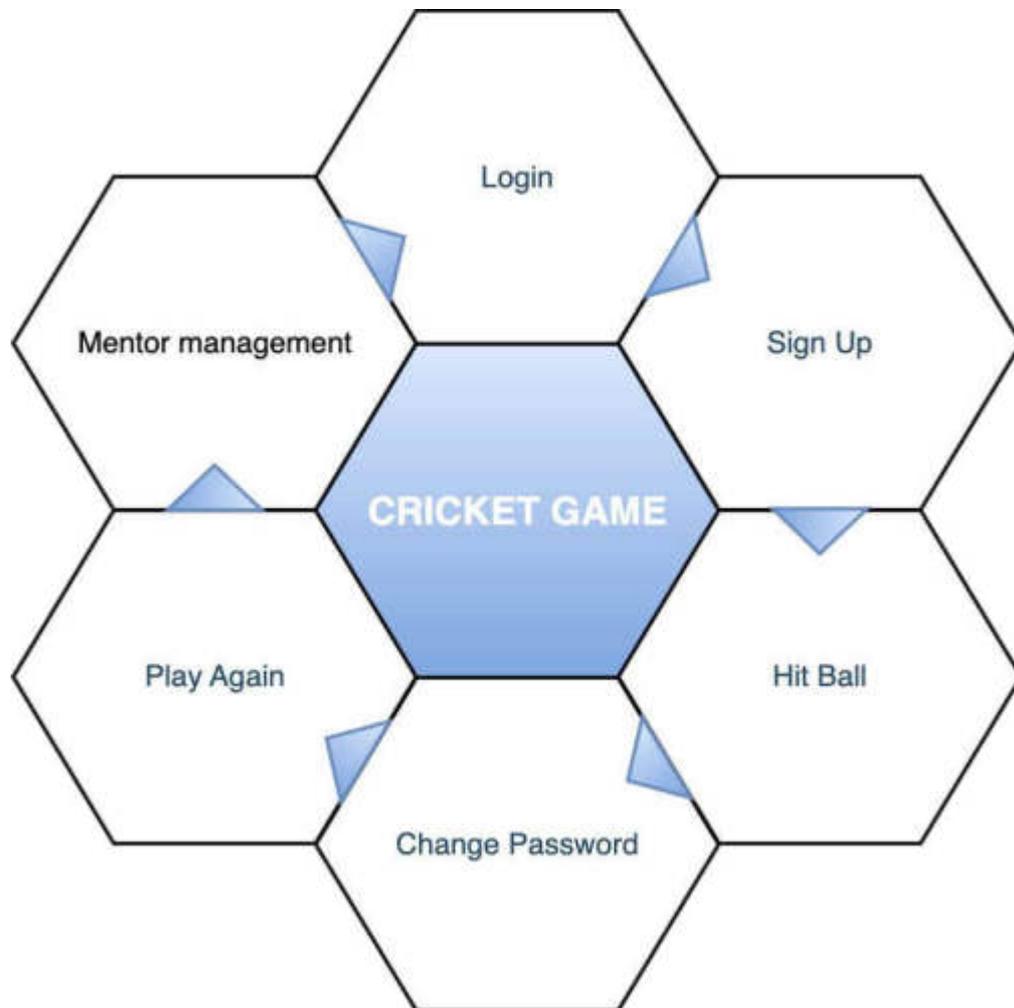
Figure 5.2.1 Data Flow Diagram

5.3 FLOW CHART OR ACTIVITY DIAGRAM:
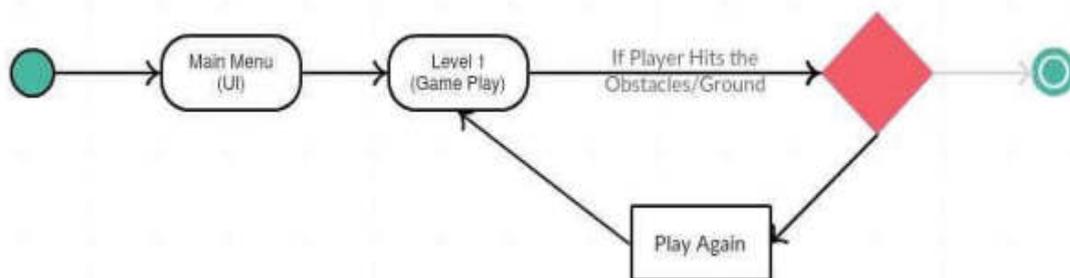
Figure 5.3.1 Flow or Activity Diagram

5.4 MAIN MODULES OF NEW SYSTEM:

SELECTION OF HARDWARE AND SOFTWARE AND JUSTIFICATION:

1. **Hardware Selection Criteria**

   • Hardware must support current software as well as software planned for procurement over the next planning interval [year, 18 months, three years]

   • Hardware must be compatible with existing or planned networks

   • Hardware must be upgradeable and expandable to meet the needs of the next planning interval

   • Hardware warranties must be of an appropriate length

   • Hardware maintenance must be performed by [local/remote vendor, in-house personnel]

   • Whenever feasible, hardware standards will dictate procurement of like brands and configurations to simplify installation and support

   • Routine assessments of installed infrastructure will feed an upgrade/replace decision process.

2. **Software Selection Criteria**

   • Software must be compatible with current and future hardware over the next planning interval

   • Software maintenance and warranties must be of appropriate length and cost

   • Software help desk must be maintained by [vendor, third party, in-house personnel]

   • Software must be standardized throughout the business to improve purchasing power, simplify training, and facilitate support

   • Software must comply with current standards set by technology leadership

   • Software must support and enhance business goals.

Chapter 6. IMPLEMENTATION

6.1 SYSTEM DESIGN:

INPUT/OUTPUT AND INTERFACE DESIGN:

Samples of Forms and Interface

Physical design of output reports and input forms in this module, we discuss the physical design of output, input, and user interface. Although in the textbook authors include input forms as part of interface design, I separated them. In my view, the user interface is not just input screens but is a communication between users and the system.

Access Control and Security

Input control includes the necessary measures to ensure that input data is correct, complete, and secure. You must focus on input control during every phase of input design, starting with source documents that promote data accuracy and quality. When a batch input method is used, the computer can produce an input log file that identifies and documents the data entered.

SYSTEM ARCHITECTURE DESIGN:
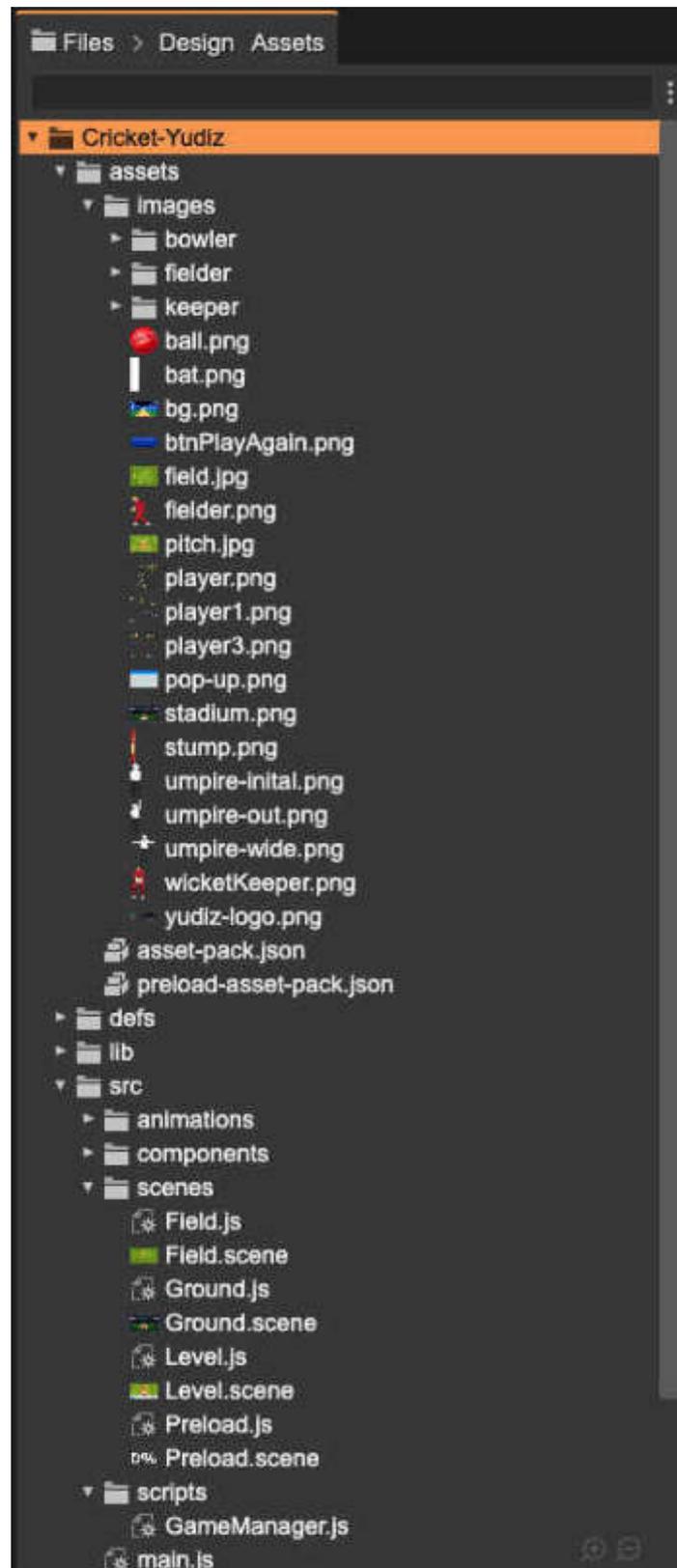
Figure 6.1.1 System Architecture

6.2 IMPLEMENTATION PLANNING AND DETAILS

IMPLEMENTATION ENVIRONMENT

Player can be controlled by the screen-tap, this will trigger the Phaser built in functions to integrate with the web sensors.

Phaser supports two programming languages natively:

- JavaScript, an industry-standard language like Java or C++.
- Phaser Script, a language designed specifically for use with phaser and modelled after JavaScript.

PROGRAM/MODULES SPECIFICATION

The Game project separated in following modules:

- Game UI Design
- Game pattern analysis
- Level integration
- Game programming pattern design
- Face book sharing integration
- Google play game services integration

SECURITY FEATURES

The game relates to the Web browser services so the data is now safe in browser. If the user is not connected with the internet the data will be stored in the local storage.

6.3 CODING STANDARDS:

The coding standard is the well-defined and standard style of coding. With the help of the coding standard any person can go into any code and figure out what's going on and new people can get up to speed quickly.

A coding standard sets out standard ways of doing several things such as the way variables are to be named, the code is to be laid out, the comments are to be described, the work of function are too carried out etc.

All those basic standards were followed and in addition to that the standard game design pattern standards were also followed while implementing the project.

Chapter 7. TESTING

7.1 TESTING PLAN:

Testing is the process of executing a program with explicit intention of a program with explicit intention of finding errors, if any, which makes the program, fail. This phase is an important part on development.

It performs a very critical role for quality assurance and for ensuring reliability of software. It is the process of finding errors and missing operations and a complete verification to determine whether the objectives are met, and the user requirements are satisfied.

The goal of testing is to uncover requirement, design or coding errors in the programs. Consequently, different levels of testing are employed in software systems. The testing results are used during maintenance.

This section deals with the details of the classes of test which must be conducted to validate the functions, performance and the constraints. This is achieved basically by the means of testing which plays a vital role in the development of the software.

In functional testing the structure of the program is not considered. Test cases are decided solely based on the requirements or specifications of the program or module, and the internals of the module or the program are not considered for selection of test cases.

Due to its nature, functional testing is often called "black box testing". It consists of two types of testing.

- **Unit Testing:**

  The purpose of unit testing is to uncover errors in the smallest software unit- the routine. Each routine will be tested individually using black box- oriented tests. The programmer of each module will design a set of test cases for that module and ensure that the module is fully tested. Each module will be tested separately to ensure that it is working before being combined with other modules.

- **Integration Testing:**

  This type of testing describes the integration strategy and procedures for the system. It gives the order in which modules will be developed and how they will be integrated. It also describes the specific tests that will be performed on the integrated set of modules.

The purpose of testing is:

- To verify the interaction between accounts.
- To verify the proper integration of all components/modules of the software.
- To verify that all requirements have been correctly implemented.

7.2 TESTING STRATEGY:

Scope:

The System will be tested for the usability, functionality, reliability and performance of the application as whole and in parts.

The following activities are involved:

- Functional Specifications are thoroughly reviewed for correctness and Completeness.
- Study of Design specification and Review for Requirement coverage.
- Testing for the various objects of the application.
- Review the design of system components and them
- Components and their integration to give solution.
- Identification of units of application for testing.
- Setting up guidelines for testing each application unit.

7.3 TESTING METHODS:

Different testing techniques are as described below:

Black-box Testing:

In Black-Box Testing or Functional Testing, the output of the module and software, is taken into consideration, i.e., whether the software gives proper output requirements or not.

In another words, this testing aims to test a program's behavior against its specification without making any reference to the internal structure of the program or the algorithms used.

Therefore, the source code is not needed, and so even purchased modules can be tested. The program just gets a certain input, and its functionality is examined by observing the output.

This can be done in the following way:

- Input Interface

- Processing Output

- Interfaces use analysis

The tested program gets certain inputs. Then the program does its job and generates a certain output, which is collected by a second interface. This result is then compared to the expected output, which has been determined before the test.

White-box Testing:

White Box testing is used as an important primary testing api inspected to see what it does; tests are designed to exercise the code. Code scripts, driver etc. that are employed to directly interface with and primary testing approach. Here code is needed to exercise the code. Code is tested using erectly interface with and drive the code.

The tester can analyze the code and use the knowledge component to derive the test data. White box testing methods like testing have been used to make the software of increased reliability.

Structural Testing:

Path testing has been exercised i.e., every independent been exercised i.e., every independent execution path through program has been tested. If every independent path is executed, then all statements in the components must have been executed at least once. The program has also been checked.

Integration Testing:

After the individual modules were tested out, the integration procedure is done to create a complete system. This integration process involves building the system and testing the resultant system for problems that arise from component interactions.

The top-down strategy is applied to validate high-level components of a system before design and implementations have been completed. Because the development process is started with high-level components and work is done down the component hierarchy.

Performance Testing:

Performance testing is designed to test the runtime performance of the system within the context of the system. These tests were performed as module level as well as system level. Individual modules were tested for required performance.

Condition Testing:

Condition testing is a test case design method that exercises the logical conditions commend program module. If the condition is incorrect, then at least one part of the common incorrect. It includes:

- Boolean variable error
- Null Pointer Assignment
- Input Output Connection Exception
- Parsing (conversion) errors
- Arithmetic expression error

7.4 TEST CASES

Test cases are defined to find out whether the functionality is running successfully or not and some of the test case mentions below in table.

Table 7.4.1 Test Case 1

Test Type	Unit Testing
Action	Login-
Expected Result	Login successfully
Actual Result	Login
Pass / Fail	Pass
Related Change	-

Table 7.4.2 Test Case 2

Test Type	Unit Testing
Action	New account
Expected Result	Create new account
Actual Result	Create account
Pass / Fail	Pass
Related Change	-

Table 7.4.3 Test Case 3

Test Type	Unit Testing
Action	Auto throws ball
Expected Result	Auto throws ball
Actual Result	Throws the ball
Pass / Fail	Pass

Table 7.4.4 Test Case 4

Test Type	Unit Testing
Action	Hit ball
Expected Result	Hit ball
Actual Result	Hitting the ball
Pass / Fail	Pass
Related Change	-

Table 7.4.5 Test Case 5

Test Type	Unit Testing
Action	Developer testing of Sound Communication.
Expected Result	Sound Game Over, author sound
Actual Result	Sound is play and stop when the move or the order is completed
Pass / Fail	Pass
Related Change	-

Table 7.4.6 Test Case 6

Test Type	Unit Testing
Action	Moves Management and score Box
Expected Result	Moves should be Automatically, and score generate.
Actual Result	Moves decreased of Finished automatically in game.
Pass / Fail	Pass
Related Change	-

Chapter 8. SCREENSHOTS AND USER MANUAL

8.1 Game Main Scene:

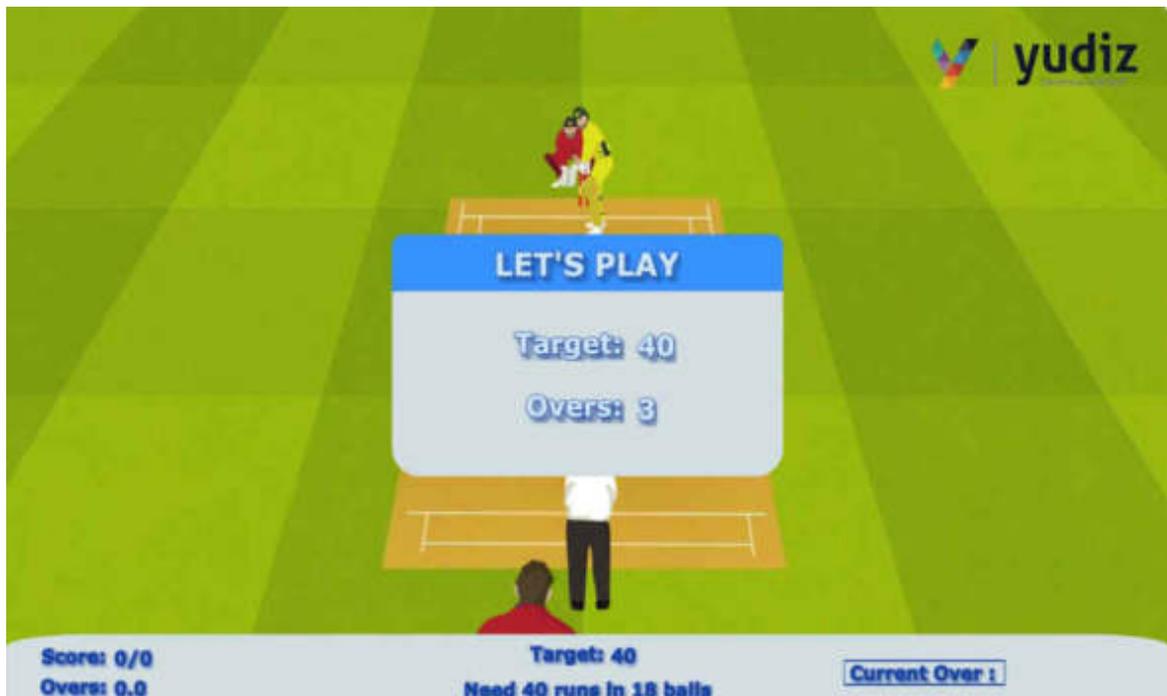Figure 8.1.1 Game Main Scene

8.2 Startup Scene:

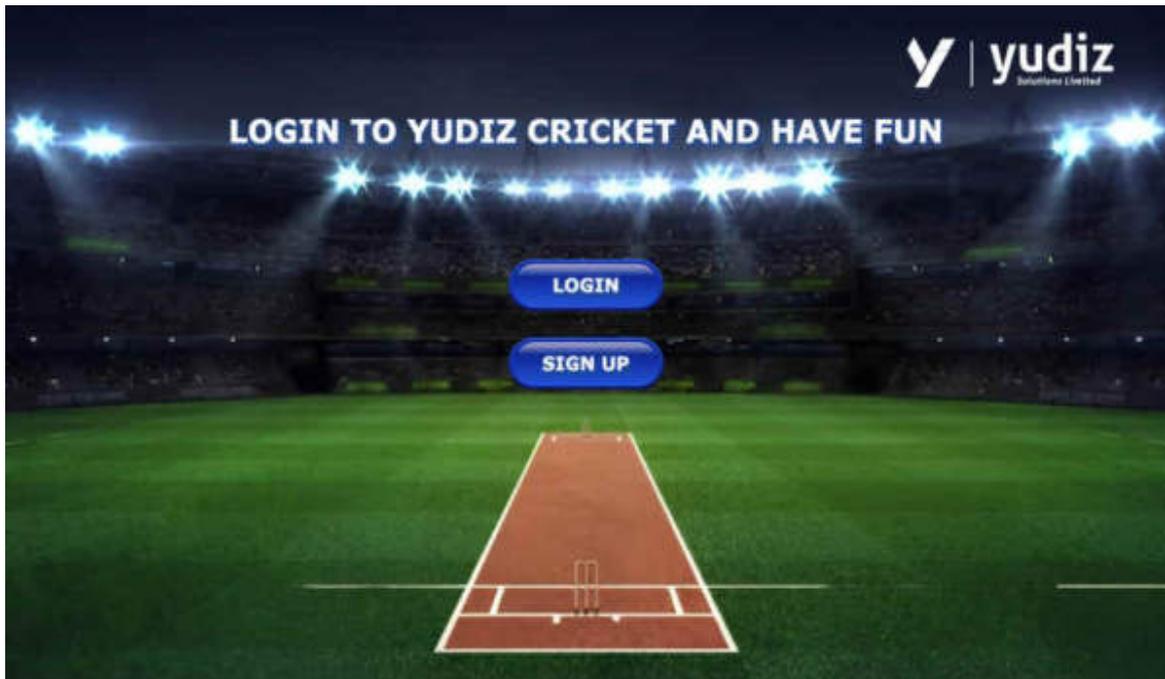Figure 8.2.1 Startup Scene

8.3 Login Sign up:

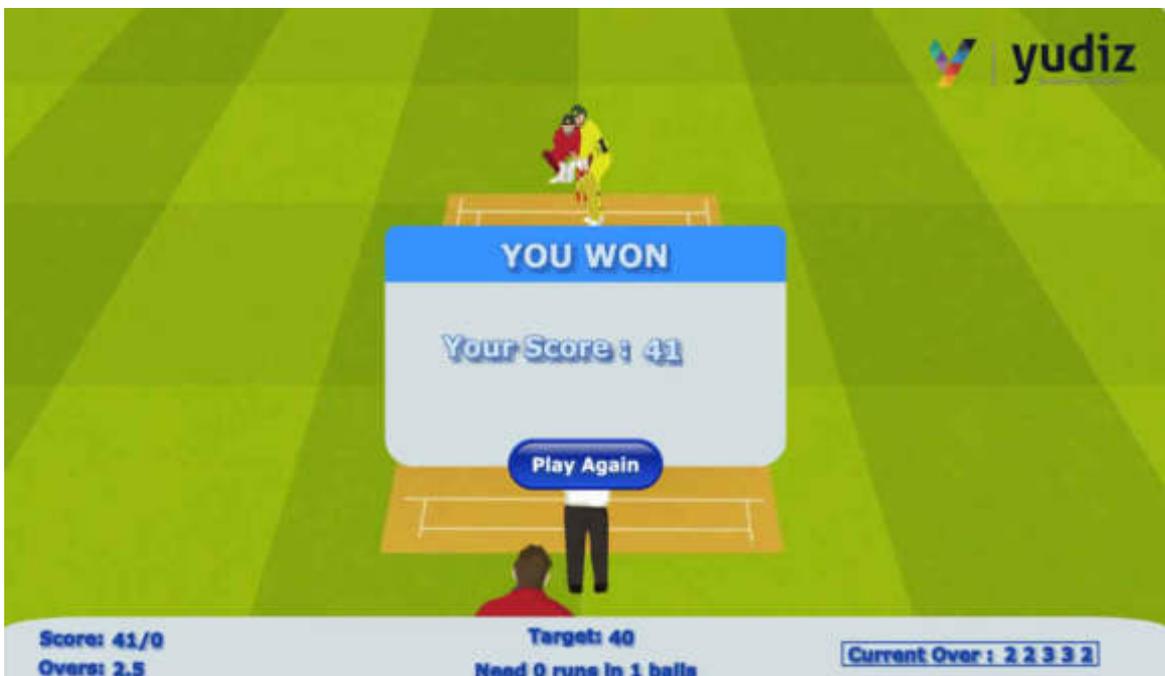Figure 8.3.1 Login Sign up

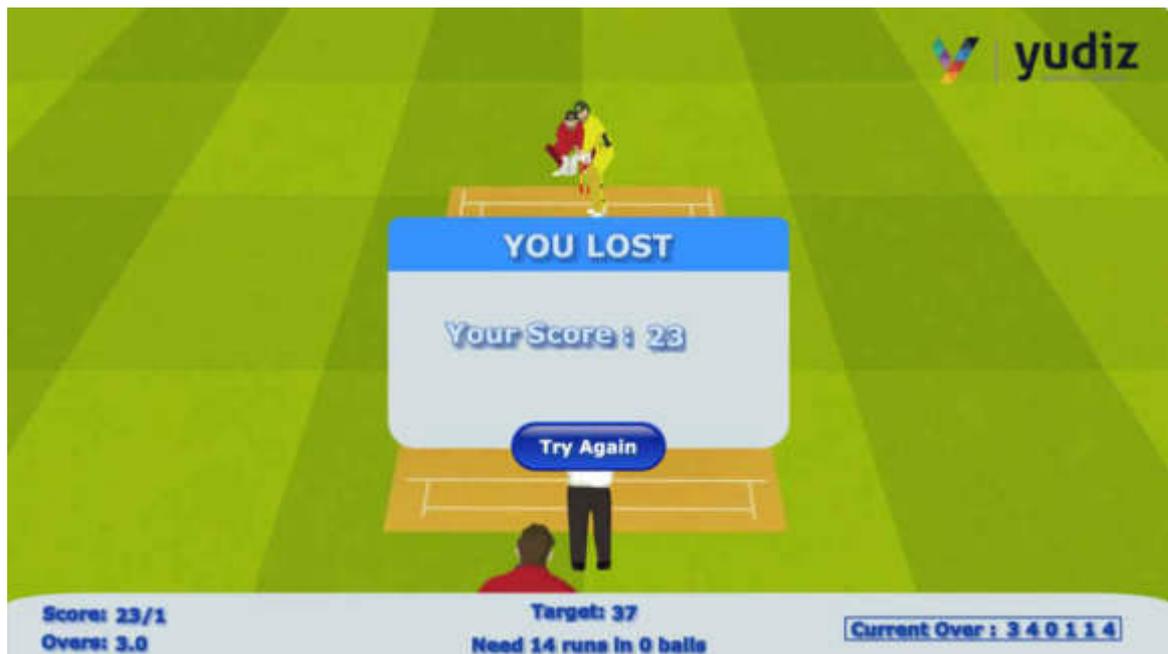## 8.4 Won and Lost Scene:

Figure 8.4.1 Won Scene

Figure 8.4.2 Lost Scene

Chapter 9. LIMITATIONS AND FUTURE ENHANCEMENT

"**Cricket**" is fully tested by the testers and the Cricket is limited overs game, In the game you can play only batting side, you can't throw the ball, ball throwing is auto generated.

9.1 LIMITATIONS:

The game has only batting side, User can play only limited overs, User cannot play with other world players, and the game is not device responsive.

9.2 FUTURE ENHANCEMENT:

In future I am planning to make the balling side of the game and you can play this game with your friends, so that it will be a more fun to play this game, with its difficulty and make it fully attractive with more graphics and animations. Make the game UI mobile and all devices responsive. The Game helped me to expand my knowledge of game development career, as I have spent last four months developing this game. Thankfully I've built a good game and the knowledge also.

CONCLUSION

In conclusion, the three-month internship project focused on developing a cricket web game using Phaser Editor 2D. The project aimed to create an engaging and interactive gaming experience for cricket enthusiasts. Throughout the internship, various tasks were undertaken, including game design, development, and testing. The Phaser Editor 2D framework was utilized, providing a robust platform for building 2D games with HTML5 and JavaScript.

The project successfully implemented key features of a cricket game, such as player controls, scoring mechanics, ball physics, and AI opponents. The game also incorporated appealing graphics, animations, and sound effects, enhancing the overall user experience. During the development process, challenges were encountered and overcome, such as optimizing performance, debugging issues, and refining gameplay mechanics. Additionally, user feedback and iterative testing played a crucial role in improving the game's playability and addressing any identified bugs or glitches.

Overall, the internship project accomplished its objectives of creating a cricket web game using Phaser Editor 2D. The project not only provided an opportunity to apply and enhance programming skills but also fostered collaboration, problem-solving, and project management abilities.

Appendix

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

SIT/SPBPEC/7/W2022/NOC/ 73   Date: 3rd February, 2023

To,
The HR,
Yudiz Solutions,
8th floor, Time square building, Thaltej,
Ahemdabad-380059

Subject: Request Letter for Internship of our student at your organization.

Dear Sir,

This is to certify that Mr.Raj Kamleshkumar Patel, with enrollment number, is 190390116026 a student of the institute since July 2019 and is currently studying in 7th Semester, Information Technology engineering, S.P.B. Patel Engineering College, Saffrony Institute of Technology, Linch.

S.P.B. Patel Engineering College, Saffrony Institute of Technology, Linch is one of the leading Engineering Institutions in Gujarat. At present, we offer Bachelor's Degree in four engineering branches – Mechanical, Civil, Computer Engineering, and Information Technology.

As a part of the course work laid down by **Gujarat Technological University (GTU)**, the final year students of Degree Engineering are required to go for internship for their entire **8th Semester** for the period of **February 2023 to July 2023**, so as to get practical exposure and bridge the gap between academics & industry. Some of our brightest students wish to apply for the **Internship** opportunity provided by your esteemed organization, Yudiz Solutions Limited.

We request you to consider our student for this internship opportunity.

The student details are as follows:

Sr. No.	Name of Student	Enrolment No.	Mobile No.
1	Raj Kamleshkumar Patel	190390116026	9510925075

Yours Sincerely,

AkshayKansara
Head of the Department, Computer Engineering Department,
S.P.B.Patel Engineering College, Linch.
Email: akshay.kansara@saffrony.ac.in
Contact: 9925516674

Near Shanku's Waterpark, Ahmedabad-Mehsana Highway,
At & Post : Linch, Dist. : Mehsana, Gujarat-384 435. Phone / Fax (02762) 285721
www.saffrony.ac.in • E-mail : info@saffrony.ac.in

REFERENCES

BOOKS:

- HTML5 cross platform games using Phaser 3 – HTML 5 documentation

WEBSITES:

- https://phaser.io/ - Phaser tutorial
- https://rexrainbow.github.io/phaser3-rex-notes/docs/site/ - Phaser documentation
- https://photonstorm.github.io/phaser3-docs/Phaser.Math.html - Math operation

INTERNSHIP AT FLUSOCIAL MARKETING

AN INTERNSHIP REPORT

Submitted by

Raxit Pankajbhai Patel

190390116027

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information technology 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 Flu Social Marketing** has been carried out by **Raxit Pankajbhai Patel** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Departmen

Company Certificate

FLU SOCIAL

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
www.flusocial.com
Info@flusocial.com

FLU SOCIAL
MARKETING

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Patel Raxit Pankajbhai** (Enrollment No: **190390116027**) 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.

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 **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar(Internal Guide)** & **Mr. 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.   **Raxit Pankajbhai Patel**   _____

ACKNOWLEDGMENT

Acknowledgement is just a way to express gratitude, something so deep that it cannot be express fully. Nobody is complete on its own. He/She needs someone's help in his/her life. The best way to have a good idea is to have lots of ideas. We have sincere feeling that the credit of the project could not be narrowed down. It is a great sense of satisfaction that we present our real venture in practical computing in the form of project work. It is also a matter of privilege and an honor of us to work on the project "**Modern Grid Architecture Site**". We wish to express our heart full thanks to all who assisted us during the project.

Certainly, the project could not have been completed without valuable suggestions and guidance from various sources. Very special thanks to the entire faculty and especially, who helped us to create such a system. We are very grateful to **S.P.B. Patel Engineering College** and to our college **Department of Information Technology Engineering** in which we are going to submit our project.

Abstract

The architecture website project in WordPress is such a online platform that shows the works of architects and their firms. This project aims to provide an avenue for architects to promote their services, their portfolio, and connect with potential clients. Moderngrid.in is a website that represents a company specializing in the production and distribution of bleaching earth, which is a type of clay used in various industries to remove impurities from oils and fats. The website provides detailed information about the company's products, their manufacturing process, and the applications of bleaching earth. It also offers a comprehensive understanding of the company's quality control measures, logistics and distribution networks, and its commitment to sustainability. The website aims to educate potential customers about the advantages of bleaching earth and its applications in various industries, while also providing a user-friendly platform for them to learn more about the company and its products.

List of Figures

List of Table

Abbreviations

HTML   Hypertext Markup Language

CSS   Cascadindg Style Sheets

JS   Javascript

Table of Contents

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 OF COMANY

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

CHAPTER 2: INTRODUCTION OF PROJECT

Web applications have become a much-needed and most feasible way of expanding any business or idea. A lot of developers are working hard to maintain the quality and standardsof various applications. In this internship, I got the opportunity to learn such technologies and work on some great products. During the training period, interns are exposed to a variety of activities in the field of duties, even though the job is not done entirely by internsfor security or regular students were briefed and clear guidance and useful enough as a piece of general knowledge, as well as exposed to the real working environment and can learn social skills such as communication and Team Work.

2.1 PROJECT SUMMARY

The architecture website project in WordPress is such a online platform that shows the works of architects and their firms. This project aims to provide an avenue for architects to promote their services, their portfolio, and connect with potential clients.

The website is built on the WordPress content management system, which is known for its user-friendly interface and flexibility. With WordPress, architects can easily update their website's content, add new projects, and customize the design to suit their brand.

2.2 PURPOSE

The website should be easy to navigate and visually appealing to visitors. To achieve this, the website's layout should be designed to showcase the architect's portfolio and services.

The website's navigation should be simple and intuitive, allowing visitors to quickly find the information they need. The use of clear headings, subheadings, and drop-down menus can help organize the website's content and make it easier to navigate.

2.3 OBJECTIVE

Architects can showcase their expertise by providing detailed descriptions of their past projects, including sketches, floor plans, and photographs. They can also include blog posts that discuss current trends in architecture and design.

2.4 TECHNOLOGY PREVIEW

WordPress:

WordPress is a free and open-source content management system (CMS) that is used to create websites, blogs, and online stores. It was initially released in 2003 by Matt Mullenweg and Mike Little as a fork of b2/cafelog. Today, it powers over 40% of all websites on the internet and is one of the most popular CMS platforms available.

WordPress is built using PHP programming language and MySQL database. There are two main ways to use WordPress: WordPress.com and self-hosted WordPress.org.WordPress.com is a free platform that allows users to create and host their website or blog on WordPress's servers. Users can choose from a variety of themes and plugins to customize their website, but they have limited control over the functionality of the website.

Self-hosted WordPress.org, on the other hand, requires users to download and install the WordPress software on their own web hosting servers. This option gives users complete control over their website's design, functionality, and content. Users can choose from thousands of free and paid themes and plugins to customize their website and add features such as contact forms, e-commerce functionality, social media integration, and much more.

WordPress is known for its user-friendliness, flexibility, and customization options. It comes with a built-in editor that allows users to create and edit content without any coding knowledge. It also supports multiple users with varying levels of access, making it an ideal platform for team collaboration. Additionally, WordPress is SEO-friendly and allows users to optimize their content for search engines with plugins such as Yoast SEO.

2.5 TECHNOLOGY AND TOOLS

Backend   :   PHP and JavaScript

Frontend   :   HTML,CSS, JavaScript,PHP

Database   :   MySQL

Table 2.5.1 Technology and Tools

CHAPTER 3: PROJECT MANAGEMENT

3.1 PROJECT DEVELOPMENT STEPS

We follow a simple step for making this website, firstly we visit so many sites and observe their process for creating our project. Later on, we collect all require resourcesand utilize it in a proper manner. The company instructs us to how to make it.

The First step for our project is creating a data dictionary. After that we create use casediagram for project. After that we started implementation of our project.

3.2 PROJECT COST ESTIMATION

The answer to this question really depends on what kind of website you are trying to build. A typical personal website can cost as low as $100. The cost of a business website can range from anywhere between $100 per year to as high as $30,000 per year.

3.3 PROJECT SCHEDULING

Fig 3.3 Project Scheduling

CHAPTER 4: SYSTEM ANALYSIS

4.1 SYSTEM FEASIBILITY

The system feasibility of a website is an essential part to consider when developing a website. It involves the technical, economic, and operational aspects of the website to determine whether it can be developed within the time, budget, and resources.

4.1.1 FINANCIAL ANALYSIS

A financial analysis is an important part of any feasibility study. We need to determine the costs associated with creating a WordPress website and whether it is financially able.

The costs includes the web hosting fees, domain registration, website design and development, content creation, and ongoing maintenance. We also need to estimate the potential revenue that the website could generate.

4.1.2 TECHNOCAL REQUIREMENTS

Creating a WordPress website requires certain technical knowledge. We need to make sure that we have the necessary skills and resources to complete the project successfully.

Some of the technical requirements include knowledge of HTML, CSS, and PHP, and with web hosting and domain registration. We also need to ensure that the website is optimized for search engines and mobile devices.

4.1.3 MARKETING ANALYSIS

Before creating any project, it's important to make a market analysis to determine there is a demand for the product and service or not. In the case of a WordPress website, there are many factors to consider.

Firstly, we need to identify the target audience for the website. This will help us to determine what kind of content to create and how to structure the site.

4.2 ACTIVITIES IN NEW PROPOSED SYSTEM

- real-time updates
- cloud-based storage
- 3D modeling
- architects can work more efficiently and effectively
- resulting in better designs and happier clients.

4.3 FEATURES OF NEW PROPOSED SYSTEM

Admin: Admin is the one who administers the system and input updates.

Firm Owner: Seller is the one who can add their sites in the website and analysis its related queries.

Product-Detail: It displays the design services like interior ,exterior, description of sites.

4.4   LIST MAIN MODULES /   COMPONENTS / SYSTEM

Home Page:

Description of Firm

Services Provide by Firm

Contact Detail

Project:

Interior Designed Projects

Exterior Designed Projects

Testimonials :

Happy Clients

Contact page:

Email form

Location

About US:

Company portfolio

4.5   SELECTION OF HARDWARE / SOFTWARE / METHODOLOGY / TECHNIQUES /

- **Software Requirement**

  - Web server   :   Nginx or Apache with mod-rewrite module
  - Disk space   :   At least 1 GB
  - PHP   :   Version 7.4 or higher
  - Database   :   MySQL 5.015 or higher (An alternative is
                           MariaDB, version 10.1 or higher)

- **Hardware Requirement**

  - RAM (Random Access Memory)   :   At least 512 MB
  - CPU (Central Processing Unit)   :   At least 1.0 GHz
  - Support for HTTPS

Table 4.5.1 Software and Hardware Requirement

CHAPTER 5: SYSTEM DESIGN

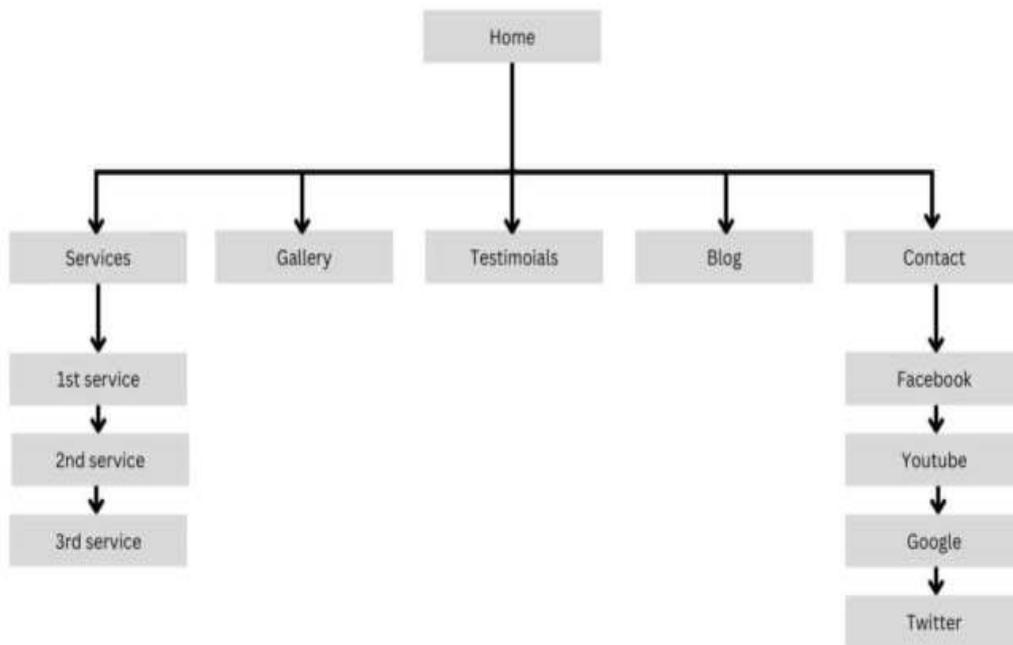## 5.1 DIAGRAMS

5.1.1 SYSTEM FLOW DIAGRAM

Fig 5.1.1 System Flow Diagram
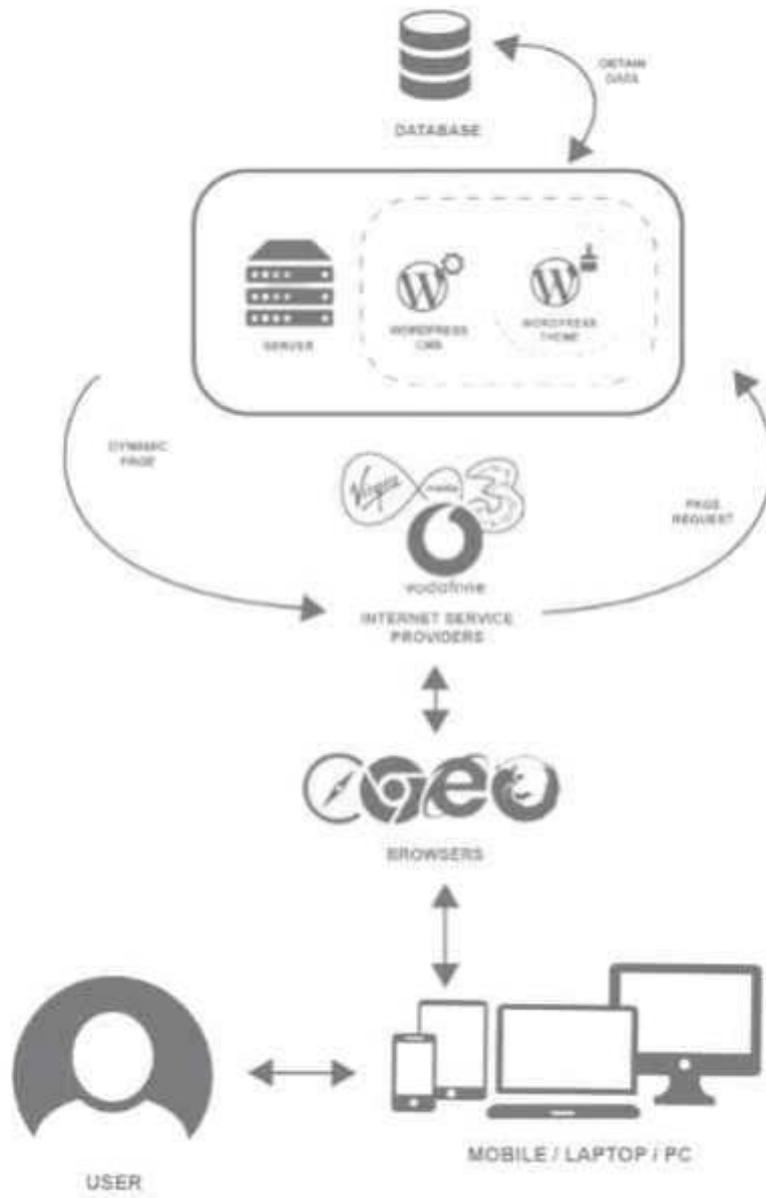
5.1.2 SYSTEM DIAGRAM

Fig 5.1.2 System Interaction Diagram
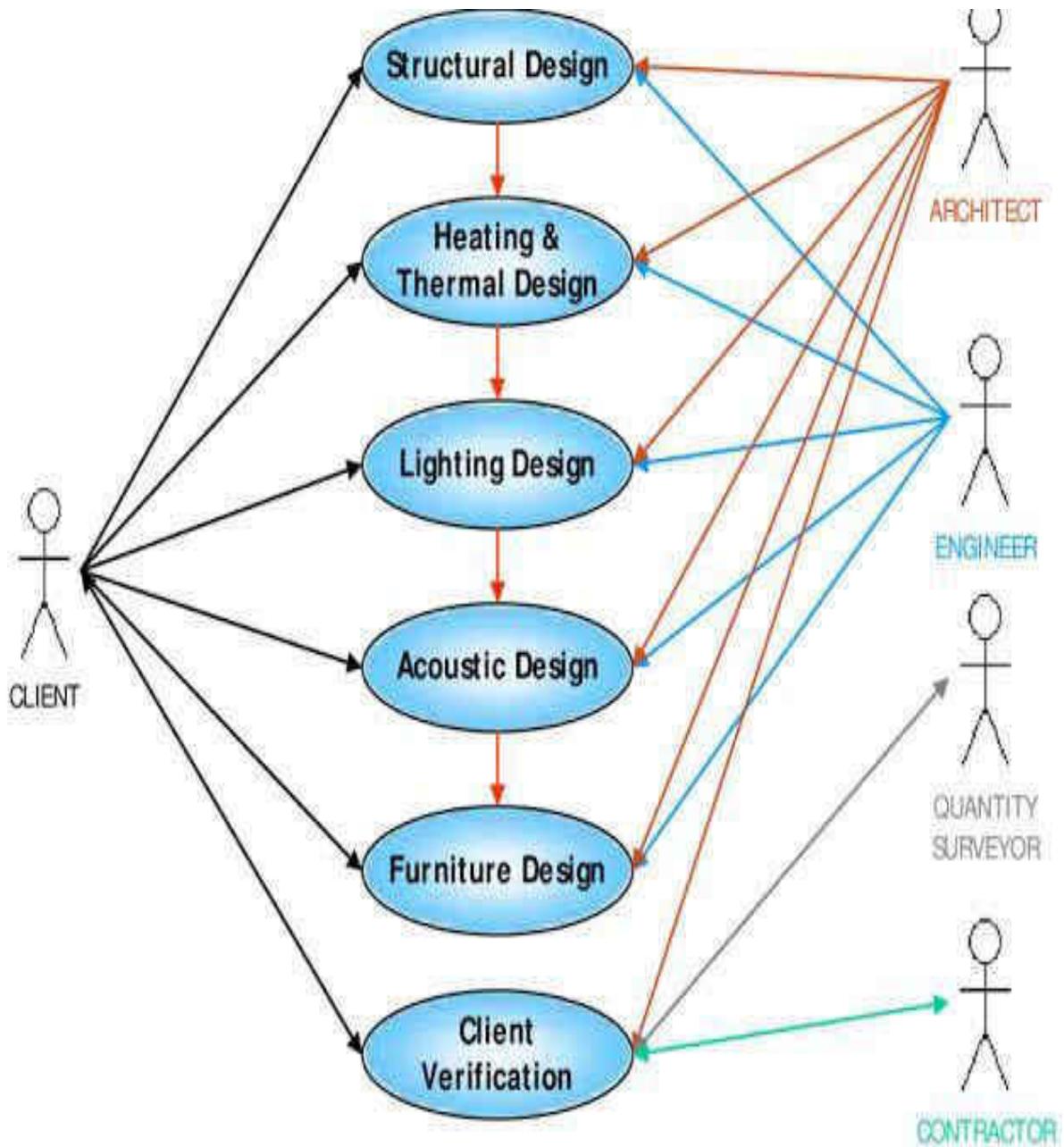
5.1.3 ACTIVITY DIAGRAM

Fig 5.1.3 Activity Diagram

5.2 DATA DICTIONARY

Wordpress is an open source database management system (DMS) which most internet providers or hosting companies provide as a database server. WordPress blogs depend mainly on MySQL databases for storing information regarding the blog. The most common lingo used for this in WordPress industry is "WordPress database".

You can easily access MySQL in the cPanel provided by localhost. Accessing MySQL (PHPmyAdmin) database will help you to do following things:

- Optimize your WordPress database
- Take the backup of database
- Drop a table

However, in 99% of the cases, you don't have to directly deal with MySQL database when you work with directly hosted websites. Rather, you can use plugins to do all the tasks.

Fig 5.2.1 Database page 1

Fig 5.2.2 Database page 2

CHAPTER 6: IMPLEMENTATION

6.1 IMPLEMENTATION PLATFORM

- Working platform: WordPress
- Programming language: HTML, CSS, PHP, JavaScript
- Web server: Apache
- Hosting provider: GoDaddy

6.2 MODULE SPECIFICATION

Admin Module: This module is maintained by the admin and only he/she can manage and have access to every account. Admin can add or delete the customer and site details. They can modify the functionalities of the system, too. Admin will be like super user having control over each and everything which make application more secure and with single security control.

Seller Module: This module is mainly dedicated to the customers who are looking for different sites. They can log in into the system, via the credentials provided to them & once they are in, they can add see the website.

Marketing module: This module will handle the promotion and optimization of the e-commerce website. It will include features such as SEO tools, analytics tools, email marketing tools, social media integration tools, and loyalty program tools. It will also integrate with the customer module to collect and analyze customer data and behavior for marketing purposes.

6.3 PLUGINS USED FOR THIS PROJECT

LiteSpeed cache:-LiteSpeed Cache for WordPress (LSCWP) is an all-in-one site acceleration plugin, featuring an exclusive server-level cache and a collection of optimization features.

- LiteSpeed Cache for WordPress potentially stores a duplicate copy of every web page on display on your site. The pages are stored locally on the system where LiteSpeed server software is installed and are not transferred to or accessed by LiteSpeed

employees in any way, except as necessary in providing routine technical support if you request it.

- All cache files are temporary, and may easily be purged before their natural expiration, if necessary, via a Purge All command. It is up to individual site administrators to come up with their own cache expiration rules.

Portfolio and Project :-A very simple plugin to add portfolio – The Most creative Mobile   touch Slider – for WordPress.

- It is the free and most modern mobile touch slider with hardware accelerated transitions and amazing native behaviour. It is intended to be used in Desktop and mobile websites.

Really Simple SSL:- It will automatically configure your website to use SSL to its fullest potential. Use extra hardening features to secure your website, and use our server health check to keep up-to-date.

- Easy SSL Migration: Takes your website to HTTPS in just one-click.

- Server Health Check (New): Your server configuration is every bit as important for your website security.

- WordPress Hardening (New): Tweak your configuration and keep WordPress fortified and safe by tackling its weaknesses.

WP Mail SMTP:- Although you can use most email services for free, if you want to send transactional messages from a website you might need to pay for a premium plan. For example, if you send transactional messages in mass from a regular Gmail address, many email service providers will brand those messages as spam. To avoid that, you'd need to use something like a Google Workspace account, which offers an SMTP service that can handle transactional emails.

6.4 SEO(Search Engine Optimization)

What Is SEO?

SEO stands for search engine optimization, which is a set of practices designed to improve the appearance and positioning of web pages in organic search results. Because organic search is the most important way for people to discover and access online content, a good SEO strategy is essential for improving the quality and quantity of traffic to your website.

The key difference between SEO and paid advertising is that SEO involves "organic" ranking, which means you don't pay to be in that space. To make it a bit simpler, search engine optimization means taking a piece of online content and optimizing it so search engines like Google show it towards the top of the page when someone searches for something.

When it comes to broader SEO, there are two equally important paths: **on-page SEO** and **off-page SEO.**

ON PAGE SEO:- In this way, on-site SEO is less about keyword repetition or placement and more about understanding who your users are, what they're looking for, and about what topics (keywords) can you create content that best fulfills that need. Pages that meet these criteria have content that is:

- **In-depth.** It's more or less assumed that content must be sufficiently thorough in order to stand a good chance at ranking.
- **User-friendly.** Is the content readable? Is it organized on your site in such a way that it's easily navigable? Is it generally clean, or with ads and affiliate links?
- **Unique.** If not properly addressed, content duplicated from elsewhere on your site (or elsewhere on the Internet) may impact a site's rank.
- **Trustworthy.** Does your content stand on its own as a reliable resource for information on a particular topic?
- **Aligned with user search intent.** Part of creating and optimizing for quality content is also delivering on searcher expectations. Content topics should align with the search queries for which they rank.

OFF PAGE SEO:- It also known as off-site SEO, describes optimization techniques that can improve your ranking in search engine results pages (SERPs). These techniques, however,

happen outside of your site and involve attracting links from other websites, shares on social media, and mentions across the web.

Off-page SEO is an effort (such as through social media marketing or influencer marketing) to generate links and ratings, so your site rises in credibility and rank. Off-page SEO is out of your control.

6.5 SOME IMPORTANT TERMS USED FOR PROJECT

6.4.1 DOMAIN

- A domain name refers to the URL people type in a web browser's address bar to access your site. In other words, domain names offer a convenient way for people to access websites. The numerical label assigned to every website and server on the internet, also known as an **IP address**.

- Generally, domain names are comprised of two main parts – a **second-level domain** (SLD) and a **top-level domain** (TLD). Second-level domains usually consist of words or phrases, while top-level domains are the predetermined extensions that follow. For example, in the case of **google.com**, the second-level domain is **google**, and **.com** is the TLD.

6.4.2 HOSTING

- Web hosting services allow you to publish the website on the internet. If you buy a hosting service from a provider, you will have a portion of their web servers to store your website's files and data.

- Besides, a hosting provider usually offers customer support, server maintenance, and website builders to help users create and maintain their site.In addition to storing website files, a web host protects the server and your website files from malicious attacks.

- Some web hosting companies, such as Hostinger, also provide domain registration to help you create a website even quicker and more efficiently.

CHAPTER 7: TESTING

7.1 TESTING PLAN

- The testing plan serves as a roadmap for the testing team and help to ensure that all testing activities are executed efficiently and effectively.
- Testing should be documented to provide efficient resource control monitoring.
- Test Plan: A test plan is a document that consists of all future testing-related activities. It is prepared at the project level and in general, it defines work products to be tested, how they will be tested, and test type distribution among the testers.
- It acts as a quick guide for the testing process.
- It determines the time, cost and effort.
- Avoid lengthy paragraph.
- Update plan.
- Don't use outdated document.

7.2 TEST RESULT AND ANALYSIS

- Test results and analysis are an essential part of the testing process. After executing that, the testing team analyzes the test results to identify any defects, issues and other problems with the software application or system under test.
- Collect test results: The first step is to collect the test results generated during the testing process. This includes test case execution results.
- Identify defects: Review the test results to identify any defects or issues with the application or system under test.
- Analyze defects: Analyze each defect in detail to determine its solution.
- Report defects: Report the defects to the development team using a defect tracking tool.
- Retest defects: After the defects have been fixed, the testing team should retest them to ensure that they have been resolved correctly.
- Provide feedback: Provide feedback to the development team.

7.3 THE BENEFITS OF WEB APPLICATION TESTING

Compatibility across browsers:

Every user uses different browsers while surfing websites. The practice of web application testing helps the apps to function the same for every user using different browsers.

Improves website performance:

The methodology of web application testing successfully helps to overcome the slow app performance. Applications with slow performance are not the choice for any user and Google even. Web app testing helps to resolve the load time delays because of the graphics, code, etc.

Secures App from vulnerabilities:

Security is important factor for every application. Day-by-day the rate of website hacks is increasing, so there is need for all enterprises web app testing to make sure free from the different kinds of threats.

Ensures high quality of the application:

The end-to-end testing practice effectively helps in enhancing the performance and functionality of the app. And, this way of testing helps to find and resolve the bugs at earliest. Thus, a high-quality app will be achieved before the release.

Reduces the Time and Cost Consumption:

This will help the enterprises to achieve quality results with reduced time and cost.

CHAPTER 8: CONCLUSION AND DISCUSSION

8.1 OVERALL ANALYSIS OF INTERNSHIP

The project is for preference of sites.The software takes care of all the requirements of the process and is capable to provide easy and effective storage of information related to customers and owner that come up to the system. In this system customers can easily view for some special one site design. And they can find all types of architecture sites according of their needs. In this system admin can provide preference according of customer their needs.

I have learnt so many things such as managing URLs, database queries and many more.

8.2 SUMMARY OF INTERNSHIP 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 conditions did not permit. I got insight into professional practice. Related to my study I learned more about how to make project with Wordpress. 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.

8.3 IMAGES OF WEBSITE
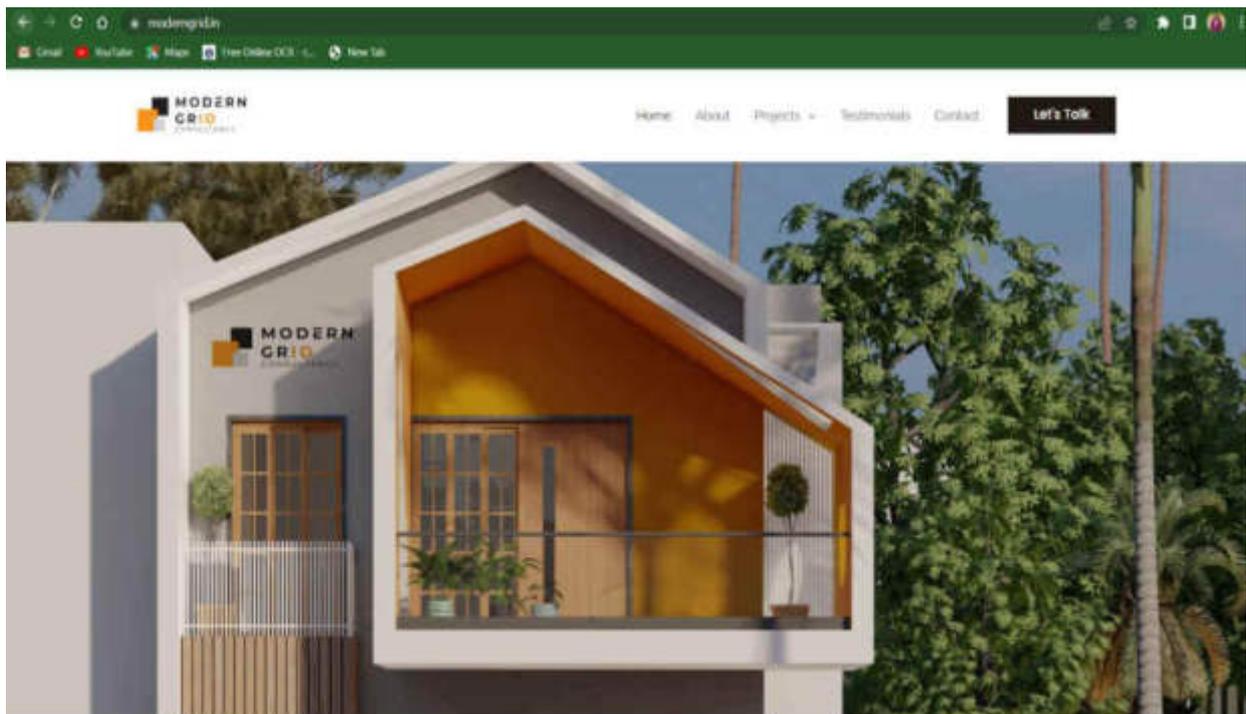
Fig 8.3.1 Home Page 1

Fig 8.3.2 Home Page 2
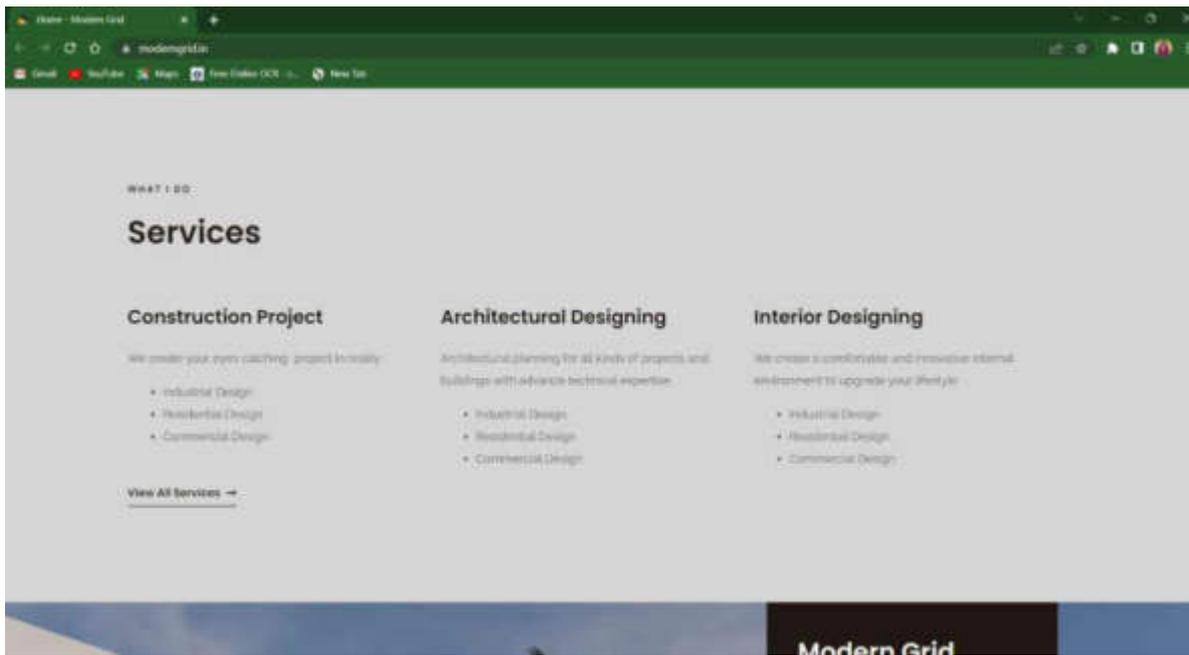
Fig 8.3.3 Home Page 3
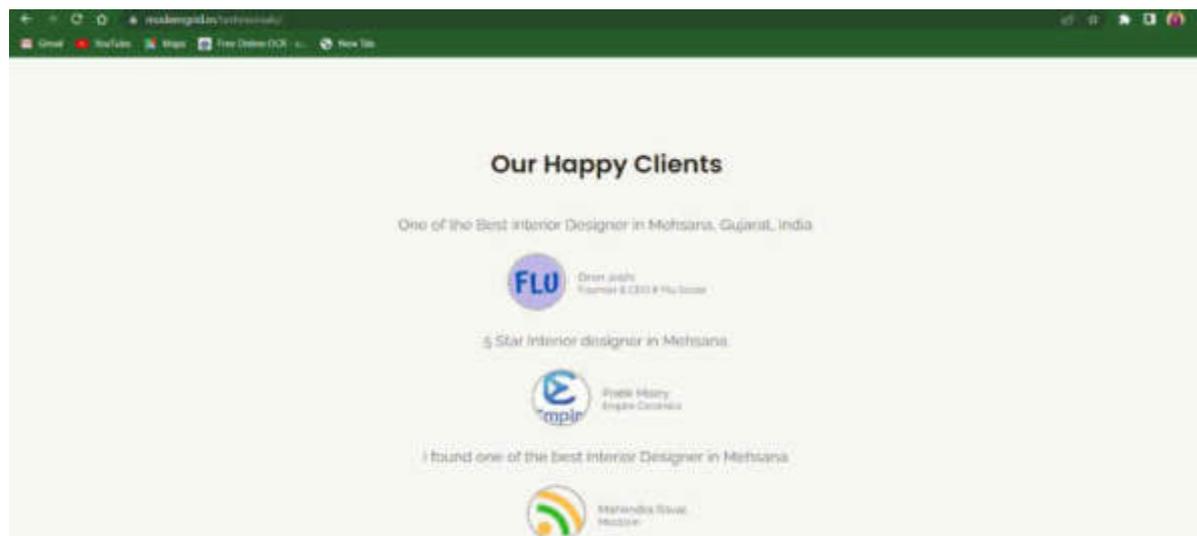
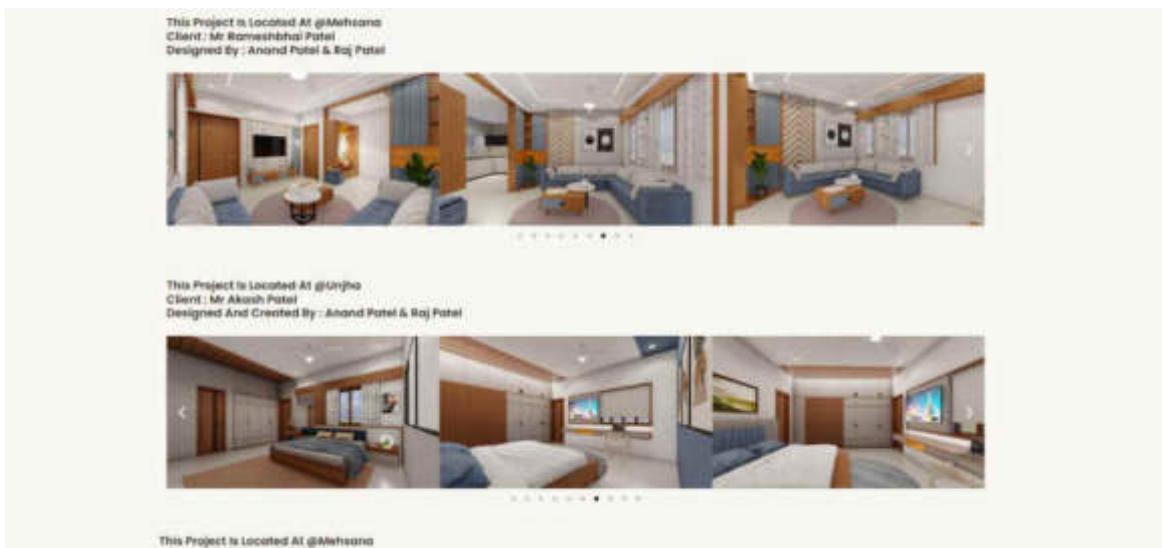Fig 8.3.4 Testimonials Page
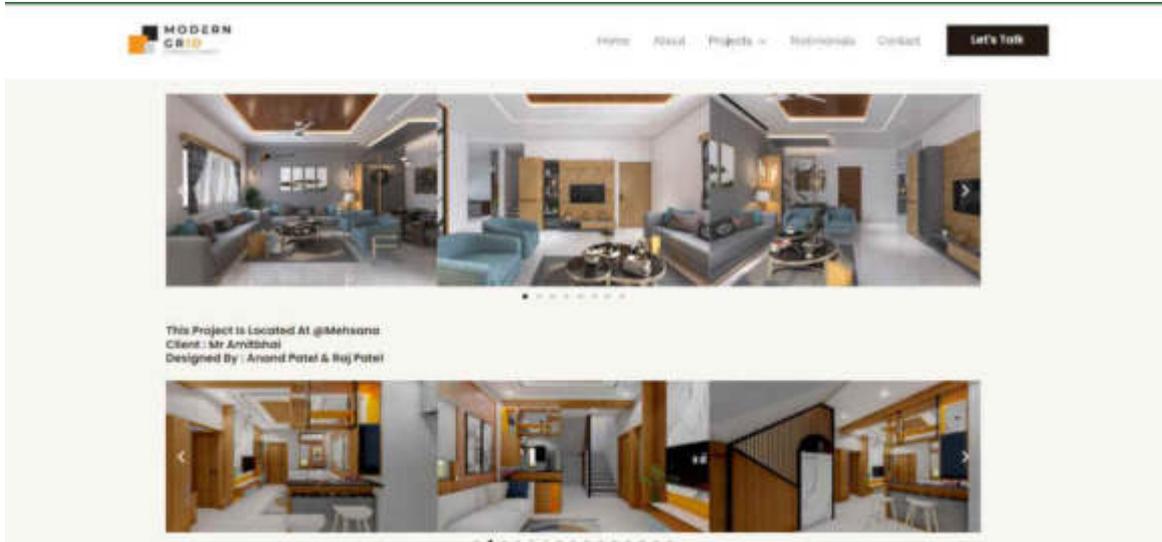
Fig 8.3.5 Project Interior Page1

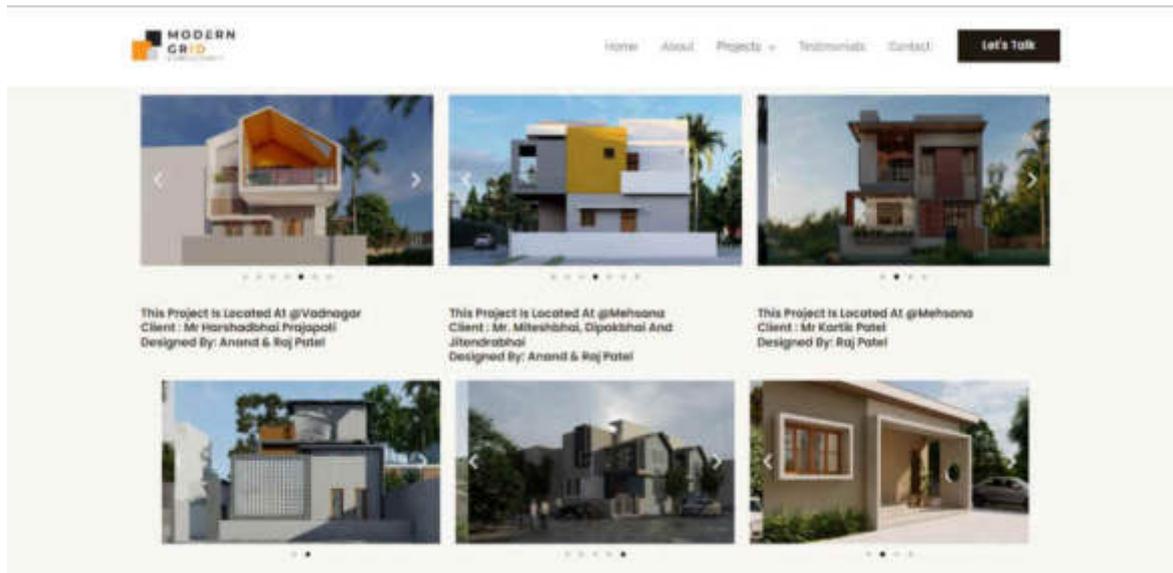Fig 8.3.6 Project Interior Page 2
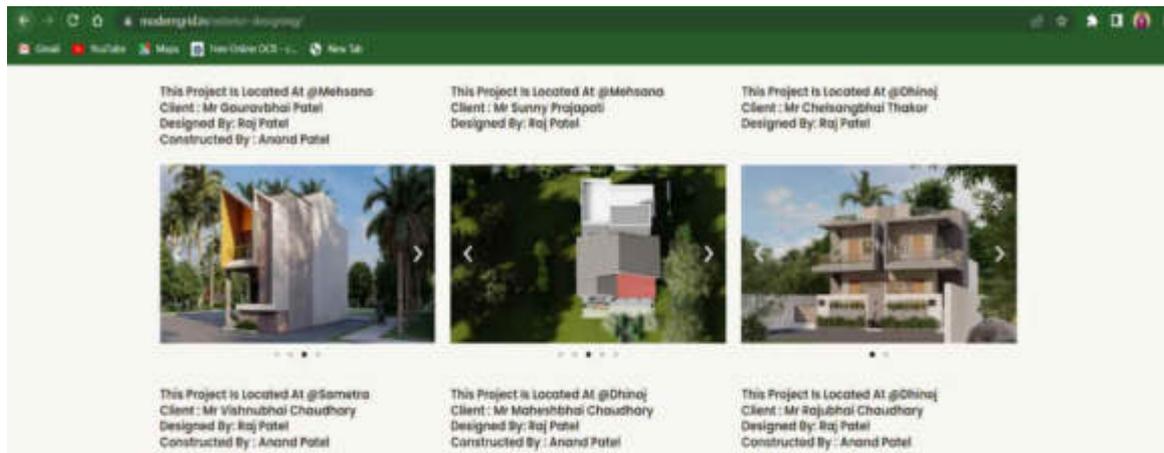
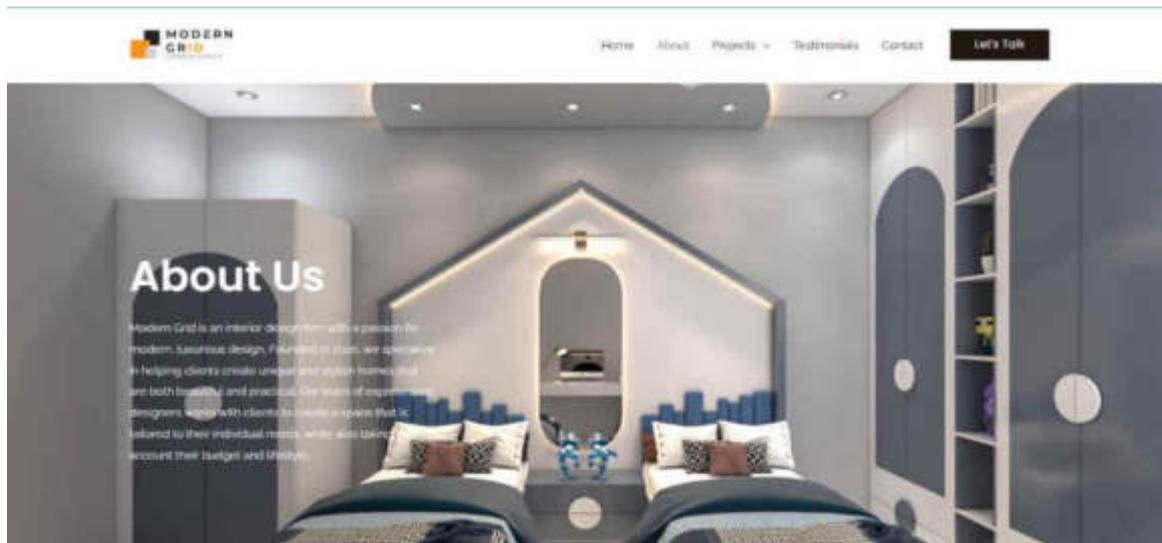Fig 8.3.7 Project Exterior Page 1

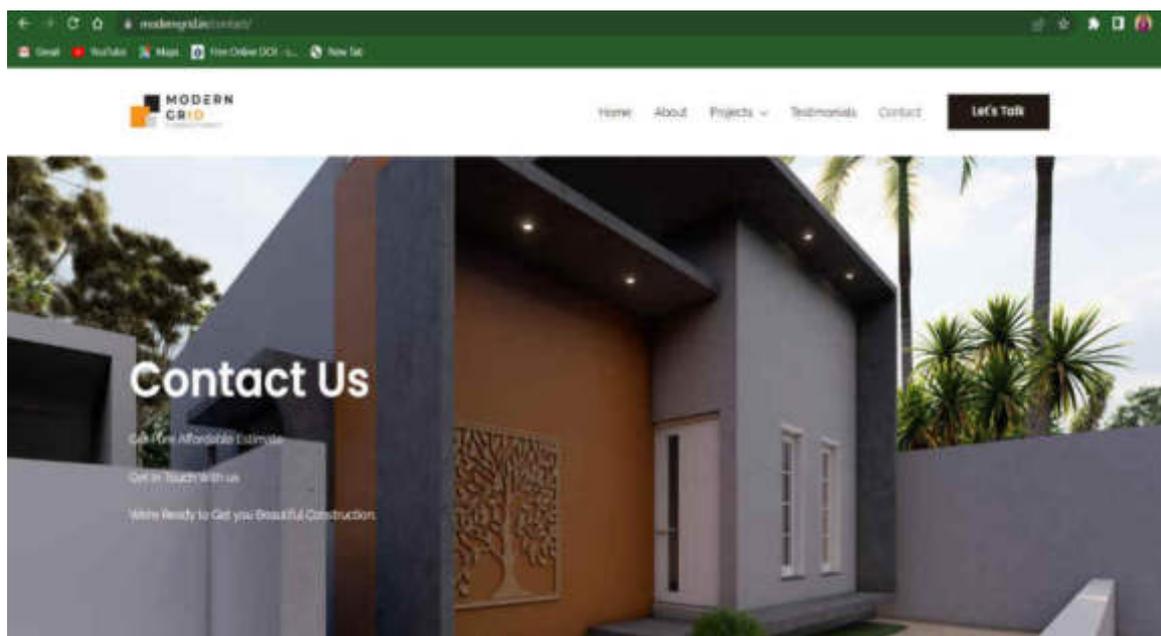Fig 8.3.8 Project Exterior Page 2
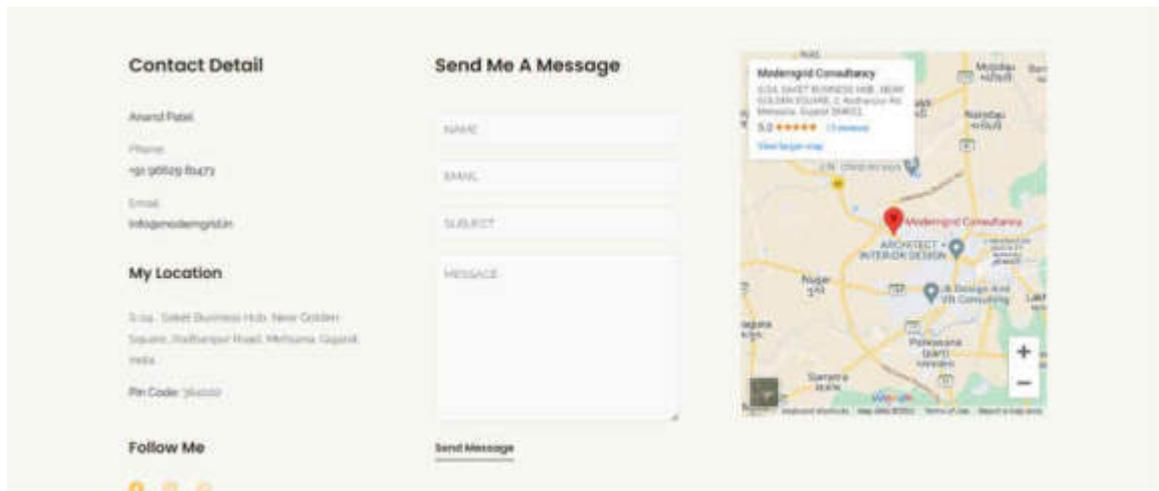
Fig 8.3.9 About Us Page

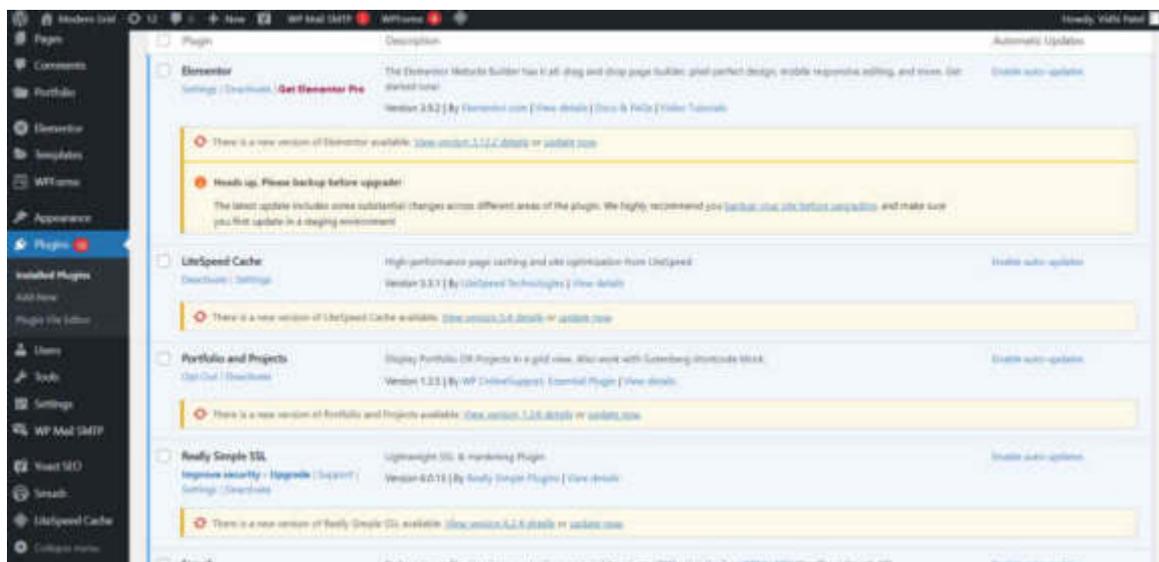
Fig 8.3.10 Contact US Page 1
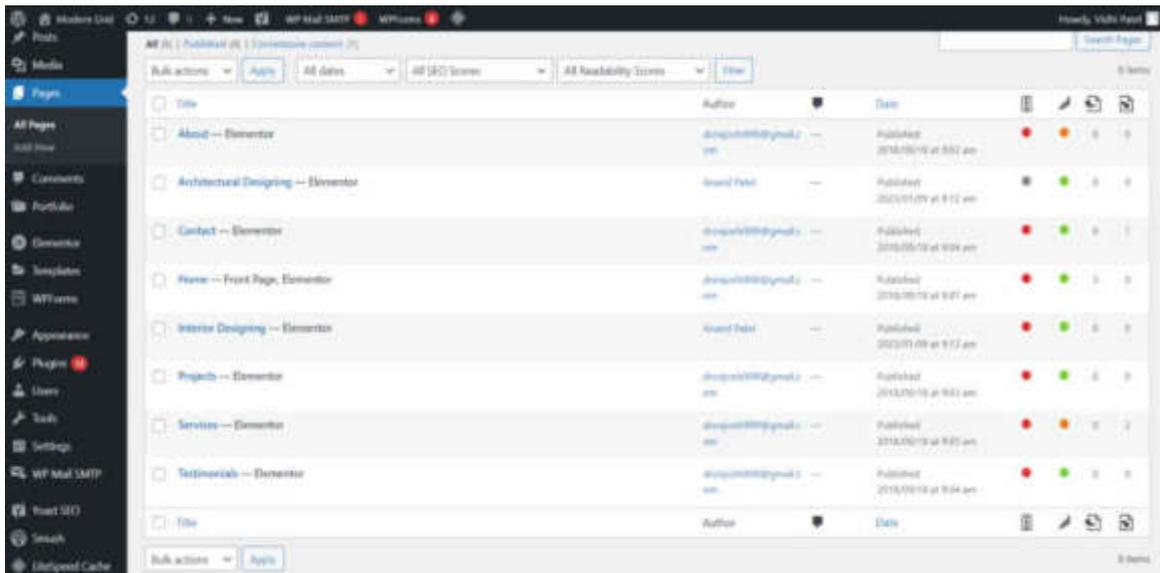
Fig 8.3.11 Contact US Page 2

Fig 8.3.12 Dashboard

Fig 8.3.13 dashboard

References

[1]   https://developer.wordpress.org/

[2]   https://www.javatpoint.com/wordpress-tutorial

[3]   https://youtu.be/GlLRYml8mCY

[4]   https://wordpress.org/documentation/

[5]   https://www.hostinger.in/tutorials/how-to-make-a-wordpress-site-live?ppc_campaign=google_search_generic_hosting_all&bidkw=defaultkeyword&lo=92986 51&gclid=CjwKCAjwuqiiBhBtEiwATgvixFdfCUpq6PyeXKnDT_UBcYE2vPKXtDZQY35j Azgf5qcOwzUbjfL6QxoCCs4QAvD_BwE

Appendix

Flu Social

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
Info@flusocial.com

January 20, 2023

OFFER LETTER

Subject: Internship Confirmation Letter for Raxit Pankajbhai Patel

Dear Sir/Ma'am,

This is to certify that Mr. Raxit Pankajbhai Patel, student of Information & Technology Engineering in S.P.B.Patel Engineering College (Saffrony Institute of Technology). Semester 8 has been successfully allocated to his Internship from Flu Social.

Details of student are as below:

Name of the student: Raxit Pankajbhai Patel

College: Gujarat Technological University (S.P.B.Patel Engineering College (Saffrony Institute of Technology))

Course: Bachelor of Engineering

Branch: Information & Technology Engineering

Enrollment Number: 190390116027

Project In: Web Development & SEO, eComm Platform

Project Description: WordPress Development with HTML,CSS & PHP, Digital Marketing, SEO, Graphics Designing & Content Creation.
An Online eCommerce Platform for IT Services /Reseller Global Platform.

Project Guide: Yash Patel

Technology: WordPress + Woocommerce with Yoast SEO, Screaming Frog, UberSuggest, Google Analytics, WebMaster, Hostinger Tools, CloudFlare, Facebook Business Ads Manager.

Duration: 12 Weeks (Starting from 23 Jan 2023)

We are confident that he will be able to make a significant contribution to the success of our company.

Best regards,

Dron Joshi (Founder & CEO)

INTERNSHIP AT SOLWIN INFOTECH

AN INTERNSHIP REPORT

Submitted by

Patel Rutvik Rajeshbhai

190390116028

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 Solwin Infotech** has been carried out by **Patel Rutvik Rajeshbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Prof. Sushama Sainwar

Internal Guide

Sign

Prof. Akshay Kansara

Head of Department

01-05-2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. Rutvik Rajeshbhai Patel** (Enrollment No.-190390116028) student of Saffrony Institute of Technology, Ahmedabad has completed the 1st Phase (12 Week) of Student Internship Program at **Solwin Infotech LLP, Surat** from **07-02-2023 to 01-05-2023** as Trainee Android Developer.

During the internship, we have found him to be dedicated and knowledgeable about the subject and his performance toward completion of assigned tasks has been satisfactory.

Overall, **Rutvik** made a positive impression during the first phase of the internship, and we are confident that he will gain valuable skills and knowledge in the remaining phases that will be beneficial in his future endeavors. We wish him a successful and good career ahead with us.

Yours Sincerely,
For, Solwin Infotech LLP
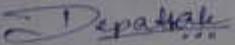
HR Executive
(Devanshi Pathak)

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 Solwin Infotech** submitted in partial fulfillment for the degree of Bachelor of Engineering in Information Technology to Gujarat Technological University, Ahmedabad,is a bonafide record of original project work carried out by me under the supervision of "**Mr. Piyush Narola"** 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 Rutvik Rajeshbhai   _____

ACKNOWLEDGEMENT

First of all, I would Like to thanks to University and Institute for providing such kind of opportunity for students to develop their skills in their subjects.

I would like to express my deepest gratitude to all those who provided me the possibility to the completion of the internship. A special gratitude of thanks I give to my external guide **Mr. Piyush Narola**, whose contribution in stimulating suggestions and encouragement, helped me to coordinate the internship especially in drafting this report.

I would like to thank my internal guide **Prof. Sushama sainwar** and **HOD Prof. Akshay** Kansara for helping us throughout internship by giving us the necessary suggestion and advice along with their valuable coordination in completing this internship.

ABSTRACT

The Sell Shop is an E-commerce mobile application that allows users to browse and purchase products online. The app is developed using Java and Android platforms and integrates APIs for seamless communication with the online store. The application also utilizes Figma Design for designing and prototyping the user interface. The primary objective of this project is to develop a comprehensive e-commerce platform that offers an easy-to-use interface and a seamless shopping experience for users. The app features a robust product catalog, allowing users to browse and select products with ease. The products are displayed with images, descriptions, and prices to help users make informed purchasing decisions.

List of Figures

List of Screen Shots

Table of Contents

CHAPTER : 1 OVERVIEW OF THE COMPANY

Company Name: Solwin Infotach

Address: C-504, Shreeji Arcade, B/H Bhulka Bhavan School, Anand Mahal Road, Adajan, Surat, Gujarat 395009.

Contact No: +91 91377 20470

Email Id : info@solwininfotech.com

Website: https://www.solwininfotech.com/

1.1 History of Company

Solwin InfoTech is a professional IT services firm dedicated to giving the very best of the IT services with a focus on standard quality work, uniqueness, and best user experience. Solwin InfoTech is located in Surat, Gujarat (India), and is happy to offer its expertise in Professional IT Services and Training. The tried-and-true system is based on over 13+ years of cumulative experience shared between teams. Much of today's business is transacted over the web or over the phone without an in-person meeting. By taking care of our busy clients, they're providing 24*7 work support on demand. The firm offers various services like Application development,Web development, Web designing, Digital Marketing, Project training, etc.

1.2 Different Product /Scope Of Work

- App Development

- Website Development

- Software Development

- Digital Marketing

- Search Engine Optimization

- UI-UX Design

- Graphics Design

- E-Commerce Development

1.3 About us

Solwin Team Has The Mission To Create The Most Professional & Versatile Themes, Plugins & Extensions For Wordpress And Magento Ecommerce.

At Solwin Infotech, we provide flexible and scalable web, mobile and marketing solutions that help your business grow. We also provide dedicated resources for PHP, web designing, ASP.Net, SEO and WordPress. The hired dedicated resources would work for you exclusively and you would be able to communicate with him / her regularly.

Why join solwin ?

At Solwin Infotech, we believe that employees are the back bone of an organization. They are the most important people that contribute to a company's growth. We offer professional as well as friendly environment to the employees. We inspire the employees to out in their best efforts for all the projects. We follow a transparent approach with our employees. People are free to ask questions to the colleagues and seniors. Regardless of the seniority and position, the employees can ask questions and clarify their doubts about the company, projects, etc. We have a state-of-the-art infrastructure to make the employees comfortable. We also encourage clients to visit our premises and meet the professionals working with us personally.

CHAPTER : 2 OVERVIEW OF THE DEPARTMENT

2.1 It includes the details about the work being carried out in each department.

Business Development

Drive the product sales and clients from the market through online portals and offline. Also from abroad.

Designing Department

Design the products prototypes and services as per client requirements.

Development Department

Develop the high-end functionalities as per client requirement and deploy them on to live server on Google.

QA

Test the product functionalities and solve the bugs if any present in the proposed system.

2.2 List the technical specification of major equipment used in each department.

Processor details: - i5/i7 Intel 6th Generation Ram details: - 8/16 GB

Hardware: - 1TB SSD ,

Dell desktops 19'' Internet connectivity: - 5G

2.3 Prepare Schematic layout which shows the sequence of operation for manufacturing of end product

[FIG : 2.3 Schematic Layout]

2.4 Explain the details about each stage of production brainstorming

It is a method of generating ideas and sharing knowledge to solve a particular commercial or technical problem, in which participants are encouraged to think without interruption. Brainstorming is a group activity where each participant shares their ideas as soon as they come to mind.

Design

Design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process (often iterative), in which the basic science and mathematics and engineering sciences are applied to convert resources optimally to meet a stated objective.

Development

A Deployment Engineer is responsible for the deployment of releases into the production environment. A Deployment Engineer is responsible for the safe deployment ofone or more releases into the production environment. A Deployment Engineer deploys releases into production.

Quality Assurance

A QA Engineer is a professional who finds and fixes bugs in a product or program

before its launch, collaborating with developers on fixes to those problems when necessary.

Deployment

A Deployment Engineer is responsible for the deployment of releases into the production environment. ADeployment Engineer is responsible for the safe deployment ofone or more releases into the production environment. A Deployment Engineer deploys releases into production.

CHAPTER : 3 INTRODUCTION OF INTERSHIP

3.1 Introduction to Project

The Sell Shop project is an e-commerce Android application that aims to provide a user-friendly shopping experience to customers. The project was undertaken as part of an internship program in Android development, with the goal of gaining practical experience in app development and real-world exposure to the challenges and opportunities of the field.

The Sell Shop app allows users to browse through various product categories, add items to their cart, and make payments securely. It also features a user account system, which enables users to save their preferences, view their order history, and receive personalized recommendations. The app was built using Android Studio, a popular integrated development environment for Android app development. It leverages various technologies and frameworks, including Retrofit API for network calls, Firebase database for data management, and Java data structures for efficient storage and retrieval of information.

The Sell Shop project provided a valuable learning opportunity for the developer, allowing them to apply their knowledge and skills to solve practical challenges and make design decisions. It also highlighted the importance of collaboration, communication, and time management in app development.

Overall, the Sell Shop project is a testament to the developer's dedication and passion for learning and growing as an Android developer, and serves as a solid foundation for future projects and endeavors.

3.2 Internship Summary

I worked on a project called "Sell Shop," which is an e-commerce app that allows users to browse and purchase products. Through this project, I learned about the following concepts:
User interface design: I was responsible for designing the app's user interface, which required me to learn about various design principles and tools.
API integration: I integrated various APIs into the app to access external services and data,

which taught me about HTTP protocols and JSON.

Database management: I worked on managing the app's database, which involved learning

about Firebase DB and other related technologies.

Debugging and testing: I learned how to use various debugging and testing tools to identify and fix bugs in the app. As you'll see, the model delivered an accuracy of75.09%. That's good enough for us yet.

3.3 Purpose

- Enhance customer experience by providing a seamless and user-friendly shopping platform
- Increase sales and revenue for the business
- Enable efficient management of inventory and order processing
- Provide personalized recommendations and promotions to customers
- Improve overall brand image and customer loyalty.

3.4 Objective

During the internship, the main objective is to gain practical experience in the development of Android applications. The focus will be on learning how to create high-quality, user-friendly applications that meet the needs of end-users. This will involve working with Android Studio, Java and other relevant technologies to build and deploy applications that run on Android devices. Additionally, the objective is to learn how to troubleshoot and debug applications, as well as to develop an understanding of software design patterns and best practices for mobile app development. Ultimately, the goal of the internship is to develop a portfolio of Android projects that demonstrate the skills and knowledge acquired during the program, and to use this experience to launch a successful career in mobile app development.

3.5 Scope

During this internship, the scope of the project is to develop an Android application that caters to the needs of the users. The application will be developed with the latest technologies and trends in Android development. The primary goal is to provide the user with a seamless experience by creating a user-friendly and visually appealing interface. The application will focus on implementing various features such as login, registration, search functionality, push notifications, and a smooth checkout process. The scope also includes testing and debugging the application to ensure a smooth and error-free user experience. Furthermore, the internship aims to provide hands-on experience in the development process, from design to deployment.

3.6 Technologies

Technology: - What is Android ?

Android is an open-source mobile operating system developed by Google. It is based on the Linux kernel and designed primarily for touchscreen devices such as smartphones and tablets. Android provides developers with a comprehensive software development kit (SDK) and a range of tools to build applications for the platform.

It is used for

- Android development is primarily used for building mobile applications that run on Android-powered devices, such as smartphones and tablets.
- Android apps can be developed using various programming languages, including Java, Kotlin, and C++, as well as development frameworks such as Android Studio and Xamarin.
- Android development also involves working with various APIs and libraries, such as the Android SDK, Google Play Services, and Firebase, which provide additional functionality and services for apps.
- Android development is essential for businesses and organizations that want to reach a wider audience and engage customers through mobile devices, as well as for individual developers who want to build their own apps and contribute to the Android app ecosystem.

What can Android Development do ?

- Develop mobile applications for various industries
- Create user-friendly interfaces with material design
- Integrate various hardware and software features of devices
- Utilize cloud services for data storage and retrieval
- Implement security measures to protect user data and privacy

Why Android Development ?

- High market demand and potential for app distribution
- Compatibility with a wide range of devices
- Integration with Google services and APIs
- Robust development tools and community support
- Opportunity for innovation and creativity in app design and functionality

What is Java for Android Development ?
- Java is a programming language used to develop Android applications.
- It is an object-oriented language that is designed to be platform-independent.
- Java code is compiled into byte code, which can be run on any device with a Java Virtual Machine (JVM).
- Android Studio, the official integrated development environment (IDE) for Android app development, uses Java as its primary language for coding.

How Does a Java & Android Development Work?
- Java is used as the primary programming language for Android development.
- The Android software development kit (SDK) provides the necessary tools and APIs for developing Android applications.
- The development process involves designing the user interface, writing code in Java, testing the application, and deploying it to the Google Play Store.

3.7 Project Planning

Generalized project scheduling tools and technique can be applied with little modification to software projects.

Program evolution and review techniques (PERT) and critical path method (CPM)are two project scheduling method that can be applied to software development. Both techniques are driven by information already developed in earlier project planning activities:

1. Estimate of effort.

2. A decomposition of the product functions.

3. The selection of appropriate process model and task set.

3.7.1 Approaches and Justification

Internships are officially commissioned by the company and also feature documentation or certificates that justify an intern's time at the company. Internships are essential for gaining hands-on experience and are one of the best methods of adapting to job roles that you like. For instance, if you complete an internship as a Android Developer, then you will become prepared to function in any of the respective professions with ease. Internships also makeother companies more likely to hire you, assuming that you are

already trained in the job role.

Java is one of the most widely used programming languages for Android app development. Its extensive libraries and frameworks, such as Android Studio, make it easy to create and publish high-quality apps. Moreover, Java's robust ecosystem offers a range of tools and resources for developers, making it a preferred choice for many in the field.

3.7.2 Roles and Responsibilities

- Do research for a new project.
- Learn more about competitors.
- Figure out better systems.
- Create a presentation.
- Keep an organized workspace.
- Complete additional training.
- Ask customer for feedback.

CHAPTER : 4 SYSTEM ANALYSIS

4.1 Study of Current System

1. Identify the sources of product data: Determine which sources the app is using to display products. Are they using APIs, web scraping or manual input to get product content? Make a list of all the sources and note their formats.

2. Analyze the product content: Examine the product content being displayed on the app. What types of products are being displayed? Are they categorized by category, brand, or price range? Is there a search function available? Note down all the features and functionalities.

3. Study the user interface: Analyze the user interface of the sell shop app. How is the product content being displayed? Is it easy to navigate? Are there any interactive features like commenting, sharing, or adding products to the cart? Note down all the features and functionalities.

4. Identify the technology stack: Determine which technologies are being used to build the sell shop app. Is it built using Java or some other framework? What front-end technologies are being used, such as XML, JavaFX, or Android UI? Make a list of all the technologies being used.

5. Look at the database schema: Study the database schema of the sell shop app. What tables are being used to store product content, user data, and other information? What relationships exist between the tables?

6. Identify areas for improvement: Based on the analysis of the sell shop app, identify areas where improvements can be made. Are there any missing features that could be added? Can the user interface be improved? Are there any performance issues that need to be addressed?

4.2 Problem and Weakness of Current System

The current system used by many e-commerce apps, including Sell Shop, may suffer from problems such as slow loading times and complex navigation. These issues can frustrate users and lead to a decrease in sales. Another weakness is the lack of personalization and tailored recommendations, which can limit the potential for cross-selling and upselling. Additionally, the current system may not have robust security measures in place, putting sensitive user information at risk of theft or misuse. These issues highlight the need for Sell Shop to improve

the user experience, enhance personalization features, and strengthen security measures to ensure customer trust and satisfaction.

4.3 System Feasibility

1. Android development: The development team must be skilled in Android app development to create an app that runs smoothly on Android devices.

2. API integration: Sell Shop may need to integrate with various APIs, such as payment gateways, shipping carriers, and product search engines, to provide customers with a seamless shopping experience. The development team should have experience in integrating APIs and handling errors that may occur.

3. Postmen for checking API reasons: To ensure smooth API integration and identify and fix any issues that may arise, the team can use Postman, a powerful API testing tool that allows developers to send requests and view responses. This will enable the development team to identify API reasons for any errors and debug them quickly.

4. Security: Since Sell Shop deals with sensitive customer information, such as shipping addresses and payment details, it's essential to implement appropriate security measures to protect this data. The app should use encryption to ensure that customer data is transmitted securely.

5. Payment processing: Since Sell Shop currently provides only cash on delivery, the payment processing system needs to be efficient and reliable to ensure that payments are collected correctly. The development team should have experience in developing payment processing systems and handling errors that may arise during the payment process.

6. Usability: The Sell Shop app should be user-friendly and easy to navigate to ensure that customers can find what they need.

Six Factors To Consider Before Developing An ECommerce App

01 Conduct Thorough Market Research   02 Study Your Competitors   03 Create Buyer Personas   04 Assign A Budget For The App   05 Choose The Perfect Mobile App Platform   06 Focus On The App's Wireframe

[FIG : 4.3 System Feasibility]

4.5 Activity/ Process in New System/ Proposed System

- User registration and login process.
- Displaying the products available for sale on the app.
- Allowing users to search for products based on different criteria such as category, price range, etc.
- Allowing users to add products to their cart and proceed to checkout.
- Processing orders and generating invoices for users.
- Providing users with real-time updates on the status of their orders and estimated delivery time. Allowing users to leave feedback and ratings for products they have purchased.
- Enabling users to track their purchase history and order details.
- Providing customer support through the app via chat or email.

Proposed System

- Allow users to browse through available products and services on the app. • Implement user authentication to ensure secure access to personal data and purchase history.
- Provide a search functionality to allow users to find specific products or services.
- Allow users to add products or services to their cart and proceed to checkout.
- Implement payment integration to enable users to make payments securely.
- Store user purchase history and metadata in a database.
- Generate personalized recommendations for users based on their purchase history and interests. • Send real-time updates and notifications to users about their orders and order status.
- Allow users to provide feedback and ratings for products or services. • Implement inventory management to keep track of available products and services.
- Provide customer support through the app to resolve any issues or queries related to orders.

[FIG : 4.5 Process in New System]

CHAPTER : 5 SYSTEM DESIGN

5.1 System Design and Methodology

- Requirement analysis: This stage involves identifying the functional and non-functional requirements of the Sell Shop app, such as the features, user interface, performance, security, and usability.

- System design: This stage involves defining the architecture, components, modules, interfaces, and data of the Sell Shop app. It would also involve selecting appropriate software development tools and technologies, such as Android Studio, Java programming language, and XML.

- Implementation: This stage involves coding, testing, and debugging the Sell Shop app using the selected software development tools and technologies.

- Testing: This stage involves testing the Sell Shop app to ensure that it meets the specified requirements, such as functionality, performance, security, and usability. Different types of testing may be performed, such as unit testing, integration testing, and user acceptance testing.

- Deployment: This stage involves deploying the Sell Shop app to the Google Play Store or other app distribution platforms, making it available for download to Android users.

- The methodology used for developing the Sell Shop app could be an iterative and incremental approach, such as Agile or Scrum. This would involve dividing the development process into small iterations, each of which would deliver a working increment of the app. The development team would work closely with the stakeholders, such as the client and end-users, to ensure that the app meets their evolving requirements and feedback.
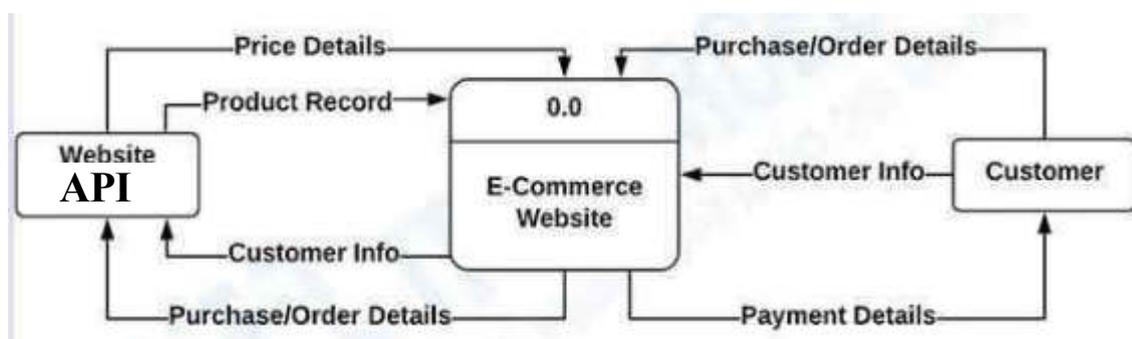
[Fig 5.1 System Design]

5.2 Database

Postman is one of the most popular software testing tools which is used for API testing. With the help of this tool, developers can easily create, test, share, and document APIs.
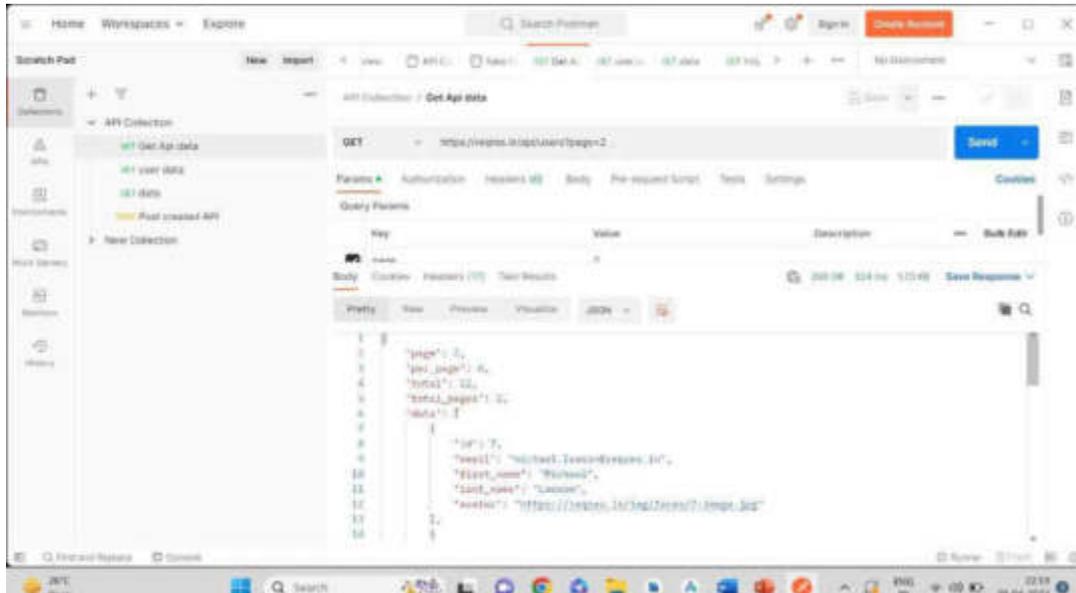
[FIG : 5.2 API calling using Postman]

- Postman is a standalone software testing API (Application Programming Interface) platform to build, test, design, modify, and document APIs. It is a simple Graphic User Interface for sending and viewing HTTP requests and responses.

- While using Postman, for testing purposes, one doesn't need to write any HTTP client network code. Instead, we build test suites called collections and let Postman interact with the API.

- In this tool, nearly any functionality that any developer may need is embedded. This tool has the ability to make various types of HTTP requests like GET, POST, PUT, PATCH, and convert the API to code for languages like JavaScript and Python.

Terminologies Related to Postman :

API

Application Programming Interface (API) is software that acts as an intermediary for two apps to communicate with each other. We use APIs whenever we use an application like Twitter, Facebook, sending text messages, or checking the weather over the phone.

HTTP

HTTP (Hypertext Transfer Protocol) is the collection of rules for the transmission of data on the World Wide Web, like graphic images, text, video, sound, and other multimedia data. The Web users implicitly make use of HTTP as soon as they open their Web browser.

Why use Postman ?

Postman is based on a wide range of extremely user-friendly power tools. For more than 8 million users, Postman has become a tool of convenience. Following are the reasons why Postman is used:

1. **Accessibility-** One can use it anywhere after installing Postman into the device by simply logging in to the account.

2. **Use Collections-**Postman allows users to build collections for their API-calls. Every set can create multiple requests and subfolders. It will help to organize the test suites.

3. **Test development-** To test checkpoints, verification of successful HTTP response status shall be added to every API- calls.

4. **Automation Testing-**Tests can be performed in several repetitions or iterations by using the Collection Runner or Newman, which saves time for repeated tests.

5. **Creating Environments-** The design of multiple environments results in less replication of tests as one can use the same collection but for a different setting.

6. **Debugging-** To effectively debug the tests, the postman console helps to track what data is being retrieved.

7. **Collaboration-** You can import or export collections and environments to enhance the sharing of files. You may also use a direct connection to share the collections.

8. **Continuous integration-**It can support continuous integration.

5.2.1 Use Case Diagram
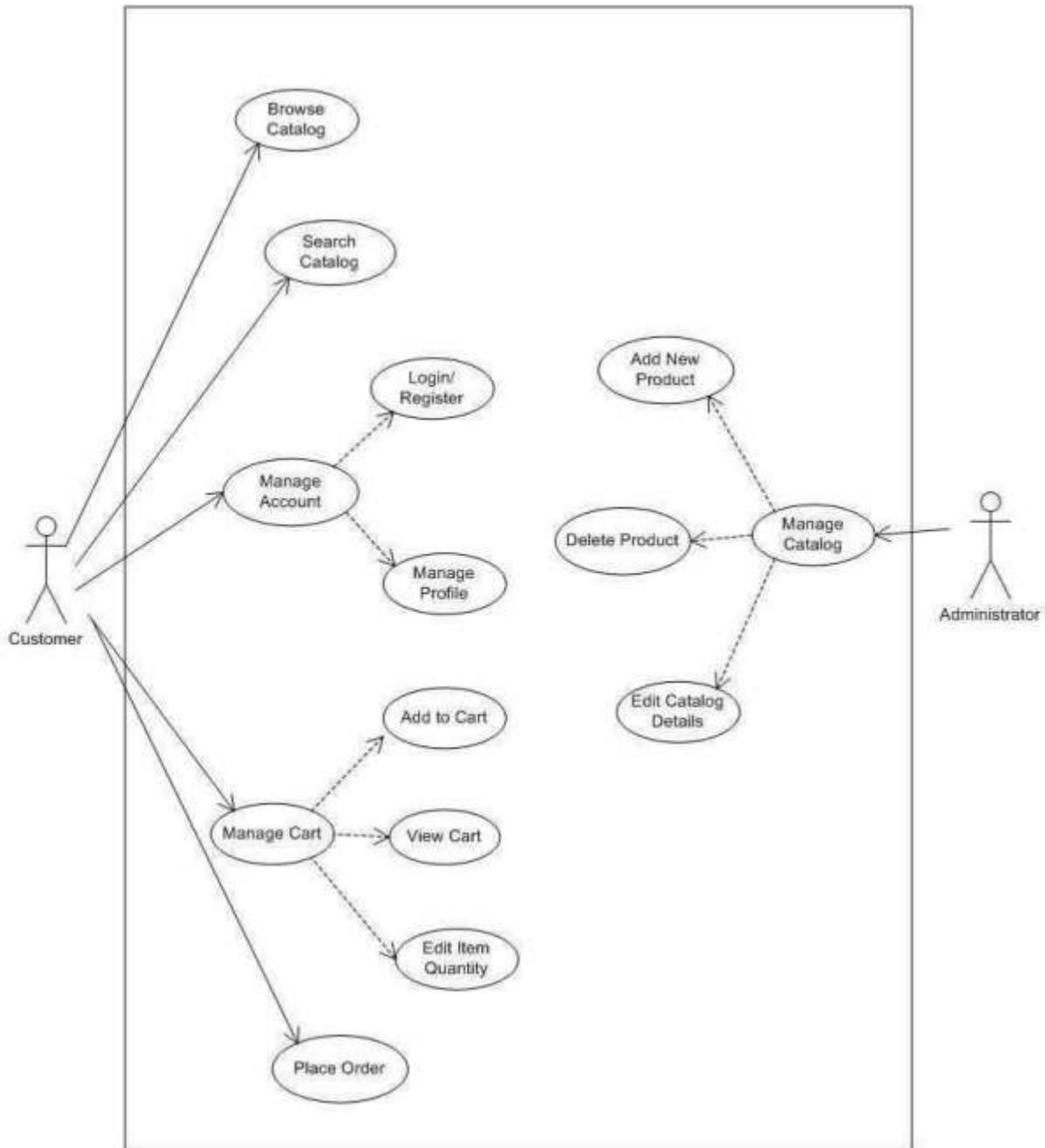
[FIG : 5.2.1 Use Case Diagram]

5.2.2 Flow Chart
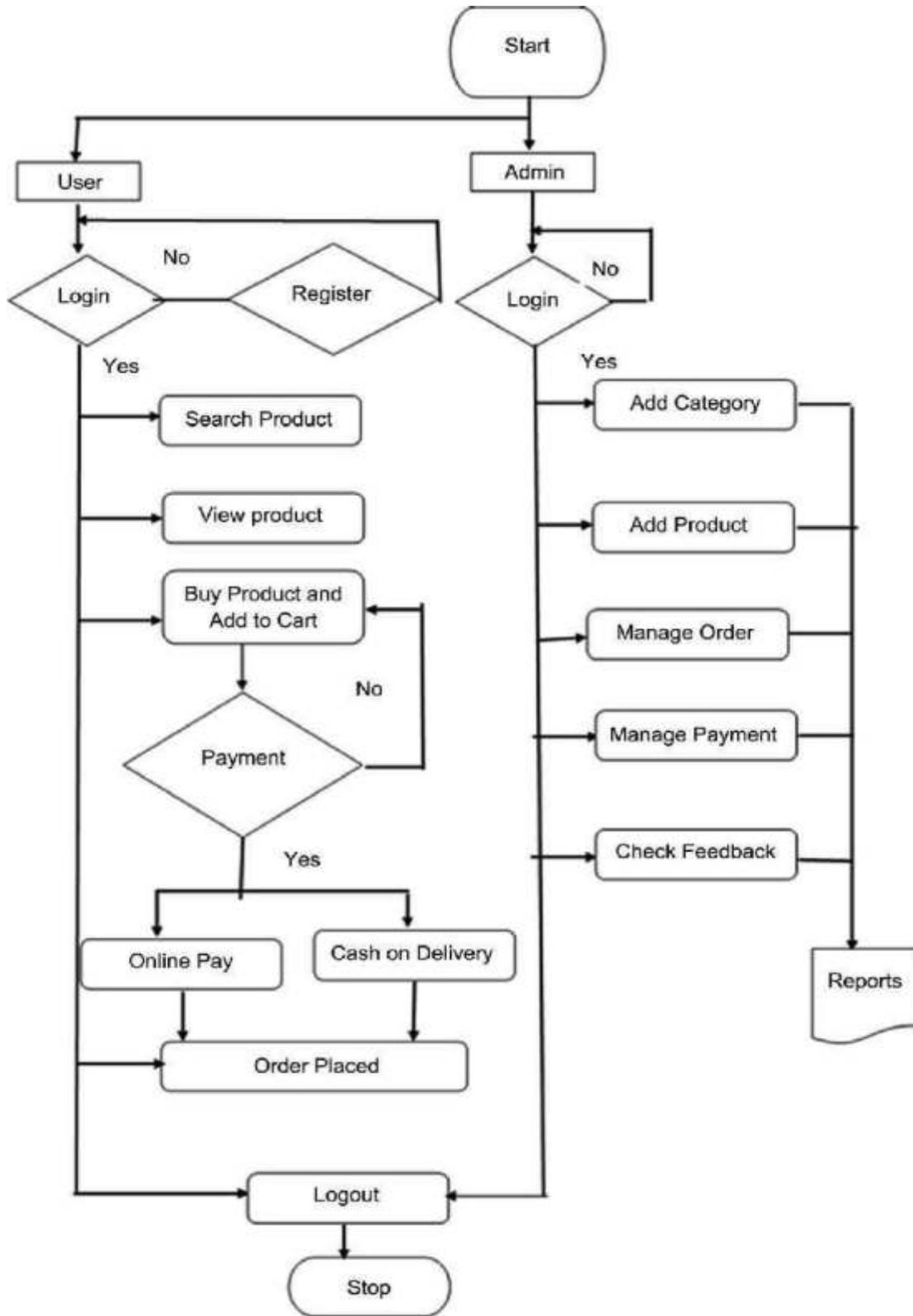
[FIG : 5.2.2 Flow Chart]

CHAPTER : 6 IMPLEMENTATION

Screen Shots

6.1 Login Screen
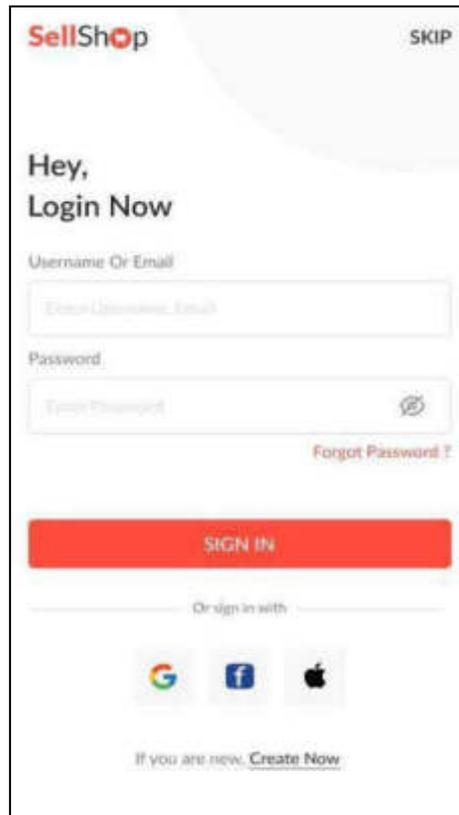
[Screen Shot : 6.1 Login Screen]

Login in Shell Shop

- Users can either log in to their existing account or create a new one.
- The screen has input fields for the user's email address and password.
- If the user is a new customer, they can click on the "Create now" button to create a new account.

6.2 Home Screen
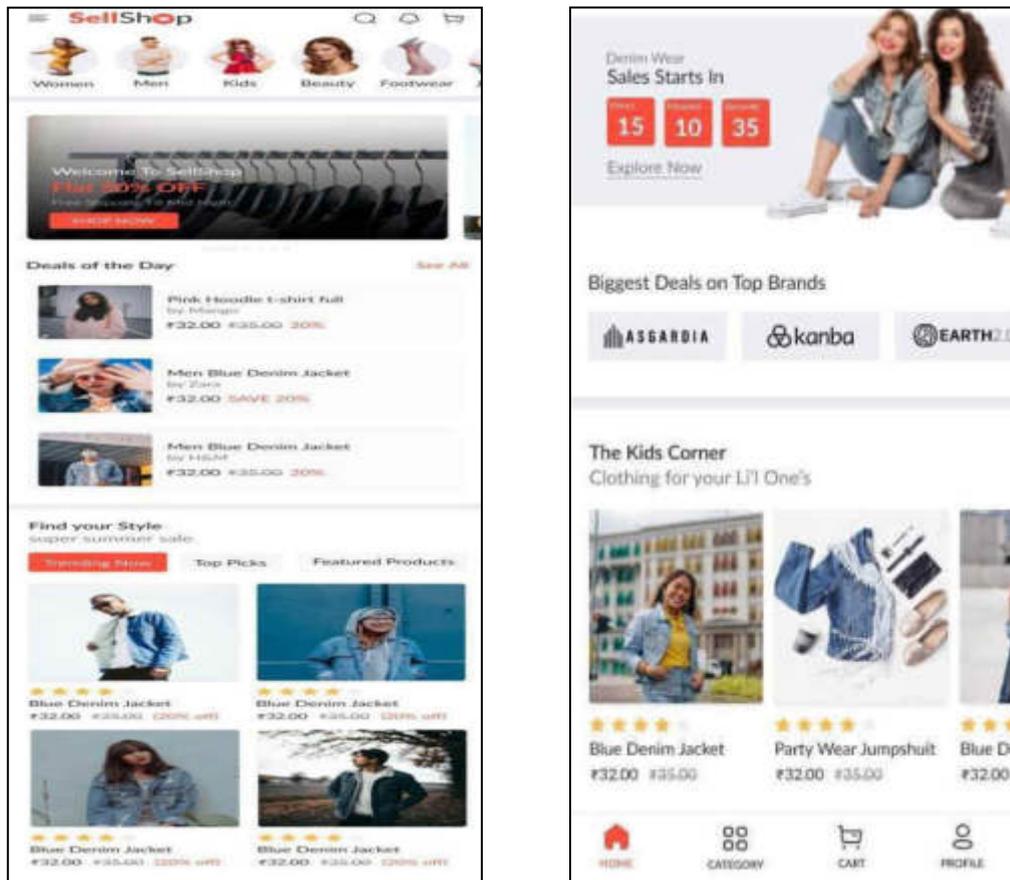
[Screen Shot : 6.2 Home Screen]

Home Screen in Shell Shop

- Displays product categories like for men –women, kids then displays banner of latest deals and discounts, top brands of products, sale starts time, deals of the day.
- Users can view multiple categories of products and can find biggest deals on top brand.
- It also has a search bar that allows users to search for specific products.
- Users can view multiple product images, zoom in to see details, and add products to cart.
- Features related products and customer reviews to help users make informed decisions.

6.3 Inner Category Screen
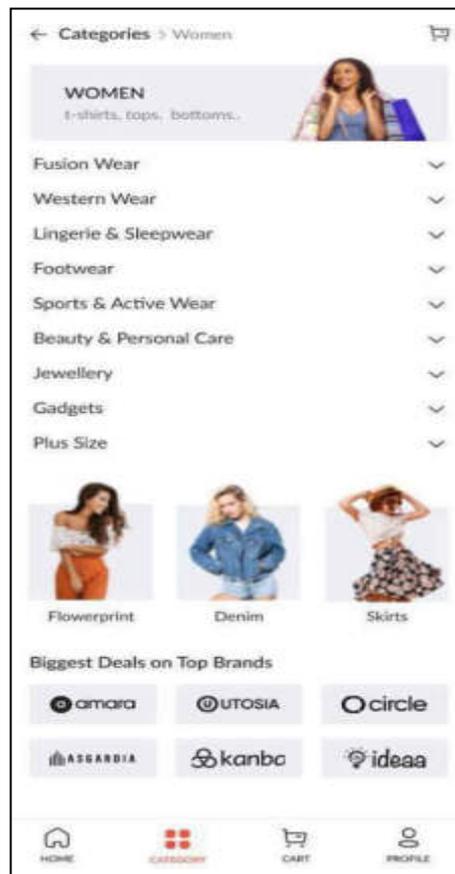
[Screen Shot : 6.3 Inner Category Screen]

Inner Category Screen

- Sell Shop offers a complete shopping experience for modern shoppers.
- Has a wide selection of product categories covered including electronics, clothing, home appliances, beauty and more.

6.4 Product Detail Screen
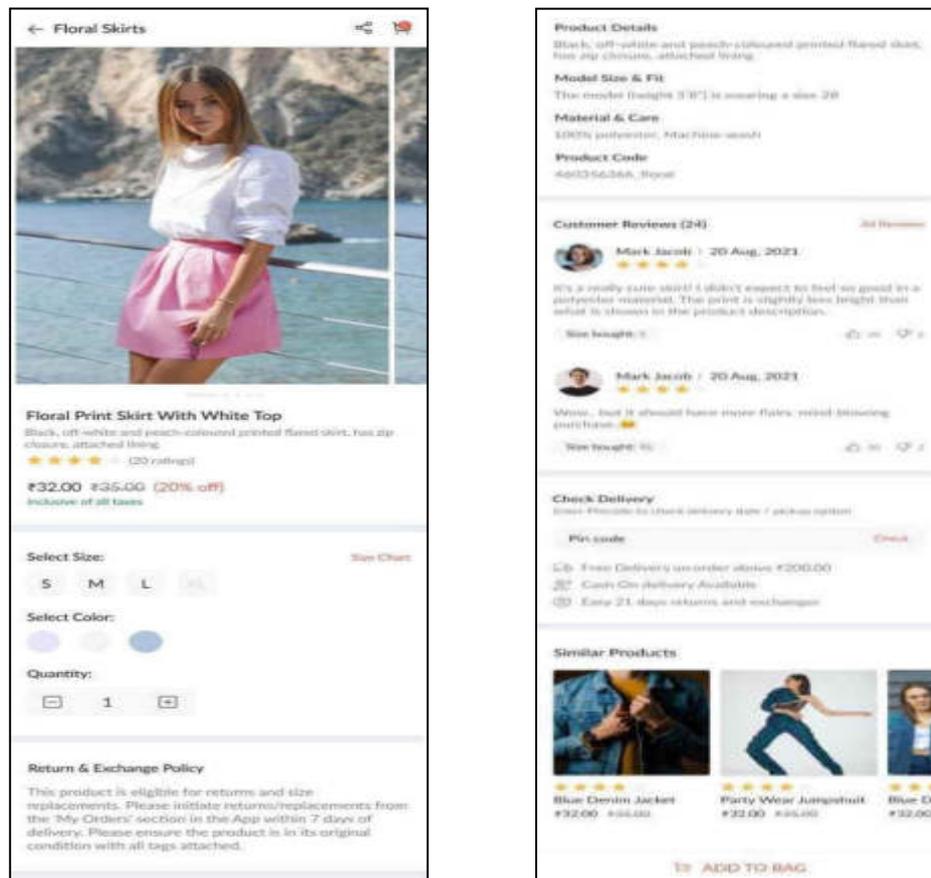
[Screen Shot: 6.4 Product Detail Screen]

Product Detail Screen

- Displays product details such as name, image, description, price and customer reviews.
- Users can view multiple product image, multiple categories of products, zoom in to see details of product, and add products to cart.
- Features related products and customer reviews to help users make informed decisions.

6.5 Cart and Checkout on shell shop
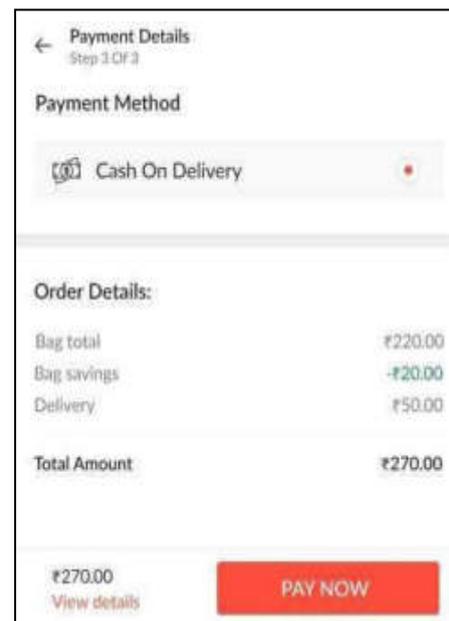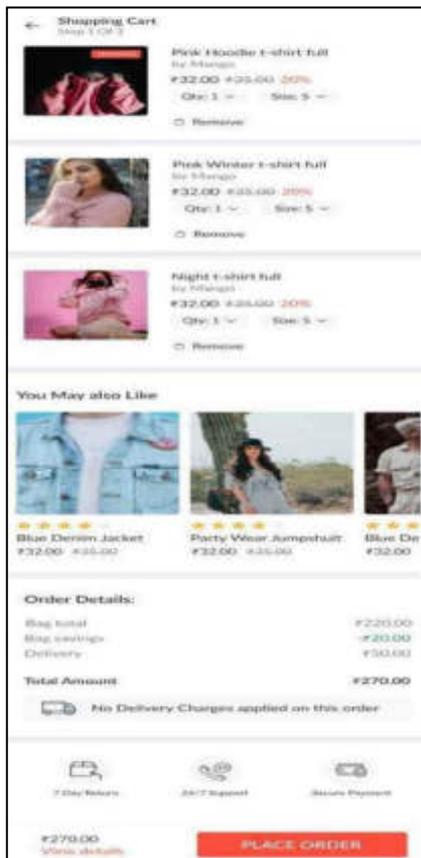
[Screen Shot: 6.5 Cart & Checkout Screen]

Cart and Checkout in Shell Shop

- The cart screen displays the selected products and their details, including name, quantity, price, and total amount.
- Users can modify the product quantity, remove products from the cart, or add more products to the cart.
- The cart screen displays the total amount of the selected products, including any discounts or offers applied.
- Users can proceed to place the order and receive a confirmation message once the order is placed.

6.6 Profile Management in Shell Shop
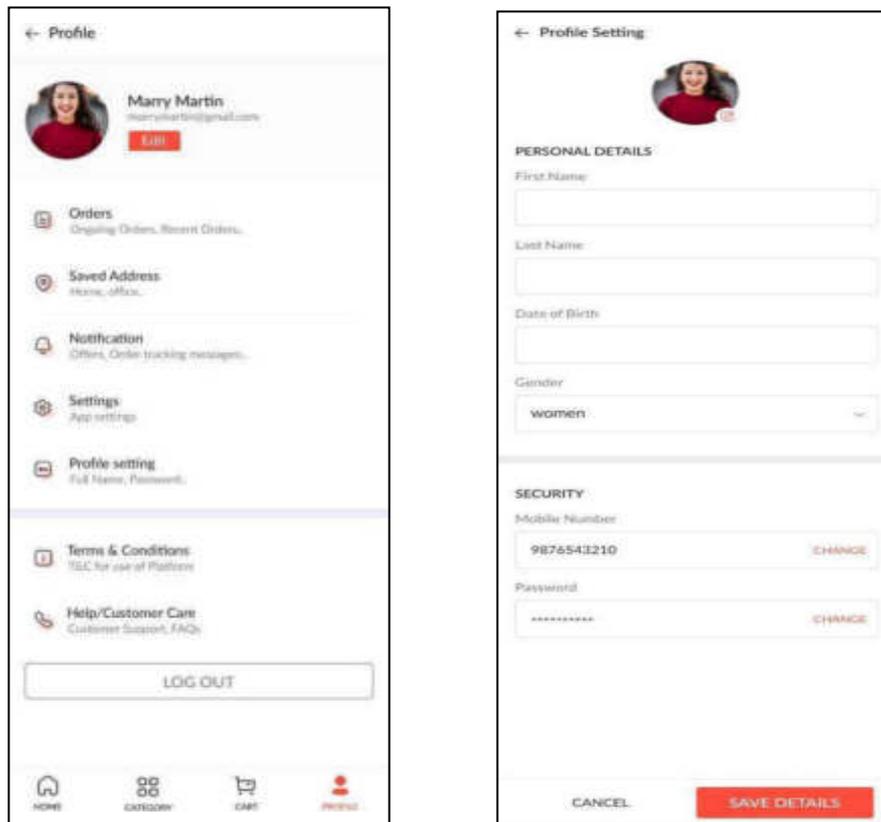
[Screen Shot: 6.6 User Profile Screen]

Profile Management in Shell Shop

- Profile screen allows users to manage their account settings such as name, email, password and payment information.

- Users can view their order history, track packages and manage their wishlist from this screen.

CONCLUSION

Sell Shop provides a user-friendly interface, secure payment options and a seamless shopping experience for users. The Sell Shop project was a valuable learning experience during my internship as an Android developer. Leveraged knowledge of Retrofit API, Firebase database, Android Studio, and Java data structures to build an e-commerce app from scratch. Gained insights into practical challenges of app development, including UI design, database management, API integration, and testing.

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INTERNSHIP AT YUDIZ SOLUTIONS LTD.

AN INTERNSHIP REPORT

Submitted by

Sujal Kamleshbhai Patel

190390116030

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 YUDIZ SOLUTIONS LTD.** has been carried out by **SUJAL KAMLESHBHAI PATEL** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushma Sainwar   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 : 10 May 2023 (21:02:48)

This is to certify that, *Patel Sujal Kamleshbhai* (Enrolment Number - 190390116030) working on project entitled with *Internship at Yudiz Solutions Limited* from *Information Technology* 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 Sujal Kamleshbhai   Name of Guide :   Miss. Sushma Sainwar

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

yudiz
Solutions Limited
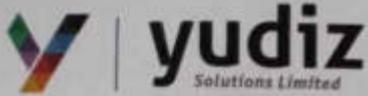
Date: 27th April, 2023

To whom so ever It May Concern

This is to certify that **Mr. Sujal Patel** a student of **Saffrony Institute of Technology** is working as a Trainee/Intern with our Company for the duration of six months starting from 1st February, 2023 to till date, as a **UI/UX Design Trainee.**

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, 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 Yudiz Solutions Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushma Sainwar** & **Mr. Pratik Thanki (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

Sujal Kamleshbhai Patel

ACKNOWLEDGMENT

First I would like to thank **Mrs. Kinjal Shah,** HR, Head of Yudiz Solutions Ltd., Ahmedabad for giving me the opportunity to do an internship within the organization.

I wish to express our sincere gratitude to our External guide **Mr. Pratik Thanki** for continuously guiding me at the company and answering all my doubts with patience. I would also like to thank my Internal Guide **Prof. Sushma Sainwar** for helping us through our internship by giving us the necessary suggestions and advices along with their valuable coordination in completing this internship.

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

Thus, In conclusion to the above said, once again thank the staff members of **Yudiz Solutions Ltd.** for their valuable support in completion of the project.

<div align="right">

With Sincere Regards

Sujal Patel

</div>

Abstract

This report contains the work done by me during my internship at Yudiz Solutions Limited. The internship provided me hands-on experience in creating and enhancing user interfaces and experiences for digital products. I worked with design tools and technologies, collaborate with teams and stakeholders, and learn about user-centred design principles and methodologies. Through this internship, I developed a deep understanding of user needs and behaviour, gain experience in creating wireframes and prototypes, and refine their skills in designing visual elements and layouts. This opportunity prepared me for a good career in UI/UX design and provide valuable experience in the fast-paced and constantly evolving field of digital design.

List of Figures

Abbreviations

UI   User Interface

UX   User Experience

Lo-Fi   Low-Fidelity

Hi-Fi   High-Fidelity

Table of Contents

CHAPTER 1. OVERVIEW OF THE COMPANY

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, we have 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.

With our agile, collaborative approach, we have provided tailored domain specific IT solutions that have successfully resolved different business issues. Our deep expertise in mobile app development, game development, Blockchain, AR/ VR, and web development has helped us retain numerous clients for years.

1.2 SCOPE OF WORK:

Yudiz Solutions Ltd., a software development company located in India, their scope of work includes:

1) Custom Software Development: Yudiz offers custom software development services to meet the unique needs of their clients, from ideation to deployment and maintenance.

2) Mobile Application Development: Yudiz specializes in developing mobile applications for both Android and iOS platforms, catering to a diverse range of industries.

3) Web Application Development: Yudiz offers web application development services to build scalable, secure, and user-friendly web applications using the latest technologies.

4) Game Development: Yudiz has a dedicated team of game developers who create engaging and entertaining games for various platforms.

5) Blockchain Development: Yudiz offers blockchain development services, including smart contract development, decentralized application development, and more.

6) Augmented Reality and Virtual Reality: Yudiz offers AR/VR development services to create immersive experiences for various industries, including gaming, education, and healthcare.

7) UI/UX Design: Yudiz has a team of experienced designers who create intuitive and visually appealing interfaces for web and mobile applications.

Overall, Yudiz Solutions provides a wide range of software development and technology services to clients across various industries, from startups to enterprise-level businesses.

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. OVERVIEW OF DIFFERENT DEPARTMENT AND LAYOUT

2.1 DETAILS OF WORK BEING CARRIED OUT IN THE DEPARTMENT:

- Design projects: Describe the various design projects that the department is currently working on. This could include designing websites, mobile applications, software interfaces, digital products, or branding campaigns for clients.

- Design processes: Explain the design processes and methodologies that the department uses to approach their projects. This could include information about how the team conducts research, ideation sessions, wireframing, prototyping, and user testing.

- Design tools: Discuss the design tools and software that the team uses to create their designs. This could include popular tools such as Adobe Creative Suite, Sketch, Figma, In Vision, or other prototyping tools.

- Team structure: Describe the structure of the team and how the different roles within the department work together. For example, there may be designers specializing in user interface design, user experience research, graphic design, or front-end development.

- Client interaction: Explain how the department interacts with clients, and how they gather feedback throughout the design process. This could include information about how the team presents design concepts to clients, and how they incorporate client feedback into their work.

2.2 TECHNICAL SPECIFICATIONS:

- Layout: The layout specifies the placement of various elements such as menus, icons, buttons, and text on the screen. This includes the sizing and positioning of the elements, and the overall grid or alignment system.

- Typography: The typography includes the font family, size, weight, line height, letter spacing, and color of the text used in the interface. It is essential to ensure that the text is legible and easy to read, even on different screen sizes and resolutions.

- Color: The color palette specifies the primary and secondary colors used in the interface, as well as the color codes, gradients, and transparency levels. Color plays a vital role in branding, usability, and accessibility.

- Navigation: The navigation specifications include the menu structure, hierarchy, and flow of the user interface. It is important to ensure that the navigation is easy to understand, and allows users to accomplish their tasks efficiently.

- Interaction: The interaction specifications include the behaviour and animation of the interface elements such as buttons, forms, and menus. It is important to ensure that the interaction is consistent, responsive, and enhances the user experience.

- Accessibility: The accessibility specifications ensure that the interface is usable by people with disabilities, such as visual or motor impairments. This includes specifications such as contrast ratios, text size, keyboard accessibility, and screen reader compatibility.

2.3 SEQUENCE OF OPERATION FOR DEVELOPMENT OF ENF PRODUCT:

- Research and Analysis: The first step is to gather requirements from the client and conduct research to understand the target audience, industry, and competition. This includes conducting user interviews, surveys, and usability tests.

- Wireframing: Once the research is complete, the UI team create wireframes that outline the layout and structure of the user interface. This includes creating a low-fidelity mock-up of the interface to help define the basic layout and functionality.

- Visual Design: After wireframing, the visual design phase begins, and the UI team will create high-fidelity designs that incorporate color, typography, images, and other visual elements. The design team will ensure that the designs are consistent with the branding guidelines and meet the requirements of the client.

- Prototyping: Once the visual design is complete, the team will create a prototype that demonstrates the functionality and interaction of the user interface. This includes creating a clickable prototype that allows the team to test the design and identify any potential usability issues.

- User Testing: The next step is to conduct user testing to identify any usability issues or problems with the interface. This includes testing with actual users to get feedback on the design and make improvements based on their feedback.

- Development: After user testing, the UI team will hand over the final design to the development team, who will implement the design using coding languages such as HTML, CSS, and JavaScript. They will also ensure that the user interface is responsive and works well on different devices and screen sizes.

- Quality Assurance: Once development is complete, the QA team test the interface to ensure that it functions correctly, and there are no bugs or errors. They will also ensure that the interface meets the accessibility and performance standards.

- Launch and Maintenance: Finally, the interface is launched, and the team will monitor the user feedback and analytics to identify any issues and make necessary improvements. Ongoing maintenance and updates will also be required to ensure that the user interface remains up to date and meets needs of the users.

CHAPTER 3. INTRODUCTION TO UI/UX DESIGN

3.1 UI/UX DESIGN:

UI (User Interface):

- UI refers to the screens, buttons, toggles, icons, and other visual elements that you interact with when using a website, app, or other electronic devices

UX (User Experience):

- UX refers to the entire interaction you have with a product, including how you feel about the interaction.
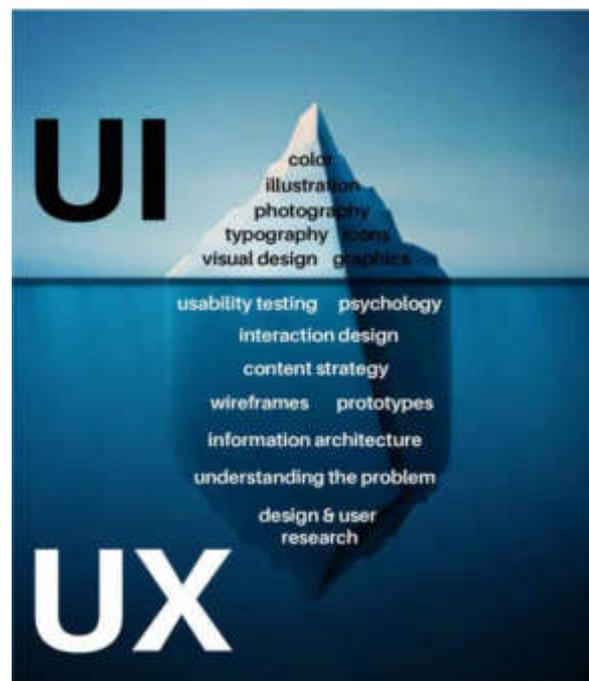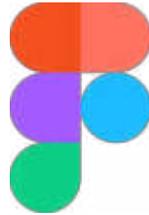

Fig 3.1.1 Difference between UI and UX

UI/UX Design Tools:

- Figma
- Adobe XD
- Sketch

UI/UX Design Inspiration:

- Behance
- Dribbble
- Pinterest

3.2 Introduction to Figma:

Figma is a powerful design tool that helps you to create anything: websites, applications, logos, and much more.

Features of Figma:

- It is an open-source and cloud-based application
- It works on any platform
- Real-time collaboration
- Prototyping in Figma Is Straightforward
- Community Support is very well and the plugins library is.

3.3 ELEMENS OF UI/UX DESIGN:

Grid System:

A grid is made up of columns, gutters, and margins that provide a structure for the layout of elements on a page

Grids enable designers to manage the proportions between UI elements, such as spacing and margins. Help designers to achieve effective hierarchy, alignment, and consistency, with little effort.
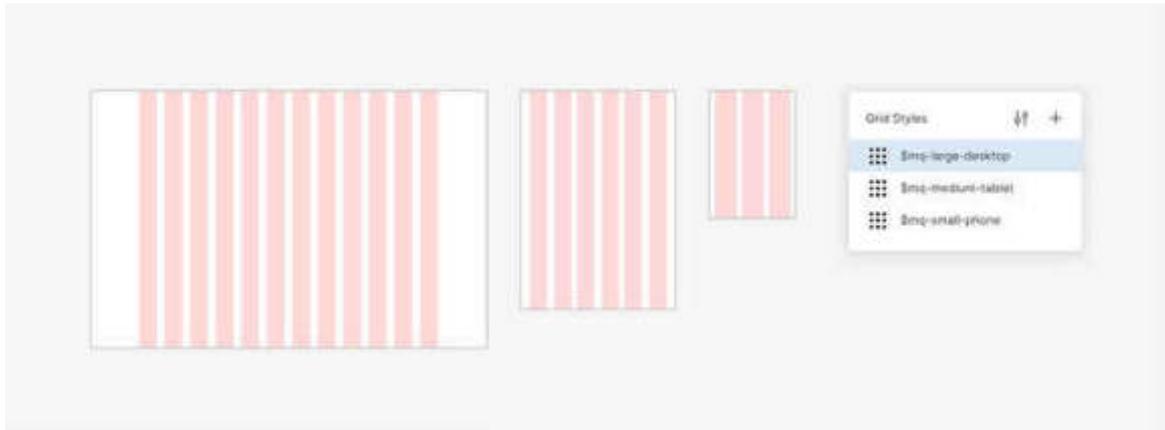
Fig 3.3.1 Grid System

Typography:

- Typography is all about using typefaces and fonts in a way that makes the copy legible, clear, and enjoyable to read.
- It's the job of the UI designer to optimize the website's accessibility by keeping the typography highly readable.

Elements of Typography:

- Fonts and Typefaces
- White space
- Alignment
- Color
- Hierarchy
- Line Space
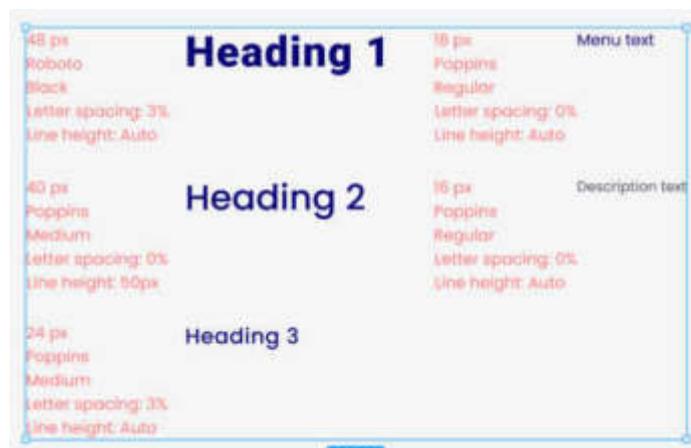
Fig 3.3.2 Typography

Color Palettes

A color palette is a combination of colors used by UI designers when designing an interface. When used correctly, color palettes form the visual foundation of your brand, help to maintain consistency, and make your user interface aesthetically pleasing and enjoyable to use.

Make the Right Color Selections:

- The Golden Ratio of Colors:
  While using the 6:3:1 Rule, designers have to choose a dominant color and use it in 60% of the space, a secondary color in 30%, and a final color in the remaining 10%.
- Use Colors with a Purpose
- Simplicity
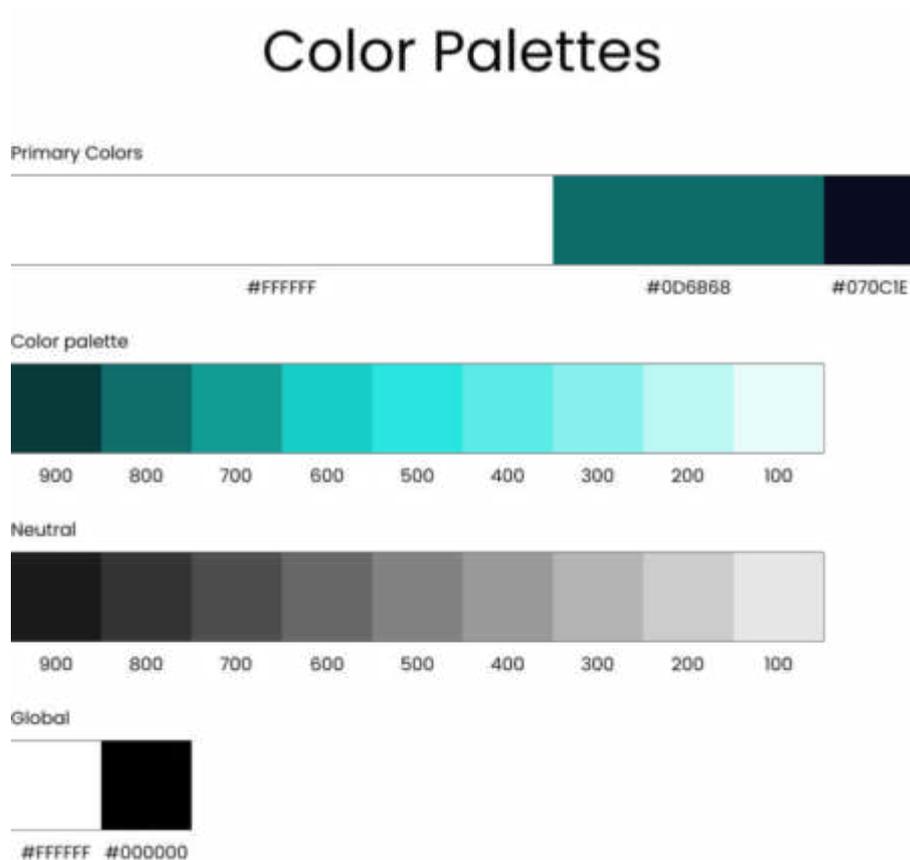
Fig 3.3.3 Color Palettes

Low-Fidelity Wireframe

- Low-fidelity wireframes are basic wireframes that outline blueprints for web pages or app screens

- They help you communicate your product's "big idea" rather than the specific details.

Types of a lo-fi wireframe:

1. Paper Wireframe:

A Paper wireframe is a sketch or drawing that represents the skeleton of a website or an app interface. As the name suggests, it is often done on a sheet of paper or a whiteboard using a pencil or a pen for rapid simulation and testing.
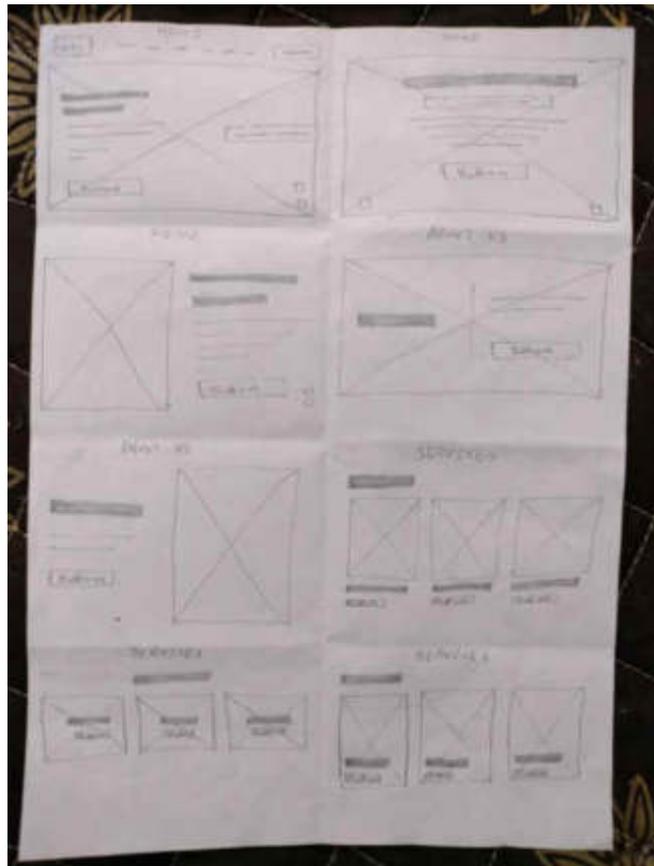
Fig 3.3.4 Paper Wireframe

2. Digital Wireframe:

A digital wireframe is a two-dimensional illustration of a page's interface that specifically focuses on space allocation and prioritization of content, functionalities available, and intended behaviors.

Fig 3.3.5 Digital Wireframe

High-Fidelity Wireframe

- A high-fidelity wireframe is a realistic prototype that closely resembles the final design of a project.
- It can include typography, colors, images, icons, and CTA buttons.
- These types of wireframes take longer than the low-fidelity kind which means more resources are usually allocated to complete them.
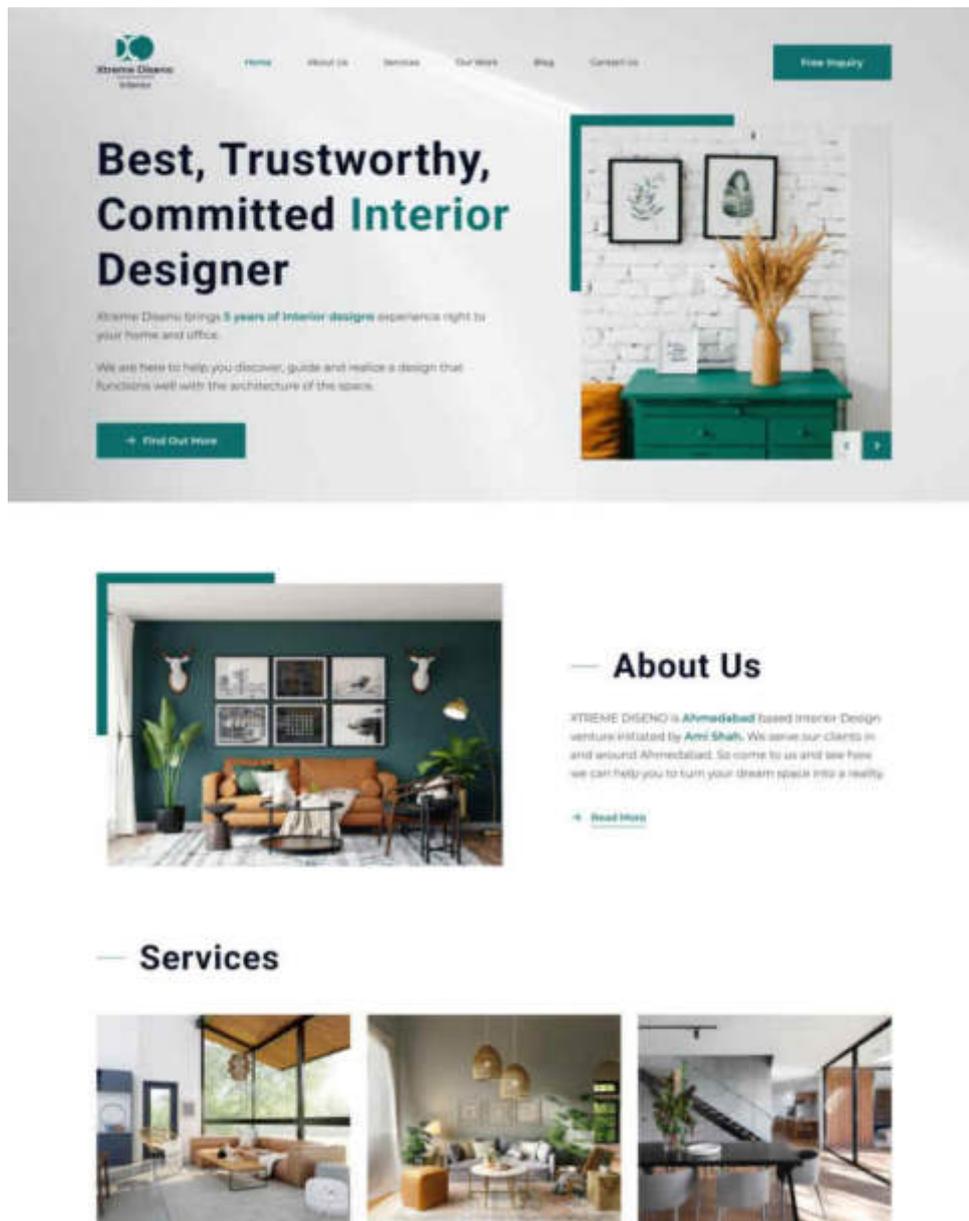
Fig 3.3.6 High-Fidelity Wireframe

CHAPTER 4. INTERNSHIP MANAGEMENT

4.1 INTERNSHIP SUMMARY:

As an intern in UI/UX design, I had the opportunity to gain hands-on experience in creating and enhancing user interfaces and experiences for digital products. During my internship, I worked with design tools and technologies and collaborated with teams and stakeholders to understand user needs and behaviours.

One of the highlights of my internship was learning about user-cantered design principles and methodologies. I was able to apply this knowledge to create wireframes and prototypes, and to design visual elements and layouts that were intuitive and easy to use for the end-users.

Throughout the internship, I also had the opportunity to participate in design critiques and brainstorming sessions with the team, which helped me to develop my communication and collaboration skills. Additionally, I was able to work on a variety of projects, including mobile apps, websites, and web applications.

Overall, my internship in UI/UX design provided me with valuable experience in the fast-paced and constantly evolving field of digital design. I gained practical skills that will be beneficial for my future career and was able to learn from experienced designers and developers. I am grateful for the opportunity to have been a part of such a dynamic team, and I look forward to continuing to develop my skills in UI/UX design in the future.

4.2 PURPOSE:

The purpose of the internship in UI/UX design is to provide individuals interested in the field with practical, hands-on experience in creating and enhancing user interfaces and experiences for digital products. The internship provides an opportunity to apply and develop skills in designing wireframes and prototypes, designing visual elements and layouts, and working with design tools and technologies.

I also learned about user-centred design principles and methodologies, which will help them to create user-friendly and intuitive designs that meet the needs of the end-users. Additionally, I worked with teams and stakeholders to collaborate and communicate effectively, which improved my communication and collaboration skills.

Overall, the purpose of an internship in UI/UX design is to provide individuals with practical, real-world experience and exposure to the field of digital design, and to help them develop the skills and knowledge necessary to succeed in this dynamic and exciting field.

4.3 INTERNSHIP SCHEDULING:

Internship schedule for my 12 weeks internship started with some basic vector tracing, where the first week I traced multiple vectors and I sharpened my pen tool skill. after that 4 weeks, I learned some basic introductions and I learnt about User interfaces and why it's needed and learnt about which tools are used for them. and also they gave me some instructions that how to behave in the office and what type of discipline I have to follow mandatory, I also learnt how to talk with colleagues. after that, for 4 weeks they gave me some basic Tasks about UI design of an application's mobile screen. in that, I learnt how to work professionally and method-wise, which rules we have to follow when we are working on some specific topics, and also I learnt about wireframe, after that for 3 weeks they reviewed my work and give me some tips and instructions which improved my work, and also they gave me some screens to design for their current project.

4.4 INTERNSHIP PROJECT WORK:

Job Advisor

4.4.1 Definition:

- We are creating a job portal where companies can register themselves without cost. The Job seeker needs to purchase a subscription plan to register their sleeves.

- Companies can see the profiles of Job Seeker and filter them based on their requirements and can also see their CVs.

4.4.2 Description:

- Basically, the company will check the portal to find the required candidates for their companies. For that company will have functionalities like Job seeker Listing, filter by categories, salary package, location, etc. Companies will also have favorite functionalities where they can list selected/liked candidates in one place.

- The job seeker will have functionalities to add their video introduction, employment history, experience, expertise, hobbies, etc. Based on that information system will automatically create CVs and show them to companies.

- There will be subscription plans for the Job Seeker. if the plan is active then only the job seeker's profile will be listed to companies.

- So, there will be 2 user roles,
  1. **Company**
  2. **Job Seeker**

4.4.3 Database – Table Information:

- User table
  - user id
  - username
  - password
  - user role
  - other CV details & company-related fields

- Media upload table
  - video field
  - image field

- Subscription table
  - plan id
  - plan details
  - plan price

- Subscription purchase table
  - plan id
  - user id
  - renewal date-time

- Other tables can be created based on the requirements.

4.4.4 Scope of Work:

- There will be different Sign Up screens for Job Seeker and Company user roles.

- After signup jobseeker needs to add their profile information with a video cv. once profile data is updated to make it live and visible to find-candidates page for the company, jobseeker needs to purchase a subscription plan. once the plan is activated then job seeker can make their profile live and visible for companies.

- companies can only visible candidates listing (find-candidates page) if logged in.

- Companies can also filter it based on the fields.

- Companies can view any candidate's profile and contact them directly.

- Companies can make any profile as favorite (liked) and favorited profiles will be visible in the company dashboard on the "Liked Candidates" page.

- Companies can also download the CV of the candidates.

4.4.5 Screen of Project:

Here some screenshots of the UI I have designed,

1. **Sign-In/Sign-Up Screens:**

- **Sign In:**
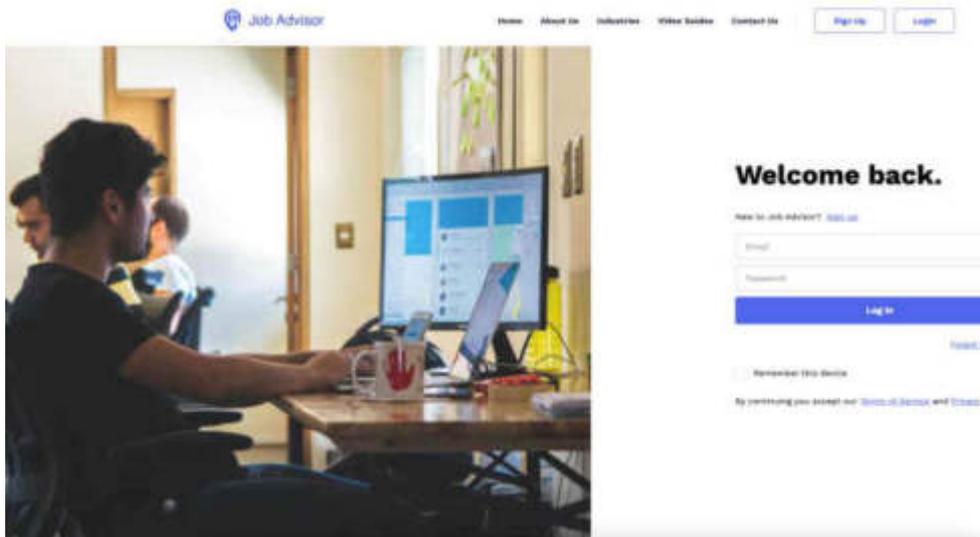
Fig 3.4.5.1 Sign In

- **Sign Up:**
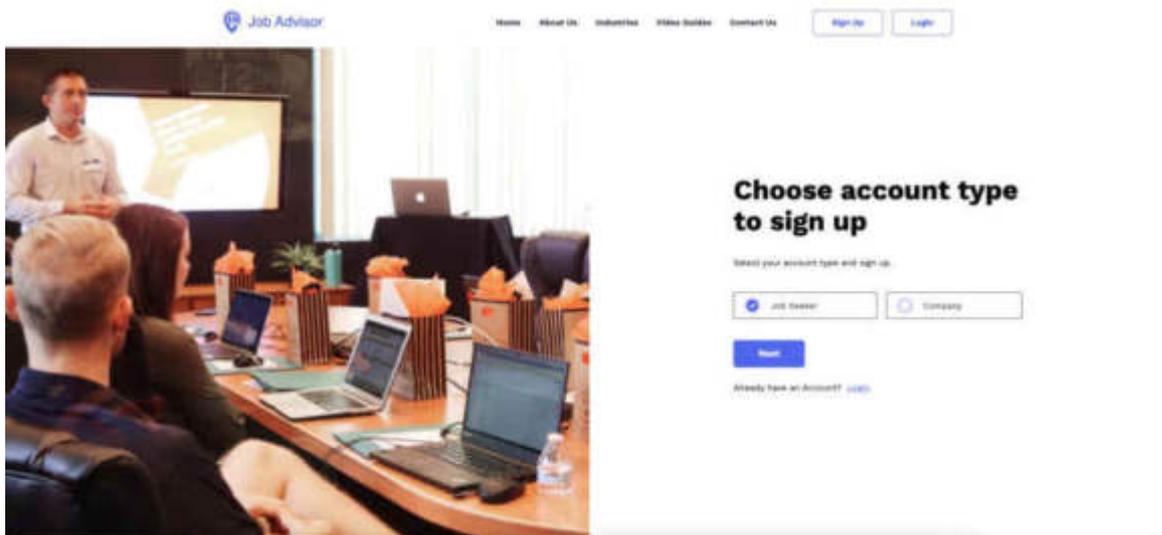
Fig 3.4.5.2 Sign Up

- **Sign Up Job Seeker:**

Fig 3.4.5.3 Sign Up Job Seeker

- **Sign Up Company:**

Fig 3.4.5.4 Sign Up Company

2. Job Seeker Screens:

- **Dashboard:**
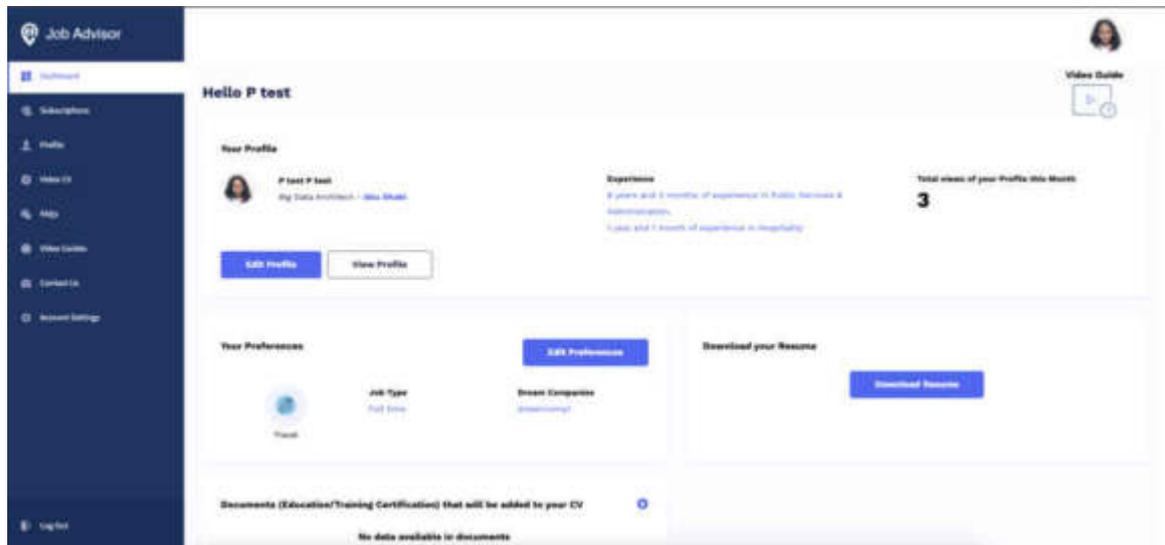
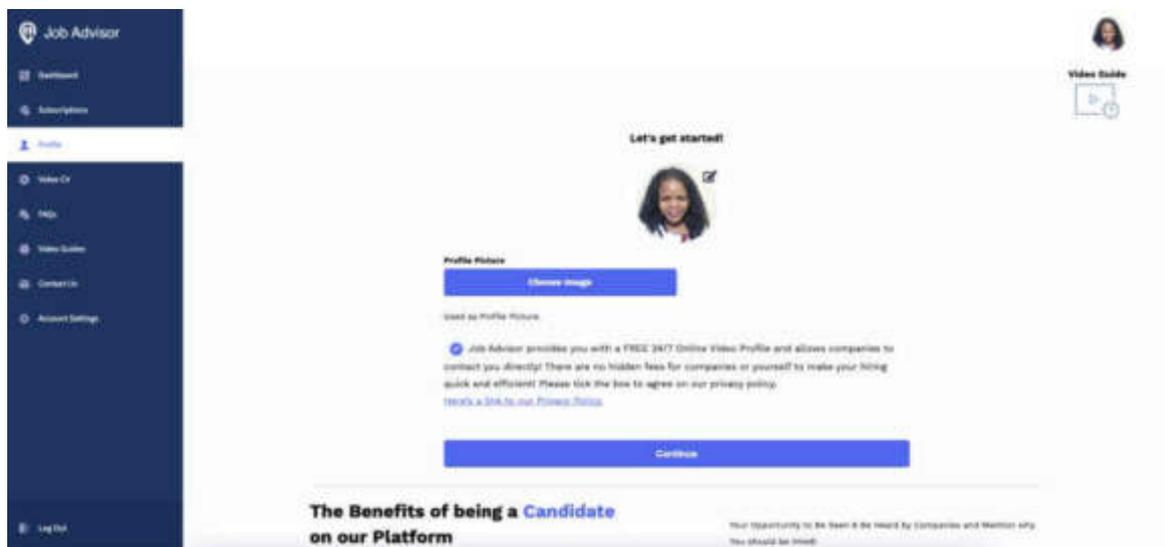Fig 3.4.5.5 Job Seeker Dashboard

- **Edit Profile Image:**

Fig 3.4.5.6 Job Seeker Edit Profile Image
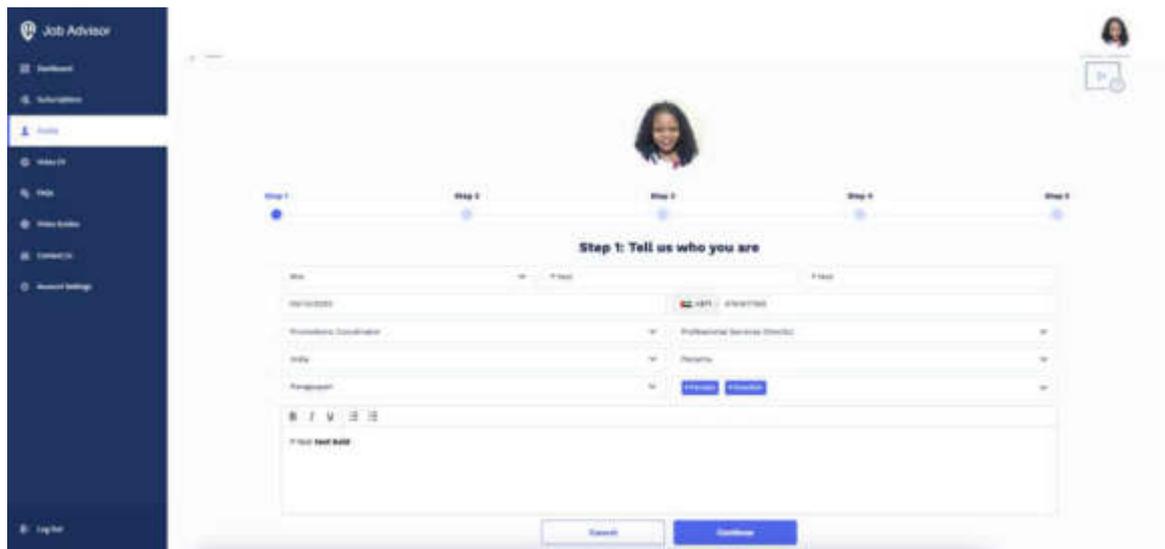
- **Edit Profile Details:**

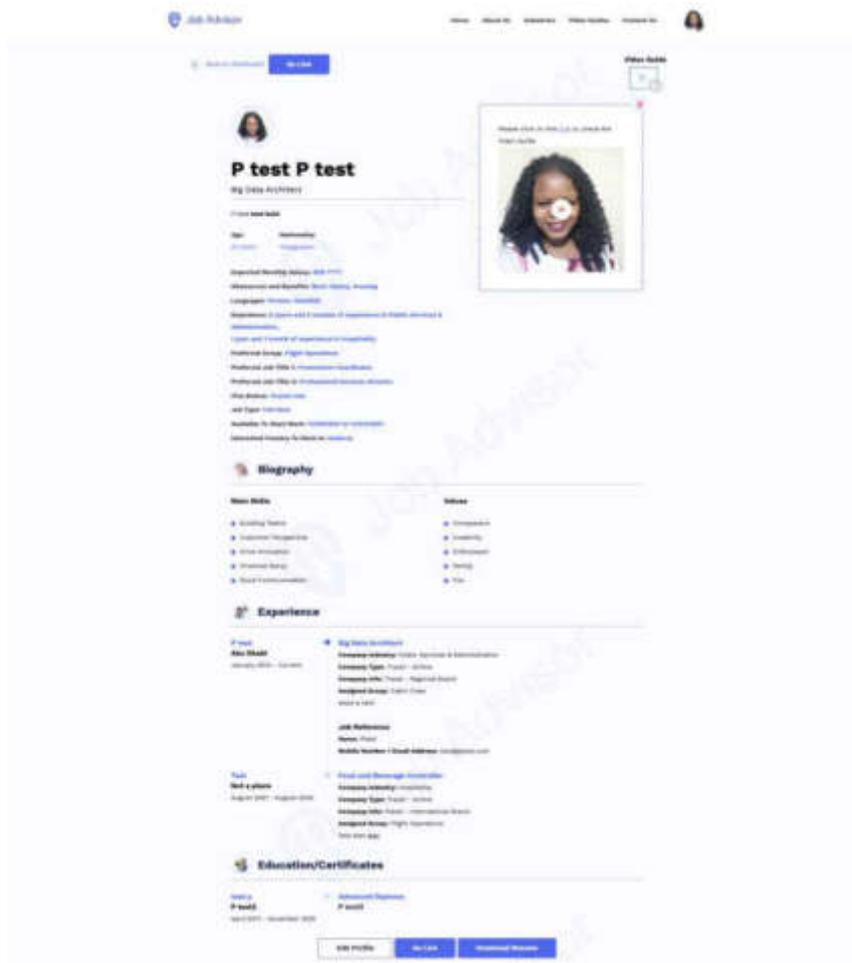Fig 3.4.5.7 Job Seeker Edit Profile Details

- **View Profile:**

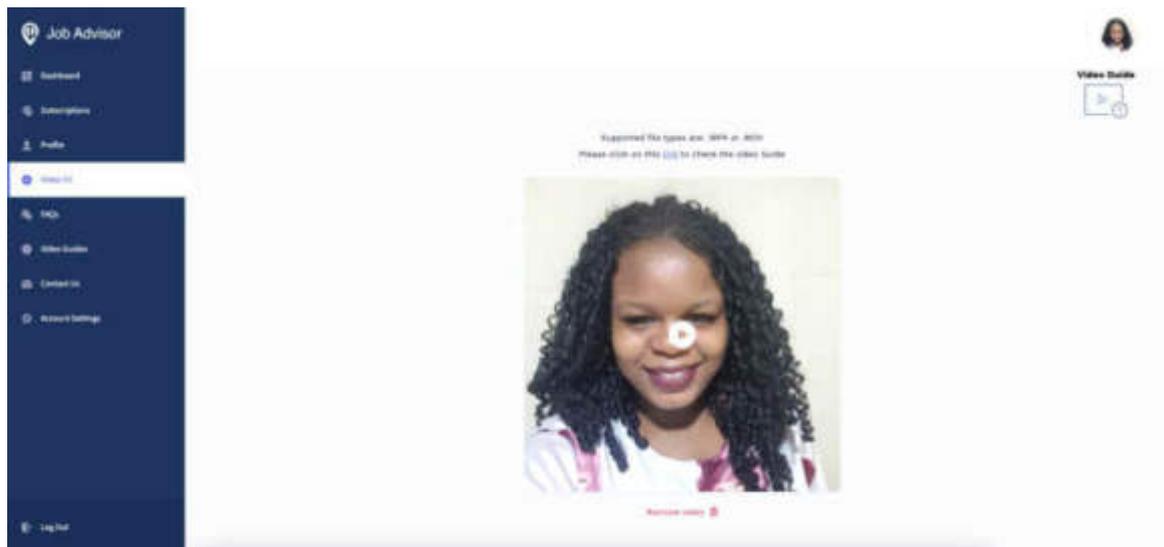Fig 3.4.5.8 Job Seeker View Profile

- **Video CV:**

Fig 3.4.5.9 Job Seeker Video CV

- **Subscriptions:**

Fig 3.4.5.10 Job Seeker Subscriptions
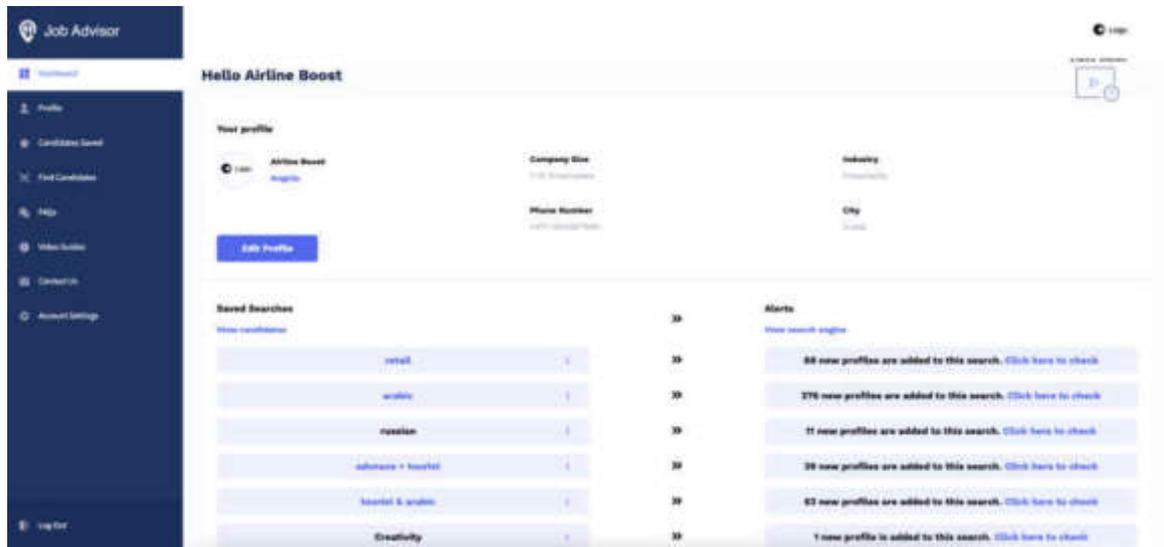
3. Company Screens

- **Dashboard:**
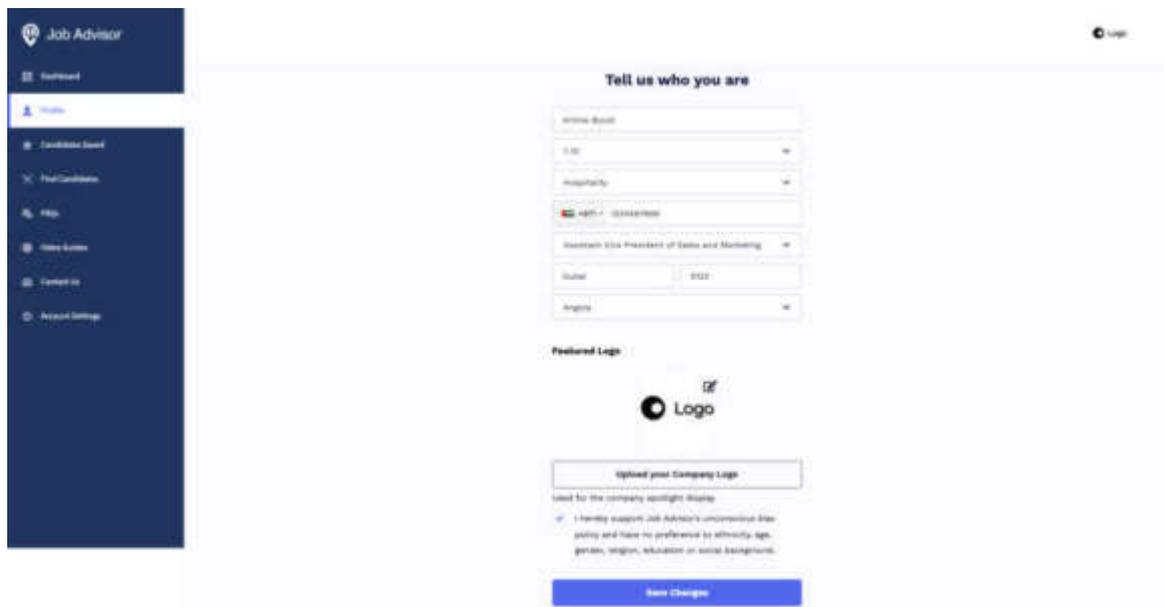

Fig 3.4.5.11 Company Dashboard

- **Edit Profile:**

Fig 3.4.5.12 Company Edit Profile

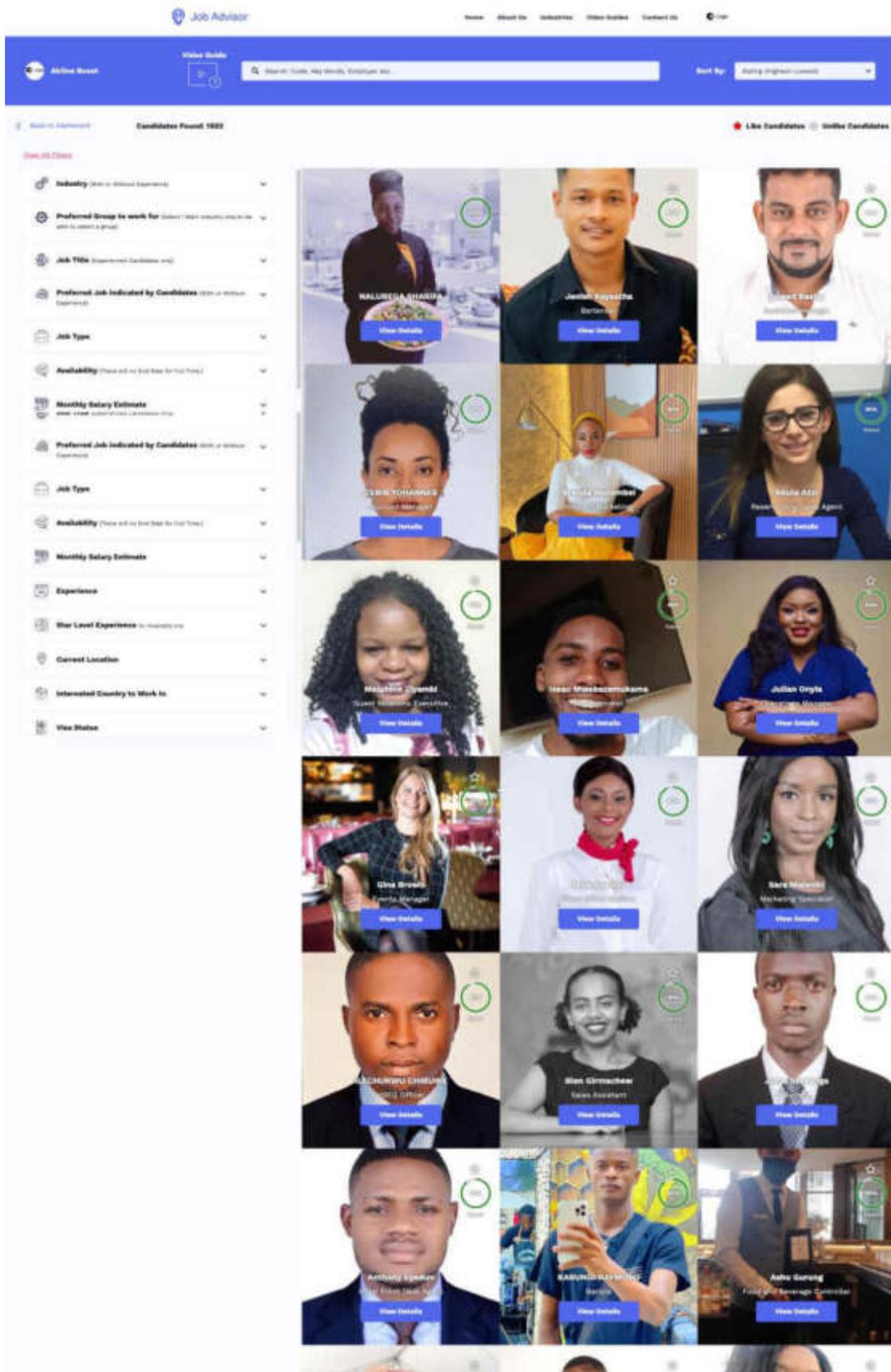- **Find Candidates:**

Fig 3.4.5.13 Company Find Candidates

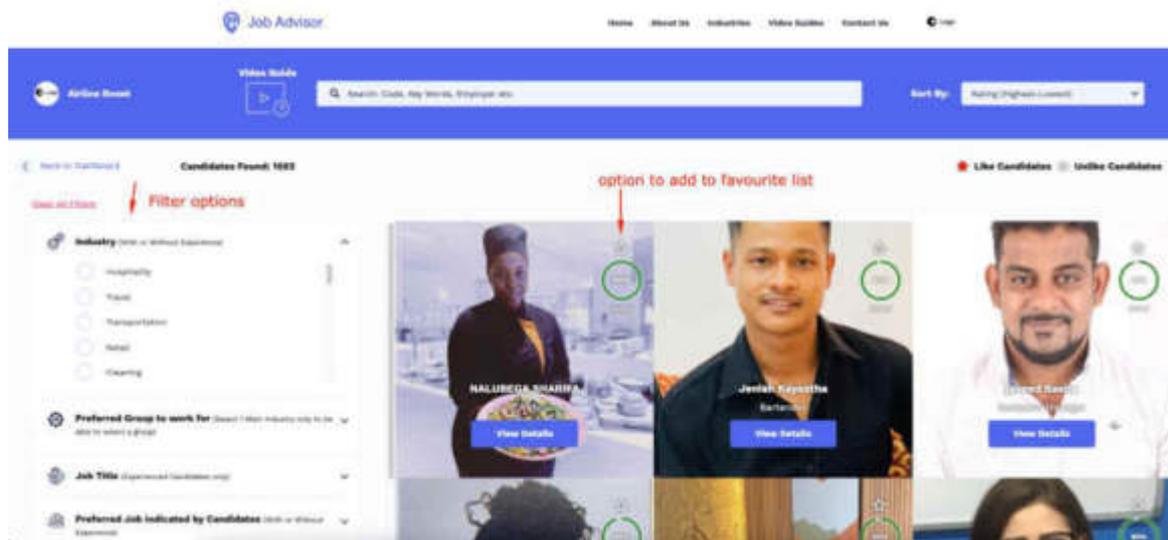- **Find Candidates Filter & Favorite Option:**

Fig 3.4.5.14 Company Find Candidates Filter & Favorite Option
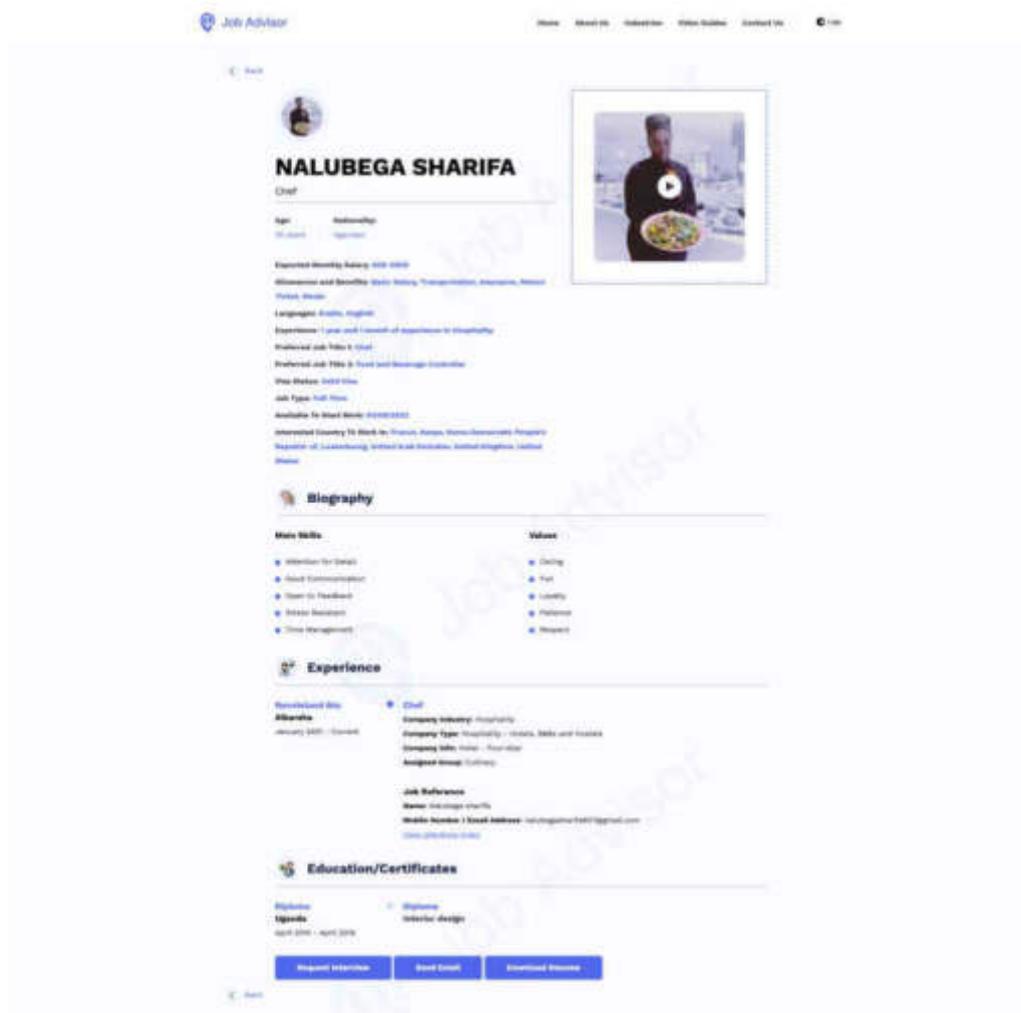
- **View Candidate Profile:**

Fig 3.4.5.15 Company View Candidate Profile
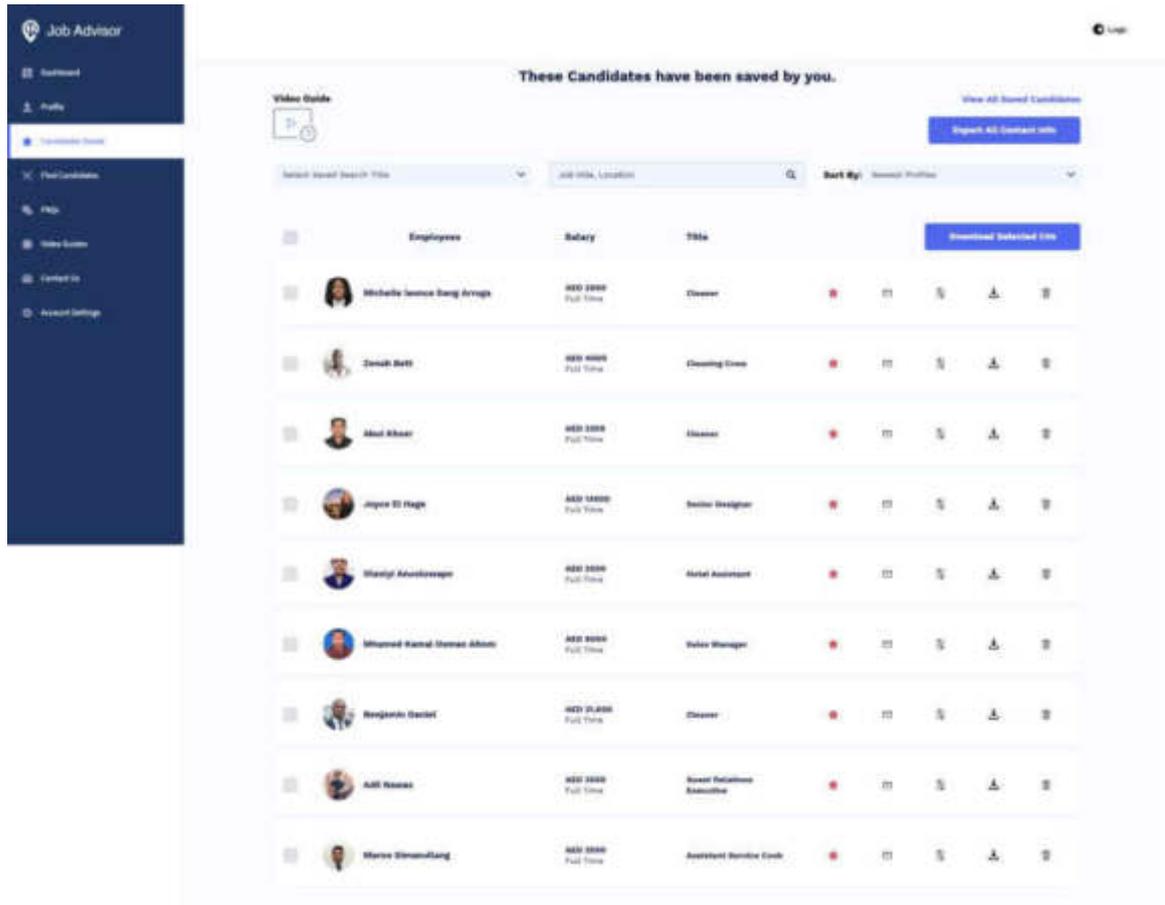
- **View Favorite Candidate:**

Fig 3.4.5.16 Company View Saved Candidates

CHAPTER 4. CONCLUSION AND DISCUSSION

4.1 OVERALL ANALYSIS OF INTERNSHIP:

During my internship for UI, I learned how to design user-friendly interfaces that are intuitive and easy to navigate. I gained hands-on experience with design tools such as Figma, Adobe Illustrator and Affinity Designer, and learned how to create wireframes, prototypes, and high-fidelity mock-ups. I had the opportunity to work on real-world projects and collaborate with other designers and developers. I learned how to communicate design ideas effectively, how to give and receive feedback, and how to work in a team to deliver high-quality design solutions.

4.2 SUMMARY OF INTERNSHIP:

In this Internship I worked closely with a team of designers and developers and created user interfaces and experiences for websites, applications, and other digital products. This included conducting user research, creating wireframes and prototypes, designing visual interfaces, and collaborating with developers to ensure the final product meets user needs and design standards. Throughout the internship, I also got the opportunity to learn about industry-standard design tools and processes, as well as I gained practical experience working on real-world design projects.

APPENDIX

- **Annexture-2**

- **Company Offer Letter**

Date: 19th January, 2023

To,

Madam/Sir

Subject: Joining Letter

We are pleased to select **Mr. Sujal Patel** as a project trainee in **Yudiz Solutions Ltd** in **Designing Department.** We have offered him training for six months where the stipend would be Rs.5000/-per month for 6 months. We will also offer him employment after his training is successfully completed. He will be entitled to a monthly remuneration of Rs. 25,000 (Rupees Twenty five thousand only) per month in 1st year and Rs. 30,000 in 2nd year of employment which indicates Cost to Company (CTC). Also after completion of 1 year of full time employment Rs. 20,000 as a performance bonus and after completion of 2 years Rs. 30,000 as a performance bonus. salary will be reviewed after a period of **30** months.

His joining date will be 1st February, 2023 and work location will be Ahmedabad, Gujarat only.

Sincerely,

Kinjal Shah
Functional Manager- HR

YUDIZ SOLUTIONS LIMITED
formerly, Yudiz Solutions Private Limited

CIN : U72900GJ2011PLC067088

Regd. Office
13th Floor, Bsquare 2, Iscon-Ambli Road, Ahmedabad - 380054, Gujarat, INDIA

Phone : (+91) 079 29700606
contact@yudiz.com | www.yudiz.com

- **NOC Letter**

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

SIT/SPBPEC/7/W2022/NOC/ 78   Date: 3rd February, 2023

To,
The HR,
Yudiz Solutions,
8th floor, Time square building, Thaltej,
Ahemdabad-380059
Subject: Request Letter for Internship of our student at your organization.

Dear Sir,

This is to certify that Ms. Sujal Kamleshbhai Patel, with enrollment number, is 190390116030 a student of the institute since July 2019 and is currently studying in 7th Semester, Information Technology engineering, S.P.B. Patel Engineering College, Saffrony Institute of Technology, Linch.

S.P.B. Patel Engineering College, Saffrony Institute of Technology, Linch is one of the leading Engineering Institutions in Gujarat. At present, we offer Bachelor's Degree in four engineering branches – Mechanical, Civil, Computer Engineering, and Information Technology.

As a part of the course work laid down by **Gujarat Technological University (GTU)**, the final year students of Degree Engineering are required to go for internship for their entire **8th Semester** for the period of **February 2023 to July 2023**, so as to get practical exposure and bridge the gap between academics & industry. Some of our brightest students wish to apply for the **Internship** opportunity provided by your esteemed organization, Yudiz Solutions Limited.

We request you to consider our student for this internship opportunity.

The student details are as follows:

Sr. No.	Name of Student	Enrolment No.	Mobile No.
1	Sujal Kamleshbhai Patel	190390116030	7574079330

Yours Sincerely,

AkshayKansara
Head of the Department, Computer Engineering Department,
S.P.B.Patel Engineering College, Linch.
Email: akshay.kansara@saffrony.ac.in
Contact: 9925516674

Near Shanku's Waterpark, Ahmedabad-Mehsana Highway,
At & Post : Linch, Dist. : Mehsana, Gujarat-384 435. Phone / Fax (02762) 285721
www.saffrony.ac.in • E-mail : info@saffrony.ac.in

REFERENCES

- https://www.behance.net/

- https://dribbble.com/

- https://in.pinterest.com/

- https://www.freepik.com/

- https://m3.material.io/

- https://undraw.co/

- https://www.remove.bg/

Workflow Management System

A Project Report

BISAG-N

ISO 9001:2008
ISO 27001:2013
CMMI LEVEL-5

Bhaskaracharya National Institute for Space Applications & Geo-informatics
Ministry of Electronics and Information Technology, Govt. of India.

Gandhinagar

Submitted By

Vimalkumar Shaileshkumar Patel

190390116031

In partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

in

Information Technology,

S.P.B.Patel Engineering College, Mehsana

Gujrat Technology University , Ahmedabad

May 2023

GUJARAT TECHNOLOGICAL UNIVERSITY

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 **Workflow Management System** has been carried out by **Vimalkumar Shaileshkumar Patel** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign

Prof. Sushama Sajnwar

Internal Guide

Sign

Prof. Akshay Kansara

Head of the Department

Bhaskaracharya National Institute for Space Applications and Geo-informatics

MeitY, Government of India

Phone: 079 - 23213081   Fax: 079 - 23213091

E-mail: info@bisag.gujarat.gov.in, website: https://bisag-n.gov.in/

ISO 9001:2008
ISO 27001:2013
CMMI LEVEL-5

CERTIFICATE

This is to certify that the project report compiled by **Mr. Vimal Patel** student of 8th Semester **BE-IT from S.P.B. Patel Engineering College, Linch, Gujarat Technological University, Ahemdabad** Has completed his final Semester internship project satisfactorily. To the best of our knowledge this is an original and bonafide work done by him. He has worked on React.js-based application for **"Workflow Management System"**, starting from January 23rd, 2023 to May 10th, 2023.

During his tenure at this Institute, He was found to be sincere and meticulous in his work. We appreciate his enthusiasm & dedication towards the work assigned to him.

We wish him every success.

Sidhdharth Patel
External Co-Guide
BISAG- N, Gandhinagar

Punit Lalwani
CISO,
BISAG- N, Gandhinagar

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 (17:05:53)

This is to certify that, *Patel Vimalkumar Shaileshkumar* (Enrolment Number - 190390116031) working on project entitled with *Workflow Management System* from *Information Technology* 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 Vimalkumar Shaileshkumar**

Name of Guide : **Miss. Sushma Sainwar**

Signature of Student : V.S.patel

*Signature of Guide : Sushan

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, Mehsana

Near Shanku's Water Park, Ahmedabad-Mehsana Highway, Linch, Gujrat

DELCERATION

We hereby declare that the Internship / Project report submitted along with the Internship entitled **Internship at BISAG-N** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information&Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar & Punit Lalwani & Sidhdharth 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

Signature of student

Vimalkumar Shaileshkumar Patel

V. S. Patel

ACKNOLEDGEMENT

ABSTRACT

This report contains a comprehensive description of my end of study, three-month internship at an IT company named, BISAG-N. I got a macroscopic look of the ins and outs of an IT company along with its technical side.

Workflow management systems are crucial tools for efficiently organizing and automating business processes. In recent years, web-based applications have gained popularity due to their accessibility and scalability. React.js, a widely-used JavaScript library, has emerged as a powerful framework for building dynamic and interactive user interfaces. This abstract explores the utilization of React.js in the development of a workflow management system.

The primary objective of a workflow management system is to streamline and optimize business processes by automating tasks, facilitating collaboration, and ensuring smooth information flow. By leveraging React.js, developers can create a highly responsive and intuitive user interface that enhances the user experience and simplifies interaction with the workflow management system.

LIST OF FIGURE

LIST OF TABLE

ABBREVIATIONS

- **HTML:** Hyper Text Markup Language
- **CSS:** Cascading Style Sheet
- **JSX:** JavaScript XML
- **DOM:** Document Object Model
- **WFMS:** Work Flow Management System
- **BISAG-N:** Bhaskaracharya Institute for Space Application and Geoinformatics

INDEX

1.0 OVERVIEW OF THE COMPANY

1.1 ABOUT THE INSTITUTE

Modern day planning for inclusive development and growth calls for transparent, efficient, effective, responsive and low cost decision making systems involving multi-disciplinary information such that it not only encourages people's participation, ensuring equitable development but also takes into account the sustainability of natural resources. The applications of space technology and Geo–informatics have contributed significantly towards the socio-economic development. Taking cognizance of the need of geo-spatial information for developmental planning and management of resources, the department of Ministry of Electronics and Information Technology, Government of India, established "Bhaskaracharya National Institute for Space Applications and Geo-informatics" (BISAG- N). BISAG- N is an ISO 9001:2008, ISO 27001:2005 and CMMI: 5 certified institute. BISAG- N which was initially set up to carryout space technology applications, has evolved into a centre of excellence, where research and innovations are combined with the requirements of users and thus acts as a value added service provider, a technology developer and as a facilitator for providing direct benefits of space technologies to the grass root level functions/functionaries.

1.2 BISAG-N'S ENDURING GROWTH

Since its foundation, the Institute has experienced extensive growth in the sphere of Space technology and Geo-informatics. The objective with which BISAG- N was established is manifested in the extent of services it renders to almost all departments of the State. Year after year the institute has been endeavouring to increase its outreach to disseminate the use of geo-informatics up to grassroots level. In this span of nine years, BISAG- N has assumed multi-dimensional roles and achieved several milestones to become an integral part of the development process of the Gujarat State.

BISAG-N Journey

2003-04
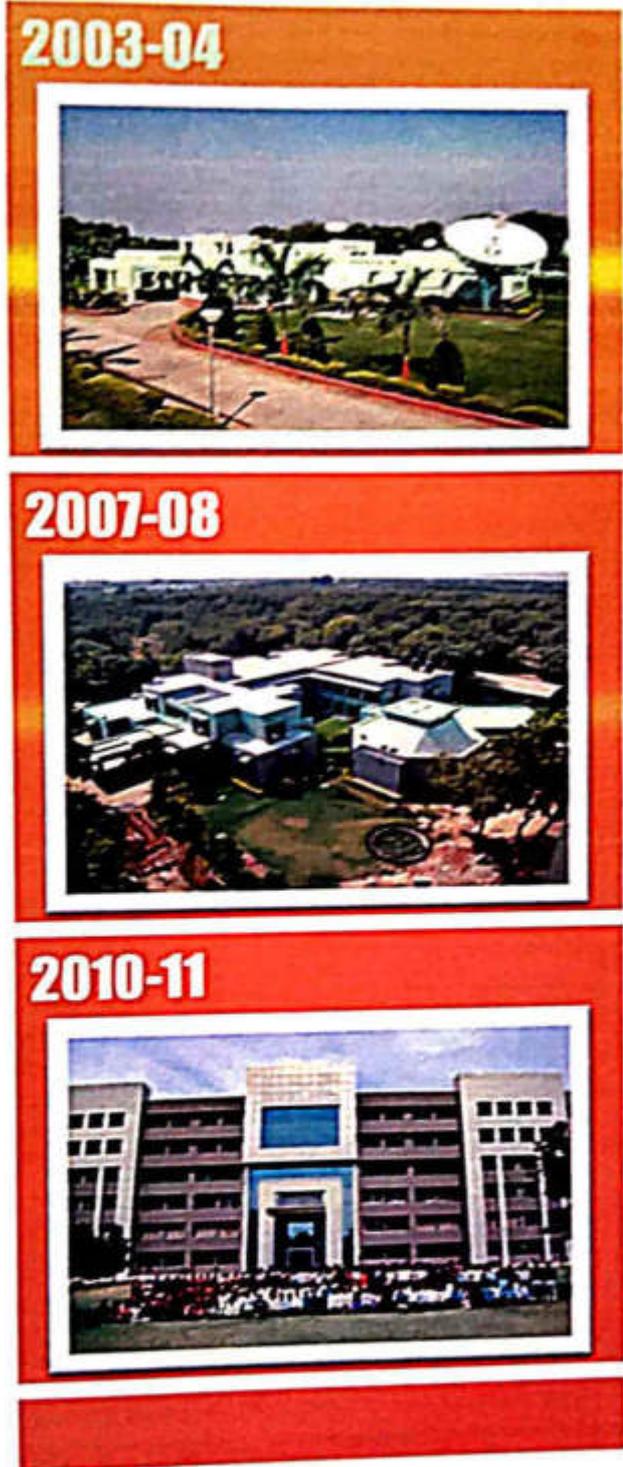
Gujarat SATCOM Network

2007-08

Centre for Geo-informatics Applications

2010-11

Academy of Geo-informatics for Sustainable Development

Fig 1.1.1 BISAG-N Journey

1.3 ACTIVITIES

Satellite Communication..

for promotion and facilitation of the use of broadcast and teleconferencing networks for distant interactive training, education and extension.

Remote Sensing..

for Inventory, Mapping, Developmental planning and Monitoring of natural & man-made resources.

Geographic Information System..

for conceptualization, creation and organization of multi purpose common digital database for sectoral/integrated decision support systems.

Global Navigation Satellite System..

for Location based Services, Geo-referencing, Engineering Applications and Research.

Photogrammetry..

for Creation of Digital Elevation Model, Terrain Characteristic, Resource planning.

Cartography..

for thematic mapping, value added maps.

Software Development..

for wider usage of Geo-spatial applications, Decision Support Systems (desktop as well as web based), ERP solutions.

Education, Research and Training..

for providing Education, Research, Training & Technology Transfer to large number of students, end users & collaborators.

Fig 1.3.1 Activities

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for providing Education, Research, Training & Technology Transfer to large number of students, end users & collaborators.

Fig 1.3.1 Activities

1.4 APPLECATIONS OF GEOSPATIOL TECHNOLOGY FOR GOOD GVERNAN

Through the geospatial technology, the actual situation on the ground can be accessed. The real life data collected through the technology forms the strong foundation for development of effective social welfare programs benefiting directly the grass root level people. The geospatial data collected by the space borne sensors along with powerful software support through Geographic Information System (GIS), the vital spatio-temporal maps, tables, and various statistics are being generated which feed into Decision Support System (DSS).

A multi-threaded approach is followed in the process of institutionalization of development of such applications. The 5 common threads which run through all the processes are: Acceptability, Adaptability, Affordability, Availability and Assimilability.

These are the "Watch Words" which any application developer has to meet. The "acceptability" addresses the issue that the application developed has met the wide acceptability among the users departments and the ultimate end beneficiary by way of providing all necessary data and statistics required. The "affordability" addresses the issue of the application product being cost effective. The "availability" aspect looks into aspect of easily accessible across any platform, anywhere and anytime. The applications should have inbuilt capability of easy adaptability to the changing spatio- and temporal resolutions of data, new aspects of requirements arising from time to time from users. The assimilability aspect ensures that the data from various sources / resolutions and technologies can be seamlessly integrated.

ACCEPTABILITY	■ Problem definition by users
	● Proof of Concept development without financial liability on users
	■ Execution through collaboration under user's ownership
ADOPTABILITY	■ Applications as per present systems & database
	■ Maximum Automation
	■ Minimum capacity building requirement at the user end
AFFORDABILITY :	■ Multipurpose geo-spatial database, common, compatible, standardized (100s of layers)
	■ In house developed/open source software

AVAILABILITY:	• Full Utilization of available assets • Departmental /Integrated DSS • Desired Product delivery anytime, anywhere in the country
ASSIMILABILITY	• Integration of Various technologies like RS, GIS, GPS, Web MIS, Mobile etc.

1.5 ORAGANIZATIONAL SETUP

The Institute is responsible for providing information and technical support to different Departments and Organizations. The Governing Body and the Empowered Executive Committee govern the functioning of BISAG- N. The Institute is registered under the Societies Registration Act 1860. Considering the scope and extent of activities of BISAG- N, its organizational structure has been charted out with defined functions.
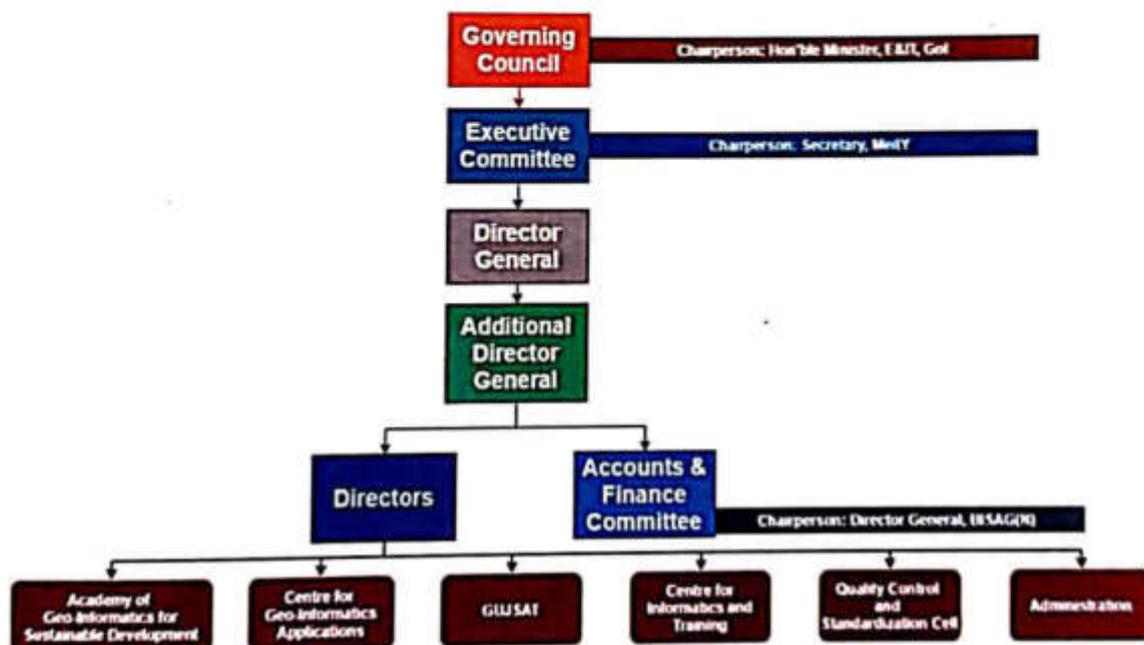
Fig 1.5.1 Organizational Setup of BISAG- N

1.6 GOVERNING BODY

For smoother, easier and faster institutionalization of Remote Sensing and GIS technology, decision makers of the state were brought together to form the Governing Body. It is the supreme executive authority of the Institute. The Governing Body comprises of ex-officio members from various Government departments and Institutes.

- Hon'ble Minister of Electronics and Information Technology..................................Chairperson (Ex-Officio)
- Hon'ble Minister of State Electronics and Information Technology....................Deputy Chairperson (Ex-Officio)
- Secretary of Government of India: Ministry of Electronics and Information Technology...Executive Vice Chairperson (Ex-Officio)
- Chief Executive Officer, Niti Aayog...Member (Ex-Officio)
- Chairman, Indian Space Research Organization ....Member (Ex-Officio)
- Secretary to Government of India: Department of Science and Technology...................Member (Ex-Officio)
- Additional Secretary to Government of India: Ministry of Electronics and Technology.............Member (Ex-Officio)
- Chief Secretary to Government of Gujarat...Member (Ex-Officio)
- President & Chief Executive Officer, National e-Governance Division, Ministry of Electronics and Information Technology.. Member (Ex-Officio)
- Financial Advisor to Government of India: Ministry of Electronics and Information Technology.........Member (Ex-Officio)
- Distinguished Professionals from the GIS field-Three (3) (To be nominated by the Chairperson)
- Director-General, Bhaskaracharya National Institute for Space Application and Geo-Informatics {BISAG(N)}..Member Secretary (Ex-Officio)

2.0 OVERVIEW OF DIFFRENT DEPARTMENT OF ORGANIZATION

2.1 ABOUT CENTER FOR GEO-INFORMATICS APPLICATION

Introduction

The objective of this technology group is to provide decision support to the sectoral stake holders through scientifically organized, comprehensive, multi-purpose, compatible and large scale (village level) geo-spatial databases and supporting analytical tools. These activities of this unit are executed by a well-trained team of multi-disciplinary scientists. The government has provided a modern infrastructure along with the state-of-the-art hardware and software. To study the land transformation and development over the years, a satellite digital data library of multiple sensors of last twenty years has been established and conventional data sets of departments have been co-registered with satellite data. The geo-spatial databases have been created using conventional maps, high resolution satellite 2D and 3D imagery and official datasets (attributes).The geo-spatial databases include terrain characteristics, natural and administrative systems, agriculture, water resources, city survey maps, village maps with survey numbers, water harvesting structures, water supply, irrigation, power, communications, ports, land utilization pattern, infrastructure, urbanization, environment data, forests, sanctuaries, mining areas, industries. They also include social infrastructure like the locations of schools, health centres, institutions, aganwadies, local government infrastructure etc. The geospatial database of nagar-palikas includes properties and amenities captured on city and town planning maps with 1000 GIS layers. Similar work for villages has been initiated as a pilot project.

The applications of space technology and geo-informatics have been operational in almost all the development sectors of the state. Remote sensing and GIS applications have provided impetus to planning and developmental activities at grass root level as well as monitoring and management in various disciplines.

The GIS based application devlopment

The GIS software is a powerful tool to handle, manipulate and integrate both the spatial and non-spatial data. The GIS system operates on the powerful backend data base and Sequential Query Language (SQL) to inquiry the data bases. It has the capability to handle large volume of data and process to yield values of parameters which can be input to very important government activity as Decision Support System (DSS). Its mapping capabilities help the users and specialists in generating single and multi-theme wise maps.

The GIS based applications development has been institutionalized in BISAG- N. This process can be listed as (Refer Figure for Details)

- Making the users aware of the GIS capabilities through introductory training programme and by exposing to already developed projects as success stories.
- Helping the users in defining the GIS based projects.
- Digitizing the data available with the users and encouraging them to collect any additional data as may be required.
- Generating the appropriate data bases with the full involvement of the users following the data bases standards
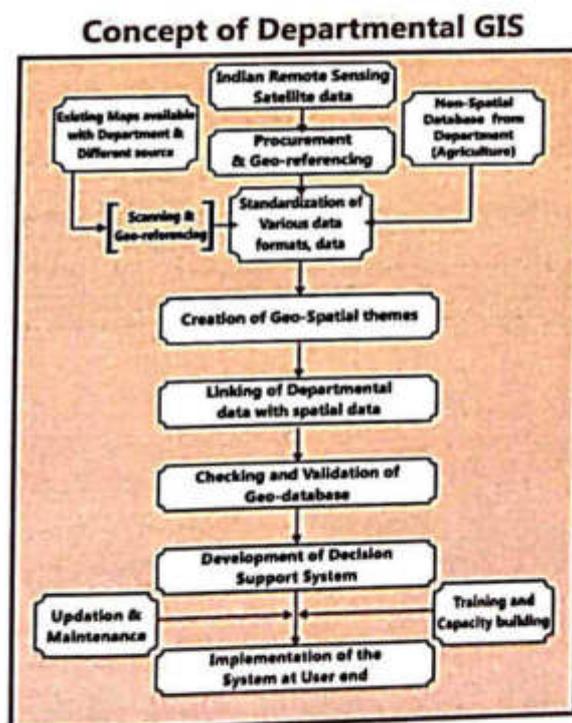
Fig 2.1.1 Concept of Departmental GIS

Remote sensing and GIS sectoral application:

Geo-informatics based irrigation management and monitoring system

- The Geo-spatial information system for Irrigation water Management and Monitoring system for command areas in Sardar Sarovar Narmada Nigam Limited (SSNL) has been developed. Satellite image-based Irrigation monitoring system has been developed in GIS. From the multi-spectral Satellite images of every month, the irrigated areas were extracted.

- The irrigated area were overlaid on the geo-referenced cadastral maps and the statistics of area irrigated has been estimated.

- The user friendly Customized Decision Support System (DSS) has been developed.

Preparation Of DPR Of Par–Tapi-Narmada Link Using Geo-Informatics For National Water Development Agency (NWDA)

- The main objective of Par–Tapi-Narmada Link project is to divert surplus water available in west flowing rivers of south Gujarat and Maharashtra for utilization in the drought prone Saurashtra and Kachcha. On the request from NDWA, preparation of various maps for proposed DPR work was undertaken by the BISAG- N. Land use

and submergence maps of proposed dams along with its statistics have been prepared by the BISAG- N. The detailed work consisted of generation of Digital Elevation Model (DEM), contour generation, Land use mapping, forest area generation of submergence extent at different levels etc.

Agriculture

District And Village-Level Crop Inventory

- Remote Sensing (RS) based Village-level Crop Acreage Estimation at was taken up in two villages of Anand and Mehsana districts of Gujarat state. The major objective of this study was to attempt village-level crop inventory during two crop seasons of Kharif (monsoon season) and Rabi (winter season) using single- date Indian Remote Sensing (IRS) LISS-III and LISS-IV digital data of maximum vegetative growth stage of major crops during each season.

- District-level crop acreage estimation during three cropping seasons namely Kharif, Rabi and Zaid (summer) seasons was also carried out in all the 26-districts of Gujarat State. Summer crop acreage estimation Gujarat State was carried out during 2012.

Spatial Variability Mapping of Soil Micro-Nutrients

- The spatial variability of soil micro-nutrients like Fe, Mn, Zn and Cu in various villages of different districts, Gujarat state was mapped using geo- informatics technology. The major objectives of this study were i) to quantify the variability of Mn, Fe, Cu and Zn concentration in soil; ii) to map the pattern of micro-nutrient variability in cadastral maps, iii) suggest proper application of micro-nutrients based on status of deficiency for proper crop management and iv) preparation of village-level atlases showing spatial variability of micro-nutrients.
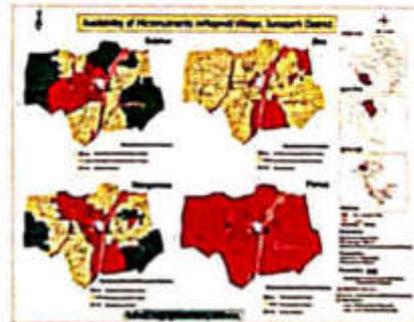
Geo-Spatial Information System for Coastal Districts of Gujarat

- The project on development of Village-level Geo-spatial Information System for Shrimp Farms in Coastal Districts of Gujarat, was taken with major objective of development of Village-level Geo-spatial Information System for Shrimp/Scampi areas using Remote Sensing (RS) and GIS. This project

was sponsored by the Marine Products Export Development Authority (MPEDA), Ministry of Commerce & Industry, Government of India for scientific management of Scampi farms in the coastal districts which can help fishermen to better their livelihood and increase the economic condition on sustainable basis. The customized query shell was developed using the open source software for sharing the information amongst the officers from MPEDA and potential users. This has helped the farmers to plan their processing and marketing operations so as to achieve better remunerations.

Environment And Forest Mapping And Monitoring Of Mangroves In The Coastal Districts Of Gujarat State

- Gujarat Ecology Commission, with technical inputs from the Bhaskaracharya National Institute for Space Applications and Geo-informatics - N (BISAG- N) made an attempt to publish Mangrove Atlas of the Gujarat state. Mangrove atlas for 13-coastal districts with 35-coastal talukas in Gujarat, have been prepared using Indian Remote sensing satellite

images. The comparison of mangrove area estimates carried out by BISAG- N and Forest Survey of India (FSI) indicates a net increase in the area under mangrove cover. The present assessment by BISAG- N, has recorded 996.3 sq. km under mangrove cover, showing a steep rise to the tune of 88.03 sq. km. In addition to the existing Mangrove cover, the present assessment also gives the availability of potential area of 1153 sq. km, where mangrove regeneration program can be taken up.

2.2 ACADEMY OF GEO-INFORMATICS FOR SUSTAINABLE DEVELOPMENT

Introduction

- Considering the requirement of high end research and development in the areas having relevance of geo-informatics technology for sustainable development, a separate infrastructure has been established. In collaboration with different institutes in the state as well as in the country, R&D activities are being carried out in the areas of climate change, environment, disaster management, natural resources management, resources planning, coastal hazard and coastal zone management studies, etc. under the guidance of eminent scientists.
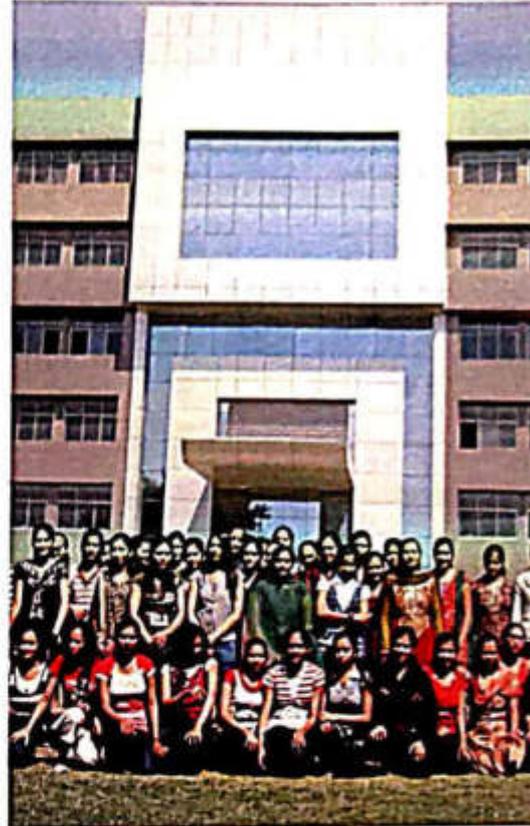
- Various innovative methodologies/models developed in this academy through the research process have helped in development of various applications. There are plans to enhance R&D activities manifold during coming years.

- This unit also provides training to more than 600 students every year in the field of Geo-informatics to the students from various backgrounds like water resources, urban planning, computer Engineering, IT, Agriculture in the areas of Remote sensing, GIS and their applications.

- This Academy has been established as a separate infrastructure for advanced research and development through following schools:

    - School of Geo-informatics
    - School of Climate & Environment
    - School of Integrated Coastal Zone Management
    - School of Sustainable Development Studies
    - School of Natural Resources and Bio-diversity
    - School of Information Management of Disasters

During XIIth Five-year Plan advance applied research through above schools shall be the main thrust area. Already M. Tech and Ph.D. students of other Universities/ Institutes are doing research in this academy in applied sciences under various collaborative programmes.

M. Tech. Students' Research Programme

The academy started M. Tech. students' research programme in a systematic way. It admitted 11 students from various colleges and universities in Gujarat, Rajasthan and Madhya Pradesh for period of 10 months from August 2011 to May 2012. All the students were paid stipend of Rs. 6000 per month during the tenure. The research covered the following areas:

- Cloud computing techniques
- Mobile communication
- Design of embedded systems
- Aquifer modelling
- Agricultural and Soils Remote Sensing
- Digital Image processing Techniques (Data Fusion and Image Classification).

The research resulted in various dissertations and publications in national and international journals.

- Now nine students, one from IIT, Kharagpur, three from GTU, one from M. S University, Vadodara and four from GU, are undergoing their Ph. D programme. Out of nine, two thesis have been submitted. Two students are from abroad. One each from Vietnam and Yemen. Since then (after approval of research programme from the Governing Body), 200+ papers have been published by the Academy.

3.0 INTRODUCTION TO INTERNSHIP

3.1 INTERNSHIP SUMMARY

I was an intern at BISAG-N now. We can differentiate our internship in 2 phases leaning phase and working phase. In learning phase, we learnt different technologies which is used in our project and after this phase we implement our project.

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 INTERNSHIP PLANNING (OVERVIEW)

Our internship can be divided in 2 parts: learning period and implementation period.

- **Learning Period:**
  The learning period was the time taken for learning various languages needed for the understanding of the project. I learned HTML. I learned Bootstrap and CSS. I learned Javascript and React.js. I Enhanced my Problem-Solving abilities.

- **Implementation Period:**
  In the initial period I was first given a brief understanding of the project, the UI, the frontend as well as the backend part.
  The project that I am working on is based on React. In this project I worked on how to manage workflow in MNC company. I used MongoDB to store data.

4.0 SOFTWARE REQUIREMENT SPECIFICATION

We will look at the Workflow Management System process in this chapter, as well as the software requirement specification (SRS).

Before the development process begins, the SRS section comprises both functional and non-functional requirements to provide a full description and overview of system requirements.

4.1 INTRODUCTION

4.1.1 Purpose

The purpose of a workflow management system in an MNC company is to provide a more efficient and effective way of managing complex workflows and promoting collaboration and communication among team members. By automating routine tasks and providing real-time visibility into workflows, a workflow management system can help to drive better business outcomes and support the growth and success of the company.

4.1.2 Scope

The scope of a workflow management system in an MNC company is to improve efficiency, productivity, collaboration, and risk management by automating and streamlining complex workflows across multiple teams and locations. By providing real-time visibility into workflows and promoting greater communication and collaboration among team members, a workflow management system can help to drive better business outcomes and support the growth and success of the company.

4.2 FUNCTIONAL REQUIREMENTS

4.2.1 Task Management

The system should allow for the creation, assignment, and tracking of tasks related to workflows. This should include the ability to set due dates, assign tasks to specific team members or groups, and track progress towards completion.

4.2.2 Workflow Automation

The system should allow for the automation of routine tasks and the routing of work items to appropriate team members for processing. This should include the ability to define rules and conditions for workflow processing and to trigger notifications or alerts based on specific events.

4.2.3 Reporting and Analytics

The system should provide a comprehensive set of reports and analytics to help managers monitor workflow performance and identify areas for improvement. This should include real-time status updates, dashboards, and customizable reports.

4.2.4 Integration with Other Systems

The system should integrate with other systems used by the MNC company, such as ERP, CRM, and HR systems. This should allow for the exchange of data between systems and the ability to trigger workflows based on specific events or data changes in other systems.

4.2.5 User Management

The system should allow for the management of user accounts, roles, and permissions. This should include the ability to assign roles and permissions based on job function and to restrict access to certain workflows or data based on user roles.

4.2.6 Security

The system should have robust security features to protect sensitive data and ensure compliance with regulatory requirements. This should include user authentication and authorization, data encryption, and access controls.

4.3 NON-FUNCTIONAL REQUIREMENTS

4.3.1 Scalability

The system should be able to handle large volumes of workflow processing and user traffic as the company grows and expands its operations.

4.3.2 Performance

The system should provide fast and responsive performance, with minimal downtime or delays in processing workflows.

4.3.3 Reliability

The system should be highly reliable, with built-in redundancy and failover mechanisms to ensure continuous operation in case of hardware or software failures.

4.3.4 Customizability

The system should be customizable to meet the specific needs and workflows of the MNC company. This should include the ability to configure workflows, forms, and reports to match the company's unique processes and requirements.

## 4.3.5 Accessibility

The system should be accessible to users with disabilities and comply with accessibility standards such as WCAG 2.0 or 2.1.

4.3.6 Security:

The system should have strong security features to protect sensitive data and ensure compliance with regulatory requirements. This should include secure authentication and authorization mechanisms, data encryption, and access controls.

4.4 SYSTEM ARCHITECTURE

- **Workflow Engine:** The Workflow Engine is the core component of a WfMS. It manages the workflow process, assigns tasks to users, and monitors the progress of each task. The engine is responsible for executing the workflow rules and enforcing the workflow policies.

- **Workflow Designer:** The Workflow Designer is a graphical tool that enables users to create, modify, and visualize workflows. It allows users to define the various steps in the workflow, specify the roles and responsibilities of the users, and set the workflow policies and rules.

- **Workflow Monitor:** The Workflow Monitor provides real-time information on the progress of workflows. It allows users to track the status of each task, view the current step in the workflow, and identify any bottlenecks or issues in the process.

- **Database:** The Database is used to store workflow-related data, including workflow definitions, workflow instances, user roles and responsibilities, and task assignments.
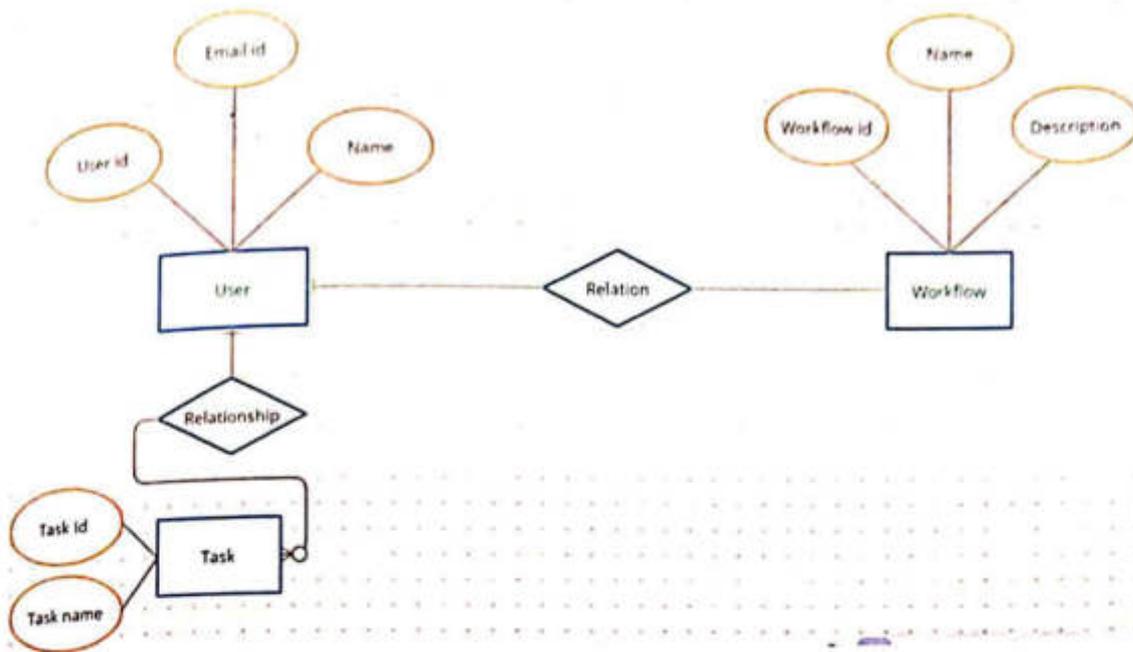
4.4.1 ER Diagram

Explanation:

- In this ER diagram, we have three main entities: User, Workflow, and Task.

- A User can create and manage multiple Workflows, and a Workflow can have multiple Tasks. Each Workflow has a unique ID, a name, and a description, and is created by a User who also has a unique ID, name, email, and password.

- Each Task is associated with a Workflow and has a unique ID, a name, a description, a creator ID, and a creation date. Additionally, each Task can have multiple Steps that represent the different stages of the workflow process. Each Step has a unique ID, a name, a status, and is associated with a Task.
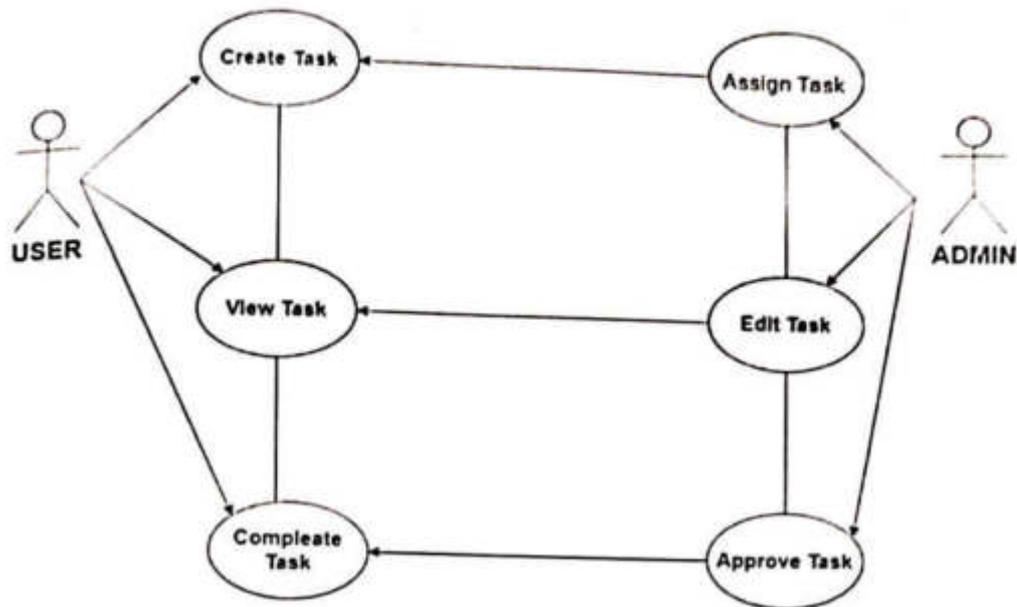
4.4.2 Use Case Diagram

Explanation:

- The diagram shows the main actors in the system, which are the user and the admin. The user can create tasks, view tasks assigned to them, and mark tasks as completed. The admin can assign tasks to users, edit tasks, and approve completed tasks.

- The use case diagram also shows the main functions of the system, which include creating tasks, assigning tasks, editing tasks, viewing tasks, approving completed tasks, and marking tasks as completed. These functions form the core of the workflow management system and help ensure that work is assigned, completed, and approved in a timely and efficient manner.
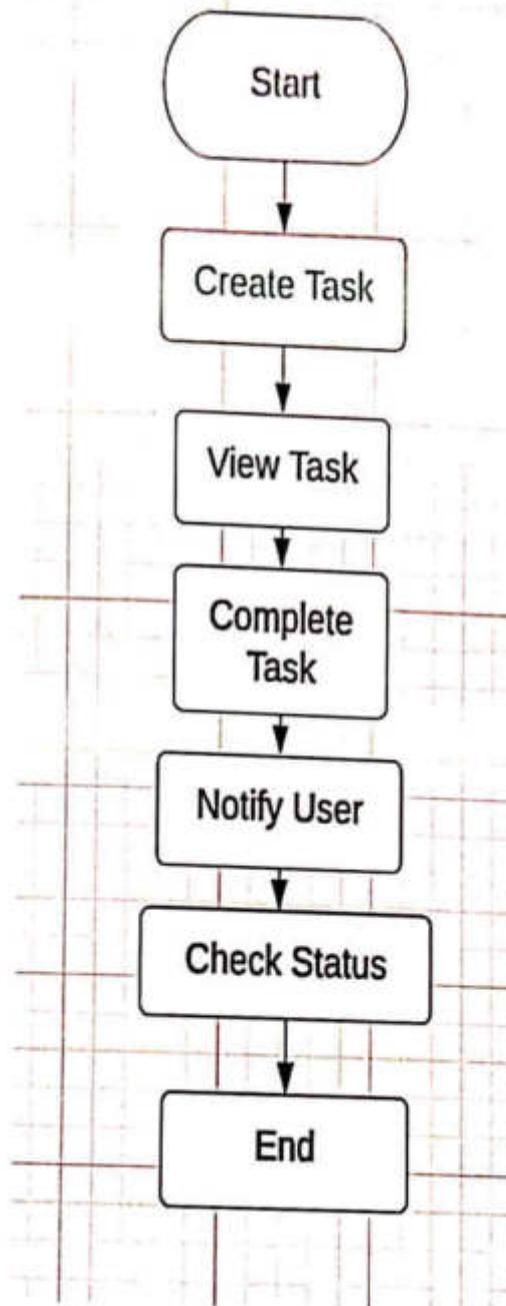
4.4.3 Activity Diagram

Explanation:

- This activity diagram shows the different activities and decision points involved in the workflow management system. The process starts with the creation of a task, which can be viewed and edited by the user. Once the task is completed, it is submitted for approval, after which the admin can approve or reject the task.

- The activity diagram also includes decision points where the system checks the status of the task to determine the appropriate next step. For example, if the task is approved, the system notifies the user and the process ends. If the task is rejected, the system notifies the user and the task can be edited and resubmitted.
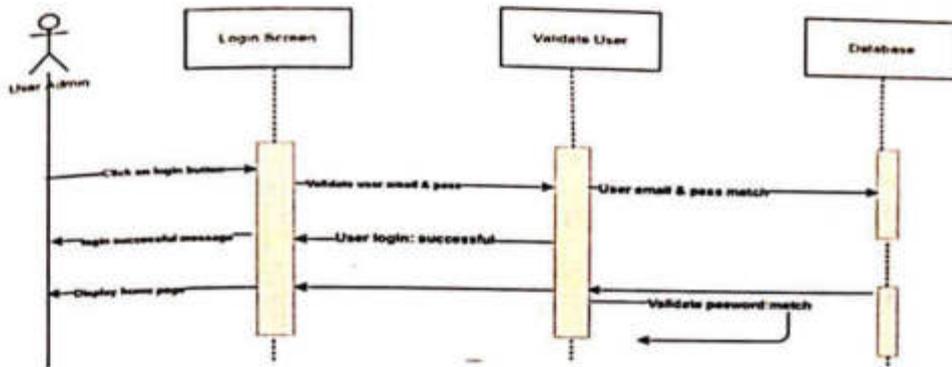
4.4.4 Sequence Diagram

Explanation:

- In this sequence diagram, we have three main participants: the user, the task manager, and the database. The user logs into the system and the task manager retrieves their list of tasks from the database. The user can then create, edit, or delete tasks, which the task manager updates in the database. Finally, the user logs out of the system and receives a confirmation message.
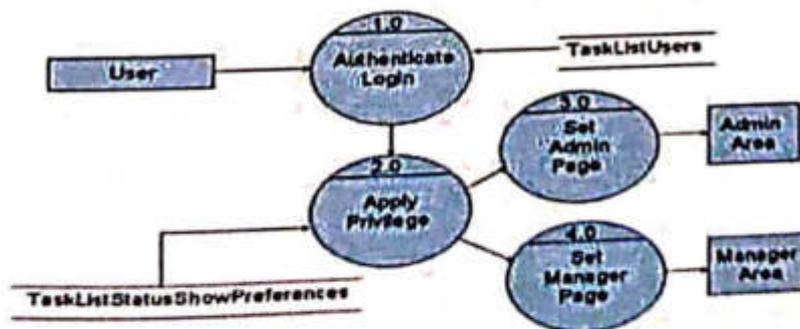
DFD Level 1

DFD Level 2

4.4.5 DFD Diagram

Explanation:

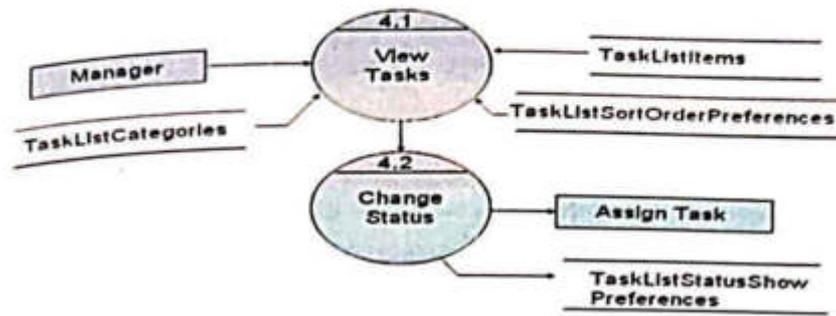- The diagram shows three main entities: the user, the task manager, and the database. The user logs in to the system and interacts with the task manager to manage their tasks. The task manager retrieves tasks from the database and updates them when the user creates, edits or deletes a task. Additionally, the diagram shows an email system as an optional

4.5 USER INTERFACE

The User Interface is the front-end of the Work Flow Management System. It provides users with a graphical interface to interact with the system, including creating and modifying workflows, viewing tasks, and monitoring workflow progress.

4.6 TESTING

Functionality Testing: This testing ensures that all the functionalities of the website are working as expected. For example, registration, Login and task are accessible and working correctly.

Compatibility Testing: This testing ensures that the website is compatible with different devices, operating systems, and web browsers.

Usability Testing: This testing ensures that the website is user-friendly and easy to navigate.

4.7 SOFTWARE AND HARDWARE REQUIREMENTS

This section describes the software and hardware requirements of the system to run

4.7.1 SOFTWARE REQUIREMENTS:

Any Browser with minimum requirements stated ahead in report.

4.7.2 HARDWARE REQUIREMENTS:

Any Working Tablet, Laptop or desktop

4.8 SOFTWARE TOOLS USED

The whole Project is divided in 3 parts:

1.Front end/UI

HTML, CSS, React.js, Bootstrap

2. Back end

Node.js

3. Supporting tools

Visual Studio, VS Code

5.0 IMPLEMENTATION
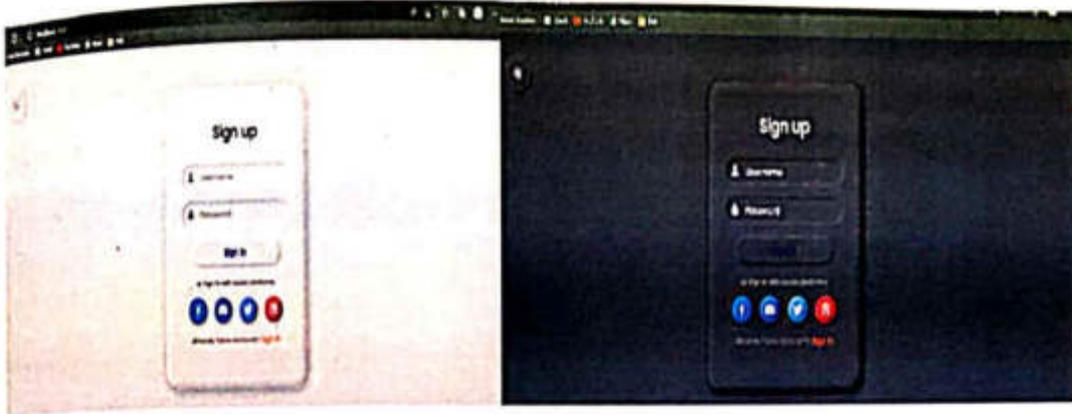
5.1 SCREENSHOTS OF PROJECT

Fig:5.1.1 Login Page

- A login page is a web page that allows users to authenticate themselves by entering their username and password to gain access to a web application or website. The login page usually contains a form with fields for the user's credentials, such as their email address or username and their password. Upon successful authentication, the user is typically redirected to the main dashboard or homepage of the application.

- A sign-up page, also known as a registration page, is a web page that allows users to create an account for a web application or website. It typically contains a form that collects information from the user, such as their name, email address, and password. The user may also be asked to provide additional information, such as their date of birth or their address, depending on the requirements of the application. Once the user submits the form, their account is created, and they can log in to the application or website.

- Both the login and sign-up pages are essential components of any web application that requires user authentication. They provide a secure way for users to access the application or website and protect sensitive information from unauthorized access. It's important to ensure that both pages are designed with user experience and security in mind to provide a seamless and safe user experience.
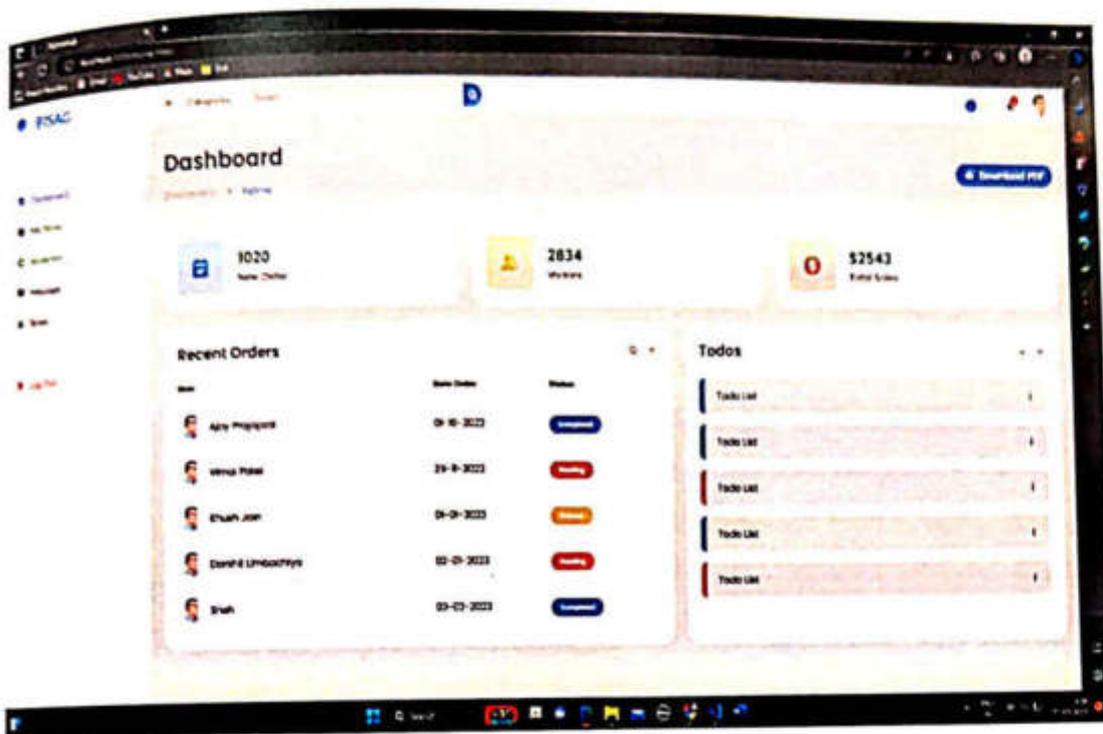
Fig:5.1.2 Dashboard

- A dashboard is a graphical user interface that displays key information and data in an easy-to-understand format. It is often used to provide an overview of performance, progress, and trends in a business or organization. A dashboard typically displays data in the form of charts, graphs, tables, and other visualizations, allowing users to quickly analyze and interpret the information presented.

- Dashboards can be customized to meet the needs of different users and departments. For example, a sales dashboard may display data related to revenue, customer acquisition, and sales trends, while a marketing dashboard may display data related to website traffic, social media engagement, and advertising campaigns.

- The key features of a dashboard include:

- Real-time data: Dashboards often display real-time data, allowing users to see up-to-date information on key metrics and performance indicators.

• Customizable: Dashboards can be customized to meet the needs of different users and departments, allowing users to focus on the metrics that matter most to them.

• Interactive: Dashboards are often interactive, allowing users to drill down into the data and explore it in more detail.

• Easy-to-use: Dashboards are designed to be user-friendly and easy-to-use, allowing users to quickly access and analyze key data without requiring technical expertise.

• New Order: In an e-commerce context, a new order refers to a recent purchase made by a customer on a website or app. It typically includes information such as the customer's name, billing and shipping address, order ID, items purchased, and the total amount paid. New orders are important to track to ensure timely delivery of products and to manage inventory levels.

• Visitors: Visitors refer to the number of people who visit a website or app within a specific period. This metric is often used to measure the popularity of a website and the success of marketing campaigns. It can also help identify trends and patterns in user behavior, which can be used to improve the user experience and increase conversions.

• Total Sales: Total sales refer to the total revenue generated by a business over a specific period. This metric is critical to measure the success of a business and to identify areas for improvement. Total sales can also be used to calculate other metrics such as average order value, conversion rate, and customer lifetime value.

• Recent Order: A recent order refers to a purchase made by a customer within a specific timeframe. This metric is often used to track the performance of an e-commerce website and to identify patterns in customer behavior. Recent order data can also be used to provide personalized recommendations and promotions to customers.

• Todo List: A todo list is a tool used to manage tasks and prioritize work. It typically includes a list of tasks to be completed, their due dates, and any additional notes or details. Todo lists can be used by individuals or teams to manage projects and ensure that all tasks are completed on time. They are a simple but effective way to increase productivity and stay organized.
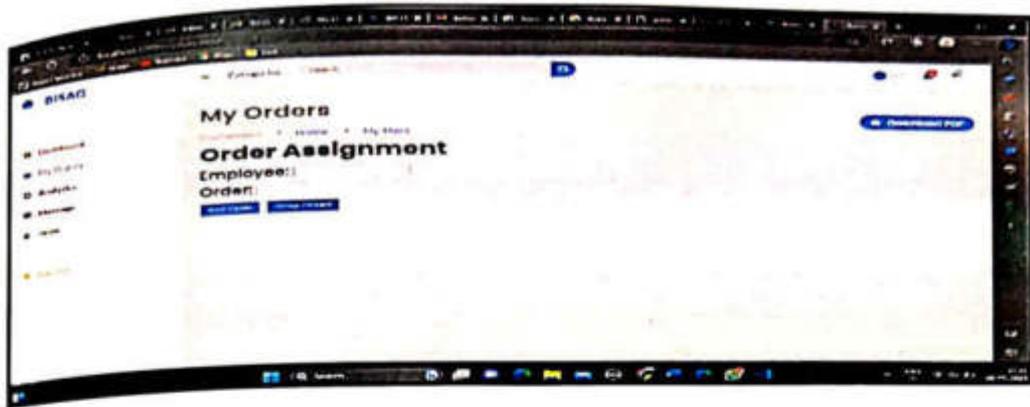
Fig:5.1.3 My Orders

- "My orders" is a section in a company's website or online store where customers can view and manage their previous purchases. This feature is designed to provide customers with a convenient way to keep track of their orders, and to provide transparency and accountability for both the customer and the company.

- Order history: The "My orders" section provides customers with a detailed history of their previous purchases, including the order date, order number, items purchased, and total amount paid.

- Order tracking: Many "My orders" sections provide customers with the ability to track the status of their current orders in real-time, allowing them to know when their order is processed, shipped, and delivered.

- Returns and exchanges: In some cases, the "My orders" section may also include a feature for customers to request returns or exchanges for items they have purchased.

- Order details: The "My orders" section may also provide customers with additional details about their orders, such as shipping and billing addresses, payment methods, and estimated delivery times.

- Customer support: In the event that customers encounter any issues or problems with their orders, the "My orders" section may also provide a direct line of communication with customer support or a customer service representative who can help resolve the issue.

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Fig:5.1.4 Team Member

•A team member table is a type of data table used to display information about the members of a team. The table typically includes columns for each member's name, job title, photo, email address, phone number, and other relevant details. The purpose of a team member table is to showcase the members of a team and provide visitors with an overview of their roles and responsibilities.

•Professional look: A team member table can provide a professional and polished look to a company's website or online presence. It can help to establish the credibility of the company by showcasing its team members.

•Easy to read: A team member table is typically organized into rows and columns, making it easy to read and understand. Visitors can quickly find the information they are looking for without having to search through multiple pages or documents.

•Accessibility: A team member table can be made accessible to all users, including those with disabilities. By using the proper HTML and CSS, a team member table can be made compatible with screen readers and other assistive technologies.

•Branding: A team member table can be customized to match the branding and style of a company's website or online presence. This can help to reinforce the company's brand identity and provide a cohesive look and feel to the website.

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Fig:5.1.5 Terminal Process

- In computing, a terminal process refers to a program or application that runs in a command-line interface (CLI) environment. A CLI is a text-based user interface that allows users to interact with a computer system by typing in commands and receiving textual feedback.

- A terminal process typically runs within a shell, which is a command-line interpreter that provides a user with an interface to interact with the operating system. Examples of popular shells include Bash, and Fish.

- When a user executes a command in the terminal, the shell interprets it and invokes the appropriate terminal process to handle the task. For example, if a user types "ls" in the terminal, the shell will execute the "ls" command, which is a terminal process that lists the contents of a directory.

- Terminal processes are often used for tasks such as file manipulation, system administration, network configuration, and software development. Many programming languages also provide terminal-based tools for building, testing, and deploying applications.

6.0 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 Workflow Management System we test in below manners:

1.Workflow design and configuration:
- Verify that the workflows have been designed and configured to meet the business requirements.
- Check that the workflows are properly mapped to the tasks and activities.
- Ensure that the workflows can be customized, modified, and extended as needed.

2.User interface:
- Verify that the user interface is intuitive, user-friendly, and easy to navigate.
- Ensure that the UI is responsive and works well on different devices and browsers.
- Check that the UI elements (e.g., buttons, menus, forms) are functional and perform the intended actions.

3.Workflow execution:
- Test that the workflows can be executed smoothly and efficiently.
- Verify that the tasks and activities are properly assigned and tracked.
- Ensure that the workflows can handle exceptions and errors.

4.Integration:
- Test that the WMS can integrate with other systems and tools as needed.
- Verify that data can be imported and exported seamlessly.
- Check that the WMS can send and receive notifications and alerts.

5.Security:

- Ensure that the WMS has appropriate security measures in place (e.g., authentication, authorization, encryption).

- Test that the WMS can handle different levels of access and permissions.

- Check that the WMS can protect sensitive data and prevent unauthorized access.

6.Performance:

- Test that the WMS can handle a large number of users and workflows.

- Verify that the system can handle high volumes of data and transactions.

- Check that the WMS can handle peak loads and respond quickly to user requests.

Test Cases	Result
Workflow design and configuration	Pass
Test the User Interface	Pass
Workflow execution	Pass
Integration	Pass
Security	Pass
Performance	Pass

6.1 Test Case Table

7.0 CONCLUSION

The internship focused on developing a Workflow Management System using React, a popular JavaScript library for building user interfaces. The system was designed to facilitate the management of business processes and improve workflow efficiency. The internship involved learning about the system architecture of a WFMS, including the Workflow Engine, Workflow Designer, Workflow Monitor, Database, User Interface, and Integration Layer.

Throughout the internship, various skills were developed, including front-end development with React, back-end development with Node.js . Additionally, the internship provided an opportunity to work on a real-world project, collaborate with other developers.

Overall, the internship provided valuable experience in software development and project management, as well as exposure to industry-standard tools and technologies. The skills and knowledge gained from this internship can be applied to future projects and career opportunities in the software development industry.

294881

8.0 REFERENCES

- https://bisag-n.gov.in/ — Company website
- https://www.javatpoint.com/reactjs-tutorial — React.js Tutorial
- https://www.javatpoint.com/javascript-tutorial — Javascript Tutorial
- https://www.w3schools.com/nodejs/ — Node.js Tutorial
- https://online.visual-paradigm.com/diagrams/features/use-case-diagram-software/
  — Flow Diagram

INTERNSHIP AT BHARAT SEMICONDUCTORS

AN INTERNSHIP REPORT

Submitted by

Hardik Shashikantbhai Pathak

190390116033

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

IT 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 Bharat Semiconductors** has been carried out by **Hardik ShashikantBhai Pathak** 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.

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

Bharath Semiconductors

Date: - 08-05-23

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. **Hardik Shashikantbhai Pathak** has done his internship as a Data scientist at **Bharat Semiconductors**, Bengaluru, from 01-02-23 to 30-04-23.

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 project on time.

We wish him all the best in his upcoming career.

BHARAT SEMICONDUCTOR
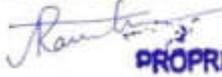
PROPRIETOR

Ramkumar Reddy

IT Manager

Bharath Semiconductors, 21/1A, MS Plaza, Bannerghatta Main Rd, Bengaluru, Karnataka 560037

E-mail: - ram@bharatsemi.in   Website: - bharatsemi.in

DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Internship at Bharat Semiconductors** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Mechanical Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar** & **Ramkumar Reddy (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.

Hardik Shashikantbhai Pathak

ACKNOWLEDGMENT

I take this opportunity to express my deepest gratitude and appreciation to all those people who made this internship easier with words of encouragement, motivation and helped me towards the successful completion of the internship at Bharat Semiconductors.

First, I would like to express my gratitude to my Internal Guide Prof. Sushama Sainwar & my External Guide Mr. Ramkumar Reddy, Project Manager of Bharat Semiconductors. They always gave me advice, suggestions, guidance, help and lots of moral support in the successful completion of this internship.

I would like to express my gratitude for their kind cooperation and encouragement which helped us in the completion of this Internship.

Abstract

This internship report presents a summary of activities. I started my internship at Bharat Semiconductors from 1st February 2023 to 30th April 2023. The scope of this document is to identify and describe the analysis carried out, modules completed, Model trained experienced gain, and focuses on the achievement as the Intern. During the starting period, I spent it revising basic concepts of Basic python. After getting well-versed with the basic concepts, I worked on the statistics. Then I started building models trained and tested. During my 3-month internship I learned a lot about various tools and technologies.

Table of Contents

Chapter 1. OVERVIEW OF THE COMPANY

1.1 Company Profile:

Bharat Semiconductors was founded in 2021 with the moto of providing low-cost services to the company's opting for fabrication of vlsi chips.

Bharat Semiconductor supports the development of an open infrastructure and shared facilities for knowledge development and knowhow for industrial production of advanced microelectronics. The strength of Bharat Semiconductors is its broad network which gives access to skills and partners, shared services (facilities), technology and application projects and international visibility.

Bharat Semiconductors undertake activities focused on Design, Development, Fabrication, Assembly & Packaging, Testing and Quality Assurance of CMOS, FINFET and MEMS Devices for various applications. We also assure chipmakers with everything they need - hardware, software, and services - to mass produce patterns on silicon, helping to increase the value and lower the cost of a chip.

1.2 Mission and Vision of The Company:

We are determined to deliver customer satisfaction, professionalism, superior quality, and innovation in rendering Engineering services. We aim to exceed the expectations of our valued clientele in providing effective engineering solutions.

- Delivering customized and comprehensive range of Engineering services
- Providing diversified delivery models in offering Engineering support solutions
- Providing services and support by adhering to high quality standards
- Rendering Engineering services with world-class infrastructure
- Providing quality service that are faster time-to-market.

Chapter 2. INTRODUCTION TO INTERNSHIP

2.1 Internship Summary

I started my internship at Bharat Semiconductors on 1ˢᵗ February. At first, I worked on basic python. Cleared the concept of the basic python and performed the tasks and then cleaned the data, trained the model. As we most of the time get unstructured data so we must first arrange it and then we must clean it. In EDA part we must clean the data and then check for any missing values. If there are any missing values, then we must create some dummy variables and insert them into the data because if there would be any missing values or empty cells then the model won't give an accurate answer. After cleaning the process, we start to create charts & plots to make it clearly understandable.

Every day we were given some datasets and we got to learn some new techniques. As I was little bit weak in Mathematics, it was difficult for me. Because in data science everything's depended on mathematics only. During the starting days, I performed basic tasks, Learn about various functionalities. Then started to perform mathematics functions, cleaning the data, structuring the data. Then I created one hotel review system based on hotel dataset.

2.2 Purpose

The purpose of this internship is to learn how to work in the industrial field. To Learn different technologies and gain knowledge of real-world experience and how to deal in tough situations and give your best.

2.3 Objective

They planned for interns that are working on which technology. From the first day I learned project related technologies and performed several tasks. At the end of training, I submitted the project, which was made using google colab, jupyter notebook, different libraries.

2.4 Scope

The scope of data science is vast and constantly expanding as new data sources and technologies emerge.
- Data cleaning and preprocessing
- Data visualization
- Data analysis
- Machine learning

- Deep learning
- Artificial intelligence

2.5 TECHNOLOGY AND LITERATURE REVIEW

2.5.1   Technology Review:

Data Science is a rapidly evolving field, and there are various tools and technologies that are used in this domain. Some of the important technologies used in data science include:

- Programming Languages: Python and R are the most widely used programming languages in data science.

- Databases: Relational databases like SQL Server, Oracle, and PostgreSQL are used for data storage and retrieval. NoSQL databases like MongoDB, Cassandra, and HBase are used for handling large volumes of unstructured data.

- Big Data Tools: Hadoop & Spark are widely used tools for processing large volumes of data.

- Cloud Platforms: Cloud platforms like AWS, Azure, and Google Cloud are used for storing, processing, and analyzing data. These platforms offer various services like storage, computing, database, and analytics.

- Visualization Tools: Tableau & Power BI are popular tools for data visualization. These tools allow users to create interactive dashboards and reports.

2.5.2 Literature Review

Data science is a multidisciplinary field that has drawn upon various fields like statistics, computer science, mathematics, and domain expertise. Some of the important research topics in data science include:

- Machine Learning: Machine learning is a subfield of data science that deals with developing algorithms that can learn from data. Research in this field focuses on developing new algorithms for solving classification, regression, and clustering problems.

- Natural Language Processing: Natural Language Processing (NLP) is a subfield of data science that deals with understanding and processing human language. Research in this field focuses on developing algorithms for tasks like sentiment analysis, language translation, and question answering.

- Deep Learning: Deep Learning is a subfield of machine learning that deals with developing artificial neural networks. Research in this field focuses on developing new architectures for solving complex problems like image recognition, speech recognition, and natural language processing.

- Data Privacy: Data privacy is an important topic in data science, and research in this field focuses on developing methods for protecting sensitive data. This includes techniques for data anonymization, data masking, and data encryption.

- Explainable AI: Explainable AI is a subfield of machine learning that deals with developing algorithms that are transparent and can be easily understood by humans. Research in this field focuses on developing algorithms that can provide explanations for their decisions.

2.6 Internship Planning (1st February 2022 TO 30thAPRIL 2023)

2.6.1 Internship Development Approach and Justification

I joined Bharat Semiconductor as a trainee developer, and I learned technologies during my internship. I want to learn about different technologies and want to grow my knowledge, problem solving skills and all these things I learnt from it.

2.6.2 Internship Efforts and Time

During the three months of internship following was the schedule.

First Month
- Basic Python
- Python Data Types, Operators
- List, Tuple, Set
- Dictionary, Loops, Libraries
- Basic Statistics
- Plots

Second Month
- Normal Distribution, CLT
- Anova & Chi-square
- EDA
- Linear Regression, Logistic Regression
- Hierarchical, K-means, DBSCAN clustering
- Association Rules, Recommendation Engines
- Decision trees, Naïve Bayes, SVM

Third Month
- Ensemble Techniques, NLP, Emotion Mining
- Neural Network
- Forecasting Models
- Project

2.6.3 Roles and Responsibilities

My responsibility was to complete the project at a given time. I trained a model for employee promotion prediction with the help of a dataset. My role was to build models, test models and deploy them in the project.

Name	Role & Responsibilities				
	Analysis	**Designing**	**Coding**	**Testing**	**Documentation**
Hardik	✔		✔	✔	

2.6.4 Internship Scheduling (Gantt Chart)
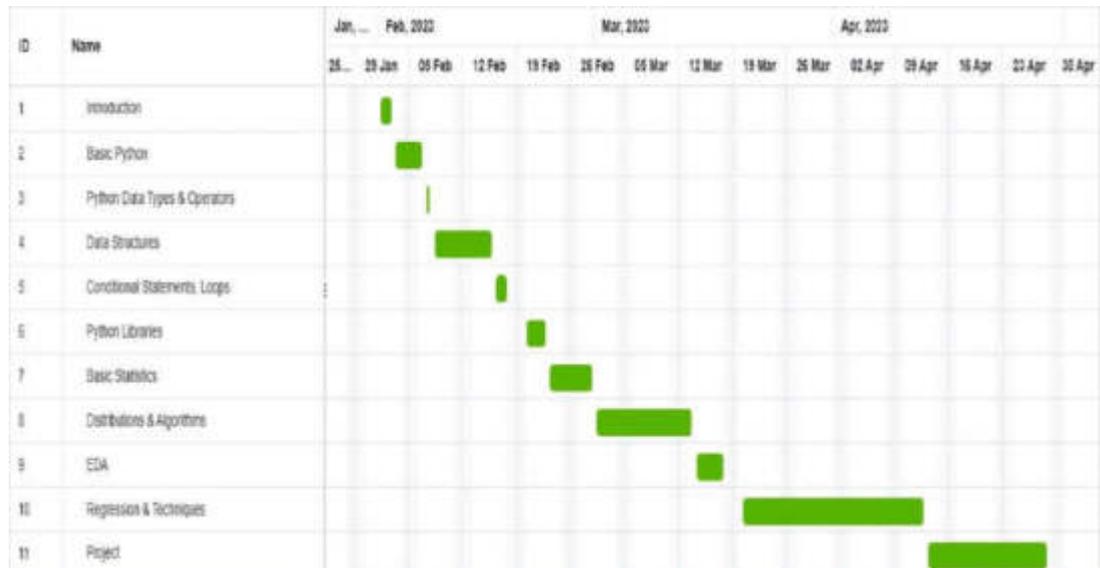
CHAPTER 3. BASIC PYTHON & MODULES

3.1 Basic Python

Python is a powerful and popular programming language that is widely used in data science. It is an open-source language that supports object-oriented, imperative, and functional programming paradigms. Python provides many libraries and frameworks that make it an excellent choice for data science.

Some basic concepts of Python in data science include:
- Data Types
- Data Structures
- Functions
- Libraries
- File Handling

3.2 Modules

3.2.1 Understanding dataset & Preparing

In this we are going to see the importing of libraries, importing the data, understanding the data, and visualizing it.

3.2.2 Determining the data based on different Factors.
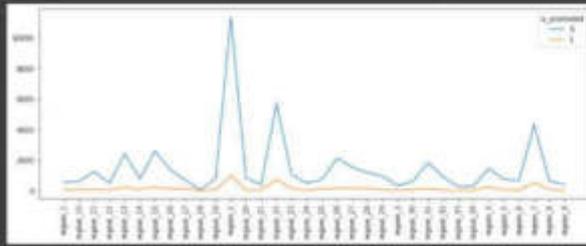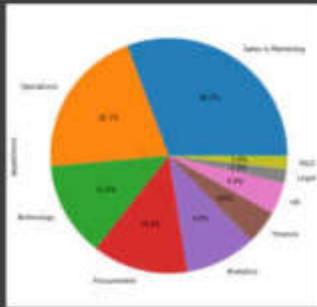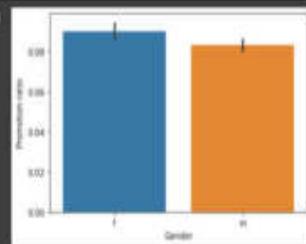
3.2.3 Data Pre-Processing

In this, the null values are filled, deleting unnecessary features, implementing label encoding.

3.2.4 Building & training the model.

In this part, the model is built, trained & tested.

Model Building By using LightGradientBoosting Classifier

```
[ ] from lightgbm import LGBMClassifier
    lgbm_model = LGBMClassifier(booster='gbtree',learning_rate=0.1,random_state=0, max_depth=3,n_estimators=150)
    lgbm_model.fit(x_train_ov,y_train_ov)

    y_pred_train_ov=lgbm_model.predict(x_train_ov)
    print('Train_data :')
    print('-------------------------------------------------------')
    print('Accuracy_score :',accuracy_score(y_train_ov,y_pred_train_ov))
    print('Confusion_metric :')
    print(confusion_matrix(y_train_ov,y_pred_train_ov))
    print('Classification_report :')
    print(classification_report(y_train_ov,y_pred_train_ov))

    y_pred_test=lgbm_model.predict(x_test)
    print('Test_data :')
    print('-------------------------------------------------------')
    print('Accuracy_score :',accuracy_score(y_test,y_pred_test))
    print('Confusion_metric :')
    print(confusion_matrix(y_test,y_pred_test))
    print('Classification_report :')
    print(classification_report(y_test,y_pred_test))
```

```
Train_data :
-------------------------------------------------------
Accuracy_score : 0.9938570489900340
Confusion_metric :
[[8973  136]
 [ 1003 33100]]
Classification_report :
              precision    recall  f1-score   support

           0       0.93      1.00      0.96     10049
           1       1.00      0.93      0.96     30099
```

CHAPTER 4. IMPLEMENTATION

4.1 Implementation Environment

I used the following tool to implement this project.
- Google Colab
- Flask
- Visual studio code

4.2 Modules Specifications

- This model is trained to for the prediction of employees the one who will get the promotion.
- I have built various models to know the accuracy of the model. Different types of charts are prepared to find the best one.
- I used the Flask to implement the project.
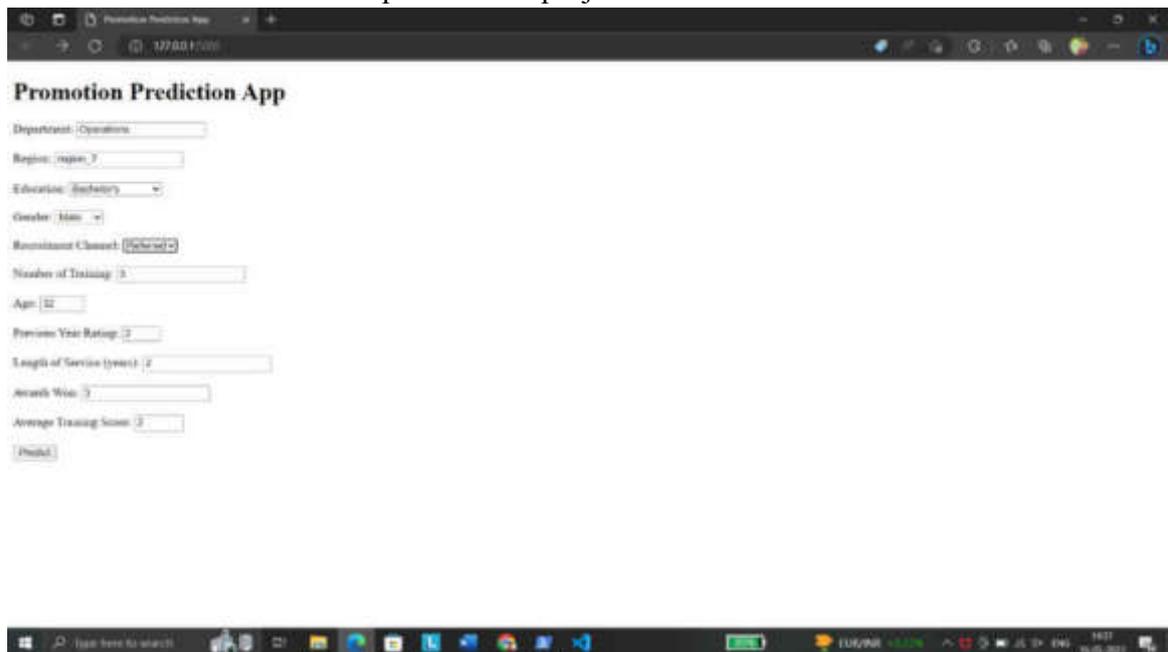
Result

The predicted result is: yes

Back to Home

CHAPTER 5. CONCLUSION AND DISCUSSION

5.1 Overall Analysis of Internship

During my internship period, I realized that observation is a main element to find out the root cause of a problem. During my Internship, I cooperated with my colleagues and operators to determine the problems. Moreover, the project indirectly helps me to learn independently, discipline myself, be considerate/patient, self-trust, take initiative and the ability to solve problems.

There are some benefits and challenges which I noticed in my internship period are as follows.

Benefits:
- Practical Experience
- Development of skill
- Communications with your colleagues
- Industrial Experience

Challenges:
- Competition
- Technical Requirements
- Deadlines
- Different types of data

Anyways, it was a great experience at Bharat Semiconductors as an intern. I got a chance to work with professionals. With their help I was able to gain practical knowledge and improve my skills. It also helped me to grow my connections with other colleagues and professionals.

5.2 Dates of Continuous Evaluation

- Review 1- 18-03-23
- Review 2- 06-05-23

5.3 Limitation and Future Enhancement

5.3.1 Limitations
- Data Quality
- Data Quantity
- Bias

5.3.2 Enhancements
- Advanced Machine Learning Techniques
- Natural Processing Language (NLP)
- Automation

References

- **Gantt chart software -** https://www.onlinegantt.com/#/gantt
- **Basic Python -** https://www.javatpoint.com/python-tutorial
- **Flask -** https://www.javatpoint.com/flask-tutorial
- **Google colab -** https://colab.research.google.com/

<u>Appendix</u>

- **Annexure-1**

GUJARAT TECHNOLOGICAL UNIVERSITY
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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 27 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: 06/02/23

Date: 06/02/23

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

Annexure I

Enrollment no: 190390116033

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 06-02-23 TO 12-02-23

DEPARTMENT: IT   SEM: 8

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: RamKumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, we were taught about loops, logical reasoning, functions used in the Python for data science. We were followed by the data structures, sets and we were made to do practicals on the each topic for revision. Then we learned about numpy libraries. After that arrays was completed by the end of the week.

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:

Date: 13 - 02 - 23

✪ 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: 19039916033

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 13/02/23 TO 19/02/23

DEPARTMENT: Information & Technology SEM: 8

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ramkumar Reddy

---

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, we learned about numpy library, Pandas library, mean, median, mode, Multiples, random integers, factorial, square root, reshape, arranging, transpose, stacking, Creating a dataset by own, .loc, .iloc, indexing, dropping the element, inplace, we also got the basic Python knowledge of interview questions, Conditional statements, if, else, elif, and also we Practiced for the same with example questions.

23

TOTAL HOURS: _ _ _ 45 hours _ _ _

SIGNATURE OF STUDENT

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

BHARAT SEMICONDUCTORS

Signature of Faculty Mentor

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

PROPRIETOR

Date:

Date: 20/02/23

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

Annexure I

Enrollment no: 19034 0116033

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik Pathak

DIARY OF THE WEEK: Dt: 20/02/23 TO 26/02/23

DEPARTMENT: INFORMATION & TECHNOLOGY SEM: 08

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: I.T.

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ramkumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, matplotlib, seaborn, Pre-installed libraries, different types of datasets, different types of data that are included in the plots to categorize the plots by data. Then statistics was headed, we applied the basic statistics in the Python Code. The mean, mode, median, standard deviation, to manipulate data, average, central tendency, to train the dataset. Bimodal, Multimodal, max-min freq, the measures of spread & dispersion.

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(ગુજરાત અધિનિયમ ક્રમાંકઃ ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: _ 2t _6૨ ૬ _ _ _ _

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

BHARAT SEMICONDUCTOR
Signature of officer-in-charge
of Dept. / Section / Plant PROPRIETOR

Date:

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.

Annexure I

Enrollment no: 190390116033

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik Pathak

DIARY OF THE WEEK: Dt: 27/02/23 TO 05/03/23

DEPARTMENT: Information & Technology SEM: 08

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: RamKumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, we Performed Standard deviation, Probability, Variance, Created dataset then Plotting the graph according to our datasets and Categorized them. Then we did the / find out outliers in our dataset to filter the dataset. After we did the Probability questions Z-score, Probability distribution function, Cummulative frequency distribution. Then first quartile, IQR (Inter Quartile Range), Continous, discrete, average.

27

TOTAL HOURS: 45 hrs

SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

BHARAT SEMICONDUCTO

Signature of Faculty Mentor

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

Date:

Date: 06/02/23

O 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:
19079011603?

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 06/03/23 TO 12/03/23

DEPARTMENT: Information & Technology SEM: 8th

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ramkumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, I covered & completed. as follows:

→ Normal Distribution

→ Statistics

→ Central limit theorem

→ Hypothesis Testing

→ Anova

→ Chi-square

→ EDA

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: _ _ _ 45 hrs _ _ _ _

SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

BHARAT SEMICONDUCTO

Signature of Faculty Mentor

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

Date:

Date: 13/03/23

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(ગુજરાત અધિનિયમ ક્રમાંકઃ ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

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NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 13/03/23 TO 19/03/23

DEPARTMENT: IT   SEM: 8th

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ramkumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, I covered as follows:

→ EDA
→ Cleaning data
→ Visualizing data
→ Linear Regression
→ Multi linear Regression
→ Logistic Regression

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: __ 36 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

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

Date:

Date: 20/03/23

**✪ 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:
1903901160.33

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 20/03/23 TO 26/03/23

DEPARTMENT: Information And Technology SEM: 8th

NAME OF THE ORGANISATION: Bharath Semicorductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ramkumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, I Performed as follows
→ Logistic Regression
→ Classification
→ Clustering
→ Graphs
→ DBSCAN - Density based spatial Clustering
→ Hierarchal, K-means
→ Association Rule Mining
→ Trained the model

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TOTAL HOURS: 36 625

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

BHARAT SEMICONDUCTO

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

Date:

Date: 27/03/23

✪ 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: 19039016033

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 27/03/23 TO 02/04/23

DEPARTMENT: IT   SEM: 6th

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: RamKumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, I covered as follows;

→ Covariance
→ Correlation
→ Recommendation engine
→ EDA
→ Validation Techniques
→ Decesion Tree Classifier
→ Naive Baye's
→ Support vector machine
→ bagging & boosting
→ Random Forest

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TOTAL HOURS: ___ 45 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

BHARAT S.

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

Date:

Date: 04/04/23

 ✪ 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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STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: _Hardik S. Pathak_

DIARY OF THE WEEK: Dt: _03/04/23_ TO _09/04/23_

DEPARTMENT: _Information & Technology_ SEM: _8_

NAME OF THE ORGANISATION: _Bharat Semiconductors_

NAME OF THE PLANT/SECTION/DEPARTMENT: _IT_

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: _Ramkumar Reddy_

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week I covered

→ Natural Language Processing

→ Text mining, different type of Cleaning data.

→ Recognition mining.

→ Artificial neural Network.

→ Graphs of labelled data.

→ Continous time Series.

→ ECG Graphs, different time series Cycles.

TOTAL HOURS: _ _ 36 hrs _ _ _ _ _

SIGNATURE OF STUDENT

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EXCELLENT / VERY GOOD / GOOD / FAIR / BELOW AVERAGE / POOR

BHARAT SEMICONDUCTOR

Signature of Faculty Mentor

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

Date:

Date: 10/04/23

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

Annexure I

Enrollment no: 190390116033

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 10/04/23 TO 16/04/23

DEPARTMENT: Information & Technology SEM: 8

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ramkumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this Week I covered,

→ Absolute deviation., Absolute Percentage error.

→ Squared mean., Percentage error.

→ Forecasting data model

→ Computation Survival function.

→ Survival analytics

→ Simple linear Regression.

→ EDA, Different models.

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(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

TOTAL HOURS: 36 625

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: 18/04/23

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

Annexure I

Enrollment no:
190390116033

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 17/04/23 TO 23/04/23

DEPARTMENT: Information & Technology   SEM: 8th

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: IT.

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ramkumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week I went through, model of Simple linear regression, Multiple linear regression and Logistic regression.

Then I started the project of Employees Promotion Prediction model. I studied the data and cleaned the data. Later I visualized the data and determined the Promoted Candidates W.R.T. region. Then on the basis of department, gender, age.

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TOTAL HOURS: _ _ 45 _hrs_ _ _ _

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: 24/04/23

✪ 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:
19039016033

STUDENT'S WEEKLY RECORD OF INTERNSHIP

NAME OF STUDENT: Hardik S. Pathak

DIARY OF THE WEEK: Dt: 24/04/23 TO 30/04/23

DEPARTMENT: Information & Technology SEM: 8th

NAME OF THE ORGANISATION: Bharat Semiconductors

NAME OF THE PLANT/SECTION/DEPARTMENT: I.T.

NAME OF OFFICER INCHARGE OF THE PLANT/SECTION/DEPARTMENT: Ramkumar Reddy

DESCRIPTION OF THE WORK DONE IN BRIEF

In this week, I continued with my project. I determined the data based on their previous year rating, awards won by them, promoted & non-promoted. Then I found missing data so I filled them and deleted uncessary values & functionalities. Then build the model using logistic regression, decesion tree, Random forest classifier, Adaboost Classifier, Gradient boosting Classifier, light gradient boosting, Support vector machine, K nearest, Catboost Classifier, neural network. Then I choose light gradient and I deployed the model using flask.

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TOTAL HOURS: _ _ 45 _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: 01/05/23

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

- **Annexure-2**

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Annexure 2

Feedback Form by Industry expert

Student Name: Hardik S. Pathak   Date: 02-05-23

Work Supervisor: RamKumar Reddy   Title:

Company/Organization: Bharat semiconductors

Enrollment No: 190390116033

Internship Address: 21/A, MS Plaza, Banneoghatta Maind Rd, Bengaluru, Karnataka

Dates of Internship: From 01-02-23   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:

→ Always being attentive, Focuse on Problems deeply.

→ Needs some Experience for handling the Situations

Signature of Industry person with name and Stamp:

BHARAT SEMICONDUCTORS

Signature of the Faculty Mentor PROPRIETOR

- **Photographs:**

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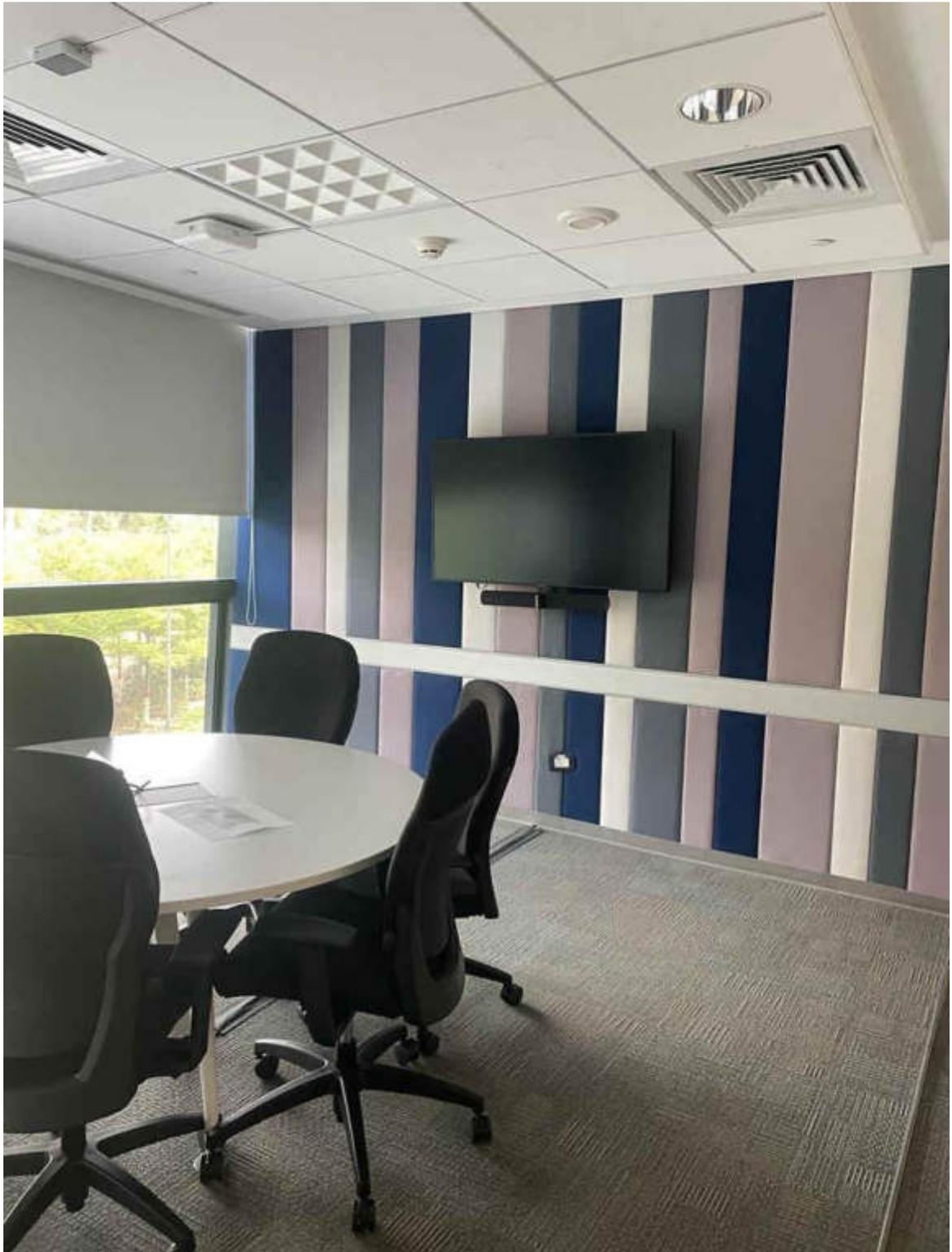
INTERNSHIP AT FluSocial Private Ltd.

AN INTERNSHIP REPORT

Submitted by

Prajapati Dixesh Shaileshkumar

190390116034

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 FluSocial Private Ltd.** has been carried out by **Prajapati Dixesh Shaileshkumar** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

COMPANY CERTIFICATE

FLU SOCIAL

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
www.flusocial.com
Info@flusocial.com

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Prajapati Dixesh Shaileshkumar** (Enrollment No: **190390116034**) 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.

Dron Joshi
CEO, Flu Social

PMMS Certification

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 (15:37:52)

This is to certify that, *Prajapati Dixesh Shaileshkumar* (Enrolment Number - 190390116034) working on project entitled with *Internship at flusocial marketing* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	Completed

Name of Student : Prajapati Dixesh Shaileshkumar

Name of Guide : Miss. Sushma Sainwar

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, Mehsana

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

DECLARATION

We hereby declare that the Internship report submitted along with the Project entitled **Internship at FluSocial Private Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar** & **Mr. Dron Joshi (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.   **Prajapati Dixesh Shaileshkumar**   _____

ACKNOWLEDGMENT

Acknowledgement is just a way to express gratitude, something so deep that it cannot be expressed fully. Nobody is completely on their own. He/She needs someone's help in his/her life. I would like to express my sincere gratitude to S.P.B. Patel Engineering College (Saffrony Institute of Technology) and all the faculties who have supported me throughout my project. First and foremost, I would like to thank my project guide Prof. Sushama Sainwar, who has been a constant source of guidance, motivation, and support. Her insightful input and valuable suggestions have been instrumental in shaping my project and ensuring its successful completion. I would also like to thank the Information Technology faculty members who have extended their support and encouragement throughout my academic journey. Their expertise and guidance have been pivotal in my growth and development as a student. Furthermore, I would like to express my gratitude to the non-teaching staff of the college who have provided me with the necessary resources and infrastructure to carry out my project work efficiently. Finally, I would like to thank my fellow students for their support and cooperation, without which this project would not have been possible. Thank you, S.P.B. Patel Engineering College (Saffrony Institute of Technology) and all the faculties, for providing me with the opportunity and resources to complete my project successfully.

With Sincere regards from,

Dixesh Prajapati

ABSTRACT

Bleachingearth.co is a website that represents a company specializing in the production and distribution of bleaching earth, which is a type of clay used in various industries to remove impurities from oils and fats. The website provides detailed information about the company's products, their manufacturing process, and the applications of bleaching earth. It also offers a comprehensive understanding of the company's quality control measures, logistics and distribution networks, and its commitment to sustainability. The website aims to educate potential customers about the advantages of bleaching earth and its applications in various industries, while also providing a user-friendly platform for them to learn more about the company and its products.

LIST OF FIGURES

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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Table Of Contents

Chapter 1. OVERVIEW OF THE COMPANY

1.1 COMPANY PROFILE

FluSocial is a digital marketing agency based in Mehsana, India. It provides services such as website development, branding, SEO, social media marketing, and more. It has over 10 years of experience and has satisfied more than 1000 customers. Some of its clients include theriseonic.com, blissaquaworldresort.com, liive.org, and adatewithcharlotte.com. FluSocial aims to build and grow stronger relationships with its customers by using advanced marketing tools and creative innovation.

1.2 SERVICES PROVIDED BY THE COMPANY

The services provided by the company are as below :
- Website Development
- Digital Marketing
- Branding
- Content Writing
- Web Hosting And Migration
- Amazon Product Development
- SEOs
- Graphics Designing

1.3 Mission and vision of the company

According to the founder of FluSocial, Dron Joshi, the vision of the company is to "WOW" the world with what can be achieved online. The company aims to use advanced marketing tools and creative innovation to help its customers grow their businesses and brands online. FluSocial also wants to provide effective and affordable digital marketing solutions that suit the needs and goals of its customers.

Chapter 2. INTRODUCTION TO PROJECT

2.1 PROJECT SUMMARY

The project makes useful products from bleaching earth and spent bleaching earth using modern methods and machines. The project is green and beneficial for the economy and the environment.

2.2 PURPOSE

the purpose of this project would be to produce high-quality bleaching earth products for various applications, such as oil refining, cosmetics, pharmaceuticals, and environmental remediation, while also reducing the environmental impact and creating economic value from the waste material of spent bleaching earth.

2.3 OBJECTIVE

The main objective of the project was to develop a user-friendly and interactive websitein which users would select the properties with ease. The website aimed to provide comprehensive information about properties, including their location, price, features, and images. The website also aimed to facilitate communication between users and dealers, enabling users to inquire about properties directly from the website.

2.4 SCOPE

• Mining and processing of natural bleaching earth from different countries

• Recycling and regeneration of spent bleaching earth from edible oil refining industry.

• Production of activated bleaching earth, activated carbon, biochar, and cement from natural and recycled bleaching earth.

• Quality control and testing of bleaching earth products

• Marketing and distribution of bleaching earth products

• Environmental and social impact assessment of the project

• Economic and financial analysis of the project

2.5 TOOLS AND TECHNOLOGY

The project was developed using Wordpress. These tools and technologies were selected based on their versatility, ease of use, and compatibility with modern web development standards. The development team used various software tools and libraries, such as Visual Studio Code, Node.js, and React libraries, to facilitate the development process. The website was deployed on a web server using cloud hosting services to ensure optimal performance and scalability. Additionally, various web development best practices and standards were followed to ensure the website's quality and security.

It is used to create the structure and content of web pages, and provides the basic building blocks for creating a website. In a website, WordPress would be used to create the layout and structure of the pages, including the header, navigation, footer, and main content areas. It would also be used to create forms for capturing user information and search fields for property listings.

Chapter 3. PLANNING AND DESIGN

3.1 PROJECT PLANNING AND MANAGEMENT

The first step in any software development project is planning and management. This stage involves defining the scope of the project, establishing goals, objectives and timelines, allocating resources and budget, and identifying potential risks and challenges. In the case of our frontend website development project for a firm, we started by defining the scope of the project, which included creating a website that showcases thefirm's properties, services, and contact information.

We also established the project's objectives, which included developing a responsive and user-friendly website that provides an excellent user experience for visitors. We allocated resources and budget, including the tools and technologies required for the project, and established timelines for the various stages of the project. We also identified potential risks and challenges and developed contingency plans to mitigate them.The project management phase involves coordinating the efforts of all team members, tracking project progress, and ensuring that the project is completed on time and within budget.

3.2 USER INTERFACE DESIGN AND DEVELOPMENT

3.3 PROJECT EFFORT AND TIME, COST ESTIMATION

This project took more than 3 months to complete it. However, it may take too long time for designing the website. Also, we are new in the company, so we don't know the proper workflow. Also, a lot of effort is needed to establish this website. Because we are fresher in the company, we don't have any idea related to the cost estimation of the project.

Chapter 4. SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

There are some companies that for bleaching earth production and recycling. The first one is Clariant Ltd., a company that uses a natural and activated bleaching clay called TONSIL® for oil purification. Another firm uses various methods for regenerating and using spent bleaching earth (SBE), which is a waste from oil refining. The third company reports that SBE can be recovered and converted into renewable diesel or other products, according to AOCS.

4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

Abdelbasir et al. (2023) have provided a comprehensive review of various recycling and utilization techniques for spent bleaching earth (SBE), but they have not addressed some of the limitations and challenges of these techniques. For example, they have not discussed the environmental and health risks of using SBE as an adsorbent for pollutants, such as the possible leaching of contaminants or the disposal of exhausted SBE. They have also not evaluated the economic feasibility and scalability of these techniques, such as the cost-benefit analysis, market demand, and regulatory barriers.

4.3 REQUIREMENTS OF NEW SYSTEM

A wave of social and economic changes often follows in the wake of the new technology. New opportunities may arise to improve a production process or to do something that was not previously possible.

A new system for bleaching earth production and recycling could be based on the optimization of the bleaching process, the regeneration of SBE using microwave assisted extraction method with hexane as solvent, and the recycling of SBE into various products, such as biodiesel, activated carbon, biochar, and cement. This system could reduce the amount of bleaching earth used, recover the oil from SBE, and convert SBE into useful products with economic and environmental benefits.

4.4 FEATURES OF NEW SYSTEM

The new website features a range of functionalities to improve the user experience. These include:

- Easy property finds functionality.
- Detailed information about each element, including features, nearby sources, and values.
- Modern design and responsive layout
- Integration with APIs to provide additional data.

4.5 LIST OF MAIN COMPONENTS

The main components of the new system include:

- Home Page(Info)
- Product View
- Quality & Compliance Page
- Integration with APIs
- Different Services
- Testimonial Component

4.6 Does the system contribute to the overall objectives of the organization?

This is concerned with specifying equipment and software that will successfully satisfy the user requirement. The technical needs of the system may include.

4.8 SELECTION OF HARDWARE / SOFTWARE / ALGORITHMS / METHODOLOGY / TECHNIQUES / APPROACHES AND JUSTIFICATION

Software Requirement
 Operating System : Windows 10 or Linux
 User Interface : WordPress
 Client-side Scripting : Django
 Programming Language : Django, Python
 Web Technologies : Django, Python
 IDE/Workbench : Visual Studio Code
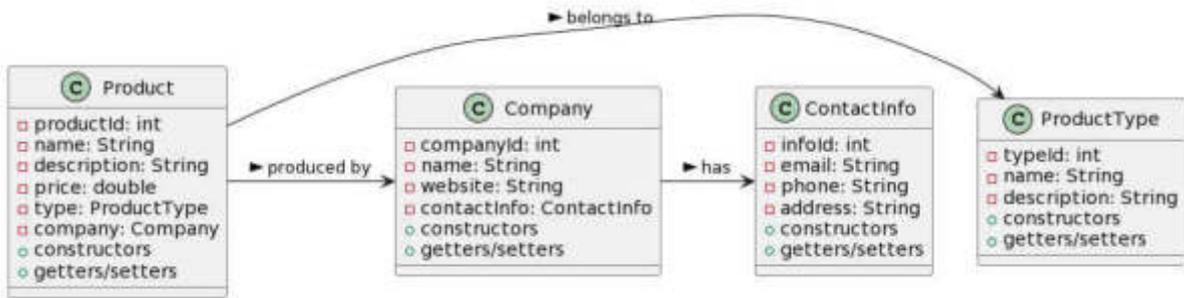 Database : Postgres
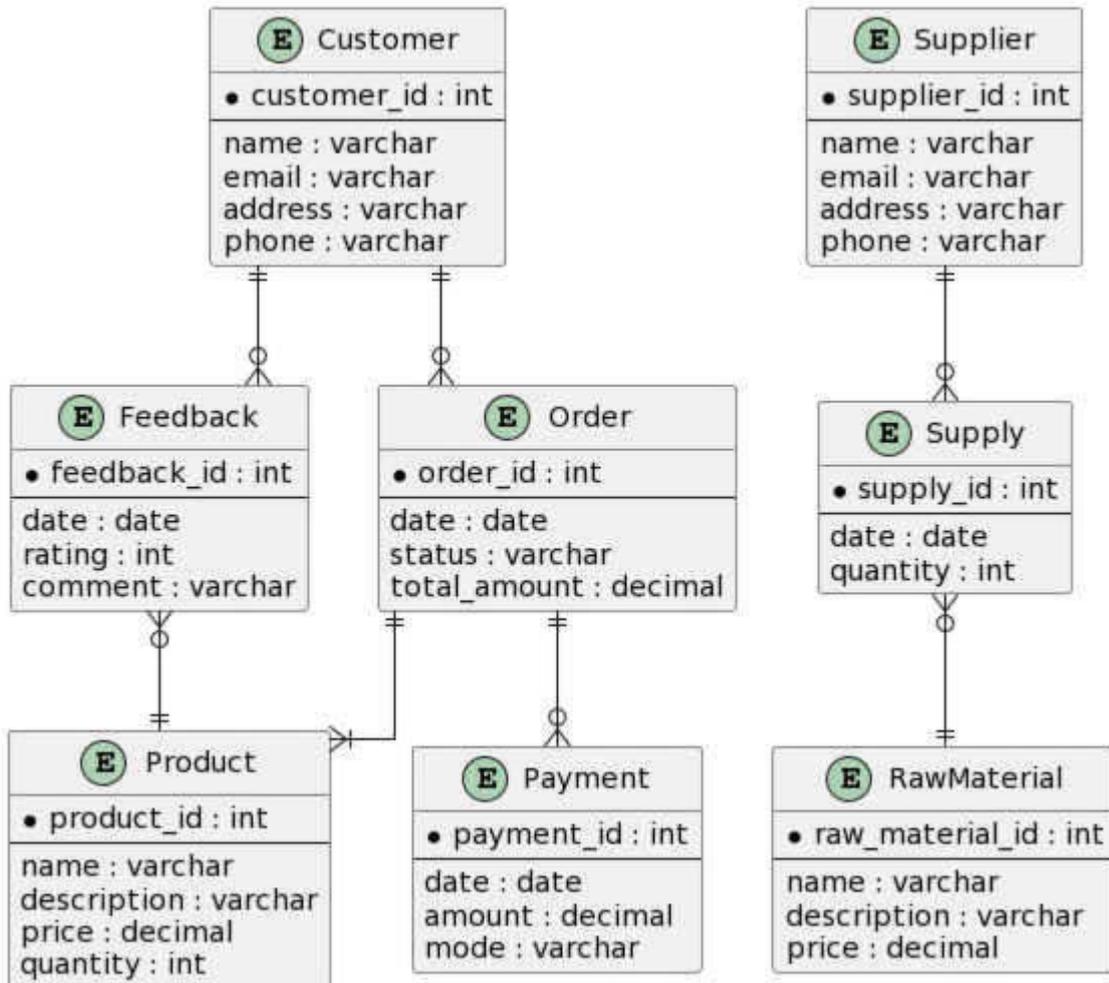Hardware Requirements
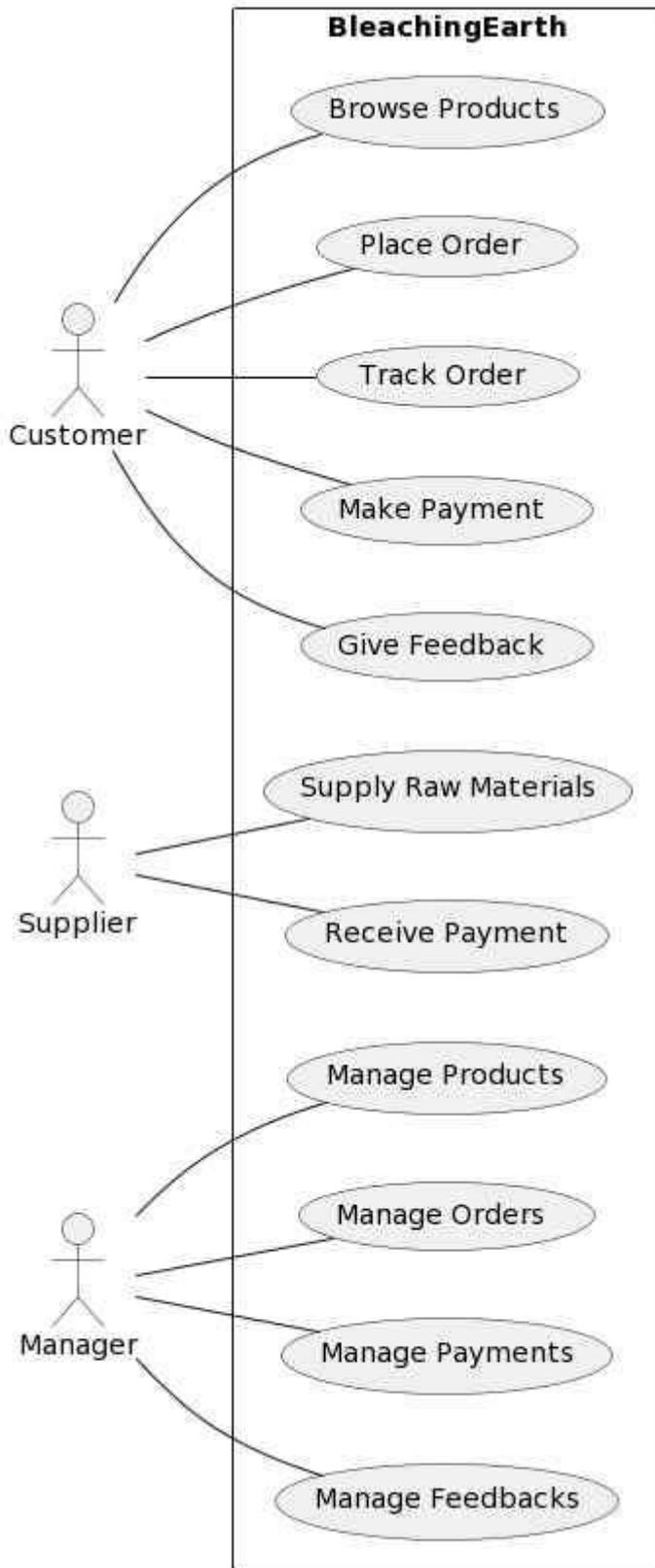 Processor : Intel core i3
 Hard Disk : 10GB

RAM : 4GB or more

4.9 Class Diagram

4.10 ER Diagram

4.11 Use Case Diagram

Chapter 5. DEVELOPMENT

5.1 Learning Skills

5.1.1 Learning WordPress:

- Setting Up WordPress:

Choose a domain name and a web hosting provider.

Install WordPress on your hosting server. Many hosting providers offer one-click WordPress installation.

Access your WordPress dashboard by entering your domain name followed by "/wp-admin" in your web browser.

- Understanding the Dashboard:

The WordPress dashboard is your central control panel where you manage your website.

Take some time to explore the different sections, such as posts, pages, media, appearance, plugins, and settings.

- Creating and Managing Content:

Posts: WordPress allows you to create blog posts. Go to "Posts" > "Add New" to create a new post. Add a title, content, categories, tags, and featured image.

Pages: For static pages like Home, About, and Contact, go to "Pages" > "Add New." Similar to posts, you can add content and customize the page.

Media: To upload and manage images, videos, and other media files, go to "Media" > "Add New."

- Customizing Appearance:

Themes: Change the visual design of your website by installing and activating themes. Go to "Appearance" > "Themes" > "Add New" to browse and install themes from the WordPress repository or upload a premium theme.

Customize: Customize your theme's appearance by going to "Appearance" > "Customize." You can modify site identity, colors, layout, menus, widgets, and more.

- Extending Functionality with Plugins:

Plugins add extra features and functionality to your website.

Go to "Plugins" > "Add New" to search for and install plugins. Some popular plugins include Yoast SEO for search engine optimization, Contact Form 7 for creating forms, and WooCommerce for e-commerce functionality.

- Optimizing your Website:

Permalinks: Set your website's URL structure by going to "Settings" > "Permalinks." Choose a format that suits your needs.

SEO: Improve your website's visibility in search engines using plugins like Yoast SEO. Optimize your content, meta tags, and URLs for relevant keywords.

Speed and Performance: Use caching plugins, optimize images, and choose a reliable hosting provider to ensure your website loads quickly.

- Managing Users and Permissions:

WordPress allows you to create multiple user accounts with different roles and permissions.

Go to "Users" > "Add New" to create new user accounts. Assign appropriate roles such as Administrator, Editor, Author, Contributor, or Subscriber.

- Regular Maintenance and Updates:

Keep your WordPress core, themes, and plugins up to date to ensure security and compatibility.

Regularly backup your website using plugins or through your hosting provider.

Monitor and moderate comments if you allow them on your site.

- Getting Support and Learning Resources:

WordPress has a vast community with numerous resources to help you learn and troubleshoot.

Visit the official WordPress website (wordpress.org) for documentation, forums, and support.

Join WordPress communities, forums, or local meetups to connect with other users.

WordPress:

WordPress is a free and open-source content management system (CMS) that is used to create websites, blogs, and online stores. It was initially released in 2003 by Matt Mullenweg and Mike Little as a fork of b2/cafelog. Today, it powers over 40% of all websites on the internet and is one of the most popular CMS platforms available.

WordPress is built using PHP programming language and MySQL database. It can be installed on a web server to create a website or blog without the need for coding skills. There are two main ways to use WordPress: WordPress.com and self-hosted WordPress.org.

WordPress.com is a free platform that allows users to create and host their website or blog on WordPress's servers. Users can choose from a variety of themes and plugins to customize their website, but they have limited control over the functionality of the website.

Self-hosted WordPress.org, on the other hand, requires users to download and install the WordPress software on their own web hosting servers. This option gives users complete control over their website's design, functionality, and content. Users can choose from thousands of free and paid themes and plugins to customize their website and add features such as contact forms, e-commerce functionality, social media integration, and much more.

WordPress is known for its user-friendliness, flexibility, and customization options. It comes with a built-in editor that allows users to create and edit content without any coding

knowledge. It also supports multiple users with varying levels of access, making it an ideal platform for team collaboration. Additionally, WordPress is SEO-friendly and allows users to optimize their content for search engines with plugins such as Yoast SEO.

In conclusion, WordPress is a versatile and user-friendly CMS platform that allows users to create and manage their website or blog without any coding skills. It offers a range of customization options, supports multiple users, and is SEO-friendly. Whether you're a blogger, small business owner, or an e-commerce entrepreneur, WordPress can help you create a professional and functional online presence.

Definition of some plugins that has been used in site:
WordPress plugins are PHP scripts that extend the functionality of WordPress websites by adding new features or enhancing existing ones. WordPress plugins are often developed by volunteers and are usually free to the public. They can be downloaded from the WordPress Plugin Directory or installed directly from the WordPress dashboard. WordPress plugins can be categorized into different types based on their purpose and functionality. Some of the common types of WordPress plugins are:

- SEO plugins: These plugins help optimize websites for search engines by improving their speed, performance, content, and meta tags. Some examples of SEO plugins are Yoast SEO, All in One SEO Pack, and Rank Math.
- Ecommerce plugins: These plugins allow websites to sell products or services online by creating online stores, payment gateways, shipping options, and inventory management. Some examples of ecommerce plugins are WooCommerce, Easy Digital Downloads, and BigCommerce.
- Booking and scheduling plugins: These plugins enable websites to accept bookings or appointments from customers or clients by creating calendars, forms, and reminders. Some examples of booking and scheduling plugins are WooCommerce Bookings, WPForms, and BirchPress.
- Social media plugins: These plugins help websites connect with social media platforms by adding social sharing buttons, feeds, widgets, and analytics. Some examples of social media plugins are Jetpack, Social Snap, and Smash Balloon.
- Security plugins: These plugins help protect websites from hackers, malware, spam, and other threats by adding firewalls, backups, scanners, and captcha. Some examples of security plugins are Sucuri, Wordfence, and iThemes Security.
- Analytics plugins: These plugins help measure and analyze website traffic and behavior by adding tracking codes, reports, and dashboards. Some examples of analytics plugins are Google Analytics for WordPress, MonsterInsights, and ExactMetrics.
- Design plugins: These plugins help customize the appearance and layout of websites by adding themes, page builders, sliders, galleries, and fonts. Some examples of design plugins are Elementor, Divi Builder, and Smart Slider 3.

SEO (Search Engine Optimization):
- Search engine optimization (SEO) is the process of improving the visibility and ranking of a website or webpage in search engine results pages (SERPs). It involves optimizing the website or webpage's content, structure, and backlinks to make it more relevant and useful to search engine users. The goal of SEO is to increase organic, non-paid traffic to a website, which can lead to increased visibility, higher traffic, and more conversions.

- SEO can be divided into two main categories: on-page optimization and off-page optimization. On-page optimization refers to the optimization of website content, structure. This includes keyword research, optimization of title tags, meta

descriptions, header tags, content, and images. On-page optimization also involves ensuring the website is mobile-friendly and has fast loading speeds.

- Off-page optimization refers to the optimization of external factors that can influence the website's ranking, such as backlinks, social media signals, and online directories. Building high-quality backlinks from reputable websites is an essential part of off-page optimization. Social media signals such as likes, shares, and comments can also influence a website's ranking.

- Keyword research: finding and analyzing the words and phrases that users type into search engines when looking for information, products, or services related to your website's topic.
- Content creation: producing high-quality, original, and engaging content that answers the user's query and provides value to them.

- Technical SEO: ensuring that your website is fast, secure, mobile-friendly, easy to crawl and index by search engines, and free of errors or issues that might affect its performance or usability.

- Analytics and reporting: measuring and analyzing the results of your SEO efforts using tools like Google Analytics, Google Search Console, etc., and making data-driven decisions to improve your strategy.

- SEO is an ongoing process that requires constant monitoring, testing, learning, and adapting to the changes in the search engine algorithms and user behavior. SEO is also influenced by factors such as your industry, competitors, goals, budget, etc. Therefore, there is no one-size-fits-all approach to SEO.

- Search engines use complex algorithms to determine the relevance and quality of a website's content. These algorithms consider many factors, including the website's structure, content, backlinks, and user experience. To improve a website's ranking, SEO practitioners must stay up to date with the latest trends and best practices in SEO.

Overall, SEO is a complex and ongoing process that requires a combination of technical knowledge, creativity, and analytical skills. It involves both on-page and off-page optimization techniques, as well as ongoing analysis and refinement. By improving a website's ranking and visibility in search engine results, SEO can help businesses and organizations reach more customers, increase conversions, and ultimately grow their online presence.

Information about some important terms and plugins used in Project:
• Blogs: short for weblogs, are online platforms where individuals or organizations can publish content, such as articles, videos, podcasts, etc., on various topics and interact with their audience. Blogs can be used for personal, professional, or commercial purposes. Some examples of popular blogs are Medium, The Verge, and Mashable.

• Screaming Frog: a software tool that helps SEO professionals and web developers to crawl, audit, and analyze websites. Screaming Frog can perform various tasks, such as finding broken links, duplicate content, missing tags, redirects, etc., and provide useful data and insights for improving website performance and usability. Screaming Frog has a free version that can crawl up to 500 URLs and a paid version that can crawl unlimited URLs and has more features.

• Domain: a unique name that identifies a website on the internet. A domain consists of two parts: a top-level domain (TLD), such as .com, .net, .org, etc., and a second-level domain (SLD), which is the name chosen by the website owner. For example, in www.google.com, google is the SLD and .com is the TLD. A domain is registered with a domain name registrar and points to an IP address of a web server that hosts the website.

• Hosting: a service that provides space on a web server to store the files and data of a website and make them accessible on the internet. A web hosting provider rents out server space and resources to website owners and ensures that the website is online and secure. There are different types of web hosting services, such as shared hosting, dedicated hosting, cloud hosting, etc., depending on the needs and budget of the website owner.

• DNS: short for Domain Name System, is a system that translates domain names into IP addresses and vice versa. DNS allows users to access websites using human-readable names instead of numerical addresses. DNS also helps to route internet traffic and manage email delivery. DNS works by using a network of servers called name servers that store records of domain names and their corresponding IP addresses.

• SSL: short for Secure Sockets Layer, is a protocol that encrypts the data exchanged between a web browser and a web server. SSL helps to protect the privacy and security of online transactions and communications by preventing unauthorized access or tampering. SSL also helps to verify the identity of the website owner and ensure trustworthiness. SSL works by using digital certificates that contain information about the website owner and a public key that is used to encrypt and decrypt data. Websites that use SSL have a padlock icon in the browser address bar and use HTTPS instead of HTTP.

• Payment gateway: a service that enables online merchants to accept and process payments from customers using various methods, such as credit cards, debit cards, net banking, UPI, wallets, etc. A payment gateway acts as an intermediary between the customer's bank and the merchant's bank and ensures that the transaction is secure and authorized. Some examples of popular payment gateways in India are Paytm, Razorpay, CCAvenue, etc.
• Speed optimization: a process of improving the loading speed and performance of a website or an app by using various techniques, such as reducing file sizes, minifying code, caching data, using a content delivery network (CDN), etc. Speed optimization helps to enhance the user experience, reduce bounce rates, and improve SEO rankings. Some tools that can help with speed optimization are Google PageSpeed Insights, GTmetrix, Pingdom, etc.
• Security plugins: software applications that help to protect a website or an app from various threats, such as malware, hacking, spam, phishing, etc. Security plugins can perform various functions, such as scanning for vulnerabilities, blocking malicious requests, enforcing strong passwords, encrypting data, etc. Some examples of popular security plugins for WordPress are Wordfence, Sucuri, iThemes Security, etc.
• Social media & digital marketing: a form of online marketing that uses various social media platforms, such as Facebook, Twitter, Instagram, YouTube, etc., to promote a brand, product, service, or cause to a target audience. Social media & digital marketing can help to increase brand awareness, generate leads, drive traffic, boost sales, and build customer loyalty. Some tools that can help with social media & digital marketing are Hootsuite, Buffer, Sprout Social, etc.
• Ubersuggest: a free SEO tool that helps to find and analyze keywords, competitors, backlinks, content ideas, and more for any website or niche. Ubersuggest can help to improve SEO strategy and optimize web pages for higher rankings and traffic. Ubersuggest is developed by Neil Patel, a renowned digital marketer and entrepreneur.

Here are some WordPress modules that can be used in sites like this:

- Yoast SEO: Yoast SEO is a popular plugin that helps optimize your website for search engines. It provides tools to improve your website's on-page SEO, including meta tags, XML sitemaps, readability analysis, and keyword optimization. Yoast SEO also offers social media integration and advanced features for managing canonical URLs, breadcrumbs, and more.

- WooCommerce: WooCommerce is the leading e-commerce plugin for WordPress. It enables you to create and manage an online store, selling products or services. WooCommerce provides features like product management, shopping cart functionality, secure payments, inventory management, shipping options, and order tracking. With extensions and themes, you can customize and expand your online store to suit your specific needs.

- Contact Form 7: Contact Form 7 is a plugin that simplifies the process of creating and managing contact forms on your website. It offers a user-friendly interface for building custom forms, and you can easily add fields, specify email recipients, customize messages, and manage form submissions. It also supports CAPTCHA and other spam protection measures.

- Jetpack: Jetpack is a multifunctional plugin developed by Automattic, the company behind WordPress. It offers a wide range of features, including website security, performance optimization, website analytics, social media integration, downtime monitoring, and more. Jetpack also provides additional modules for related posts, image optimization, site backups, and CDN integration.

- Elementor: Elementor is a powerful page builder plugin that allows you to design and customize your website using a drag-and-drop interface. It provides a wide variety of pre-designed templates, widgets, and styling options, enabling you to create visually appealing and professional-looking pages without coding. Elementor is highly flexible and works with any WordPress theme.

- WPForms: WPForms is a user-friendly form builder plugin that enables you to create custom forms for various purposes. It offers a drag-and-drop interface, pre-built form templates, and advanced features like conditional logic, file uploads, payment integrations, and more. WPForms also provides options for managing form submissions and integrating with email marketing services.

- Akismet: Akismet is an anti-spam plugin that helps combat comment and contact form spam. It automatically filters incoming comments and forms for potential spam content and separates them from genuine submissions. Akismet uses a vast network of data to identify and block spam, reducing the need for manual moderation.

- UpdraftPlus: UpdraftPlus is a backup and restoration plugin that allows you to create complete backups of your WordPress website. It enables you to schedule automatic backups and store them in remote locations like cloud storage services. UpdraftPlus also provides options for selective backups, migration, and easy restoration in case of data loss or website issues.

Chapter 6. IMPLEMENTATION

6.1 IMPLEMENTATION ENVIRONMENT

- Operating System: The development can be done on the Windows operating system.
- Code Editor: A code editor Visual Studio Code can be used for coding and development purposes.
- Web Browser: Modern web browsers like Google Chrome and Brave can be used for testing and previewing the website.

6.2 PROGRAM AND MODULES SPECIFICATION

The website can be developed using a combination of WordPress and Hosting.is used for creating the structure and content of the website, while CSS isused for styling and layout. JS is used for adding interactivity and dynamic functionality to the website.

Some of the modules or components that can be included on the website are:

Home Page: The Home Page is the first page that a visitor sees when they visit the website. It should provide an overview of the bleaching earth site and its offerings, including featured products, a search bar to find specific items, and a call-to-action to encourage visitors to explore further.

About Us Page: The About Us Page should provide information about the firm,including its history, mission, and values. It may also include information about the team and testimonials from satisfied clients.

Services Page: The Services Page should provide details about the various services that the firm offers, such as sales and information. It may also include information about any unique selling points or competitive advantages that the firm has.

Pricing Page: The Pricing Page should provide information about the fees and charges associated with the firm's services, as well as any special offers or promotions that may be available.

Contact Page: The Contact Page should include the firm's contact information, such as phone number, email address, and physical address. It may also include a contact form that visitors can use to get in touch with the firm.

This is how we implemented different pages in this site by navigating to Add new page in site administration panel in WordPress and we can also add some different elements in the page like textbox, header, newsletter signup, chatbot etc.

Here are some different elements which can be added to site later on:
Header: The header typically includes the site's logo, site title, tagline, and navigation menu.

Hero Image/Slider: A hero image or slider is a large banner-style image or a rotating slideshow that grabs visitors' attention and showcases key information or featured content.

Featured Content/Services: Highlight specific content or services using a grid or

section layout, displaying images, titles, descriptions, and links to relevant pages.

Call-to-Action (CTA) Buttons: Add buttons with compelling text to encourage users to take specific actions, such as signing up for a newsletter, making a purchase, or starting a free trial.

Testimonials: Display positive customer reviews or testimonials to build trust and credibility.

Featured Blog Posts: If you have a blog, showcase a selection of recent or popular blog posts on the home page to engage visitors and encourage them to explore more content.

Portfolio/Projects: If you're a creative professional or have a portfolio, include a section displaying your work or projects, including images, descriptions, and links to more details.

Contact Information: Ensure your contact information, such as address, phone number, and email, is easily accessible on the home page, usually in the footer or a dedicated section.

Social Media Integration: Add social media icons or feeds to enable visitors to connect with you on various social platforms.

Newsletter Signup: Include a form or widget to allow visitors to subscribe to your newsletter for updates and special offers.

Featured Videos: If you have videos, embed or showcase them on the home page to engage visitors and provide valuable content.

Image Galleries: Display a collection of images in a visually appealing grid or carousel format to showcase products, events, or your work.

Interactive Elements: Consider adding interactive elements like animations, sliders, progress bars, or counters to create an engaging user experience.

Callout Sections: Use dedicated sections to highlight specific information, such as company achievements, awards, upcoming events, or special promotions.
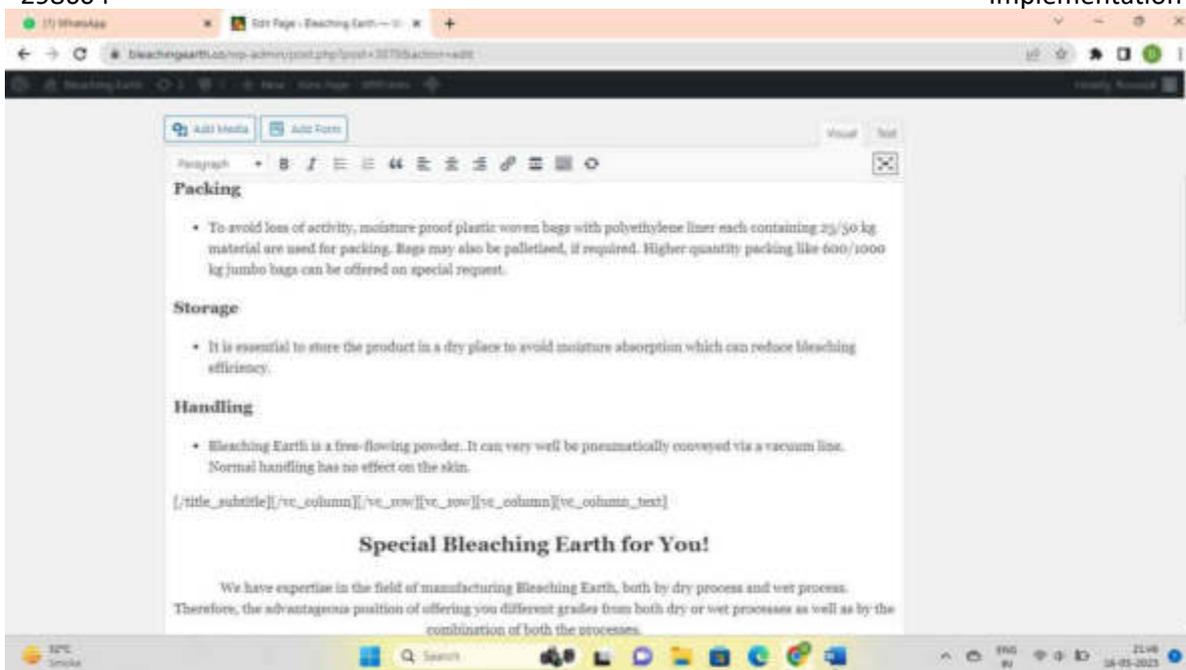
This is how we added services page which contained:

During manufacture, stringent control is exercised on following properties of Speed Grade Bleaching Earth.

• Bleaching Activity

A hard to bleach oil, with known ffa and color is treated with various dosages of Speed Grade Bleaching Earth under standard vacuum, temperature, contact time and stirring. The colors are measured in Lovibond Tintometer and the results are compared with standard earth results.

• Acidic property

Measurement of residual free acid content, as well as pH value of water solution filtered out of the Bleaching Earth, are routine tests with titration method as well as pH meter and stringent standards are maintained for the same.

• Water content

Moisture content is measured in a standard laboratory drying chamber as well as by Karl-Fisher- titrations.

• Particle – size distribution

It is checked on standard sieves by careful air stream sieving as well as on particle size analyser.

• Filtration property

We have a standard, exhaustive, test method for determining the filteration properties of our bleaching earth. We filter oil under standard conditions of temperature and pressure difference over an oil-wet-filter-cake. Stringent standards are followed and maintained to ensure fast filtration rate of Bleaching Earth.

• Oil Retention

This is a supplementary test carried out in conjunction with filtration test. It depends on activation and particle size of Speed Grade Bleaching Earth and is maintained at the minimum levels.
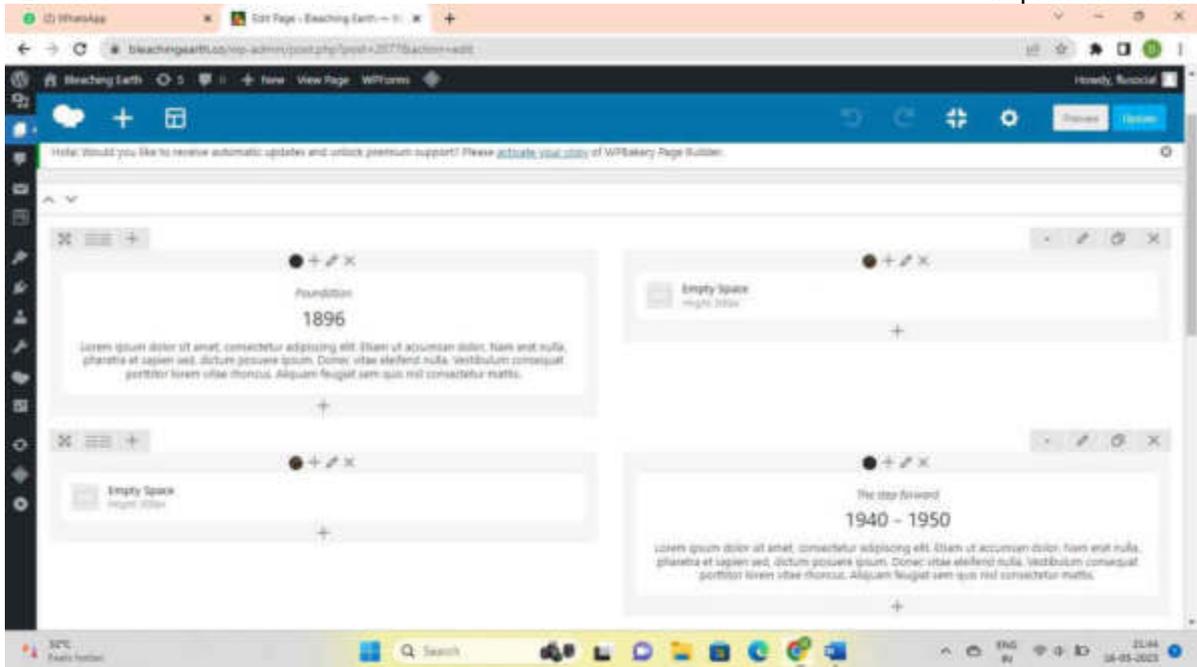
This page has been made by setting 3 text box parallel to each other, and the page shows the history of company and its achievements.

There is also a slideshow on the home page of this site which has been created by SlideShow Plugin in WordPress:
This can also be done in two ways:

- Using a Slideshow Plugin:

Install and activate a slideshow plugin of your choice. Some popular options include Slider Revolution, MetaSlider, and Soliloquy.
Once the plugin is activated, it will usually add a new menu item in your WordPress dashboard, such as "Slider" or "Slideshow."
Access the plugin's settings and create a new slideshow. You can customize settings such as slide transitions, navigation controls, autoplay, and more.
Add slides to your slideshow by uploading images, adding captions, and configuring slide-specific settings.
After configuring the slideshow, you will typically receive a shortcode or a block to insert into your desired page or post. Place the shortcode/block in the appropriate

location to display the slideshow.

- Using a Theme with Slideshow Support:

Some WordPress themes come with built-in slideshow functionality. Check if your theme offers this feature.

Navigate to your WordPress dashboard and go to "Appearance" > "Customize" or "Theme Options."

Look for settings related to the slideshow or homepage sections.

Enable the slideshow and configure its settings, such as slide duration, transition effects, and content display.

Save the changes, and the slideshow should be displayed on your website's homepage or any designated section.

6.3 OUTCOMES

- Improved user experience: By using WordPress, the website was able to provide a better user experience by providing dynamic and responsive interfaces.

- Improved code organization: WordPress allowed for the use of reusable components,which made it easier to organize and maintain the codebase.

- Faster development time: The use of ReactJS and its associated libraries allowed for faster development time as compared to traditional frontend development approaches.

- Better performance: WordPress' plugins allowed for efficient updates and rendering, resulting in a faster and more responsive website.

- Cross-browser compatibility: The use of WordPress allowed for the creation of a website that is compatible with all modern browsers.

- Modular and scalable architecture: The modular architecture of ReactJS allowed for easy scalability and maintenance of the website.

- Improved SEO: The website's improved performance and optimized structure led to better search engine optimization, resulting in higher visibility and better search engine rankings.

Screenshots of Site:

Application

Application

Broadly speaking, Bleaching Earth finds use in following fields.

Refining of Vegetable oils like

To avoid loss of activity, moisture proof plastic woven bags with polyethylene liner each containing 25/50 kg material are used for packing. Bags may also be palletized, if required. Higher quantity packing like 600/1000 kg jumbo bags can be offered on special request.

Hydrogenated Vanaspati Ghee Oils

Refining of hydrogenated vanaspati ghee oils, Margarine & shortening.

Refining of Animal Fats, Industrial Triglycerides and Fatty Acids

Refining of Animal Fats like tallow oil, fish oil, lard oil.
Industrial triglycerides and fatty acids used for paints, varnishe and Soaps

Refining of Mineral Oils like

- Paraffins and waxes
- Insulating oil
- Styling oil
- White oil
- Lubricating oil

Refining of Lubricating Oils like

- Waste Engine Oil
- Transformer Oil
- Waste Gear box lubricating oil

Refining of Petroleum Products like

- LDO (Light Diesel oil)
- Toluene and other solvents

Trace elements of Oils like

- Removal of impurities from solvents (for dry cleaning)
- Bleaching of sulphur
- Effluent treatment plants

Chapter 7. TESTING

7.1 TESTING STRATEGY

The testing strategy for the frontend website development of the firm using WordPress includes the following steps:

1. Unit Testing: Testing individual components and modules for functionality and performance.

2. Integration Testing: Testing the integration of different components and modules to ensure that they work together seamlessly.

3. User Acceptance Testing: Testing the website's functionality from the user's perspective to ensure that it meets their requirements and expectations.

4. Regression Testing: Testing the website after making changes or updates to ensure that the existing features are not affected.

5. Performance Testing: Testing the website's performance under different loads and conditions to ensure that it performs well under all circumstances.

7.2 TEST RESULTS AND ANALYSIS

All tests are going very good condition. We assign the name according to the models or modules name. Also, outputs or results are satisfactory. We achieved what we wanted at the beginning of the project. It is a very good experience for me to involve this process.

Here are some test results provided by a site named nibbler, which is basically used for testing many aspects of the site.

Website SEO Audit Report for https://Bleachingearth.co

Introduction

This report presents the results of an SEO audit conducted by Nibbler, a free tool that tests websites on various criteria such as accessibility, SEO, social media, and technology. The purpose of this audit is to evaluate the website's performance and identify areas of improvement that can enhance its online visibility and user experience.

The website https://Bleachingearth.co is a website that provides information about bleaching

earth, a type of clay that is used to remove impurities and color from oils and fats. The website also showcases the products and services of Ashapura Perfoclay Limited (APL), a leading manufacturer and supplier of bleaching earth in India.

The audit was performed on 25 April 2023 and covered the following five pages of the website:

- https://Bleachingearth.co
- http://aplgalleon.com/
- http://aplgalleon.com/about-us/
- http://aplgalleon.com/products/
- http://aplgalleon.com/contact-us/

Summary

The website scored 6.9 out of 10, which indicates that it has some areas of improvement. The website performed well on some aspects such as popularity, headings, and meta tags, but poorly on others such as printability, content, and speed. The table below summarizes the scores for each aspect and the corresponding suggestions for improvement.

Aspect	Score	Suggestions
Accessibility	7.5	Add alternative text to images; use more contrast for text; avoid using tables for layout; add labels to form fields
Experience	6.5	Improve printability; add more content; use favicon; avoid using Flash; use analytics
Marketing	7.0	Add more links to social media; use Open Graph protocol; add schema.org markup
Technology	6.5	Improve speed; use compression; use a content delivery network; avoid using inline styles
Popularity	8.0	No suggestions
Headings	8.0	No suggestions
Images	6.0	Add alternative text to images; optimize images for web
Links	7.0	Avoid using links with generic text; avoid using broken links
Meta tags	8.0	No suggestions
Domain	6.0	Use a custom 404 page

Title: Testing Report for bleachingearth.co

Introduction:

Provide a brief overview of the purpose and scope of the testing report.
Mention the website URL being tested: bleachingearth.co.
Testing Objectives:

Clearly state the objectives of the testing, such as assessing the functionality, usability, and performance of the website.
Testing Methodology:

Describe the methodology followed during the testing process, including the tools used (if any) and the test scenarios applied.
Testing Results:

Evaluate the website based on different aspects, including but not limited to:
a) Functionality: Check if all links, buttons, forms, and interactive elements work as expected.

b) Usability: Assess the user-friendliness, navigation, and overall design of the website.
c) Content: Review the accuracy, relevance, and completeness of the information provided.
d) Performance: Evaluate the website's loading speed, responsiveness, and compatibility with different browsers or devices.
Identified Issues:

Document any issues or bugs encountered during the testing process, including a description of the problem, its impact, and any relevant supporting information.
Categorize the issues based on their severity (e.g., critical, major, minor) and prioritize them accordingly.
Recommendations:

Provide recommendations for addressing the identified issues, improving the website's functionality, usability, and overall user experience.
Suggest any potential enhancements or additional features that could benefit the website.
Conclusion:

Summarize the findings of the testing process, emphasizing the strengths and weaknesses of the website.
Offer an overall assessment of the website's readiness for deployment or further improvements.

Conclusion

- The website https://Bleachingearth.co has some strengths but also some weaknesses that can affect its online presence and user satisfaction. By implementing the suggestions provided in this report, the website can improve its accessibility, experience, marketing, and technology aspects and achieve a higher score in future audits.

Chapter 8. CONCLUSION

8.1 OVERALL ANALYSIS OF INTERNSHIP

The internship project aimed to develop a modern and responsive website for a firm using WordPress. Through the implementation and testing stages, the project successfully achieved the desired outcome and met all of the client's requirements.

As an intern at Flu Social, I was assigned to the website development team, where I worked on various projects for different clients. My main tasks included designing and coding web pages, testing and debugging websites, and updating and maintaining existing websites. I also learned how to use various tools and platforms such as WordPress, Shopify, Google Analytics, and Mailchimp.

During my internship, I gained valuable skills and knowledge in web development, digital marketing, and teamwork. I also had the opportunity to interact with other professionals in the field and learn from their feedback and guidance. I enjoyed working in a dynamic and creative environment where I could apply my theoretical knowledge to practical problems and challenges.

Overall, this project provided a great opportunity to apply the knowledge and skills gained during the internship. It also allowed for a deeper understanding of the importance of effective communication and collaboration in a team environment. The internship project provided valuable experience in website development using modern technologies and tools. The project also demonstrated the importance of communication and collaboration among team members to ensure the successful completion of the project.

Reflection

My internship at Flu Social was a rewarding and enriching experience that helped me grow as a web developer and a digital marketer. I learned how to work on real-world projects with real clients and deadlines. I also learned how to communicate effectively with my team members and clients. I

improved my technical skills in web development as well as my soft skills such as problem-solving, creativity, and adaptability.

I am grateful to Flu Social for giving me this opportunity to learn from their expertise and experience. I am also thankful to my supervisor Dron Joshi for his constant support and guidance throughout my internship. He gave me constructive feedback on my work and helped me overcome any difficulties or challenges that I faced. He also encouraged me to explore new ideas and technologies that could enhance my work.

I believe that this internship has prepared me well for my future career in web development and digital marketing. I have gained confidence in my abilities and potential as a web developer. I have also developed a passion for creating engaging and effective online solutions that can make a positive impact on people's lives.

References

During the project we took help from certain external sources. Some of them are as follows:

1. Bleachingearth.co
2. https://fontawesome.com/icons
3. https://reactjs.org/.
4. https://reactjs.org/docs/getting-started.html
5. https://unsplash.com/
6. https://www.pexels.com/search/apartment/
7. https://www.w3schools.com/css/
8. https://www.w3schools.com/html/
9. https://www.w3schools.com/js/
10. Dron Joshi - Founder - Flu Social | LinkedIn. https://in.linkedin.com/in/dronjoshi.
11. Flu Social – Digital Marketing | SEO | Website Development https://flusocial.com/.
12. Flu Social | LinkedIn. https://in.linkedin.com/company/flu-social.
13. https://www.glassdoor.ca/Overview/Working-at-Flu-Social

Appendix

Flu Social

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
Info@flusocial.com

January 20, 2023

OFFER LETTER

Subject: Internship Confirmation Letter for Dixesh Shaileshkumar Prajapati

Dear Sir/Ma'am,

This is to certify that Mr. Dixesh Shaileshkumar Prajapati, student of Information & Technology Engineering in S.P.B.Patel Engineering College (Saffrony Institute of Technology). Semester 8 has been successfully allocated to his Internship from Flu Social.

Details of student are as below:

Name of the student: Dixesh Shaileshkumar Prajapati

College: Gujarat Technological University (S.P.B.Patel Engineering College (Saffrony Institute of Technology))

Course: Bachelor of Engineering

Branch: Information & Technology Engineering

Enrollment Number: 190390116034

Project In: Web Development & SEO, eComm Platform

Project Description: WordPress Development with HTML,CSS & PHP, Digital Marketing, SEO, Graphics Designing & Content Creation.
An Online eCommerce Platform for IT Services /Reseller Global Platform.

Project Guide: Yash Patel

Technology: WordPress + Woocommerce with Yoast SEO, Screaming Frog, UberSuggest, Google Analytics, WebMaster, Hostinger Tools, CloudFlare, Facebook Business Ads Manager.

Duration: 12 Weeks (Starting from 23 Jan 2023)

We are confident that he will be able to make a significant contribution to the success of our company.

Best regards,

Dron Joshi (Founder & CEO)

INTERNSHIP AT Zuru Tech India PVT Ltd

AN INTERNSHIP REPORT

Submitted by

Kirtan Rajubhai Prajapati

190390116035

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 Zuru Tech India PVT Ltd** has been carried out by **Kirtan Rajubhai Prajapati** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   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 : 10 May 2023 (21:17:58)

This is to certify that, *Prajapati Kirtan Rajubhai* (Enrolment Number - 190390116035) working on project entitled with *Backend Application* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student :	Prajapati Kirtan Rajubhai	Name of Guide :	Miss. Sushma Sainwar

Signature of Student : _____   *Signature of Guide : _____

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Company Certificate

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Date: 30-Apr-2023

TO WHOM IT MAY CONCERN

This is to certify that **Kirtan Prajapati**, a student of the Department of **Information and Technology, Saffrony Institute of Technology** has successfully completed his internship in the field of **Software engineering in Node.js** from 23-Jan-2023 to 30-Apr-2023 (Total number of Weeks: 14) under the guidance of **Mr. Raj Gohel.**

His internship activities include working on various projects, including developing an LMS System, Stock Market Portfolio Management, and a co-working space management system. He demonstrated excellent technical skills and significantly contributed to completing these projects.

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 Zuru Tech India Pvt. Ltd.

Authorized Signatory

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 Zuru Tech India PVT Ltd** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar** & **Raj Gohel (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.   **Kirtan Rajubhai Prajapati**   _____

Acknowledgment

I wish to express my heartfelt appreciation to all those who have contributed to this internship, both explicitly and implicitly, without the co-operation of whom, it would not have been possible to complete this internship. I would like to thank our supervisor/mentor Prof. Sushma Sainwar for constantly guiding and showing me the correct path to reach towards our desired goal. Also, we thank her for sharing her experience, knowledge, and valuable time with me and showing her concern for my project to make it better. I am grateful to my college Saffrony Institute Of Technology for providing me with all the required resources and a good working environment. I also thank all the other faculties who directly or indirectly supported me in making this project successful by sharing their ideas and knowledge. I also extend my sincere thanks to ZURU Tech India Pvt. Ltd. who provided me with the working environment and Raj Gohel for constantly guiding me in completing the internship. At last, I would like to thank my parents and friends who have directly or indirectly helped me in making the project work successfully.

Abstract

This software development internship involved working as part of a development team on a real-world software project. The focus of the internship was on gaining practical experience in software development practices and tools, such as agile development, version control, continuous integration, and continuous deployment and testing. The project involved developing a web-based application for a client, using a modern tech stack, and following industry best practices. Throughout the internship, I collaborated with experienced developers to learn and apply new skills, such as designing software architecture, writing clean code, and debugging. By the end of the internship, I had gained valuable hands-on experience in software development, as well as a deeper understanding of the software development process.

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1 INTRODUCTION

1.1 ABOUT THE COMPANY

Fig. 1.1 ZURU Tech Logo

ZURU Tech is in the process of developing a project that aims to revolutionize the construction industry. The company is creating the world's first fully connected building information modeling application that will be linked to an Industry 4.0 capable factory to manufacture any building. The team at ZURU Tech consists of highly skilled and motivated individuals from different parts of the world who are working collaboratively to create a fully integrated construction experience. Furthermore, ZURU Tech's engineering teams are tasked with providing solutions and driving innovation across the entire ZURU Group, which includes Toys, Edge, and Tech.

1.2 MISSION

ZURU Tech is a company that is developing building information modeling (BIM) software for architectural design and manufacturing, intending to create state-of-the-art and fully automated robotic production plants. They have a global team based in several locations, including Modena and Milan (Italy), Ahmedabad and Kolkata (India), Shenzhen (China), and Auckland (New Zealand). ZURU Tech's mission is to provide disruptive solutions for the construction industry by working with world-leading talent to apply the most advanced digital technologies to building processes.

1.3 VISION

ZURU Tech's vision is to revolutionize the construction industry through the development and implementation of cutting-edge digital technologies. They aim to create disruptive solutions that optimize building processes, reduce waste, and enhance sustainability. By leveraging the power of building information modeling (BIM) software and robotic production plants, ZURU Tech seeks to transform the way buildings are designed,

constructed, and maintained. Ultimately, their vision is to improve the built environment and enhance the quality of life for people around the world.

1.4 VALUES

ZURU Tech is a company that values innovation, integrity, collaboration, and autonomy. They believe in the limitless potential of their team to tackle challenges, break conventions, think ahead, and keep learning. ZURU Tech is passionate about creating projects that will have a positive and long-lasting impact, and they strive to maintain the highest standards of integrity in all their endeavors.

The company is driven by a shared vision to develop disruptive solutions for the construction industry, and they place great importance on teamwork and collaboration to achieve this goal. ZURU Tech also places a strong emphasis on autonomy, recognizing that hiring the best people in their field and giving them the necessary tools, resources, and space to excel are critical to their success. They expect their team members to take accountability for their work and be responsible for its outcomes.

1.5 DREAMCATCHER

At ZURU, Dreamcatcher is a central element of their work. The company has more software engineers than any other type of engineer, highlighting their focus on changing the way construction is viewed, ultimately resulting in a simpler, more transparent end-to-end experience and a more affordable and compelling product. Good product design is essential for maximizing the potential of the ZURU Factory and Dreamcatcher Software.

The company has drawn inspiration from Elon Musk's innovative business models and focused on the speed of innovation. They admire Musk's emphasis on vertical integration, problem-solving, and hard work, which has led to successful and unstoppable product-focused companies like Tesla and SpaceX. ZURU applies this approach to everything they do, starting with product design, which prioritizes cost-effectiveness, availability of materials, zero-carbon pathways, scalability, ease of transportation, ease of assembly, compliance with building codes, and the level of customization required.

1.6   WORK ENVIRONMENT

Fig. 1.2   ZURU Tech Work Environment

ZURU Tech prides itself on being a disruptor in the industry, constantly striving for improvement and thinking outside the box. The company's world-changing project is aimed at revolutionizing the building industry, by providing affordable and high-quality housing solutions to address the global housing crisis. ZURU Tech values creativity, recognizing that the most significant challenges require unique and innovative solutions, and they welcome out-of-the-box thinkers to help achieve their goals.

Collaboration is a key aspect of the company's culture, as they believe that a dynamic team working together towards a common mission is essential for success. ZURU Tech's team members bring diverse talents and perspectives to the table, making for a fun, energetic, and collaborative work environment. The company stays on the cutting edge of technology, harnessing machine learning, computer vision, and automation to build the future most innovatively and efficiently.

2 METHODOLOGY

2.1 AGILE

Fig. 2.1 Agile Development Cycle

Agile is a methodology used in project management, particularly in software development, that prioritizes flexibility, collaboration, and incremental delivery.

The Agile methodology was created in the early 2000s as a response to the limitations of traditional waterfall project management. Unlike the linear approach of the waterfall, agile emphasizes an iterative and adaptive approach, with continuous feedback and changes throughout the development process. Agile is based on a set of values and principles outlined in the Agile Manifesto, which emphasize individuals and interactions, working software, customer collaboration, and responding to change.

In an agile project, work is divided into small, manageable chunks called sprints, typically lasting between one and four weeks. At the beginning of each sprint, the team decides on a set of goals or user stories to be completed within the sprint. Throughout the sprint, the team holds daily stand-up meetings to review progress, identify any roadblocks, and make any necessary adjustments. At the end of each sprint, the team delivers a working product increment that can be reviewed and tested by stakeholders.

Agile also emphasizes collaboration and communication between team members as well as between the team and stakeholders. This helps to ensure that everyone is aligned on the project goals and that the product meets the needs of the customer or end-user. One of the key benefits of Agile is its flexibility and ability to adapt to changing requirements or priorities. Instead of being locked into a rigid plan, agile allows for changes to be made throughout the project based on feedback and new information.

There are several popular Agile frameworks, including Scrum, Kanban, and Extreme Programming (XP), each with its unique approach and set of practices. Overall, Agile is a popular methodology in software development and project management due to its focus on collaboration, flexibility, and delivering value to the customer.

3 LEARNING

3.1 PROGRAMMING LANGUAGE

3.1.1 JavaScript

JavaScript is a versatile programming language that is widely used to create interactive and dynamic websites. It was first created in 1995 by Brendan Eich while he was working at Netscape Communications Corporation.

JavaScript is a client-side language, meaning that it runs on the user's browser rather than on the server. This makes it ideal for adding interactivity to websites, such as form validation, dynamic content, and animations. It can also be used on the server side, using technologies like Node.js, to build scalable and high-performance web applications.

Over the years, JavaScript has evolved significantly, with the latest version being ECMAScript 2021. This new version introduces new features and improvements, including private class fields, logical assignment operators, and the syntax for accessing nested objects.

One of the great things about JavaScript is its versatility. It can be used for a wide range of applications, including web development, mobile app development, game development, and even desktop app development. It is a highly versatile language that supports many programming paradigms, including object-oriented, functional, and procedural programming.

JavaScript also has a vast community of developers and enthusiasts who contribute to libraries and frameworks like React, Angular, and Vue.js. This active community has helped make JavaScript one of the most popular programming languages in the world.

In addition to being an important skill for web developers, JavaScript is also used in many other industries and applications. For example, it is used in server-side programming with Node.js.

Overall, JavaScript is a powerful and versatile programming language that is widely used and highly valued in the tech industry.

3.2 WEB FRAMEWORK

3.2.1 Node.js

Node.js is an open-source, cross-platform JavaScript runtime environment that allows developers to build scalable network applications using JavaScript on both the server side and client side. It was created in 2009 by Ryan Dahl and built on top of Google's V8 JavaScript engine.

Node.js is known for its event-driven, non-blocking I/O model that can handle a large number of simultaneous connections with high throughput and low latency. This runtime environment comes with a rich set of built-in modules, such as HTTP, file systems, and cryptography, that make it easy to develop server-side applications.

Node.js is often used for building real-time, data-intensive applications such as chat applications, online games, and streaming services. One of the key advantages of Node.js is its ability to handle I/O-intensive tasks without blocking the event loop, leading to better performance and scalability.

Another advantage of Node.js is the large and active community of developers who contribute to a vast ecosystem of modules and libraries that can be easily integrated into Node.js applications. Some popular frameworks built on top of Node.js include Express.js which provide a high-level abstraction for building web applications.

Node.js is also commonly used with front-end frameworks like React, Vue.js, and Angular to create full-stack JavaScript applications. In addition, Node.js has become increasingly popular in the DevOps community thanks to its ability to automate server-side tasks and integrate with cloud platforms like AWS and Google Cloud.

Overall, Node.js is a powerful and flexible platform for building modern, scalable, and high-performance applications. It is widely used by developers around the world and offers several advantages, including its event-driven, non-blocking I/O model, rich set of built-in modules, and active developer community.

3.2.2 Express.js

Express.js is a popular open-source web application framework for Node.js that is used for building server-side web applications and APIs. It provides a minimalist, flexible, and

unopinionated approach to web development, allowing developers to structure their applications according to their specific needs and preferences.

One of the key features of Express.js is its middleware system, which allows developers to add functionality to their applications in a modular and reusable way. Express.js also provides a routing system, which allows developers to define URL patterns and map them to specific controller functions, making it easy to organize and manage complex applications.

Express.js supports a wide range of templating engines, making it easy to generate dynamic HTML pages. It is often used in combination with other Node.js modules and libraries to build full-stack web applications and has a large and growing ecosystem of plugins, middleware, and extensions.

Overall, Express.js is a powerful and flexible web framework for Node.js that provides developers with the tools they need to build scalable, maintainable, and high-performance web applications and APIs.

3.3   DATABASE

3.3.1   MongoDB

MongoDB is a popular open-source NoSQL database that is well-suited for modern, data-intensive applications. It uses a document-oriented data model to store data in flexible, JSON-like documents, which allows for dynamic and evolving schemas.

One of the key advantages of MongoDB is its ability to provide high performance, scalability, and availability. It is designed to run on clusters of commodity hardware, making it easy to scale horizontally as application demands grow, and it can automatically partition data across multiple servers to ensure high performance and availability.

MongoDB also provides a rich query language that allows developers to retrieve and manipulate data in a variety of ways, including complex aggregation and sorting operations. It supports a built-in full-text search engine and geospatial indexing, making it easy to perform text searches across large data sets and query data based on geographic coordinates.

MongoDB is often used in combination with other technologies, such as Node.js and Express.js, to build modern web applications and APIs. It has a large and active community

of developers and a rich ecosystem of plugins and tools that make it easy to integrate MongoDB into a variety of development workflows.

Overall, MongoDB is a powerful and flexible database solution that provides developers with the tools they need to build modern, scalable, and data-intensive applications.

3.3.2 Postgres

PostgreSQL, also known as Postgres, is an open-source relational database management system that has been in use since 1996. Postgres is known for its stability, reliability, and robustness, making it a popular choice for large-scale, mission-critical applications that require high levels of reliability, scalability, and data integrity.

One of the key features of Postgres is its ACID compliance, which provides strong guarantees about the consistency and reliability of data. It also offers extensibility, allowing developers to create custom data types, operators, and functions, and is fully compliant with SQL standards, making it easy to work with existing SQL-based tools and applications.

Postgres also provides robust mechanisms for managing concurrent access to data, making it well-suited for high-concurrency environments. It supports a wide range of indexing options, including B-tree, hash, GiST, and SP-GiST, and provides native support for storing and querying JSON data.

Postgres is often used in combination with other technologies, such as Node.js and Express.js, to build modern web applications and APIs. It is widely used in industries ranging from finance to healthcare to government, as well as in geospatial and scientific applications.

Postgres has a large and active community of developers and a rich ecosystem of plugins and tools that make it easy to integrate Postgres into a variety of development workflows. Overall, Postgres is a powerful and reliable database solution that provides developers with the tools they need to build modern, data-intensive applications.

3.3.3 Cockroach DB

Cockroach DB is a distributed SQL database that is designed to provide scalable, highly available, and transactional data storage. It offers a distributed architecture that automatically distributes and replicates data across the cluster for high availability and fault tolerance. Cockroach DB is fully ACID-compliant and provides full SQL compatibility,

making it easy to use with existing SQL-based tools and applications. It also offers built-in support for geo-partitioning, allowing data to be distributed based on geographic location for improved performance and compliance.

3.4 VALIDATION

3.4.1 Joi

Joi is a popular validation library for Node.js that provides a flexible and easy-to-use way to validate and sanitize data. Joi was first released in 2013 and has since become one of the most widely used validation libraries for Node.js applications.

Joi provides a simple and intuitive way to define validation rules for data using a schema-based approach that is easy to understand and maintain. It offers a wide range of validation rules, including basic types like string and number, as well as more complex rules like regular expressions, custom validators, and conditional validation.

Joi also provides built-in support for sanitization, allowing developers to easily remove unwanted characters and data from user input. Additionally, it offers built-in support for localization, allowing developers to define error messages in multiple languages and customize the validation error messages that are returned to users.

Joi integrates seamlessly with other popular Node.js libraries like Express.js and Hapi.js, making it easy to add validation to existing applications. It is often used in web applications and APIs to validate user input and ensure that the data is safe and consistent. It is also used in command-line interfaces and other applications where input validation is important.

Overall, Joi is a powerful and flexible validation library that provides developers with the tools they need to ensure that data is safe, consistent, and compliant. With a large and active community of developers and a rich ecosystem of plugins and tools, Joi is a reliable choice for data validation in Node.js applications.

3.5 AUTHENTICATION

3.5.1 JSON Web Token

JSON Web Token (JWT) is a widely used authentication standard that provides a secure and flexible means of transmitting and storing information as a JSON object. It is often used in modern web applications and APIs to handle authentication and authorization.

One of the key features of JWT is its statelessness, which eliminates the need for servers to maintain any session state. JWTs are also digitally signed and can be encrypted, providing an additional layer of security.

JWT is a versatile tool that can be used to represent a wide range of claims, making it well-suited for use in various authentication and authorization scenarios. It is also compatible with a range of programming languages and platforms, making it easy to integrate into different development workflows.

In an authentication flow that uses JWT, the user logs in with their credentials and receives a JWT, which is then used to authenticate subsequent requests.

JWT is often used in conjunction with other authentication frameworks such as OAuth. It has a large and active community of developers and a rich ecosystem of plugins and tools that make it easy to use in a variety of development environments.

Overall, JWT is a well-established and widely used authentication standard that provides developers with a secure and flexible means of handling authentication and authorization in modern web applications and APIs.

3.5.2   OAuth 2.0

OAuth 2.0 is an open authorization protocol that allows third-party applications to access user data from a resource server without requiring the user to share their login credentials. It is commonly used by social media and other web services to allow users to log in and securely share data with third-party applications.

OAuth 2.0 works by allowing the user to grant permission to a third-party application to access their data from a resource server. The user logs in to the resource server and grants permission to the third-party application. The third-party application then receives an access token that allows it to access the user's data from the resource server without requiring the user to share their login credentials.

OAuth 2.0 is used to authenticate and authorize users for web and mobile applications. It is commonly used by social media platforms, such as Facebook and Twitter, to allow users to log in to third-party applications with their social media accounts. It is also used by many other web services, such as Google, to allow users to grant permission to access their data.

OAuth 2.0 is a secure and reliable way to grant permission to third-party applications to access user data. It is widely used and supported by many web services, making it a popular choice for developers looking to integrate third-party authentication and authorization into their applications.

3.6   PROCESS-MANAGEMENT

3.6.1   PM2

PM2 (Process Manager 2) is a popular process management tool for Node.js applications that provides a simple and powerful way to manage and monitor application processes. PM2 was first released in 2013 and has since become one of the most widely used process management tools for Node.js applications.

PM2 provides a wide range of features, including process management, process monitoring, automatic process restarts, load balancing, and log management. With these features, developers can easily manage and monitor Node.js applications in production environments, ensuring that they remain available and responsive even under heavy load.

One of the key benefits of PM2 is its ease of use. With a simple command-line interface, developers can start, stop, and restart application processes with ease. PM2 also provides real-time monitoring of application processes, allowing developers to quickly identify and resolve issues.

PM2 is often used in conjunction with other Node.js tools and frameworks, such as Express.js and Socket.io. It is also compatible with a wide range of operating systems, making it easy to use in a variety of development environments.

In addition, PM2 has a large and active community of developers and a rich ecosystem of plugins and tools that make it easy to integrate PM2 into a variety of development workflows. Overall, PM2 is a powerful and easy-to-use process management tool that provides developers with the tools they need to manage and monitor Node.js applications in production environments.

3.7   TESTING

3.7.1   Chai

Chai is a widely used and popular assertion library for Node.js and browser-based JavaScript applications. It provides a flexible and easy-to-use way to write test cases with a variety of assertion styles, including should, expect, and assert. Chai has a flexible and expressive syntax for writing test cases, which allows developers to write tests that are easy to read and understand. Chai provides a plugin architecture that allows developers to extend the library with additional functionality and custom assertions. It supports both synchronous and asynchronous testing, making it easy to test code that involves asynchronous operations.

Chai integrates seamlessly with popular testing frameworks like Mocha and Jest, making it easy to add Chai assertions to existing test suites. Chai is often used in web applications and APIs to write unit tests, integration tests, and end-to-end tests to ensure that the code is working as expected. With a large and active community of developers and a rich ecosystem of plugins and tools, Chai is an essential tool for any JavaScript developer looking to write high-quality tests.

3.7.2   Mocha

Mocha is a widely-used JavaScript testing framework that provides a flexible and comprehensive way to write test cases for Node.js and browser-based applications.

Released in 2011, Mocha offers a test runner that executes test cases and generates test reports, and it provides a flexible and expressive syntax for writing test cases. It also supports both synchronous and asynchronous testing, making it possible to test code that involves asynchronous operations like network requests or database queries.

Mocha provides hooks that allow developers to run functions before or after test cases or test suites, providing a way to set up test fixtures or perform cleanup tasks. Additionally, Mocha offers multiple reporting options, including console output, HTML, and JSON, allowing developers to choose the format that best fits their needs.

Mocha is often used in web applications and APIs to write unit tests, integration tests, and end-to-end tests that ensure that the code is working as expected. It has a large and active

community of developers and a rich ecosystem of plugins and tools that make it easy to integrate Mocha into a variety of development workflows.

3.7.3 Sinon

Sinon is a standalone JavaScript library for testing that provides test spies, stubs, and mocks without any dependencies. Its purpose is to help developers create mocks, stubs, and spies for functions and objects, making it easier to test complex interactions in their code. Since its first release in 2010, Sinon has become one of the most widely used testing frameworks for JavaScript applications. Some of the key features of Sinon include test spies, which are functions that record information about how they are called, such as the number of times they are called, with what arguments, and what is returned; stubs, which are functions that replace the original function or method with a fake one, allowing developers to control the behavior of the function and test different scenarios; and mocks, which are objects that mimic real objects but allow developers to specify the expected behavior of the object during testing. Sinon integrates seamlessly with popular testing frameworks like Mocha and Jest, making it easy to add Sinon spies, stubs, and mocks to existing test suites.

Sinon is often used in web applications and APIs to write unit tests, integration tests, and end-to-end tests that ensure that the code is working as expected. Its flexible and powerful features make it a valuable tool for developers who want to write comprehensive and effective tests. In addition, Sinon has a large and active community of developers and a rich ecosystem of plugins and tools that make it easy to integrate Sinon into a variety of development workflows.

3.7.4 Istanbul

Istanbul is a popular JavaScript code coverage tool that provides detailed metrics for tracking how well a codebase is being tested by unit tests, integration tests, and end-to-end tests. Its primary goal is to help developers get an accurate and comprehensive report of the code coverage provided by their test suite.

Istanbul offers a range of features that include code coverage metrics for statements, branches, functions, and lines of code, allowing developers to identify which areas of their codebase need further testing. It integrates seamlessly with various testing frameworks such as Mocha, Jest, and Jasmine, making it easy to incorporate code coverage reports into existing test suites.

Additionally, Istanbul supports multiple report formats such as HTML, JSON, Cobertura, and LCOV, enabling developers to easily integrate code coverage reporting into different development workflows.

Istanbul is widely used in web applications and APIs to monitor code coverage over time and ensure that adequate test coverage is maintained as the codebase evolves. Its powerful and customizable reporting capabilities make it an essential tool for developers who want to ensure that their code is thoroughly tested.

3.8 CONTAINERIZATION

3.8.1 Docker

Docker is a popular open-source containerization platform that allows developers to build, deploy, and run applications consistently and reliably across different environments. Docker's main goal is to simplify the process of building, shipping, and running applications by packaging them into lightweight containers. One of the key features of Docker is containerization, which allows developers to package applications and their dependencies into self-contained containers that can be easily shared and deployed across different environments. Docker containers can run on any operating system that supports Docker, making it easy to build and run applications without worrying about compatibility issues.

Docker also provides versioning and rollback capabilities, which allow developers to manage different versions of their applications and easily roll back to previous versions if necessary. Docker makes it easier to scale applications horizontally by adding or removing containers as demand changes, improving overall efficiency. Docker integrates seamlessly with continuous integration and continuous deployment (CI/CD) pipelines, making it easy to automate the process of building, testing, and deploying applications. Its lightweight and portable containerization capabilities make it a popular choice for modern application development and deployment workflows.

Overall, Docker is widely used in web development, cloud computing, and DevOps to streamline the application development process and improve deployment efficiency. With its powerful features and growing ecosystem, Docker has become an essential tool for many developers and organizations looking to build, ship, and run applications more efficiently and reliably.

3.9   CACHING

3.9.1   Redis

Redis is a popular open-source, in-memory data structure store that serves as a database, cache, and message broker. It is designed to offer developers a fast and scalable data store that can be used to support a variety of different use cases. One of Redis's key features is its in-memory data store, which stores data in memory rather than on a disc. This makes it a faster and more responsive alternative to traditional disc-based databases, which is especially useful for use cases that require fast read and write performance, such as caching.

Redis also supports a variety of different data structures, including strings, hashes, lists, sets, and sorted sets. This makes it easier for developers to model complex data structures and perform operations on them in a fast and efficient manner. In addition to these features, Redis supports pub/sub messaging, which allows publishers to send messages to multiple subscribers in a fast and scalable manner. This feature makes Redis well-suited for building real-time applications, such as chat rooms and real-time dashboards.

Redis highly customizable and flexible, allowing developers to build custom solutions that meet their specific needs. Another key feature of Redis is its support for clustering, which allows developers to scale Redis horizontally across multiple nodes. This makes Redis highly scalable and able to handle large amounts of data and high levels of traffic.

Redis is widely used in web applications, gaming, real-time analytics, and messaging systems to provide fast and scalable data storage and retrieval. Its fast and responsive in-memory data storage, flexible data structures, support for pub/sub messaging and clustering capabilities make it a powerful tool for building a wide range of applications.

3.10 SCHEDULING

3.10.1 Cronjob

A cron job is a scheduling utility that is commonly used in Unix-based systems to automate repetitive tasks. Its main purpose is to schedule commands or scripts to run at specific intervals or times, allowing developers to automate routine tasks and maintain consistent system behavior.

Cron jobs provide a wide range of features and capabilities, including scheduling, flexibility, logging, error handling, and security. It allows developers to schedule

commands or scripts to run at specific intervals, such as daily, weekly, or monthly, making it easy to automate routine tasks such as backups or system maintenance.

Cron jobs are highly flexible and can be used to run a variety of commands and scripts, including shell scripts, Perl scripts, and Python scripts. This makes it possible for developers to automate a wide range of tasks and maintain consistent system behavior.

Cron jobs also include logging features that log the output of each command or script that they run, making it easy for developers to monitor the status of their tasks and troubleshoot any issues that arise. Additionally, they include error handling features that can be used to notify developers if a task fails to run or produces an error, allowing them to quickly identify and fix any issues.

Cron jobs can also be run as a specific user, allowing developers to limit the scope of their tasks and ensure that they run with appropriate permissions. This makes them a secure option for managing complex systems and applications.

Overall, cron jobs are widely used in system administration, automation, and application development to automate routine tasks and maintain consistent system behavior. Their flexible scheduling, logging and error handling capabilities, and security features make them a powerful tool for managing complex systems and applications.

3.11 QUEUING

3.11.1 RabbitMQ

RabbitMQ is an open-source message broker that provides a reliable and scalable messaging infrastructure for transmitting messages between applications and services. It uses a message queuing model and a message acknowledgment model to ensure that messages are reliably delivered and that their order is preserved.

RabbitMQ supports a variety of routing strategies, including direct, topic, and fanout routing, and it can be clustered to provide scalability and high availability. It also integrates with many other systems and technologies, making it a flexible and versatile messaging solution.

The main applications of RabbitMQ include distributed systems, microservices architecture, and cloud computing. It enables message-based communication between different services and applications, ensuring reliable and scalable message delivery. Its

messaging and acknowledgment models, routing strategies, clustering capabilities, and integration with other systems make it a powerful messaging infrastructure for building complex and distributed systems.

3.12 VERSION CONTROL

3.12.1 Git

Git is a widely used distributed version control system for software development, enabling developers to track changes in source code, collaborate with others, and maintain a history of changes. Its key features include version control, branching, merging, collaboration, and integration with web-based hosting services like GitHub.

Version control in Git allows developers to track changes in source code over time, making it easy to revert to a previous version if necessary. Branching allows developers to create and work on multiple branches of a project simultaneously, which is useful for working on different features or bug fixes independently without interfering with each other's work. Merging changes from one branch to another is also easy in Git, allowing different branches to be combined into a single branch, enabling easy integration of different features or bug fixes into a project.

Collaboration is another key feature of Git, making it easy for multiple developers to work on a project simultaneously, share code, and collaborate on features or bug fixes. This makes it easy to manage complex projects with multiple contributors. The popularity of GitHub has also made it a standard tool for open-source development, allowing developers to share code and collaborate with others worldwide.

In conclusion, it has become an essential tool for software developers due to its version control, branching, merging, collaboration, and integration capabilities, as well as its popularity among developers and hosting services like GitHub.

3.13 DOCUMENTATION

3.13.1 Swagger

Swagger, now known as the OpenAPI Specification, is an open-source framework used to design, document, and test RESTful web services. Its main purpose is to provide a standardized way for developers to describe and document the interfaces of their web services, which helps ensure that APIs are consistent and easy to use.

Some of the key features of Swagger and OpenAPI include API documentation, design, code generation, testing, and collaboration. It provides a way to generate documentation for web APIs, making it easy for developers to understand how to use an API and what resources are available. Additionally, it provides a way for developers to design APIs using a standardized specification, which helps ensure that APIs meet the needs of the organization.

Swagger/OpenAPI also provides tools to generate server-side code and client libraries for a wide range of programming languages, which can speed up development and reduce the risk of errors. It provides a way to test APIs and ensure that they are working as expected, which helps ensure that APIs are reliable and meet the needs of users.

Finally, Swagger and OpenAPI can be used to facilitate collaboration between developers, product managers, and other stakeholders. By providing a standardized way to describe APIs, everyone can be on the same page and ensure that the API meets the needs of the organization.

In conclusion, Swagger/OpenAPI is a widely used tool in software development for designing, documenting, and testing web APIs. Its features make it a powerful tool for building reliable and well-documented APIs, helping organizations meet the needs of their users.

3.14 OTHER TECHNOLOGIES

3.14.1 ESLint

ESLint is an open-source static code analysis tool that helps developers write cleaner and more consistent JavaScript code. It achieves this by analyzing code to find and fix problems related to syntax, best practices, style, and conventions.

Some of the key features of ESLint include customizable rules that can be tailored to fit specific coding standards, and editor integration with code editors such as Visual Studio Code, Atom, and Sublime Text. Additionally, it can automatically fix many issues and can be used as part of a continuous integration workflow.

ESLint is a popular tool used by developers to improve code quality and consistency, making it an essential part of any JavaScript development workflow. Its ability to find potential problems, customizable rules, integration with various building systems and

editors, and automated fixes make it a powerful tool for maintaining code quality in projects of all sizes.

3.14.2 Husky

Husky is a Git hook manager that automates tasks in a Git workflow. Its main purpose is to simplify developers' lives by ensuring that certain tasks, such as linting or testing, are automatically run when specific Git events occur.

One of the key features of Husky is its ability to manage Git hooks. Husky makes it simple to define custom hooks, such as pre-commit hooks, which run automatically before a commit is made. This can be used to ensure that code is properly formatted, linted, or tested before it is committed to the repository.

Husky also allows for easy customization of Git hooks, enabling developers to automate any task that can be run from a command-line interface. Additionally, it can be integrated with other tools, such as ESLint or Prettier, to further automate tasks in a Git workflow.

Installation and configuration of Husky is straightforward and can be completed in just a few minutes. As a result, Husky is widely used in Git workflows to automate tasks and improve code quality. Its features, including Git hooks management, customizable hooks, integration with other tools, and easy installation, make it a popular choice for developers looking to streamline their workflows.

3.14.3 dotenv-safe

dotenv-safe is a Node.js package that securely loads environment variables from a .env file into process.env, making it an essential tool for managing sensitive configuration data in development or production environments. Its main feature is its secure loading mechanism, which ensures that all required environment variables are present in the .env file to avoid exposing sensitive data. If any variables are missing, an error is thrown, preventing the application from starting.

Other key features of dotenv-safe include easy configuration and usage through npm or yarn, a simple API for loading environment variables, and integration with other tools like dotenv. dotenv-safe also supports the use of multiple .env files for different environments and the validation of environment variables using a defined schema to ensure that they have the correct type and format.

As a widely used tool in Node.js applications, dotenv-safe plays an essential role in securing the environment variables, managing sensitive configuration data, and ensuring the security and stability of applications.

4   PROJECT I: STOCKMATE

4.1   OVERVIEW

This project aims to develop a stock market portfolio management system with features such as user registration and login, stock portfolio management, an email notification system, and more. The app will utilize Node.js and Cockroach DB for the backend and a free and open stock market API to retrieve stock price information. The project will follow coding standards such as a coding style guide, using a linter, writing unit tests, and proper documentation.

4.2   ER DIAGRAM
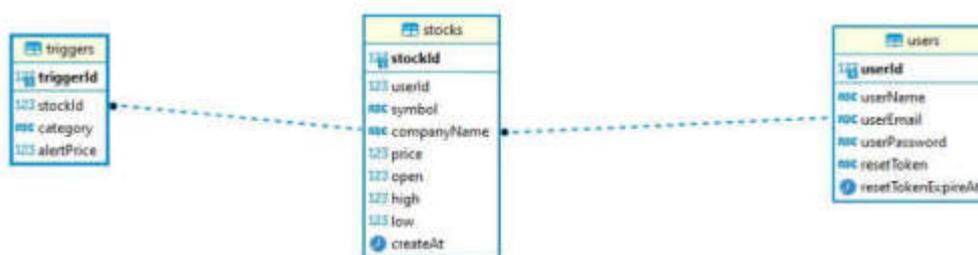
Fig. 4.1   ER Diagram

4.3   FEATURES

The web application provides users with the ability to manage their stock portfolios with features such as user registration and login, stock portfolio management, a notification system, stock search, historical data, and optional features such as news and analysis of the stock market and information on popular stock market indexes. User registration and login functionality are provided, so users can create an account using their email address and password. Passwords are securely hashed and stored in the database for data privacy. Users can reset their passwords using the forgot password feature.

Stock portfolio management allows users to add stocks to their portfolio using the search bar by entering the stock symbol. The system retrieves the latest stock price along with important information such as the daily change percentage and market capitalization. Users can view performance charts for each stock in their portfolio, displaying the stock price over time. Additionally, users can edit or delete stocks from their portfolios.

The notification system enables users to set up price trigger alerts for their stocks, sending them email notifications when the stock's price meets certain conditions. Users can set trigger conditions, such as minimum or maximum price thresholds, and notification frequency. The system retrieves the latest stock price information from the API and compares it to the user's trigger conditions to determine if a notification should be sent.

Stock search and historical data functionality are provided, where users can search for stocks using a search bar and retrieve information such as stock price, daily change percentage, and market capitalization. Users can also view historical data for each stock, such as stock prices, over time.

Moreover, Other features such as news and analysis of the stock market and information on popular stock market indexes will be displayed to enhance the user experience.

The code follows a coding style guide for consistency throughout the codebase. A linter is used to analyze code for potential errors, formatting issues, and coding style violations. Unit tests are written to verify the functionality of individual code units, such as functions or classes. The code is also properly documented with comments, and variable names are chosen to be descriptive and easy to understand.

4.4 IMPLEMENTATION

Fig. 4.2   Swagger API Documentation
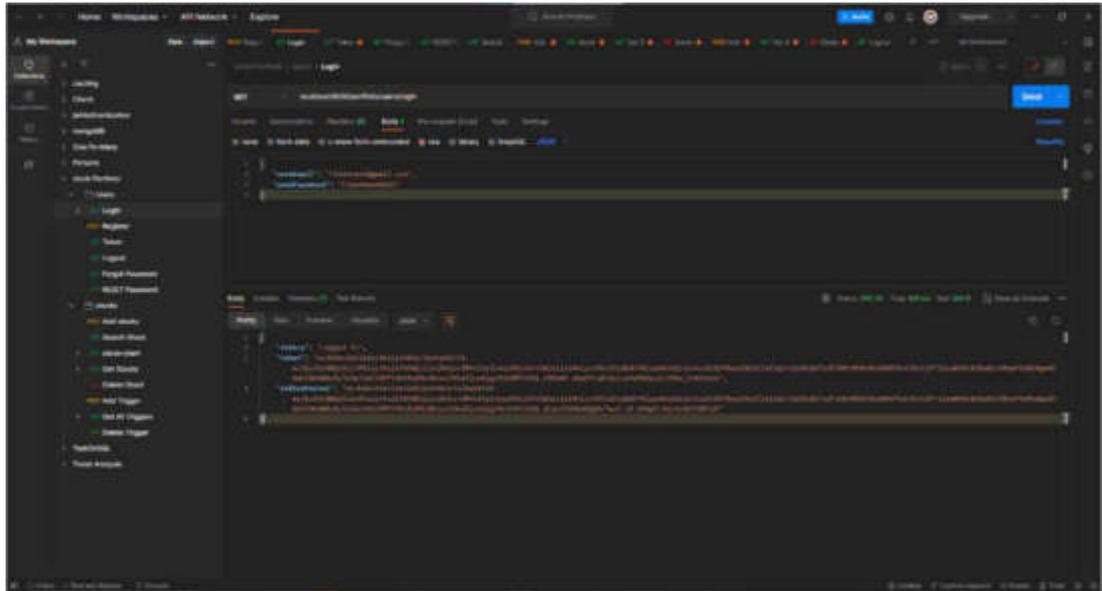
Fig. 4.3   Login API
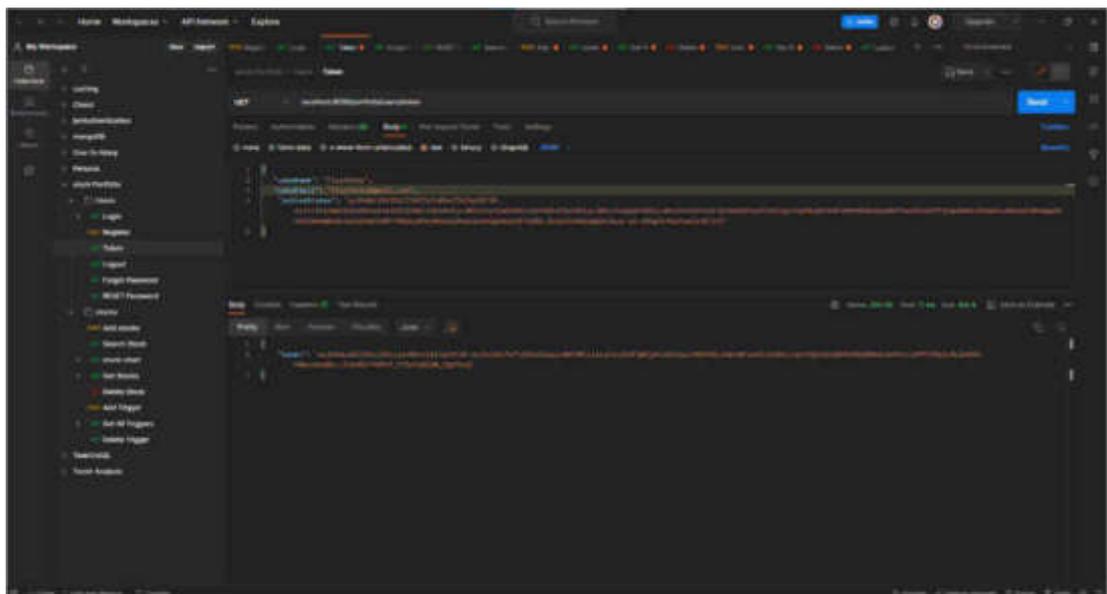
Fig. 4.4 GET Token API
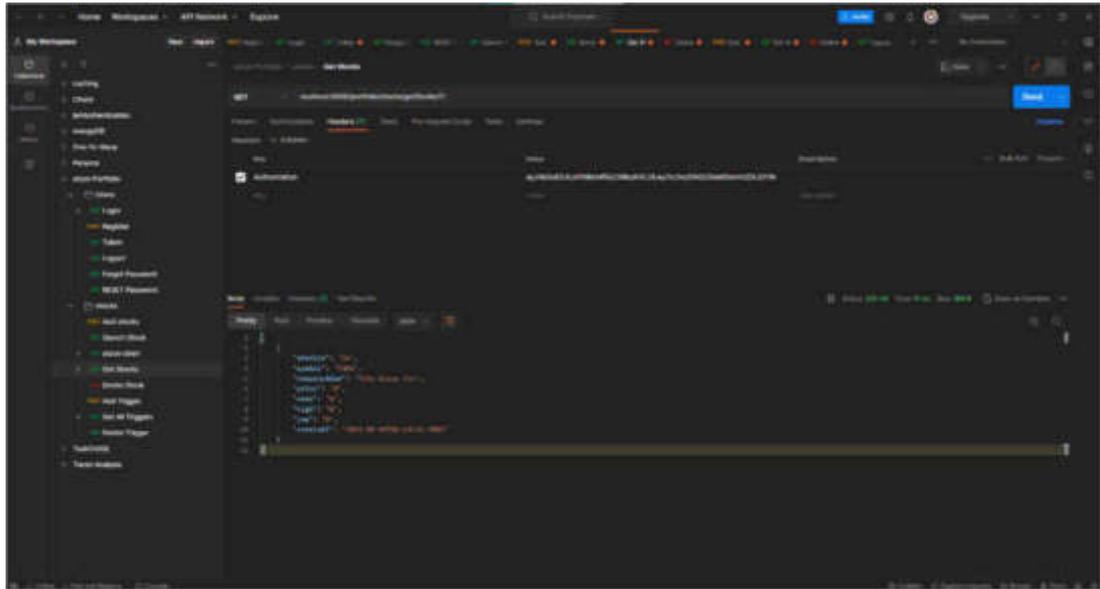
Fig. 4.5 GET Stocks API
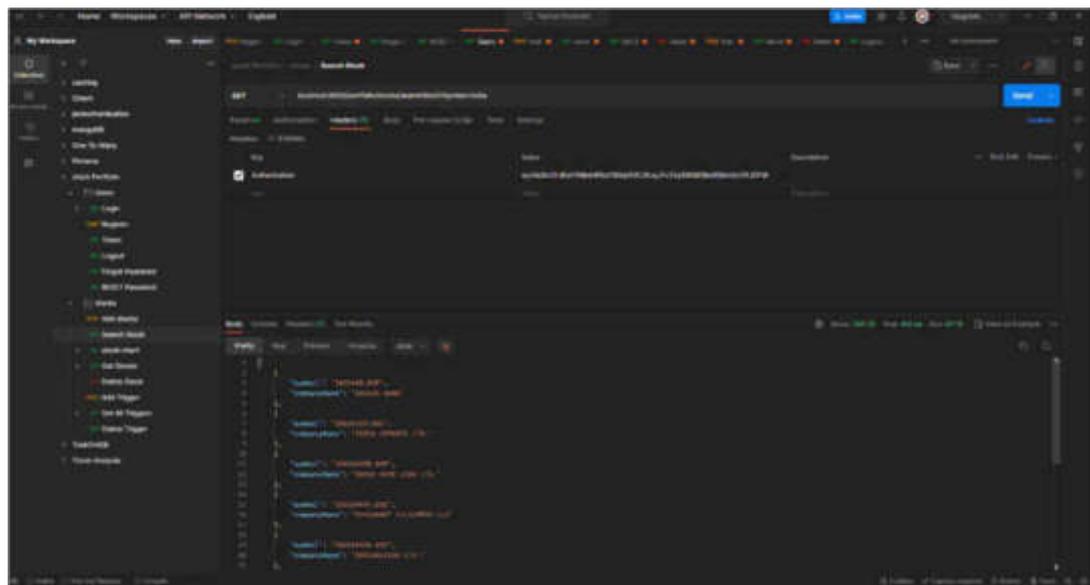
Fig. 4.6 Search Stock API
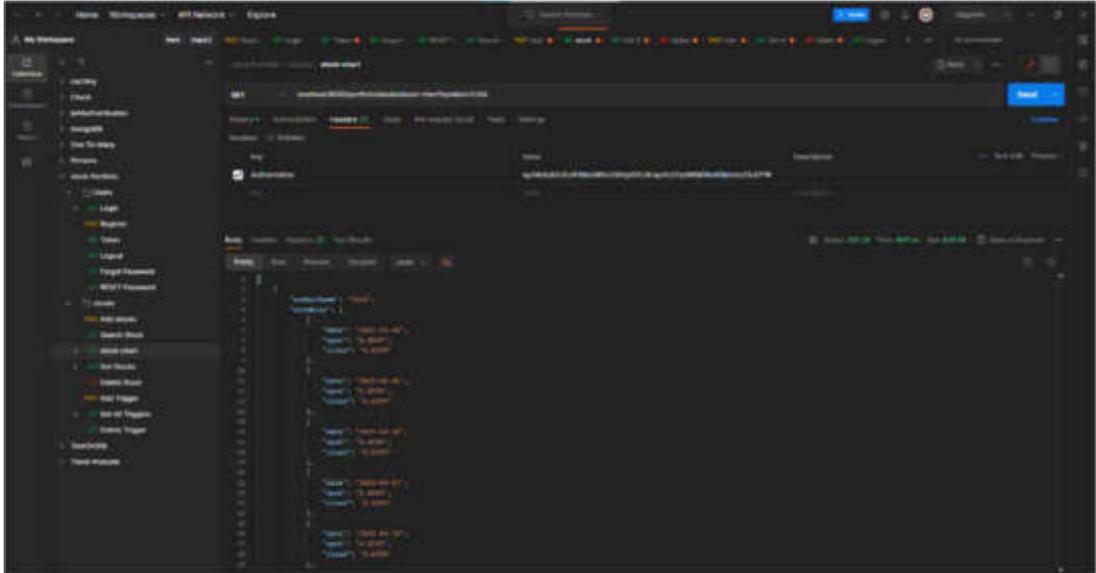
Fig. 4.7   Stock Chart API
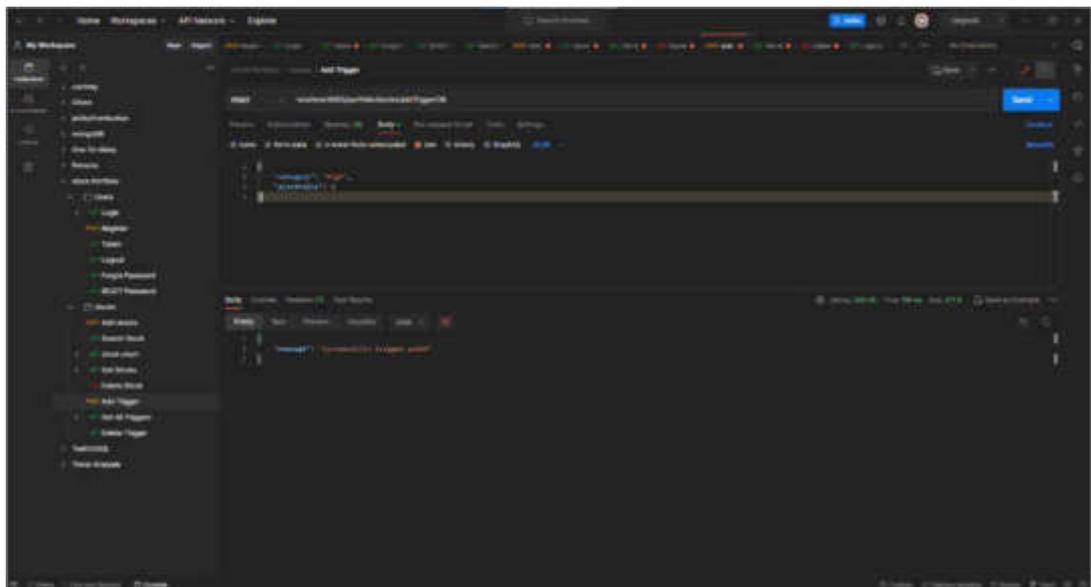
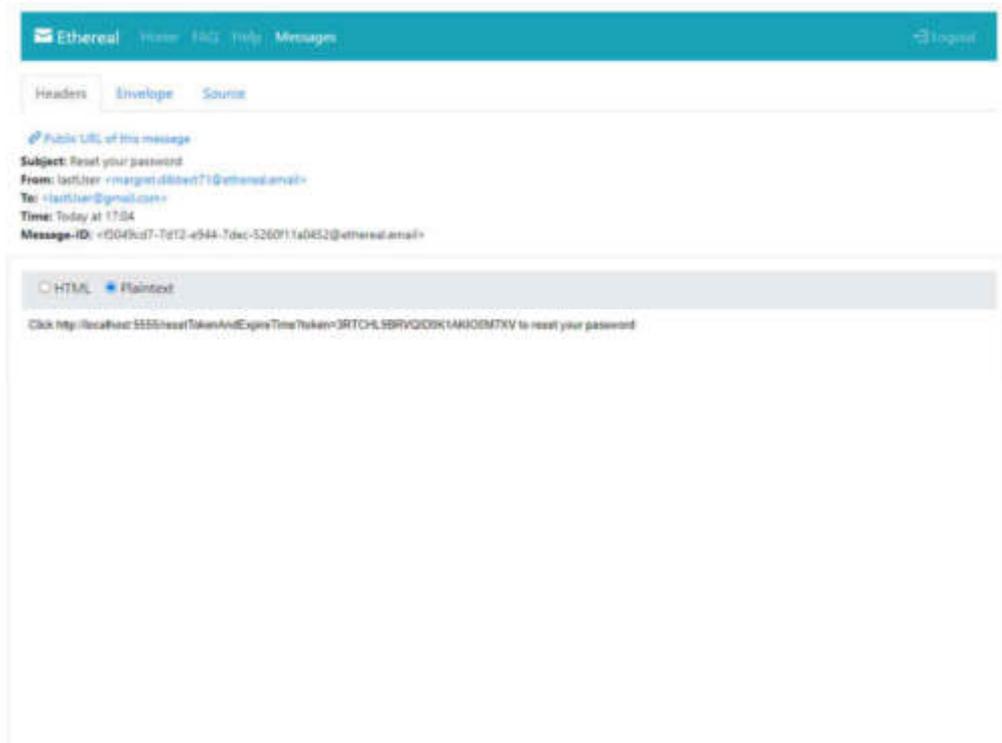**Fig. 4.8   Add Trigger API**

Fig. 4.9   Reset Password Mail

4.5   TESTING

The application undergoes thorough testing to ensure its stability and reliability. This testing should include unit testing, which can be done using a testing framework such as Mocha or Chai. It's also important to test the application for scalability and performance to ensure it can handle high levels of traffic and usage.

Once the testing is complete, a test coverage report is generated to measure the effectiveness of the testing. The report should also verify the existing code and required code base to ensure that the application meets quality standards. Furthermore, it's essential to make the codebase quality-oriented to ensure that the application is maintainable and can be easily updated in the future. This can be achieved by adhering to coding best practices, such as writing clean and concise code, using descriptive variable names and comments, and following coding conventions.

```
40 passing (6s)

----------------------------------------|---------|----------|---------|---------|-------------------
File                                    | % Stmts | % Branch | % Funcs | % Lines | Uncovered Line #s
----------------------------------------|---------|----------|---------|---------|-------------------
All files                               | 85.01   | 53.33    | 85.24   | 84.93   |
 stock_market_portfolio                 | 95.23   | 100      | 66.66   | 95.23   |
  app.js                                | 95.23   | 100      | 66.66   | 95.23   | 28
 stock_market_portfolio/config          | 100     | 100      | 100     | 100     |
  db.config.js                          | 100     | 100      | 100     | 100     |
  index.js                              | 100     | 100      | 100     | 100     |
 stock_market_portfolio/src/component    | 100     | 100      | 100     | 100     |
  index.js                              | 100     | 100      | 100     | 100     |
 stock_market_portfolio/src/component/stocks | 89.57 | 61.11   | 92      | 89.5    |
  stocks.controller.js                  | 100     | 100      | 100     | 100     |
  stocks.dal.js                         | 100     | 100      | 100     | 100     |
  stocks.route.js                       | 100     | 100      | 100     | 100     |
  stocks.service.js                     | 79.76   | 61.11    | 81.81   | 79.51   | 12,29,55,116-142
  stocks.validation.js                  | 100     | 100      | 100     | 100     |
 stock_market_portfolio/src/component/users | 80.76 | 50      | 77.77   | 80.76   |
  users.controller.js                   | 84.61   | 100      | 83.33   | 84.61   | 61-64
  users.dal.js                          | 61.9    | 100      | 60      | 61.9    | 44-71
  users.route.js                        | 100     | 100      | 100     | 100     |
  users.service.js                      | 80.88   | 50       | 85.71   | 80.88   | 31,35,62,81,104,112-121
  users.validation.js                   | 100     | 100      | 100     | 100     |
 stock_market_portfolio/src/constant     | 100     | 100      | 100     | 100     |
  errorConst.js                         | 100     | 100      | 100     | 100     |
  index.js                              | 100     | 100      | 100     | 100     |
 stock_market_portfolio/src/helper       | 70.27   | 44.44    | 85.71   | 69.44   |
  index.js                              | 42.1    | 10       | 50      | 42.1    | 5-17,77
  responseGenerator.js                  | 100     | 87.5     | 100     | 100     | 5
 stock_market_portfolio/src/lib          | 100     | 100      | 100     | 100     |
  expressValidation.js                  | 100     | 100      | 100     | 100     |
 stock_market_portfolio/src/middleware   | 84.61   | 75       | 100     | 84.61   |
  auth.js                               | 84.61   | 75       | 100     | 84.61   | 9,19
 stock_market_portfolio/src/schedulers   | 82.35   | 100      | 75      | 82.35   |
  cronJob.schedule.js                   | 82.35   | 100      | 75      | 82.35   | 6-9
 stock_market_portfolio/src/utils        | 75      | 100      | 100     | 75      |
  email.js                              | 75      | 100      | 100     | 75      | 22-23
----------------------------------------|---------|----------|---------|---------|-------------------
```

Fig. 4.10 Test Coverage Report

4.6 CONCLUSION OF STOCKMATE

This project aims to develop a stock market portfolio management system with features such as user registration and login, stock portfolio management, an email notification system, and more. The project utilized Node.js and Cockroach DB for the back end and a free and open stock market API to retrieve stock price information. The project followed coding standards such as a coding style guide, using a linter, writing unit tests, and proper documentation. The application underwent rigorous testing to ensure its stability and reliability.

5   PROJECT II: COURSETRACK

5.1   OVERVIEW

The CourseTrack is a web-based LMS application that allows users to access courses and learn at their own pace. The app provides various features such as course management, ratings, enrollments, module management, lesson management, and student blocking. The application is designed to be user-friendly, easy to navigate, and provide an excellent learning experience for users.

5.2   ER DIAGRAM

Fig. 5.1   ER Diagram

5.3   FEATURES

The application offers various features that enhance the user's experience. Users can create an account using their email address and password. In terms of course management, users can browse through a list of available courses and view essential details such as the course description, name etc. Additionally, Trainer can create, update, or delete a course they have

created. This feature is especially beneficial for course creators who want to manage their course content effectively.

Students can also rate the courses they have taken, and the application displays an average rating for each course. This feature allows users to share their feedback and experience with other users, which can help them choose the right course. Students can also update or delete their ratings if they change their minds.

Enrollment is another feature that the app provides. Students can enroll in courses they are interested in, and the application tracks their enrollment status. They can view the details of their enrollment, including course details, start and end dates, progress, and completion status. Students can also update their enrollment status or cancel their enrollment if they change their minds.

The application also enables Trainer to manage the modules and lessons of each course. Users can browse through the list of modules and view their details, such as the description, name, and duration. They can create, update, or delete a module they have created. Similarly, users can browse through the list of lessons and view their details, including the description, name, duration, and content. They can also create, update, or delete a lesson they have created.

Finally, the app provides course creators with the ability to block a specific student from accessing their course content if necessary. The app tracks blocked students, and course creators can view the details of blocked students for their courses. Course creators can also unblock a specific student from accessing their course content if they change their mind. Overall, these features provide users with an efficient and seamless learning experience.

5.4 IMPLEMENTATION
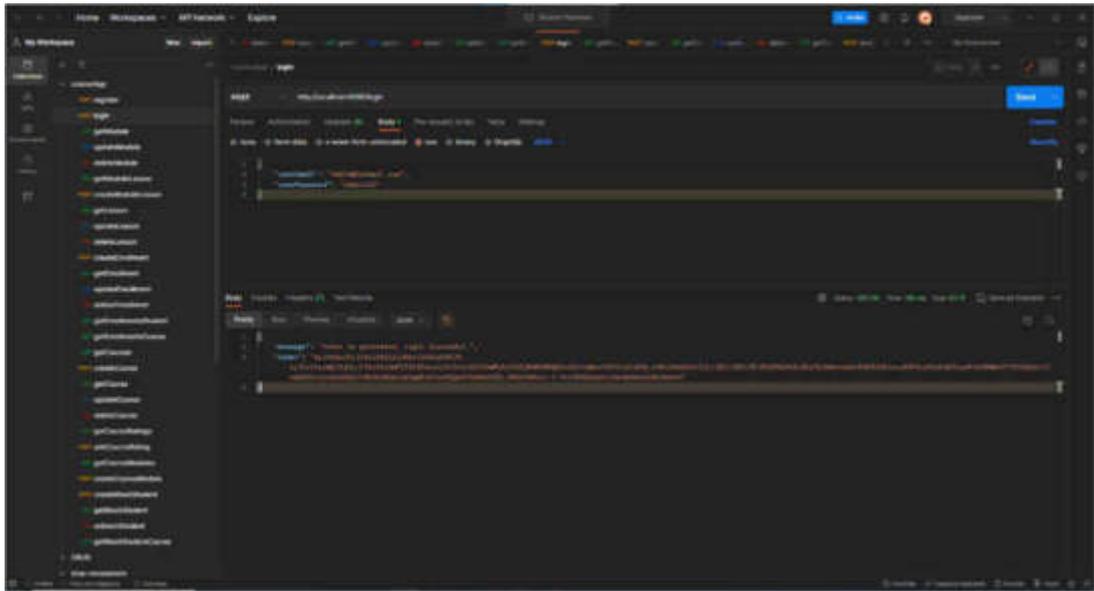
Fig. 5.2   Login API
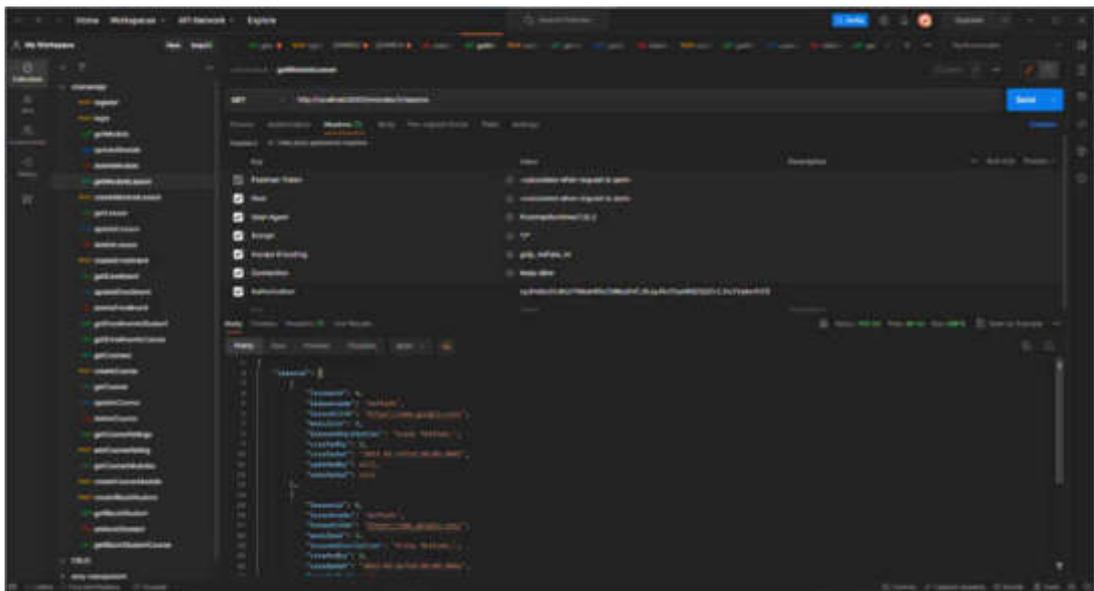
Fig. 5.3   GET Module Lesson API
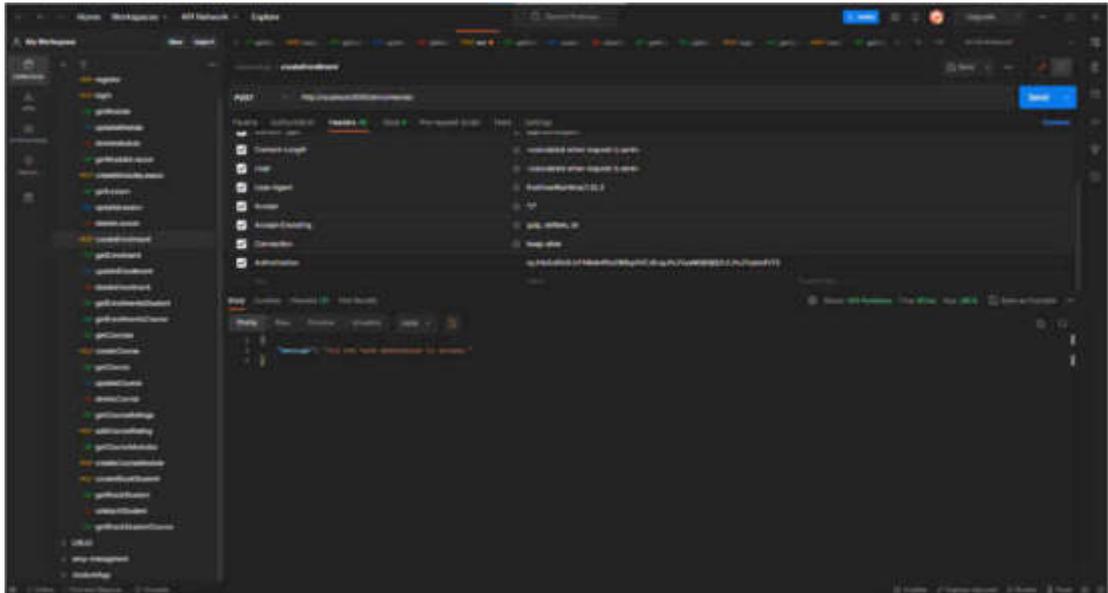
Fig. 5.4   Create Enrollment API
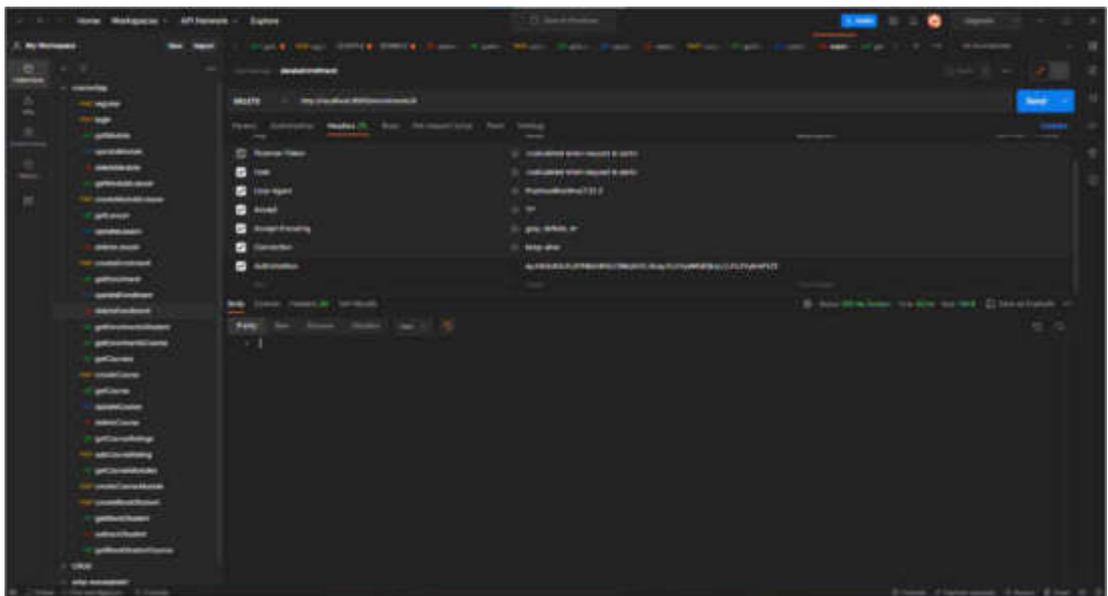
Fig. 5.5   Delete Enrollment API
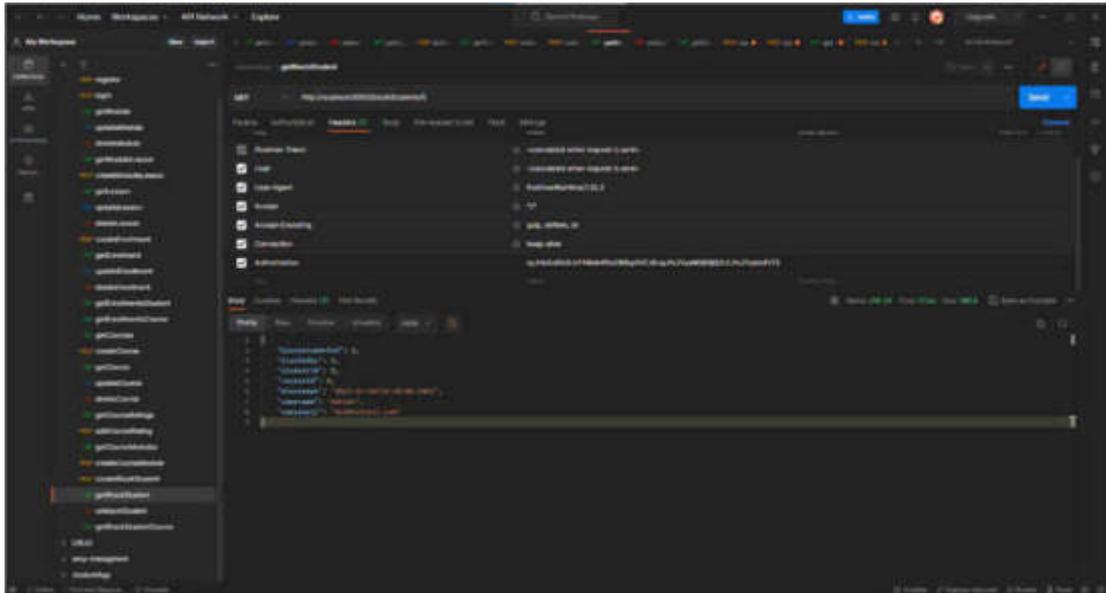
Fig. 5.6 GET Blocked Student API
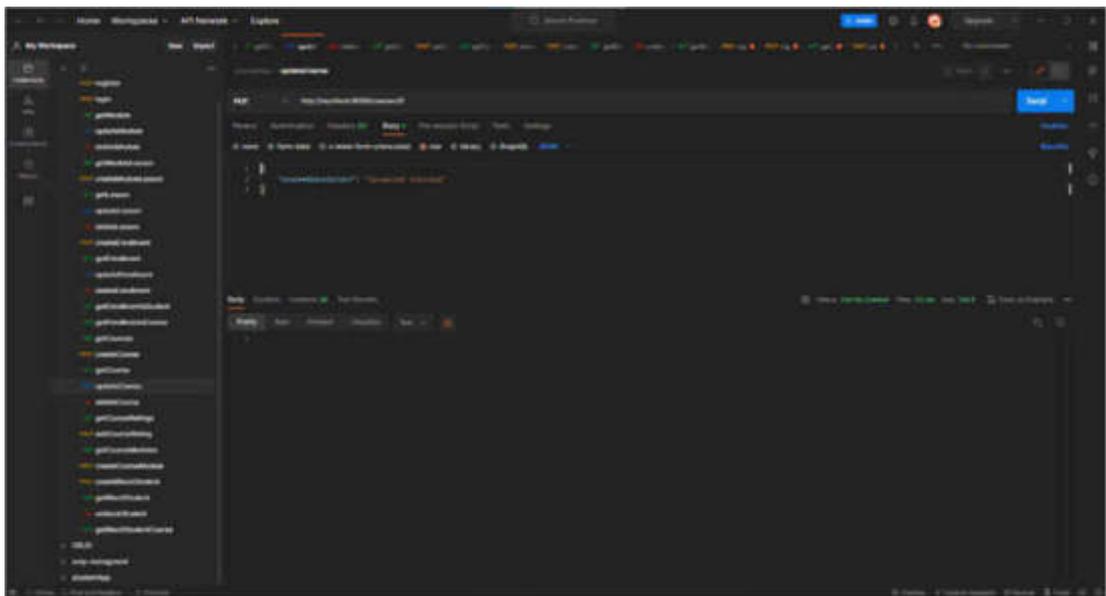
Fig. 5.7 Update Course API

5.5 CONCLUSION OF COURSETRACK

The E-learning app is a powerful tool that can revolutionize the way people learn. The application's features, such as course management, ratings, enrollment, module management, lesson management, and student blocking, can provide a comprehensive learning experience for users.

By using suitable back-end technologies, databases, APIs, and also follow standard practice for the app can be developed to provide excellent performance and usability. Proper testing can ensure the app's functionality is robust and meets the user's expectations.

6 PROJECT III: WORKSPACEX

6.1 OVERVIEW

The WorkspaceX is a co-working space management app. It is designed to allow users to book rooms, desk and office amities in a shared workspace. It provides a platform where users can manage their bookings and interact with other users in the workspace. The app allows users to register and log in to their accounts, book rooms, desk, office amities, and manage their bookings. The application also includes features for room management, such as adding new rooms, updating room details, and deleting rooms.

6.2 ER DIAGRAM
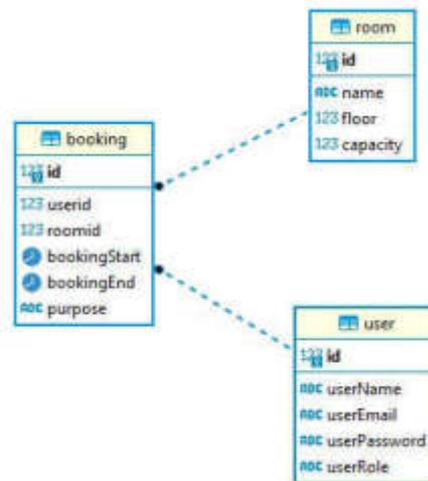
Fig. 6.1 ER Diagram

6.3 FEATURES

The co-working space app offers a range of features to enhance the user experience. Firstly, a room availability calendar can be added to the app, displaying the availability of each room. Users can easily check the availability of a room and make a booking accordingly. Payment integration will be added to enable users to make payments for their bookings online, providing a seamless and convenient payment process.

Users will also be given the option to customize their room according to their preferences, including furniture, decor, and other amenities they want in the room, with the application providing a cost estimate. Additionally, the app can offer a room-sharing option for users

to reduce costs by matching users who are interested in sharing a room and providing suitable options.

Room ratings and feedback are allowed to help users make informed decisions and improve overall room quality. The app can also offer meeting room booking options, allowing users to choose from a variety of meeting rooms based on their requirements and book them accordingly.

Room access control can be integrated to improve security and prevent unauthorized access, with only authorized users allowed to access the rooms. Finally, the application can generate reports and analytics on room usage, booking trends, and revenue generated to help the co-working space management team make informed decisions and optimize their operations.

6.4 IMPLEMENTATION
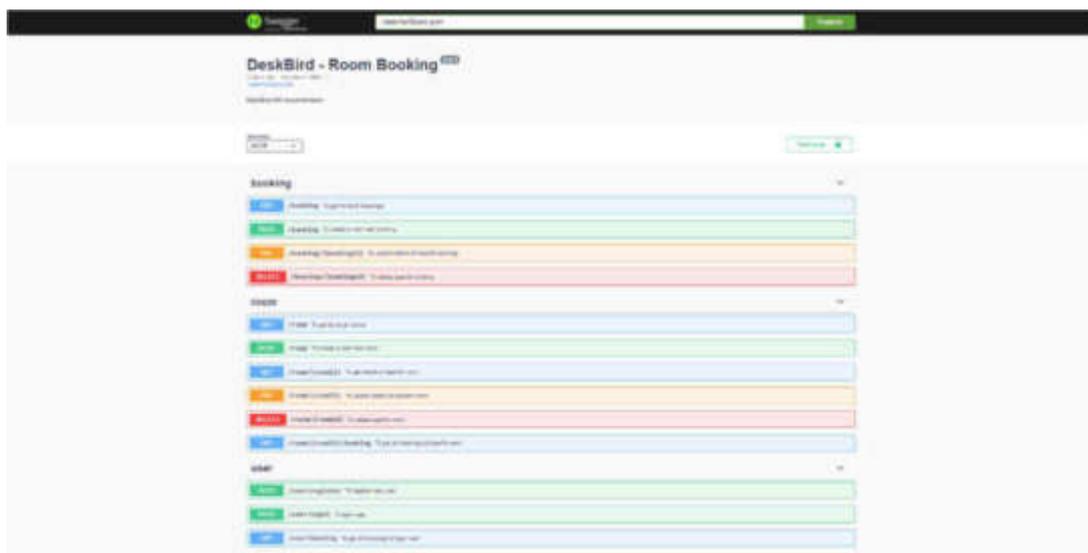
Fig. 6.2 Swagger Documentation
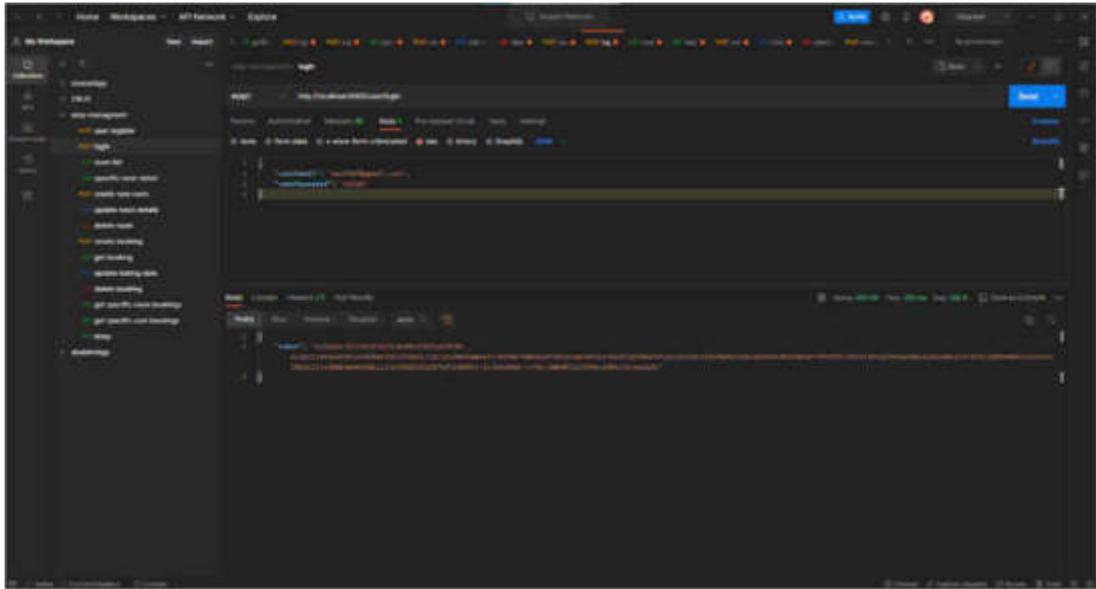
Fig. 6.3 Login API
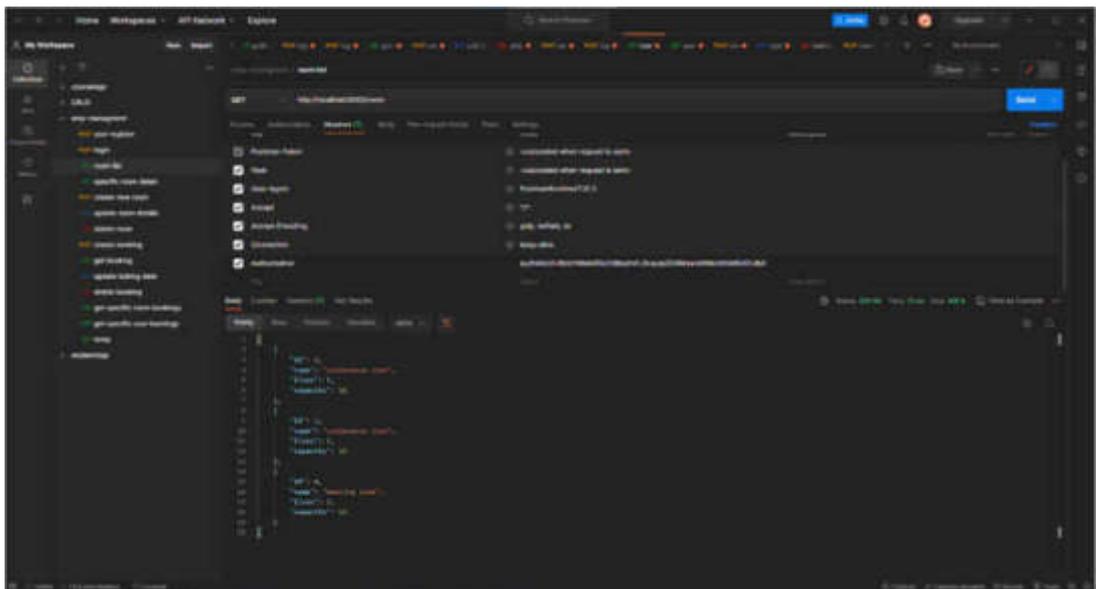
Fig. 6.4 GET Room List API
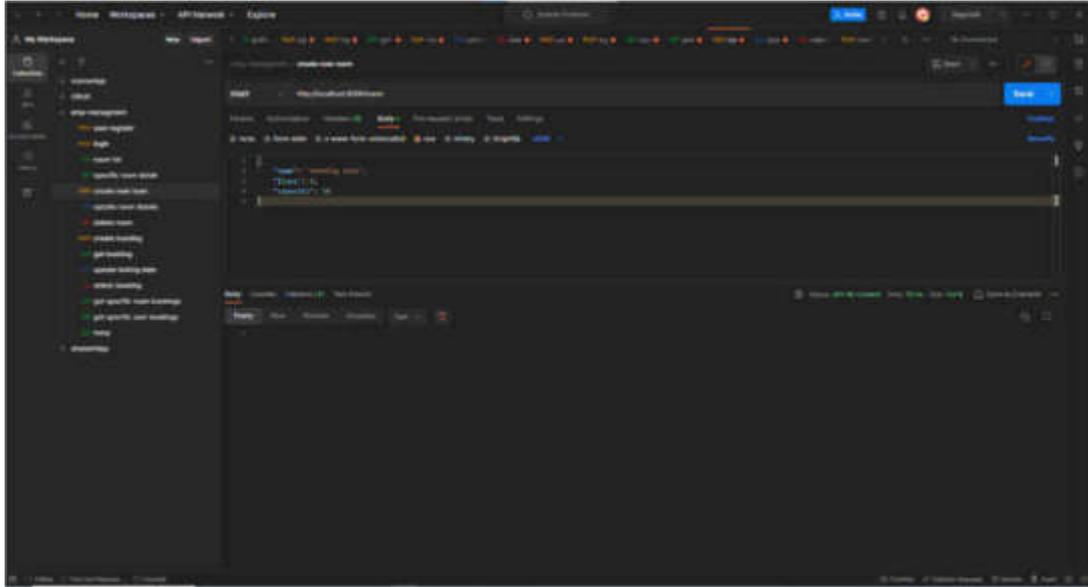
Fig. 6.5 Create New Room API
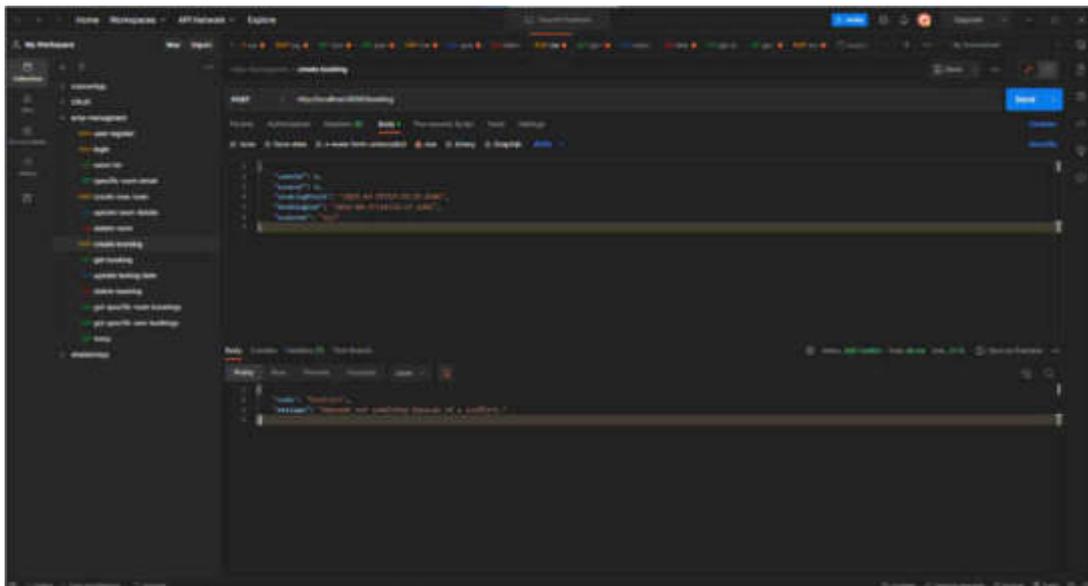
Fig. 6.6 Create Booking API
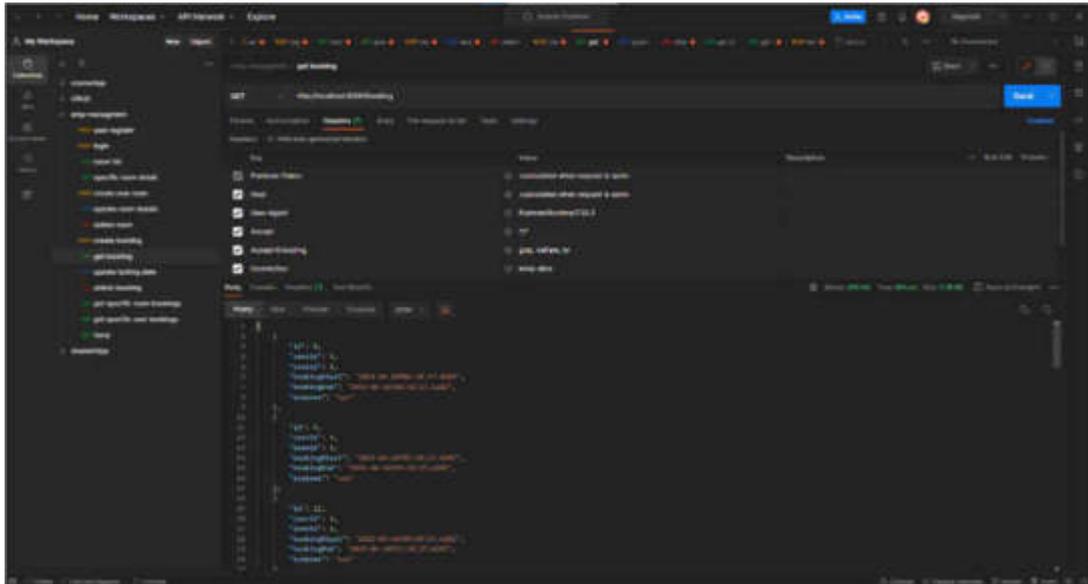
Fig. 6.7   GET Booking List API
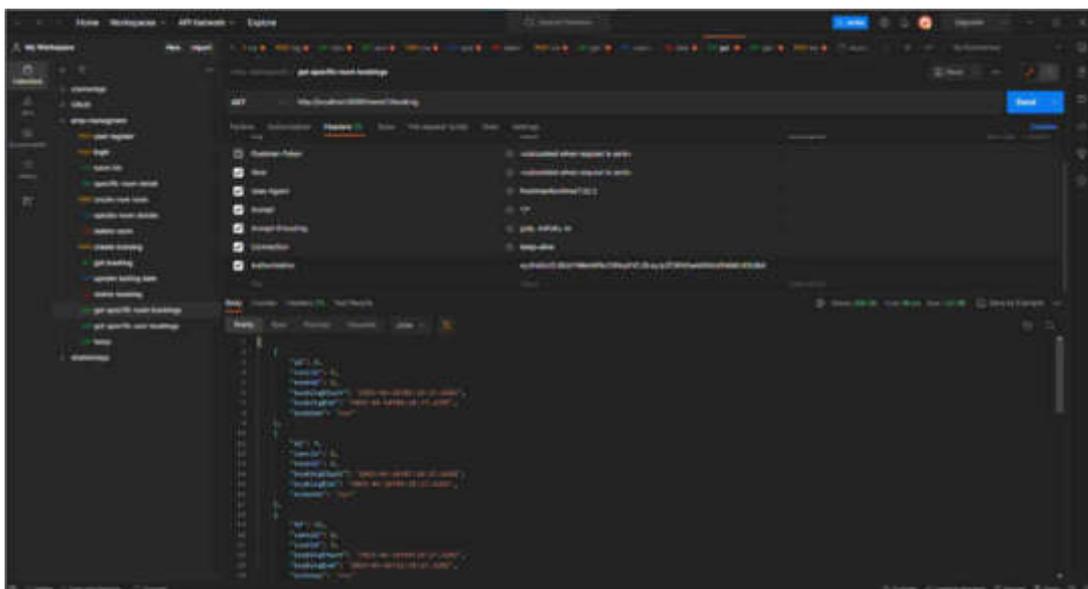
Fig. 6.8   GET Booking of Specific Room API

6.5   CONCLUSION OF WORKSPACEX

The co-working space management application is a useful tool for managing room bookings in a shared workspace. It provides a user-friendly platform where users can easily book rooms and manage their bookings. The app's features for room and booking management make it easy for admin users to manage the workspace efficiently. The application can be implemented using a stack of technologies such as Node.js, Express.js,

PostgreSQL. To ensure the application's quality, various types of testing should be performed such as unit testing, integration testing, and end-to-end testing.

7   CONCLUSION

My internship at ZURU Tech India as a software engineer in Node.js has been an enriching experience. Over the course of my internship, I have gained valuable insights and experience in software development, project management, and teamwork.

One of the key highlights of my internship has been working with a team of talented and experienced developers. Collaborating with them on various projects has provided me with the opportunity to learn from their expertise and gain valuable insights into the software development process. Their feedback and guidance have been instrumental in shaping my approach to problem-solving and software development.

I also had the opportunity to work on several real-world projects, which allowed me to apply the theoretical knowledge I had gained in a practical setting. This hands-on experience has helped me develop a deeper understanding of Software Development, including its capabilities, limitations, and best practices. Additionally, working on these projects has helped me improve my coding skills, such as writing clean, maintainable, and scalable code.

During my internship, I also gained exposure to various software development methodologies such as Agile, Scrum, and Kanban. Understanding these methodologies and being able to apply them in a real-world setting has helped me understand the importance of project management, teamwork, and communication. Working with cross-functional teams and collaborating with stakeholders helped me appreciate the importance of effective communication, active listening, and empathy for project success.

Apart from technical skills, my internship has helped me develop important soft skills such as time management, organization, and problem-solving. I learned how to manage my time effectively and prioritize tasks based on their importance and urgency. This helped me improve my efficiency and productivity. Additionally, working on real-world projects helped me understand the importance of identifying and solving problems effectively and efficiently.

Overall, my internship at ZURU Tech India has been a valuable learning experience that has helped me grow both professionally and personally. I am grateful for the opportunity and look forward to applying the skills and knowledge I gained during my internship to my future endeavors.

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INTERNSHIP AT FLU SOCIAL

AN INTERNSHIP REPORT

Submitted by

Pratik Kamleshkumar Prajapati

190390116036

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 Flu Social Marketing** has been carried out by **Pratik Kamleshkumar Prajapati** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

COMPANY CERTIFICATE

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FLU SOCIAL
MARKETING

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Prajapati Pratik Kamleshkumar** (Enrollment No: 19039011603) 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.

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 report submitted along with the Project entitled **Internship at Flu Social Marketing** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar & Mr. 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.   **Pratik Kamleshkumar Prajapati**   _____

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I would like to express my deepest appreciation to the management and staff of Flu Social Marketing Corporation for providing me with an opportunity to undergo internship training in their organization. The experience and knowledge I have gained during my tenure in this organization has been invaluable and will undoubtedly have a significant impact on my career path.I extend my gratitude to my supervisor, Mr.Yash Patel, who guided and mentored me throughout the internship period. Her valuable insights and feedback have helped me to enhance my skills and become a more competent professional.I would also like to thank the IT department and other employees who have assisted me during my internship. Their unwavering support and encouragement have enabled me to complete my assigned tasks successfully.Finally, I would like to thank my family and friends for their constant support and motivation throughout my internship journey.

Once again, I express my sincere gratitude to everyone who has contributed to my professional development and growth during my internship at Flu Social Marketing Corporation.

ABSTRACT

The following internship report documents the process and outcomes of the frontend website development of a real estate firm using HTML, CSS, JavaScript, and ReactJS. The aim of this project was to design and develop a responsive and user-friendly website for a real estate firm that showcases its services and properties. This project involved understanding the requirements of the firm, designing the layout and visual elements of the website, and implementing the frontend using HTML, CSS, JavaScript, and ReactJS.The website features several pages including the home page, about page, services page, property listing page, pricing page, contact page, and login/register page. The website was tested thoroughly using different test cases, and the results were analyzed to ensure that the website meets the requirements of the firm. The project was completed successfully within the stipulated time frame and has met the expectations of the firm. This report provides a detailed account of the entire development process, along with the challenges faced and the solutions implemented.

LIST OF FIGURES

ABBREVIATIONS

HTML   HyperText Markup Language

CSS   Cascading Style Sheets

JS   JavaScript

TABLE OF CONTENTS

Chapter 1. OVERVIEW OF THE COMPANY

1.1 COMPANY PROFILE

Flu Social Marketing Company provides 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 a sustainable future. We believe in bringing Business, People and Technology together in the way forward. We have a professional and highly dedicated group of skilled experts.Our main objective is to provide professional, qualitative, innovative and accessible services in every possible form.

Flu Social Marketing Company is a leading provider of IT development services, specializing in website development, digital marketing, branding, content writing, web hosting and migration, Amazon product development, SEOs, and graphics designing. We are committed to helping businesses establish a strong online presence, engage their target audience, and drive growth and success in the digital space.

Customer satisfaction is always high. Responding quickly is what will bring customer satisfaction.By doing this, We provide that we care about them being their customers and we consider it as our prime duty to care about their needs and are happy to resolve their problems.Our company needs to make sure that the overall customer experience should be good. So, offering 24×7 customer support is a viable reason for our businesses who focus on value in the digital age. Knowing what customer service is & investing in 24×7 customer service can be beneficial for our business in the long term.

In today's digital era, a digital marketing career is one of the most sought-after career paths. Upskilling in this domain can help our company advance in the digital marketing

career. Our company plays an integral role in improving brand awareness within the digital market, increasing app and website traffic, and acquiring potential customers.

Our company's dedicated digital marketing team might promise to be a cut above the in-house team model, but businesses need to decide the right team structure for their team. This reflects the importance of digital marketing services for our business and the need for a dedicated digital marketing certified team.

1.2 SERVICES PROVIDED BY THE COMPANY

The services provided by the company are as below :

- Website Development
  Our skilled team of developers creates captivating and user friendly websites that align with our clients' objectives. We utilize the latest technologies and industry best practices to design and develop websites that are visually appealing, responsive, and optimized for an exceptional user experience. From simple informational websites to complex e-commerce platforms, we deliver custom solutions tailored to our clients' specific needs.

- Digital Marketing
  Our comprehensive digital marketing services enable businesses to effectively reach and engage their target audience. We develop strategic digital marketing plans that encompass search engine optimization (SEO), pay-per-click advertising (PPC), social media marketing, email marketing, and content marketing. Through targeted campaigns and data-driven insights, we help businesses enhance their online visibility, generate leads, and increase conversions.

- Branding
  We understand the significance of brand identity in today's competitive market. Our branding services focus on creating a unique and compelling brand image for our clients. We work closely with businesses to define their brand personality, design captivating logos, develop brand messaging, and establish a cohesive brand

identity across various platforms. Our goal is to help businesses differentiate themselves and build a strong brand presence.

● Content Writing

Engaging and high-quality content plays a vital role in capturing the attention of the target audience. Our experienced content writers create compelling and informative content that resonates with the audience and effectively communicates the client's brand message. We develop content for websites, blogs, social media platforms, email marketing campaigns, and more, ensuring consistency and relevance across all channels.

● Web Hosting And Migration

We provide reliable and secure web hosting services to ensure businesses' websites are accessible and perform optimally. Our team handles web hosting setup, maintenance, and support, ensuring smooth website operations. Additionally, we assist businesses in seamless web hosting migration, ensuring a seamless transition to new servers or platforms without any disruptions.

● Amazon Product Development

For businesses looking to expand their presence on the Amazon marketplace, we offer comprehensive Amazon product development services. Our team assists with product listing optimization, keyword research, competitor analysis, and enhanced content creation. We help businesses maximize their visibility, improve product rankings, and drive sales on the Amazon platform.

● SEOs

We employ proven SEO strategies to enhance businesses' online visibility and improve search engine rankings. Our SEO services include keyword research, on-page optimization, link building, and ongoing performance monitoring. By optimizing websites for search engines, we help businesses attract organic traffic, increase brand visibility, and generate qualified leads.

- Graphics Designing

  Our talented graphic designers create visually appealing and impactful designs that capture the essence of our clients' brands. We develop stunning graphics, logos, banners, and other visual assets that enhance brand recognition and engagement. Our goal is to create compelling visual content that resonates with the target audience and reinforces the brand's message.

- Flipkart Catalog Management

  We also offer catalog management services specifically tailored for businesses selling on Flipkart. Our team assists in optimizing product listings, managing product images, and enhancing product descriptions to attract more customers and improve sales performance. We ensure that the Flipkart catalogs are well-structured, accurate, and engaging to drive conversions.

Chapter 2. INTRODUCTION TO PROJECT

2.1 PROJECT SUMMARY

The project aimed to develop a real estate website using HTML, CSS, JavaScript, and ReactJS. The website was developed to provide an interactive platform for users to select properties based on their preferences. The website included features such as property listing,different services, amenities provided by the building and contact forms for inquiries. The project was completed within the allocated timeline and budget.

2.2 PURPOSE

The purpose of the internship was to gain practical experience in front-end web development and to learn how to create engaging, responsive, and accessible user interfaces using HTML, CSS, JavaScript, and ReactJS.

2.3 OBJECTIVE

The main objective of the project was to develop a user-friendly and interactive website in which users would select the properties with ease. The website aimed to provide comprehensive information about properties, including their location, price, features, and images. The website also aimed to facilitate communication between users and real estate agents, enabling users to inquire about properties directly from the website.

2.4 SCOPE

The scope of the internship focused on learning the core concepts and best practices for front-end development, including markup, styling, layout, interactivity, and state management. The scope also included learning how to use tools such as vs code editors and libraries such as ReactJS , React Router.

2.5 TOOLS AND TECHNOLOGY

The project was developed using HTML, CSS, JavaScript, and ReactJS. These tools and technologies were selected based on their versatility, ease of use, and compatibility with modern web development standards. The development team used various software tools and libraries, such as Visual Studio Code, Node.js, and React libraries, to facilitate the development process. The website was deployed on a web server using cloud hosting services to ensure optimal performance and scalability. Additionally, various web development best practices and standards were followed to ensure the website's quality and security.

HTML, or Hypertext Markup Language, is the foundation of any web page. It is used to create the structure and content of web pages, and provides the basic building blocks for creating a website. In a real estate website, HTML would be used to create the layout and structure of the pages, including the header, navigation, footer, and main content areas. It would also be used to create forms for capturing user information and search fields for property listings.

CSS, or Cascading Style Sheets, is used to add style and visual design to a website. In a real estate website, CSS would be used to create a consistent visual style for the website, including typography, color scheme, and layout. It would also be used to create responsive design, ensuring that the website is optimized for different screen sizes and devices. Additionally, CSS would be used to create hover and animation effects to enhance the user experience.

JavaScript is a programming language used to add interactivity and functionality to a website. In a real estate website, JavaScript would be used to create interactive features such as property search filters, image galleries, and map integrations. It would also be used to create form validation, ensuring that user input is accurate and complete. Additionally, JavaScript would be used to create custom functionality such as mortgage calculators, chatbots, and other features that enhance the user experience.

ReactJS is a JavaScript library used to create user interfaces. It provides a component-based architecture that enables developers to create reusable UI components

that can be used across the website. In a real estate website, React.js would be used to create reusable components such as property listings, contact forms, and search filters. It would also be used to create dynamic and interactive user interfaces that are responsive and optimized for different devices.

Overall, the combination of HTML, CSS, JavaScript, and React.js provides the necessary tools and technologies to create a visually appealing and functional real estate website that engages and informs users.

Chapter 3. PLANNING AND DESIGN

3.1 PROJECT PLANNING AND MANAGEMENT

The first step in any software development project is planning and management. This stage involves defining the scope of the project, establishing goals, objectives and timelines, allocating resources and budget, and identifying potential risks and challenges. In the case of our frontend website development project for a real estate firm, we started by defining the scope of the project, which included creating a website that showcases the firm's properties, services, and contact information.

We also established the project's objectives, which included developing a responsive and user-friendly website that provides an excellent user experience for visitors. We allocated resources and budget, including the tools and technologies required for the project, and established timelines for the various stages of the project. We also identified potential risks and challenges and developed contingency plans to mitigate them.The project management phase involves coordinating the efforts of all team members, tracking project progress, and ensuring that the project is completed on time and within budget.

3.2 USER INTERFACE DESIGN AND DEVELOPMENT

User interface design and development involve creating the website's front-end, which includes the layout, design, and functionality that users interact with. This stage involves coding the website using front-end technologies such as HTML, CSS, and JavaScript and ensuring that the website is responsive, scalable, and compatible with various devices and browsers.

In our real estate firm website development project, we used ReactJS, a popular JavaScript library, to create the website's user interface. We followed best practices such as using semantic HTML for better accessibility, organizing the CSS, and implementing responsive design using CSS media queries.

We also ensured that the website's functionality, such as search and filtering properties, were working correctly and that the website was optimized for fast loading speeds. By the end of the user interface design and development stage, we had created a visually appealing and functional website that met the project's objectives.The code should be optimized for speed and performance, and should be compatible with different browsers and devices.

Chapter 4. SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

The real estate firm previously had a website that was built using basic HTML and CSS. The website lacked functionality and did not provide a good user experience. Users were not able to search for properties efficiently and the website did not offer any integration with APIs.

4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

The main problem with the previous website was its lack of functionality. Users were not able to easily search for properties based on their preferences. Additionally, the website did not offer any integration with APIs, which limited the amount of data that could be displayed to users. The website also lacked a modern design, which made it appear outdated and unappealing to potential customers.

4.3 REQUIREMENTS OF NEW SYSTEM

The new system needed to address the issues with the previous website and provide a better user experience. It needed to allow users to search for properties easily and provide them with detailed information about each property. The website needed to be responsive and have a modern design to appeal to potential customers. Integration with APIs was also required to display additional data such as location, nearby amenities, and property values.

4.4 FEATURES OF NEW SYSTEM

The new website features a range of functionalities to improve the user experience. These include:
- Easy property find functionality
- Detailed information about each property, including location, nearby amenities, and property values

● Modern design and responsive layout

● Integration with APIs to provide additional data

4.5 LIST OF MAIN COMPONENT

The main components of the new system include:

● Property listing display

● Property detail view

● Integration with APIs

● Different Services

● Testimonial Component

● User authentication and registration

Chapter 5. FRONTEND DEVELOPMENT

5.1 HTML AND CSS MARKUP

5.1.1 Learning HTML And CSS Concepts

1.HTML Structure

The basic structure of an HTML document includes several essential elements that define the structure and content of a web page. The following is a brief explanation of each of these elements:

<!DOCTYPE html> : This declaration at the beginning of an HTML document informs the web browser which version of HTML the document is written in. This is required for the browser to properly render the HTML code.

<html>: The <html> element is the root element of an HTML document and contains all other elements. It has two parts: the opening tag (<html>) and the closing tag (</html>).

<head>: The <head> element contains metadata about the HTML document, such as the title of the web page, links to external stylesheets, and other information that does not appear on the web page itself.

<title>: The <title> element, located within the <head> element, specifies the title of the web page that appears in the browser's title bar.

<body>: The <body> element contains all of the content that appears on the web page, such as text, images, videos, and other HTML elements.

Here is an example of the basic structure of an HTML document:

```
<!DOCTYPE html>
<html>
  <head>
    <title>My Web Page</title>
```

```
  </head>
  <body>
    <h1>Welcome to my web page!</h1>
    <p>This is the content of my web page.</p>
  </body>
</html>
```

2.HTML Tags

HTML tags and elements are the building blocks of web pages. They define the structure and content of the web page and allow web developers to create different types of content.

Headings: Headings are used to create titles or headings for sections of a web page. There are six levels of headings in HTML, ranging from <h1> (the largest and most important heading) to <h6> (the smallest and least important heading).

For example:

```
    <h1>This is a heading level 1</h1>
    <h2>This is a heading level 2</h2>
    <h3>This is a heading level 3</h3>
```

Paragraphs: Paragraphs are used to separate blocks of text on a web page. The <p> element is used to create a paragraph.

For example:

```
    <p>This is a paragraph.</p>
    <p>This is another paragraph.</p>
```

Lists: Lists are used to organize content into an ordered or unordered list. There are two types of lists in HTML: ordered lists (<ol>) and unordered lists (<ul>). List items are created with the <li> element.

For example:

```
    <ul>
    <li>List item 1</li>
    <li>List item 2</li>
    <li>List item 3</li>
    </ul>

    <ol>
    <li>Ordered list item 1</li>
```

Ordered list item 2
Ordered list item 3

Links: Links are used to create clickable links to other web pages or resources. The <a> element is used to create a link, and the href attribute specifies the URL of the linked resource.
For example:

Click here to visit Example.com

<img> tag: The <img> tag is used to insert images into an HTML document. It has only one required attribute, src, which specifies the URL or file path of the image.
For example:

<img src="image.jpg" alt="This is an image">

HTML Forms:HTML forms allow website visitors to interact with a website by providing input through various form elements, such as text fields, radio buttons, checkboxes, and drop-down lists. The information submitted through the form can then be processed on the server-side by scripts written in languages such as PHP, Python, or JavaScript.

The basic structure of an HTML form includes the following elements:

<form> tag: This is the container tag that defines the start and end of the form.

Form elements: These are the input fields that allow the user to enter data. They include <input> tag,<textarea> tag,<button> tag,<label> tag etc.

```
<form action="/submit-form" method="POST">
  <label for="name">Name:</label>
  <input type="text" id="name" name="name"><br><br>
  <label for="email">Email:</label>
  <input type="email" id="email" name="email"><br><br>
  <label for="message">Message:</label>
  <textarea id="message" name="message"></textarea><br><br>
  <button type="submit">Submit</button>
</form>
```

3.CSS

CSS, or Cascading Style Sheets, is a stylesheet language used for describing the presentation of HTML or XML documents. With CSS, web developers can control the layout, typography, color, and other visual aspects of web pages. By separating the presentation of a document from its content, CSS enables web designers to create more flexible and maintainable web pages.CSS works by defining rules that apply styles to specific HTML elements or groups of elements. Each CSS rule consists of a selector and a declaration block. The selector specifies which HTML elements the rule applies to, and the declaration block contains one or more property-value pairs that define the styles to be applied.

CSS is an essential technology for web development, and it is used in conjunction with HTML and JavaScript to create dynamic and engaging web pages. By mastering CSS, web developers can create beautiful and functional web designs that work well across a variety of devices and platforms.

4.Basic Syntax and Selectors In CSS

CSS rules are made up of a selector and a set of declarations. The selector identifies which HTML elements the rule applies to, and the declarations define the styles to be applied.Here is an example of a CSS rule that sets the font color of all paragraphs on a web page to red:

```
p {
  color: red;
  }
```

There are several ways to write CSS. Here are some of the most common methods:

Inline CSS: This involves adding CSS styles directly to individual HTML elements using the style attribute. Inline CSS is not recommended for large projects because it can become difficult to maintain and update.

Internal CSS: This involves adding CSS styles to the head section of an HTML document using the <style> tag. Internal CSS applies only to the current HTML document and is useful for small projects.

External CSS: This involves creating a separate CSS file and linking it to an HTML document using the <link> tag. External CSS allows developers to apply the same styles to multiple HTML documents, making it easier to maintain and update styles across an entire project.

There are several types of selectors in CSS, including:

Element selectors: Select HTML elements by their tag name, e.g. p, h1, ul.
Class selectors: Select HTML elements by their class attribute, e.g. .my-class.
ID selectors: Select HTML elements by their ID attribute, e.g. #my-id.
Attribute selectors: Select HTML elements by their attribute values, e.g. [type="text"].

5.Properties Used For Creating Layout

Creating layouts with CSS is an essential aspect of web development. CSS allows developers to define the layout and design of a website, including the placement of elements on the page.

One of the fundamental concepts in CSS layout is the box model. The box model describes how each HTML element is represented as a rectangular box that contains content, padding, borders, and margins. The content refers to the actual text or graphics inside the box, while padding is the space between the content and the border. Borders surround the content and padding, while margins are the space between the border and other elements on the page.

CSS positioning is another critical aspect of CSS layout. It allows you to place HTML elements exactly where you want them on the page. CSS provides several positioning options, including static, relative, absolute, and fixed positioning. Each positioning option has its own set of rules for how the element is positioned on the page. Understanding how to use positioning correctly is crucial for creating complex layouts and designs.

CSS Grid is a layout system that allows web developers to create complex and responsive layouts with ease. CSS Grid provides a powerful set of tools for creating flexible and dynamic layouts that can adapt to different screen sizes and device types.Using CSS Grid, developers can define a grid container and specify the number of rows and columns it contains. They can then place elements within the grid by specifying their location using grid lines, which define the boundaries of each row and column.

CSS animation is a technique that allows developers to add movement and visual interest to web pages using CSS. With CSS animation, developers can create smooth and responsive animations that respond to user interactions and events. CSS animation can be used to create a wide variety of effects, including transitions, transforms, and keyframe animations.

Flexbox is a layout system that provides a powerful set of tools for creating flexible and responsive layouts. With Flexbox, developers can create complex layouts with ease by defining flexible containers that can adapt to different screen sizes and device types. Flexbox provides a powerful set of tools for aligning and distributing elements within a container, including tools for centering elements, aligning them along the horizontal and vertical axes, and distributing them evenly.

The z-index property is a CSS property that specifies the stacking order of elements on a web page. It determines how elements are stacked on top of each other, with higher z-index values indicating that an element should appear on top of other elements.

Responsive design is a design approach that allows web pages to adapt to different screen sizes, including desktops, laptops, tablets, and mobile devices. It is achieved using CSS media queries. Media queries allow developers to specify different CSS styles based on the device's screen size, resolution, and other features. This allows the same web page to display differently on different devices, providing the user with an optimal viewing experience. Responsive design is crucial for creating modern web pages that can be viewed on a wide range of devices.

5.1.2 HTML And CSS Task

1.Developing The Product Preview Card Component

When developing a product preview card using HTML and CSS, it is important to ensure that the design is visually appealing and user-friendly. The card should display relevant information about the product in an easy-to-read format, including product name, image, price, and description.In terms of HTML structure, the card can be created using a div element with nested divs and other relevant HTML tags.For CSS styling, the card should have a clean and modern design that matches the overall theme of the website. It is important to use appropriate color schemes, typography, and spacing to ensure readability and accessibility. CSS techniques like Flexbox and Grid can be used to create a responsive and adaptable design that works well on different screen sizes.

Fig 5.1 Product Preview Card Design

5.2 JAVASCRIPT PROGRAMMING AND ES6

5.2.1 Learning JavaScript And ES6 Concepts

1. JavaScript Concepts

JavaScript is a high-level, dynamic, and interpreted programming language that is widely used in web development. It was first created in 1995 by Brendan Eich while he was working at Netscape Communications Corporation.It is a key technology in web development and is used in conjunction with HTML and CSS to create rich, interactive, and responsive user experiences on the web.

Variables - Variables allow you to store and manipulate data in JavaScript, making it a fundamental building block for creating functionality in web applications.

Data Types - Understanding data types in JavaScript is important because it allows you to manipulate data in the right way and avoid errors in your code.

Functions - Functions are reusable blocks of code that allow you to perform a specific task, making your code more efficient and maintainable.

Conditionals - Conditionals allow you to execute different blocks of code based on specific conditions, such as user input or system state.

Loops - Loops allow you to repeat a block of code a certain number of times or until a specific condition is met, which is useful for iterating over arrays or performing repetitive tasks.

Objects - Objects in JavaScript are used to represent real-world entities and organize related data, making it easier to create and manipulate complex data structures.

Popup Boxes - Popup boxes allow you to display alerts, prompts, and confirmations to the user, making your web application more interactive and user-friendly.

DOM - The Document Object Model (DOM) is a programming interface for web documents, allowing you to dynamically manipulate the content and structure of web pages using JavaScript.

BOM - The Browser Object Model (BOM) provides a set of objects and methods for interacting with the browser, such as manipulating the browser history and controlling the location of the browser window.

QuerySelector - The QuerySelector method allows you to select HTML elements based on their class, ID, or tag name, making it easier to manipulate specific elements on a web page.

Event Handling - Event handling allows you to create interactive web applications by responding to user actions, such as mouse clicks and keyboard inputs.

Asynchronous JS - Asynchronous JavaScript allows you to perform tasks in the background without blocking the main thread, which can improve the performance and user experience of your web application.

Promises - Promises in JavaScript allow you to handle asynchronous tasks in a more structured and manageable way, making it easier to handle errors and create more maintainable code.

Async/Await - Async/Await is a feature of ES6 that allows you to write asynchronous code in a synchronous style, making it easier to read and understand, and reducing the likelihood of errors in your code.

Callback Functions - A callback function is a function that is passed as an argument to another function and is executed when a certain event occurs or when a task is completed. Callback functions are often used in asynchronous programming, where they allow you to perform tasks in the background while the rest of the code continues to run.

2. ES6 Concepts

ES6, also known as ECMAScript 2015, is the sixth major release of the ECMAScript language specification, which is the standard for JavaScript. It introduced several new features to the language, including arrow functions, template literals, and let and const variables etc.

Here's a brief summary of some of the ES6 features and how they can be useful in website development:

Arrow functions - Arrow functions provide a concise syntax for writing function expressions, and they also have a more predictable behavior for this keyword. Arrow functions make it easier to write and read code, especially when working with complex functional programming concepts.

Template literals - Template literals provide a more concise and expressive way to concatenate strings and embed expressions within them. They can also be used for multiline strings, which can be helpful when writing HTML or other markup.

Let and const variables - ES6 introduced two new ways to declare variables: let and const. let allows you to declare variables with block scope, while const creates variables that cannot be reassigned. These new variable types help prevent common programming errors and make it easier to write maintainable code.

Spread operator - The spread operator (...) allows you to expand arrays or objects into individual elements. It can be used for copying arrays or objects, concatenating arrays, and passing arguments to functions. It's a useful tool for simplifying and improving the readability of your code.

Set - Sets are collections of unique values and are useful for eliminating duplicates in arrays, checking for membership, and performing set operations such as union, intersection, and difference. They provide a more efficient way to handle collections of data than traditional arrays.

Map - Maps are key-value pairs that allow you to store and retrieve data based on a unique key. They're useful for storing and managing data in a more organized and efficient way, and they provide better performance than using objects for the same purpose.

Destructuring - Destructuring allows you to extract values from arrays or objects and assign them to variables in a more concise and readable way. It's useful for simplifying code that deals with complex data structures.

Ternary operator - The ternary operator (? :) is a shorthand way of writing an if-else statement. It can make code more concise and easier to read, especially when dealing with simple conditions.

Fetch - Fetch is a built-in JavaScript API for making HTTP requests, which is useful for retrieving data from a server and updating the content of a web page without reloading the entire page.

5.2.2 JavaScript Tasks

1. Developing The Random Color Generator

The task done using the Javascript random color generator involves creating a function that generates random colors. The function takes no input but returns a random color in hexadecimal format. The function makes use of the Math.random() function to generate random numbers between 0 and 1, which are then multiplied by 16^6 and rounded down to generate a 6-digit hexadecimal number. This hexadecimal number is then used to create a random color using the CSS rgb() function.

The random color generator can be used in a variety of web development tasks, such as dynamically changing the background color of a website, creating random color schemes for graphic design projects, and more. It is a simple and useful tool that can add a touch of visual interest and variety to any web project.The development of the random color generator using JavaScript involves various concepts that are essential in web development.

Fig 5.2 Random Color Generator

2. Developing The Calculator App

The task done using HTML, CSS, and JavaScript in the development of a calculator app involves creating a user interface that allows users to perform arithmetic operations such as addition, subtraction, multiplication, and division.

HTML is used to structure the layout of the calculator app, with each button and display element represented as an HTML element. CSS is used to style the calculator app, with colors, fonts, and spacing customized to improve the visual appeal of the interface.JavaScript is used to add interactivity to the calculator app. Event listeners are used to detect user clicks on the calculator buttons, and corresponding functions are executed to perform arithmetic operations and update the display value.

Fig 5.3 Calculator Interface

3. Developing The CountDown Timer

In this, a countdown timer can be developed using JavaScript to create a dynamic user interface that displays the remaining time in real-time. The timer can be triggered to start counting down from a set time, which can be specified by the user or hard coded into the code.The countdown timer can be styled using HTML and CSS to create a visually appealing and user-friendly interface. It can be customized to display the remaining time in different formats, such as minutes and seconds or hours and minutes, and can include features such as sound effects, progress bars, or custom messages when the countdown reaches zero.

Fig 5.4 CountDown Timer

4. Developing The Custom Image Slider

A simple custom image slider with previous and next buttons is a user interface element that allows users to navigate a slideshow of images using a set of controls. It can be developed using JavaScript to create a dynamic and interactive user experience.In this a simple custom image slider with previous and next buttons can be created by utilizing HTML, CSS, and JavaScript to create a slider container, a set of slides, and navigation buttons to move between slides. The slider can be customized to display a set of images in a specific order and can be designed to respond to user interactions.

Fig 5.5 Custom Image Slider

5.3 REACTJS AND COMPONENT DEVELOPMENT

5.3.1 Learning ReactJS Concepts

1. ReactJS,Component And ReactJS File And Folder Structure

ReactJS is a popular JavaScript library for building user interfaces. It was developed by Facebook and has gained widespread adoption due to its ease of use, high performance, and ability to create reusable components.At its core, ReactJS is built around the concept of components. Components are reusable building blocks that can be used to create complex user interfaces. Each component represents a specific piece of functionality, and can be composed together to create more complex components.

ReactJS also uses a concept called "props" to pass data between components. Props are essentially properties that can be set on a component, allowing it to receive data from a parent component.Another key concept in ReactJS is "state". State is a way of representing the internal state of a component. When state changes, ReactJS automatically re-renders the component, ensuring that the user interface stays up-to-date with the latest data.ReactJS also provides a number of tools and libraries to help developers build complex user interfaces, including React Router for client-side routing, Redux for managing application state, and Jest for testing.

ReactJS Component :
In ReactJS, components are the building blocks of your application's user interface.ReactJS components are a powerful tool for building complex user interfaces that are modular, reusable, and easy to maintain. By breaking down your application into smaller, independent components, you can build a more flexible and scalable codebase that is easier to work with over time.

There are two types of components in ReactJS: functional components and class components. Functional components are simpler and more lightweight, as they are just pure functions that return JSX (JavaScript XML) to define the component's UI. Class components, on the other hand, are more powerful and flexible, as they can have state and lifecycle methods.

ReactJS file and folder structure:

src folder: This folder contains all the source code for your ReactJS project. It typically includes the following subfolders:

components folder: This folder contains all the reusable components for your application.

pages folder: This folder contains all the different pages of your application. Each page should be contained in its own folder and include all the necessary files for that page, such as the page component file, styling files, and test files.

assets folder: This folder contains all the static assets for your application, such as images and icons.

utils folder: This folder contains any utility functions or modules that are used throughout your application.

public folder: This folder contains any static files that need to be served with your application, such as the index.html file, which is the entry point for your application.

package.json file: This file contains metadata about your project, such as its name, version, dependencies, and scripts. It is also used to install the necessary dependencies for your project using npm or yarn.

README.md file: This file provides information about your project, such as how to install and run it, and any other relevant information.

node_modules folder: This folder contains all the dependencies for your project that are installed using npm or yarn.

2. Props, State And Hooks In ReactJS

Props:
In ReactJS, props (short for "properties") are used to pass data from a parent component to a child component. Props are read-only, which means that a child component cannot

modify the data it receives through props.Props are passed to a component as an object, and can be accessed inside the component using the props keyword.

State:

In ReactJS, state is used to store data that can change over time, such as user input or the results of an API call. State is owned and managed by a single component, and can only be modified by that component or its children.Using state to manage dynamic data in your ReactJS application can help make it more interactive and responsive.

Hooks:

React Hooks are a powerful feature introduced in React 16.8 that allow you to use state and other React features without writing a class component. Hooks are functions that allow you to use state and other React features in functional components.
React provides several built-in hooks that you can use:

useState: The useState hook allows you to add state to a functional component. It takes an initial value as an argument and returns an array with two elements: the current state value and a function to update the state.

useEffect: The useEffect hook allows you to add side effects to a functional component. It takes a function as an argument and runs it after every render. You can use this hook to fetch data from a server, update the title of the page, or set up event listeners.

useContext: The useContext hook allows you to access a context object in a functional component. Context allows you to pass data down through the component tree without having to pass props manually at every level.

3. React Router

React Router is a popular third-party library for React that allows you to implement client-side routing in your application. Client-side routing allows you to navigate between different pages or views in your application without triggering a full page reload.

React Router provides several components that you can use to define your routes and handle navigation:

BrowserRouter: The BrowserRouter component provides the core routing functionality for your application. It listens for changes to the browser's location and updates the UI accordingly.

Switch: The Switch component is used to define a set of routes. It renders only the first matching route, which makes it useful for handling 404 errors.

Route: The Route component is used to define a single route. It takes a path and a component as props, and renders the component when the path matches the current URL.

Link: The Link component is used to define a link between different routes in your application. When clicked, it updates the browser's location to match the linked route.

Redirect: The Redirect component is used to redirect the user to a different route. You can use it to handle authenticated routes or to redirect users to a specific page after they complete an action.

React Router enables client-side routing, which means that the routing is handled on the client-side rather than on the server-side. This makes for a smoother, faster user experience since the user doesn't need to wait for the server to reload the page for each new view.React Router allows you to create nested routes, which means that you can define multiple levels of views within a single application. This can be useful for creating complex applications with multiple views and user interactions.Overall, React Router is a useful library for building dynamic, client-side applications in React.It provides a set of tools and methods that make it easy to create complex views and manage application routing, all while integrating seamlessly with React components and methods.

5.3.2 ReactJS Tasks

1. Developing The ToDo List App

A Todo List is a common feature in many applications that allows users to create, track, and complete tasks. It can be developed using ReactJS, a popular JavaScript library for building user interfaces.A Todo List developed using ReactJS can be created by utilizing components and state management features of React. The Todo List can include features such as adding new tasks, marking tasks as completed, and filtering tasks by their status. The design and functionality of the Todo List can be customized using CSS and other styling techniques.

The Todo List can be broken down into smaller, reusable components, such as a task input field component, a task list component, and a task item component. The task input field component can allow users to add new tasks to the list, while the task list component can display the current list of tasks. The task item component can display each individual task, allowing users to mark them as completed or delete them from the list.To manage the state of the Todo List, React's built-in state management features, such as useState and useEffect hooks, can be utilized. These hooks can store and update the list of tasks as the user interacts with the Todo List, ensuring that the interface remains up-to-date with the latest information.

Fig 5.6 Todo List App

2. Developing The Responsive Navbar Using React Router

A responsive navbar is an important component of any website that helps users navigate the site and access different pages or sections. It can be developed using React Router, a popular routing library for ReactJS that allows developers to create complex, multi-page applications with ease.To develop a responsive navbar using React Router, the first step is to define the routes and components that will make up the different pages of the application. Each page can be defined as a separate component, which can then be rendered by the appropriate route using the <Route> and <Switch> components provided by React Router.

Once the routes and components have been defined, the next step is to create the navbar itself. The navbar can be created using HTML and CSS, with styling applied to ensure that it is responsive and adapts to different screen sizes and device types.To integrate the navbar with React Router, the <Link> component provided by React Router can be used to create links to different pages or routes within the application. These links can then be included in the navbar, allowing users to navigate to different pages or sections of the site with a single click.

Fig 5.7 Navbar For Desktop

Fig 5.8 Navbar For Mobile Device

3. Developing The Responsive Movie App Using API

A responsive movie app is a popular feature that allows users to search and discover information about movies.To develop a responsive movie app using ReactJS and MovieApi, the first step is to establish a connection to the API and fetch the data needed to populate the app. This can be done using HTTP requests and the fetch() function, which allows developers to retrieve data from external sources.

Once the data has been fetched, the next step is to create the user interface for the movie app. This can be done using ReactJS components, which can be customized and styled using CSS and other styling techniques. The app can include features such as search functionality, filtering by category or genre, and displaying information about each movie or TV show, including ratings, cast, and release dates.To ensure that the movie app is responsive and adapts to different screen sizes and device types, the app can be designed using responsive web design principles. This can include using media queries to adjust the layout and styling of the app based on the size and orientation of the device.

Fig 5.9 Movie App

Chapter 6. IMPLEMENTATION

6.1 IMPLEMENTATION ENVIRONMENT

- Operating System: The development can be done on Windows operating system.
- Code Editor: A code editor Visual Studio Code can be used for coding and development purposes.
- Web Browser: Modern web browsers like Google Chrome and Brave can be used for testing and previewing the website.

6.2 PROGRAM AND MODULES SPECIFICATION

The website can be developed using a combination of HTML, CSS, JavaScript, and ReactJS. HTML is used for creating the structure and content of the website, while CSS is used for styling and layout. JS is used for adding interactivity and dynamic functionality to the website, and ReactJS can be used for creating reusable UI components.

Some of the modules or components that can be included in the website are:

Home Page: The Home Page is the first page that a visitor sees when they visit the website. It should provide an overview of the real estate firm and its offerings, including featured properties, a search bar to find specific properties, and a call-to-action to encourage visitors to explore further.

About Us Page: The About Us Page should provide information about the real estate firm, including its history, mission, and values. It may also include information about the team and testimonials from satisfied clients.

Services Page: The Services Page should provide details about the various services that the real estate firm offers, such as property management, leasing, and sales. It may also include information about any unique selling points or competitive advantages that the firm has.

Property Listing Page: The Property Listing Page is where visitors can browse the available properties that the real estate firm has to offer. It should include filters to help visitors find properties that meet their specific requirements, as well as high-quality images and detailed descriptions of each property.

Pricing Page: The Pricing Page should provide information about the fees and charges associated with the real estate firm's services, as well as any special offers or promotions that may be available.

Contact Page: The Contact Page should include the firm's contact information, such as phone number, email address, and physical address. It may also include a contact form that visitors can use to get in touch with the firm.

Register and Login Page: The Register and Login Page is where users can create an account to access additional features, such as saving favorite properties or receiving email alerts when new properties become available. It should include a registration form and a login form, as well as links to reset passwords or retrieve lost usernames.

Fig 6.1 Home Page Of Real Estate Website
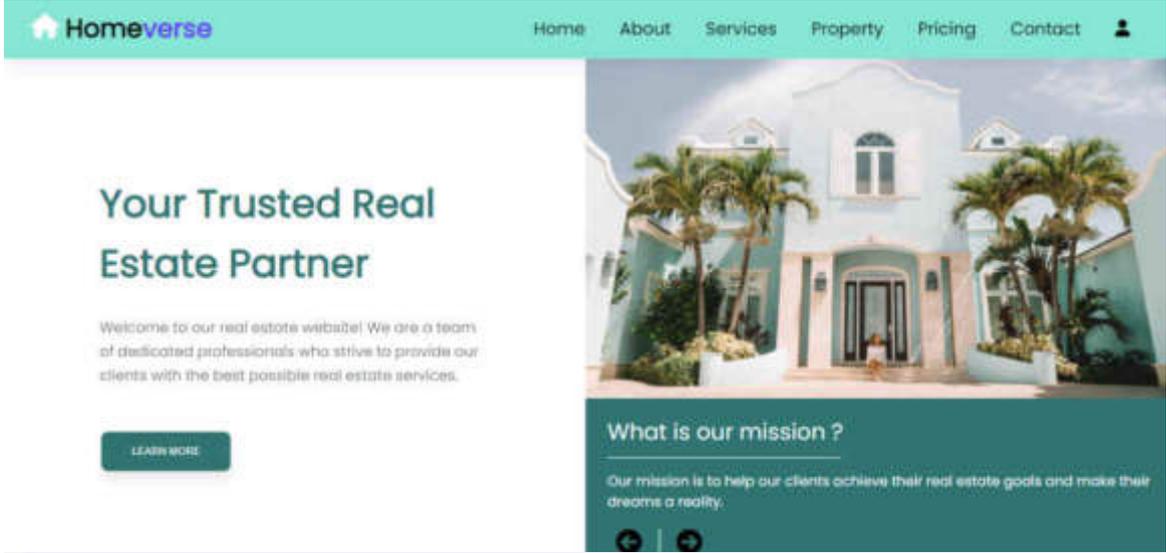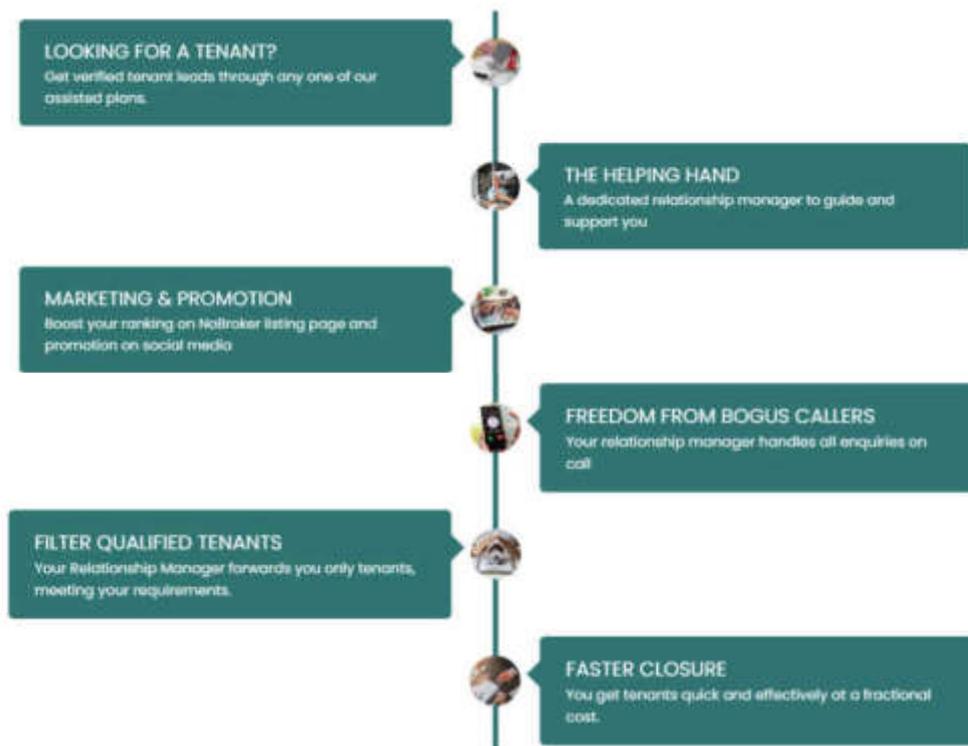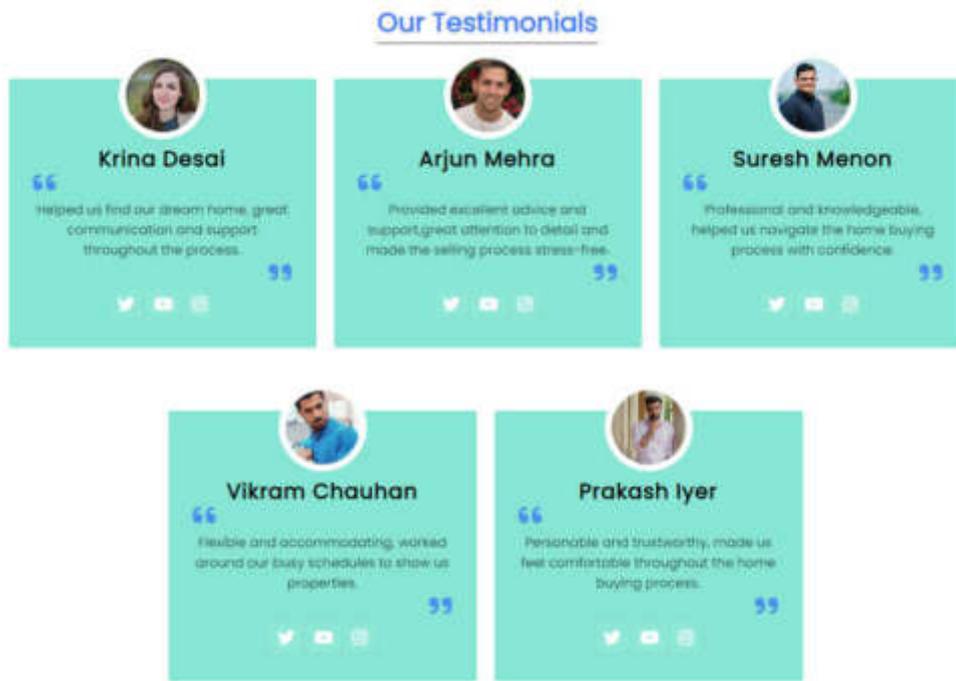
Fig 6.2 About Us Page Of Real Estate Website
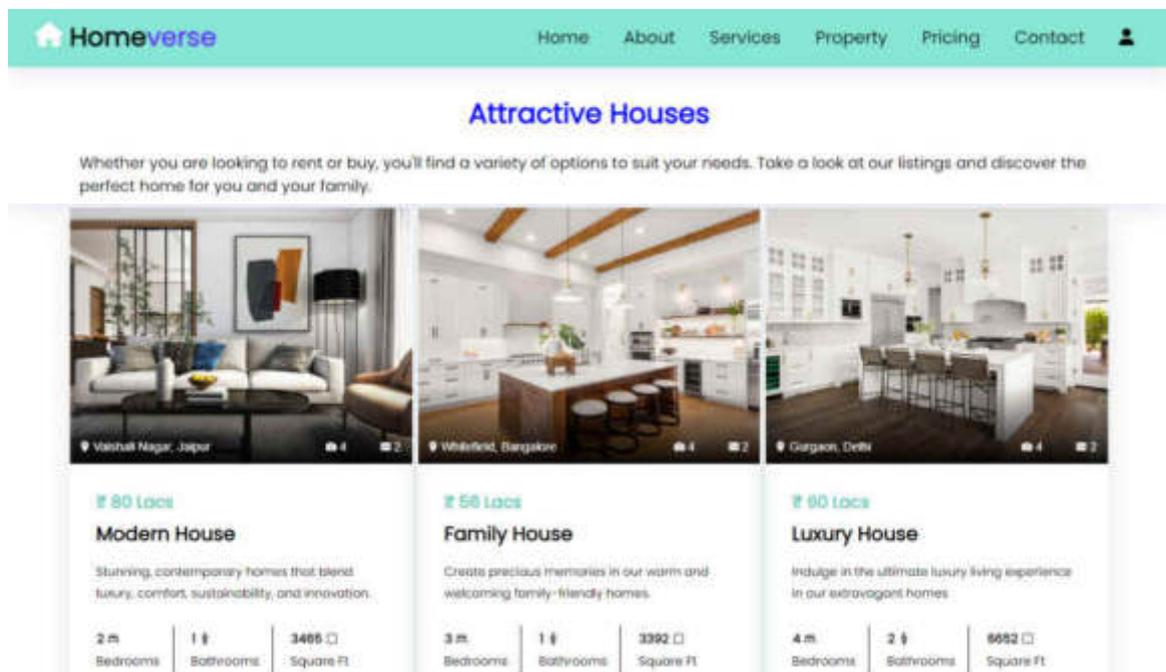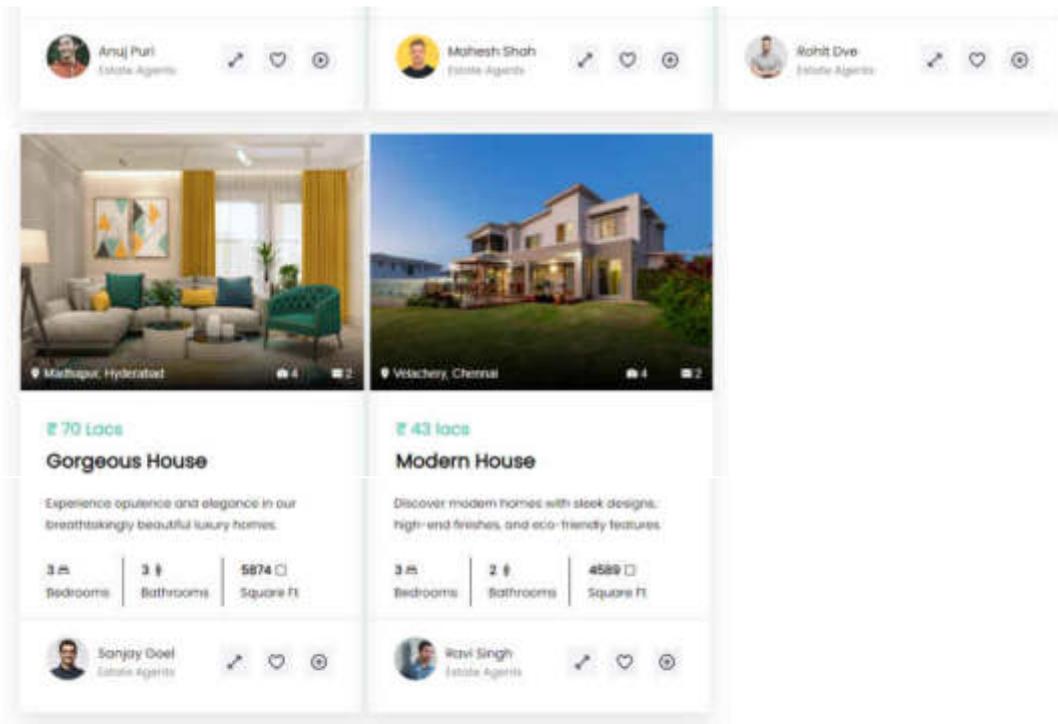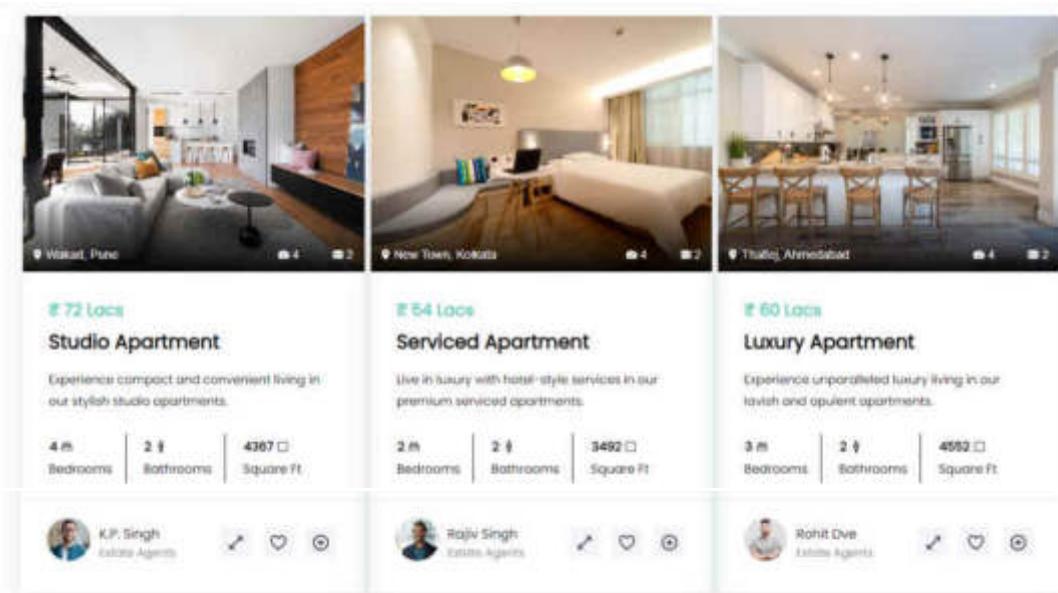
Fig 6.3 Property Listing Page Of Real Estate Website

Fig 6.4 Pricing Page Of Real Estate Website
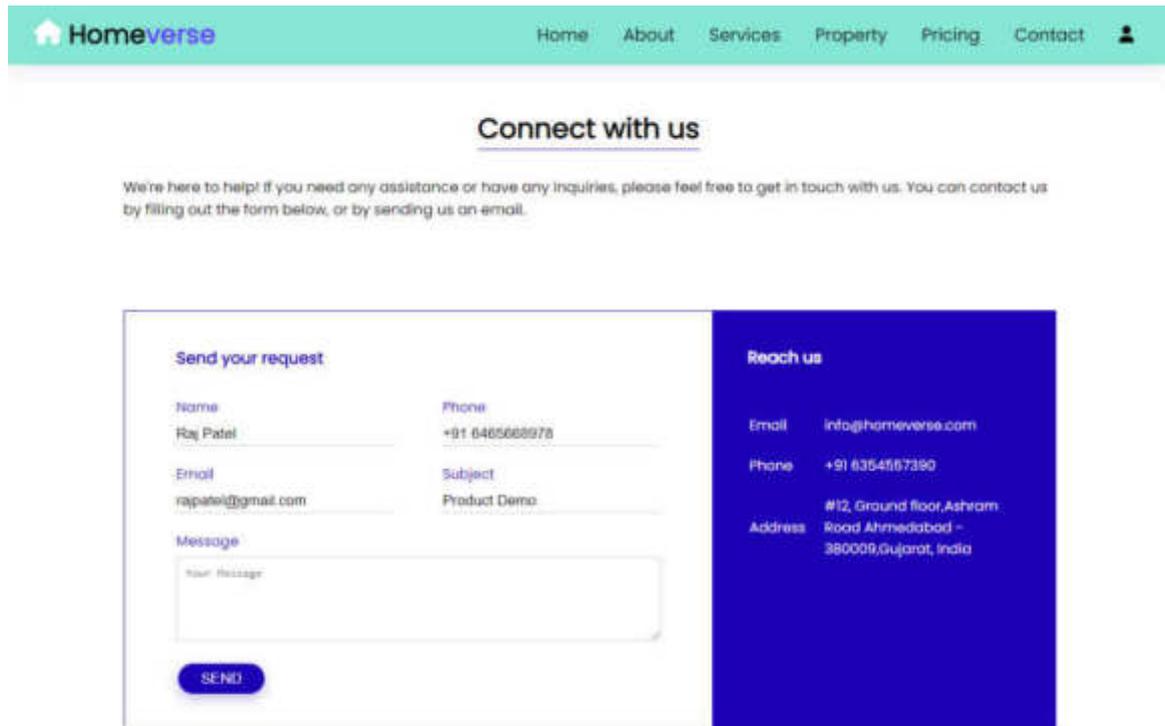
Fig 6.5 Contact Page Of Real Estate Website
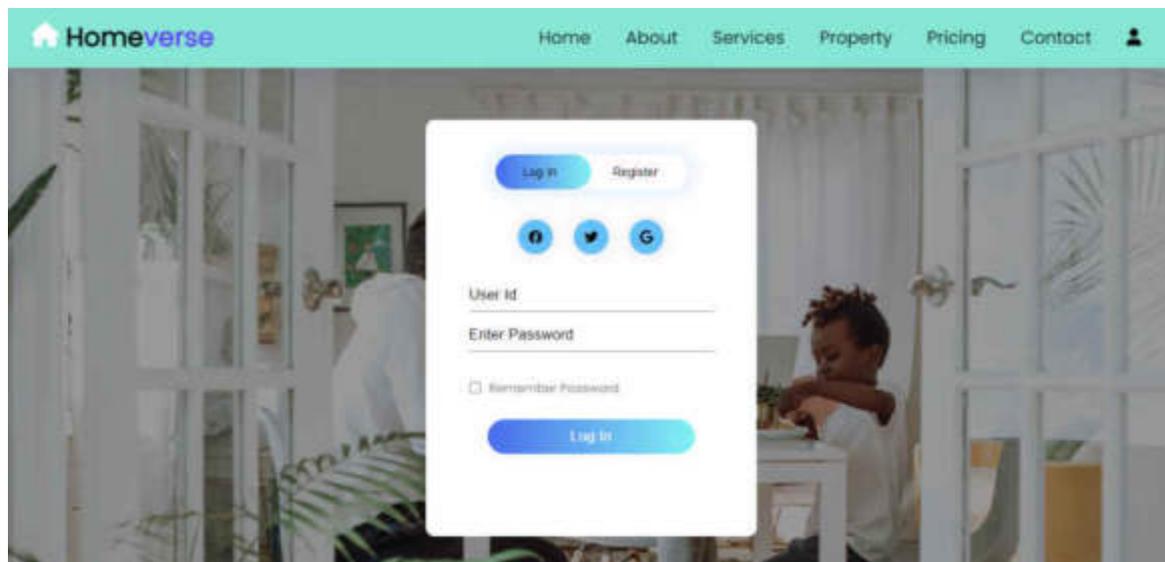
Fig 6.6 Log In Page Of Real Estate Website
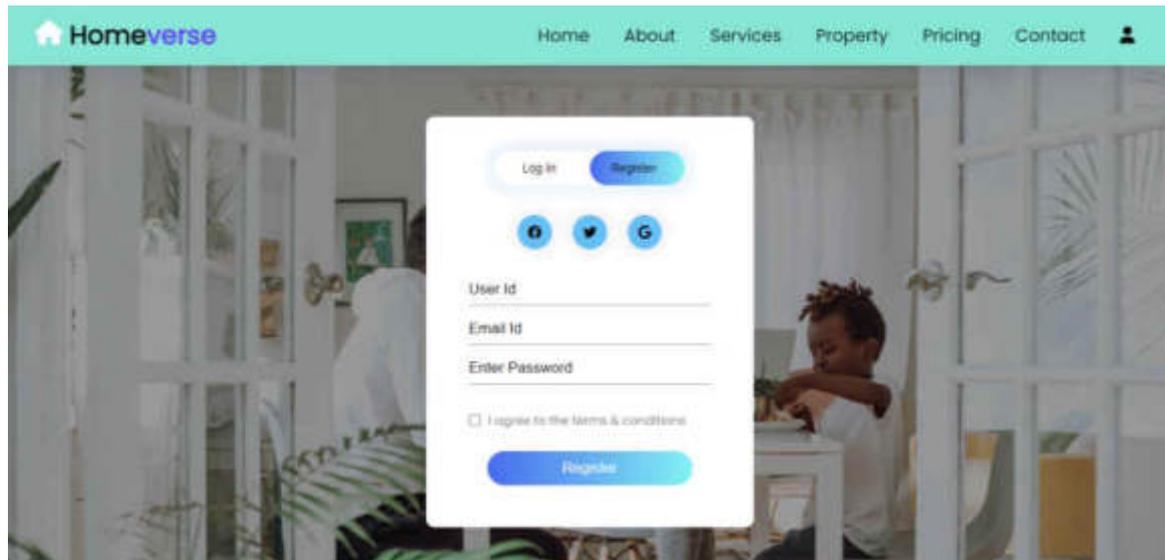
Fig 6.7 Register Page Of Real Estate Website

6.3 OUTCOMES

- Improved user experience: By using ReactJS, the website was able to provide a better user experience by providing dynamic and responsive interfaces.

- Improved code organization: ReactJS allowed for the use of reusable components, which made it easier to organize and maintain the codebase.

- Faster development time: The use of ReactJS and its associated libraries allowed for faster development time as compared to traditional frontend development approaches.

- Better performance: ReactJS's virtual DOM allowed for efficient updates and rendering, resulting in a faster and more responsive website.

- Cross-browser compatibility: The use of HTML, CSS, and JS allowed for the creation of a website that is compatible with all modern browsers.

- Modular and scalable architecture: The modular architecture of ReactJS allowed for easy scalability and maintenance of the website.

- Improved SEO: The website's improved performance and optimized structure led to better search engine optimization, resulting in higher visibility and better search engine rankings.

Chapter 7. TESTING

7.1 TESTING STRATEGY

The testing strategy for the frontend website development of the real estate firm using HTML, CSS, JavaScript, and ReactJS includes the following steps:

1. Unit Testing: Testing individual components and modules for functionality and performance.

2. Integration Testing: Testing the integration of different components and modules to ensure that they work together seamlessly.

3. User Acceptance Testing: Testing the website's functionality from the user's perspective to ensure that it meets their requirements and expectations.

4. Regression Testing: Testing the website after making changes or updates to ensure that the existing features are not affected.

5. Performance Testing: Testing the website's performance under different loads and conditions to ensure that it performs well under all circumstances.

7.2 TEST RESULTS AND ANALYSIS

Test ID: HP01
- Test Condition: Verify if the logo is present on the top left corner of the home page.
- Expected Output: Logo should be present on the top left corner of the home page.
- Actual Output: Logo is present on the top left corner of the home page.
- 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

Test ID: CP001

- Test Condition: Verify if the Contact Us page contains a contact form.
- Expected Output: Contact Us page should contain a contact form.
- Actual Output: Contact Us page contains a contact form.
- Remark: Pass

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

Chapter 8. CONCLUSION

8.1 OVERALL ANALYSIS OF INTERNSHIP

The internship project aimed to develop a modern and responsive website for a real estate firm using HTML, CSS, JavaScript, and ReactJS. Through the implementation and testing stages, the project successfully achieved the desired outcome and met all of the client's requirements.

The front-end website development of the real estate firm using HTML, CSS, JavaScript, and ReactJS was a challenging yet fulfilling experience. The use of HTML, CSS, and JavaScript provided a solid foundation for building the website, while ReactJS allowed for more dynamic and efficient development.The team used HTML and CSS to develop the website's structure and style, and JavaScript and ReactJS were utilized to add interactive and dynamic elements to the website.

The website consists of a home page, about page, services page, property listing page, pricing page, contact page, login page, and register page. Each page was thoroughly tested to ensure that it functions as intended, and any issues that arose were promptly resolved.Throughout the implementation process, various tools and technologies were used to streamline development and ensure the website's responsiveness and accessibility.

Overall, this project provided a great opportunity to apply the knowledge and skills gained during the internship. It also allowed for a deeper understanding of the importance of effective communication and collaboration in a team environment. The internship project provided valuable experience in website development using modern technologies and tools. The project also demonstrated the importance of communication and collaboration among team members to ensure the successful completion of the project.

References

During the project we took help from certain external sources. Some of them are as follows:

1. https://fontawesome.com/icons
2. https://reactjs.org/.
3. https://reactjs.org/docs/getting-started.html
4. https://unsplash.com/
5. https://www.pexels.com/search/apartment/
6. https://www.w3schools.com/css/
7. https://www.w3schools.com/html/
8. https://www.w3schools.com/js/

Appendix

Flu Social

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
Info@flusocial.com

FLU SOCIAL
MARKETING

January 20, 2023

OFFER LETTER

Subject: Internship Confirmation Letter for Pratik Kamleshkumar Prajapati

Dear Sir/Ma'am,

This is to certify that Mr. Pratik Kamleshkumar Prajapati, student of Information & Technology Engineering in S.P.B.Patel Engineering College (Saffrony Institute of Technology). Semester 8 has been successfully allocated to his Internship from Flu Social.

Details of student are as below:

Name of the student: Pratik Kamleshkumar Prajapati

College: Gujarat Technological University (S.P.B.Patel Engineering College (Saffrony Institute of Technology))

Course: Bachelor of Engineering

Branch: Information & Technology Engineering

Enrollment Number: 190390116036

Project In: Front End Web Development

Project Description: Website Development with HTML,CSS, JavaScript & ReactJS for Real Estate Firm.

Project Guide: Yash Patel

Technology: ReactJS ,HTML,CSS, JAVASCRIPT, BOOTSTRAP.

Duration: 12 Weeks (Starting from 23 Jan 2023)

We are confident that he will be able to make a significant contribution to the success of our company.

Best regards,

Dron Joshi (Founder & CEO)

INTERNSHIP AT FluSocial Private Ltd.

AN INTERNSHIP REPORT

Submitted by

Prajapati Sachinkumar Rameshbhai

190390116037

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 FluSocial Private Ltd.** has been carried out by **Prajapati Sachinkumar Rameshbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

COMPANY CERTIFICATE

FLU SOCIAL

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
www.flusocial.com
Info@flusocial.com

FLU SOCIAL
MARKETING

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Prajapati Sachinkumar Rameshbhai** (Enrollment No: **19039011037**) 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.

Dron Joshi
CEO, Flu Social

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 (18:03:18)

This is to certify that, *Prajapati Sachinkumar Rameshbhai* (Enrolment Number - 190390116037) working on project entitled with *Internship at flusocial Marketing* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student : Prajapati Sachinkumar Rameshbhai

Name of Guide : Miss. Sushma Sainwar

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, Mehsana

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

DECLARATION

We hereby declare that the Internship report submitted along with the Project entitled **Internship at FluSocial Private Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar** & **Mr. Dron Joshi (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.   **Prajapati Sachinkumar Rameshbhai**   _____

ACKNOWLEDGMENT

Acknowledgement is just a way to express gratitude, something so deep that it cannot be expressed fully. Nobody is completely on their own. He/She needs someone's help in his/her life. I would like to express my sincere gratitude to S.P.B. Patel Engineering College (Saffrony Institute of Technology) and all the faculties who have supported me throughout my project. First and foremost, I would like to thank my project guide Prof. Sushama Sainwar, who has been a constant source of guidance, motivation, and support. Her insightful input and valuable suggestions have been instrumental in shaping my project and ensuring its successful completion. I would also like to thank the Information Technology faculty members who have extended their support and encouragement throughout my academic journey. Their expertise and guidance have been pivotal in my growth and development as a student. Furthermore, I would like to express my gratitude to the non-teaching staff of the college who have provided me with the necessary resources and infrastructure to carry out my project work efficiently. Finally, I would like to thank my fellow students for their support and cooperation, without which this project would not have been possible. Thank you, S.P.B. Patel Engineering College (Saffrony Institute of Technology) and all the faculties, for providing me with the opportunity and resources to complete my project successfully.

With Sincere regards from,

Sachin Prajapati

ABSTRACT

If you are looking for a mentor, a leader, and an influencer who can help you grow your business and overcome your challenges, you should visit Ritesh Vyas's website. Ritesh Vyas is more than just a WordPress site owner. He is an entrepreneur, a social worker, and a social media influencer who has multiple businesses in different industries, such as pizza, humanitarian aid, and online education. He also has a strong presence on YouTube and Instagram, where he provides valuable tips and guidance to his followers. He cares about helping people in their difficult times and helping them grow their businesses. He is a professional who works with integrity and puts his clients first. Don't believe us? Visit his website and see for yourself his achievements, testimonials, services, and contact details. You can also get in touch with him for a free consultation and quote. Don't let this opportunity pass you by. Learn from Ritesh Vyas today and let him help you reach your goals.

ABBREVIATIONS

CSS   Cascading Style Sheets

JS   JavaScript

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

1.1 COMPANY PROFILE

FluSocial is a digital marketing agency based in Mehsana, India. It provides services such as website development, branding, SEO, social media marketing, and more. It has over 10 years of experience and has satisfied more than 1000 customers. Some of its clients include theriseonic.com, blissaquaworldresort.com, liive.org, and adatewithcharlotte.com. FluSocial aims to build and grow stronger relationships with its customers by using advanced marketing tools and creative innovation.

1.2 SERVICES PROVIDED BY THE COMPANY

The services provided by the company are as below :
- Website Development
- Digital Marketing
- Branding
- Content Writing
- Web Hosting And Migration
- Amazon Product Development
- SEOs
- Graphics Designing

1.3 Mission and vision of the company

According to the founder of FluSocial, Dron Joshi, the vision of the company is to "WOW" the world with what can be achieved online. The company aims to use advanced marketing tools and creative innovation to help its customers grow their businesses and brands online. FluSocial also wants to provide effective and affordable digital marketing solutions that suit the needs and goals of its customers.

Chapter 2. INTRODUCTION TO PROJECT

The project aims, a company that is dedicated to helping you overcome your challenges and achieve your goals through effective marketing strategies. We know how hard it can be to survive and thrive in today's competitive and uncertain world. That's why we offer you the best marketing education and coaching you can find. Whether you want to start your own business, grow your existing business, or find a new career path, we can help you do it. We have a team of experienced and qualified marketing experts who will teach you everything you need to know about marketing, from the basics to the advanced techniques. You will learn how to create a marketing plan, identify your target market, craft your unique selling proposition, develop your brand identity, use social media and digital marketing tools, generate leads and sales, and measure your results. You will also get personalized feedback and support from our coaches who will guide you every step of the way. You will not only gain valuable knowledge and skills, but also confidence and motivation to pursue your dreams. Don't let tough times stop you from reaching your potential. Join Tough Times Marketing today and discover how marketing can change your life for the better.

2.1 PROJECT SUMMARY

Riteshvyas.com is a personal website of Ritesh Vyas, who is a full-stack software developer. The website mainly focuses on his blog, where he shares his knowledge and experience in software development. The blog covers a wide range of topics including web development, programming languages, and technology trends. Apart from the blog, the website also includes a portfolio section where Ritesh showcases his past projects and skills. Overall, the website is a great resource for aspiring software developers to gain insights and learn from Ritesh's experience in the field.

2.2 PURPOSE

The purpose of Riteshvyas.com is to serve as a platform for Ritesh Vyas to share his knowledge and experience in software development with others. Through his blog, Ritesh aims to educate and inspire fellow developers by providing insights, tutorials, and tips on various topics related to software development. Additionally, the website serves as a portfolio for Ritesh to showcase his skills and past projects to potential clients or employers. Overall, the main purpose of the site is to contribute to the software development community and to help others improve their skills and knowledge in the field.

2.3 OBJECTIVE

- The objectives of this site as business consultation are to:

- Showcase the work and achievements of Ritesh Vyas as a business owner, a social worker, and a social media influencer.

- Attract potential clients who are looking for professional or expert advice or service in various areas of business.

- Provide valuable insights and tips on how to grow and improve businesses through social media posts and videos.

- Establish credibility and trust with the target audience by sharing positive testimonials and feedback from previous clients and followers.

- Generate leads and bookings for business consultation and mentorship services offered by Ritesh Vyas.

2.4 SCOPE

The scope of this site is to offer business consultation services by Ritesh Vyas, who is a business owner, a social worker, and a social media influencer. Business consultation is a client-focused consulting practice in which business consultants assist individuals running small and medium-sized businesses to realize their full potential. Business consultants provide professional or expert advice or service in a particular area such as marketing, finance, operations, strategy, technology, etc. Ritesh Vyas offers his services as a business consultant and a mentor to help others grow their businesses. He also shares his insights and tips on his Instagram and YouTube accounts. He has received many positive testimonials from his clients and followers.

2.5 TOOLS AND TECHNOLOGY

The project was developed using WordPress. These tools and technologies were selected based on their versatility, ease of use, and compatibility with modern web development standards. The development team used various software tools and libraries, such as Visual Studio Code, Node.js, and React libraries, to facilitate the development process. The website was deployed on a web server using cloud hosting services to ensure optimal performance and scalability. Additionally, various web development best practices and standards were followed to ensure the website's quality and security.

It is the foundation of any web page. It is used to create the structure and content of web pages, and provides the basic building blocks for creating a website. In a website,would be used to create the layout and structure of the pages, including the header, navigation, footer, and main content areas. It would also be used to create forms for capturing user information and search fields for property listings.

CSS, or Cascading Style Sheets, is used to add style and visual design to a website. In a website, CSS would be used to create a consistent visual style for the website, including typography, color scheme, and layout. It would also be used to create responsive design, ensuring that the website is optimized for different screen sizes and devices. Additionally, CSS would be used to create hover and animation effects toenhance the user experience.

JavaScript is a programming language used to add interactivity and functionality to a website. In a website, JavaScript would be used to create interactive features such as property search filters, image galleries, and map integrations. It would also be used to create form validation, ensuring that user input is accurate and complete. Additionally, JavaScript would be used to create custom functionality such as mortgage calculators, chatbots, and other features that enhance the user experience.

ReactJS is a JavaScript library used to create user interfaces. It provides a component-based architecture that enables developers to create reusable UI components

that can be used across the website. In a website, React.js would be used to create reusable components such as property listings, contact forms, and search filters. It would also be used to create dynamic and interactive user interfaces that are responsive and optimized for different devices.

Overall, the combination of WordPress provides the necessary tools and technologies to create a visually appealing and functional website that engages and informs users.

Chapter 3. PLANNING AND DESIGN

3.1 PROJECT PLANNING AND MANAGEMENT

The first step in any software development project is planning and management. This stage involves defining the scope of the project, establishing goals, objectives and timelines, allocating resources and budget, and identifying potential risks and challenges. In the case of our frontend website development project for a firm, we started by defining the scope of the project, which included creating a website that showcases thefirm's properties, services, and contact information.

We also established the project's objectives, which included developing a responsive and user-friendly website that provides an excellent user experience for visitors. We allocated resources and budget, including the tools and technologies required for the project, and established timelines for the various stages of the project. We also identified potential risks and challenges and developed contingency plans to mitigate them.The project management phase involves coordinating the efforts of all team members, tracking project progress, and ensuring that the project is completed on time and within budget.

Project development of this site refers to the process of creating and maintaining a business consultation site that showcases the work and achievements of Ritesh Vyas and attracts potential clients. Some of the steps involved in project development of this site are:

• Define the project scope, objectives, and deliverables.

• Conduct a market research and analysis to identify the customer needs and preferences, the competitors, and the opportunities.

• Provide customer support and feedback mechanisms.

• Implement improvements and enhancements based on feedback and data.

• Defining the goals and objectives of the site, such as what services are offered, who are the target audience, what are the desired outcomes, etc.

• Choosing a suitable platform and domain name for the site, such as WordPress, Squarespace, Wix, etc.

• Designing and developing the site content and layout, such as the homepage, about page, services page, testimonials page, contact page, etc.

• Optimizing the site for SEO (search engine optimization), which involves using relevant keywords, titles, meta tags, headings, etc to rank higher on search engines.

• Promoting and marketing the site through various channels, such as social media, email newsletters, blogs, podcasts, etc.

• Evaluating and updating the site regularly based on feedback, analytics, trends, etc.

3.2 USER INTERFACE DESIGN AND DEVELOPMENT

User interface design and development is the process of creating the front-end of a website, which is what users see and interact with. This involves writing code using front-end technologies like WordPress, and making sure that the website looks good and works well on different devices and browsers. The website should also be responsive, which means it adapts to different screen sizes and orientations. For our project of developing a website for a firm, we used ReactJS, a popular JavaScript library, to build the user interface. We followed some best practices such as using meaningful tags for better accessibility, organizing the CSS code, and using CSS media queries to make the website responsive. We also tested the website's functionality, such as searching and filtering properties, and made sure that the website loaded quickly and smoothly. By the end of the user interface design and development stage, we had created a website that was attractive and user-friendly, and that met the project's goals. The code was optimized for speed and performance and was compatible with different browsers and devices.

3.3 PROJECT EFFORT AND TIME, COST ESTIMATION

This project took more than 3 months to complete it. However, it may take too long time for designing the website. Also, we are new in the company, so we don't know the proper workflow. Also, a lot of effort is needed to establish this website. Because we are fresher in the company, we don't have any idea related to the cost estimation of the project.

Chapter 4. SYSTEM ANALYSIS

4.1 STUDY OF CURRENT SYSTEM

Some examples of sites that provide business consultation services are:

- Bain & Company, a global management consulting firm that helps clients with strategy, marketing, organization, operations, technology, transformation, digital, advanced analytics, corporate finance, mergers & acquisitions and sustainability across all industries and geographies.
- EY India, a professional services network that offers consulting services in areas such as business transformation, customer experience, digital strategy and innovation, finance transformation, people advisory services, risk management and more.
- MSMEx, an online advisory platform that connects small and medium-sized businesses with business experts and advisors who are available on call for guidance and support on various aspects of business growth and management.
- Paradox Marketing4, a digital marketing agency that provides consulting services for startups and businesses in areas such as branding, web design, SEO, content marketing, social media marketing and more.
- Booknetic, an online appointment booking system that helps independent consultants manage their bookings and payments easily and efficiently. It also offers features such as SMS and email notifications, Google Calendar sync, Zoom integration and more.

4.2 PROBLEM AND WEAKNESSES OF CURRENT SYSTEM

The report identifies and analyzes some of the major problems and weaknesses of current e-commerce systems, such as security, privacy, tax, customer experience, competition, cart abandonment, return and refund, price and shipping, regulation, and data security. There are some examples and explanations of these problems and weaknesses, as well as their impacts and causes. The report suggests some possible solutions for these problems and weaknesses, such as implementing robust security measures, optimizing website design and functionality, differentiating from competitors, simplifying the checkout process.

4.3 REQUIREMENTS OF NEW SYSTEM

- Pricing and accessibility: should offer competitive and flexible pricing options that suit the needs and budgets of different clients. We should also make your site easy to access and navigate for potential and existing clients.

- Differentiation and innovation: We should highlight your unique value proposition and expertise that set you apart from other consulting sites. We should also demonstrate our ability to provide creative and customized solutions that address the specific challenges and goals of each client.

- Quality and reliability: I must ensure to deliver high-quality and consistent consulting services that meet or exceed the expectations of my clients. We should also establish trust and credibility with our clients by providing testimonials, case studies, credentials, and guarantees.

- Scope and depth: We should offer a comprehensive range of consulting services that cover various aspects and domains of business. We should also show our competence and experience in handling complex, large-scale or long-term projects.

- Functionality and integration: should provide a user-friendly and feature-rich online booking system that allows your clients to schedule, manage and pay for their appointments easily and securely. We should also integrate our site with other platforms and tools that enhance your service delivery and communication.

4.4 FEATURES OF NEW SYSTEM

The new website features a range of functionalities to improve the user experience. These include:

- Easy property finds functionality.
- Detailed information about each element, including features, nearby sources, and values.
- Modern design and responsive layout
- Integration with APIs to provide additional data.

4.5 LIST OF MAIN COMPONENTS

The main components of the new system include:

- Homepage: The homepage is the first page that the visitors see when they visit the new site. It provides an overview of Ritesh Vyas's brand and services, as well as his mission, vision and values. It also features a catchy headline, a call-to-action button, a video introduction, a testimonial slider and a footer with social media links and contact information.

- About page: The about page provides more details about Ritesh Vyas's background, experience and expertise in various industries such as pizza business, social work, social media marketing, etc. It also showcases his achievements, awards and recognitions, as well as his portfolio, case studies and media appearances.

- Services page: The services page lists the different types of consultation and mentorship services that Ritesh Vyas offers to his clients. It also explains the benefits and features of each service, as well as the pricing and payment options. It also includes a booking system that allows the clients to schedule, manage and pay for their appointments online.

- Blog page: The blog page features Ritesh Vyas's insights and tips on various topics related to business growth and management. It also includes his social media posts and videos from Instagram and YouTube. The blog page allows the visitors to comment, share and subscribe to his content.

- Testimonials page: The testimonials page displays positive feedback and reviews from Ritesh Vyas's previous and current clients and followers. It also includes a rating system that allows the visitors to rate his services and performance.

- Contact page: The contact page provides the visitors with different ways to get in touch with Ritesh Vyas. It includes a contact form, an email address, a phone number, and a physical address. It also includes a map and directions to his office location.

4.6 Does the system contribute to the overall objectives of the organization?

Yes, the system contributes to the overall objectives of the organization. The system helps Ritesh Vyas achieve his mission and vision of providing high-quality and affordable business consultation and mentorship services to small and medium-sized businesses. The system also supports his values and principles of humanitarianism, compassion, innovation and excellence. By creating a new site that showcases his work and achievements, attracts potential clients, provides valuable insights and tips, establishes credibility and trust, and generates leads and bookings for his services, the system enables Ritesh Vyas to fulfill his organizational objectives of:

- Increasing his visibility and reach to a wider audience

- Enhancing his user experience and engagement with his existing and prospective clients

- Demonstrating his expertise and value proposition through his portfolio, testimonials, case studies and social media posts

- Streamlining his booking and payment process for his consultation and mentorship services

- Boosting his revenue and profitability by converting more leads into clients

4.8 SELECTION OF HARDWARE / SOFTWARE / ALGORITHMS / METHODOLOGY / TECHNIQUES / APPROACHES AND JUSTIFICATION
Software Requirement

Operating System : Windows 10 or Linux

User Interface : Bootstrap, Django Templates

Client-side Scripting : Django

Programming Language : Django, Python

Web Technologies : Django, Python

IDE/Workbench : Visual Studio Code

Database : Postgres

Hardware Requirements

Processor : Intel core i3

Hard Disk : 10GB

RAM : 4GB or more

Chapter 5. FRONTEND DEVELOPMENT

5.1 Learning Skills

5.1.1 Learning WordPress:
• Setting Up WordPress:
Choose a domain name and a web hosting provider.
Install WordPress on your hosting server. Many hosting providers offer oneclick WordPress installation.
Access your WordPress dashboard by entering your domain name followed by "/wp-admin" in your web browser.
• Understanding the Dashboard:
The WordPress dashboard is your central control panel where you manage your website.
Take some time to explore the different sections, such as posts, pages, media, appearance, plugins, and settings.
• Creating and Managing Content:
Posts: WordPress allows you to create blog posts. Go to "Posts" > "Add New" to create a new post. Add a title, content, categories, tags, and featured image.
Pages: For static pages like Home, About, and Contact, go to "Pages" > "Add New." Similar to posts, you can add content and customize the page.
Media: To upload and manage images, videos, and other media files, go to "Media" > "Add New."
• Customizing Appearance:
Themes: Change the visual design of your website by installing and activating themes. Go to "Appearance" > "Themes" > "Add New" to browse and install themes from the WordPress repository or upload a premium theme.
Customize: Customize your theme's appearance by going to "Appearance" > "Customize." You can modify site identity, colors, layout, menus, widgets, and more.
• Extending Functionality with Plugins:
Plugins add extra features and functionality to your website.
Go to "Plugins" > "Add New" to search for and install plugins. Some popular plugins include Yoast SEO for search engine optimization, Contact Form 7 for creating forms, and WooCommerce for e-commerce functionality.
  • Optimizing your Website:
298607 Development
Gujarat Technological University 19 S.P.B. Patel Engineering College
Permalinks: Set your website's URL structure by going to "Settings" > "Permalinks." Choose a format that suits your needs.
SEO: Improve your website's visibility in search engines using plugins like Yoast SEO. Optimize your content, meta tags, and URLs for relevant keywords.
Speed and Performance: Use caching plugins, optimize images, and choose a

reliable hosting provider to ensure your website loads quickly.

- Managing Users and Permissions:

WordPress allows you to create multiple user accounts with different roles and permissions.

Go to "Users" > "Add New" to create new user accounts. Assign appropriate roles such as Administrator, Editor, Author, Contributor, or Subscriber.

- Regular Maintenance and Updates:

Keep your WordPress core, themes, and plugins up to date to ensure security and compatibility.

Regularly backup your website using plugins or through your hosting provider. Monitor and moderate comments if you allow them on your site.

- Getting Support and Learning Resources:

WordPress has a vast community with numerous resources to help you learn and troubleshoot.

Visit the official WordPress website (wordpress.org) for documentation, forums, and support.

Join WordPress communities, forums, or local meetups to connect with other users.

WordPress:

WordPress is a free and open-source content management system (CMS) that is used to create websites, blogs, and online stores. It was initially released in 2003 by Matt Mullenweg and Mike Little as a fork of b2/cafelog. Today, it powers over 40% of all websites on the internet and is one of the most popular CMS platforms available.

WordPress is built using PHP programming language and MySQL database. It can be installed on a web server to create a website or blog without the need for coding skills. There are two main ways to use WordPress: WordPress.com and self-hosted WordPress.org.

WordPress.com is a free platform that allows users to create and host their website or blog on WordPress's servers. Users can choose from a variety of themes and plugins to customize their website, but they have limited control over the functionality of the website.

Self-hosted WordPress.org, on the other hand, requires users to download and install the WordPress software on their own web hosting servers. This option gives users complete control over their website's design, functionality, and content. Users can choose from thousands of free and paid themes and plugins to customize their website and add features such as contact forms, e-commerce functionality, social media integration, and much more.

WordPress is known for its user-friendliness, flexibility, and customization options. It comes with a built-in editor that allows users to create and edit content without any coding knowledge. It also supports multiple users with varying levels of access, making it an ideal platform for team collaboration. Additionally, WordPress is SEO-friendly and allows users to optimize their content for search engines with plugins such as Yoast SEO.

In conclusion, WordPress is a versatile and user-friendly CMS platform that allows users to create and manage their website or blog without any coding skills. It offers a range of customization options, supports multiple users, and is SEO-friendly. Whether you're a blogger, small business owner, or an e-commerce entrepreneur, WordPress can help you create a professional and functional online presence.

Definition of some plugins that has been used in site:
WordPress plugins are PHP scripts that extend the functionality of WordPress websites by adding new features or enhancing existing ones. WordPress plugins are often developed by volunteers and are usually free to the public. They can be downloaded from the WordPress Plugin Directory or installed directly from the WordPress dashboard. WordPress plugins can be categorized into different types based on their purpose and functionality. Some of the common types of WordPress plugins are:

- SEO plugins: These plugins help optimize websites for search engines by improving their speed, performance, content, and meta tags. Some examples of SEO plugins are Yoast SEO, All in One SEO Pack, and Rank Math.
- Ecommerce plugins: These plugins allow websites to sell products or services online by creating online stores, payment gateways, shipping options, and inventory management. Some examples of ecommerce plugins are WooCommerce, Easy Digital Downloads, and BigCommerce.
- Booking and scheduling plugins: These plugins enable websites to accept bookings or appointments from customers or clients by creating calendars, forms,

and reminders. Some examples of booking and scheduling plugins are WooCommerce Bookings, WPForms, and BirchPress.

- Social media plugins: These plugins help websites connect with social media platforms by adding social sharing buttons, feeds, widgets, and analytics. Some examples of social media plugins are Jetpack, Social Snap, and Smash Balloon.
- Security plugins: These plugins help protect websites from hackers, malware, spam, and other threats by adding firewalls, backups, scanners, and captcha. Some examples of security plugins are Sucuri, Wordfence, and iThemes Security.
- Analytics plugins: These plugins help measure and analyze website traffic and behavior by adding tracking codes, reports, and dashboards. Some examples of analytics plugins are Google Analytics for WordPress, MonsterInsights, and ExactMetrics.
- Design plugins: These plugins help customize the appearance and layout of websites by adding themes, page builders, sliders, galleries, and fonts. Some examples of design plugins are Elementor, Divi Builder, and Smart Slider 3.

SEO (Search Engine Optimization):
- Search engine optimization (SEO) is the process of improving the visibility and ranking of a website or webpage in search engine results pages (SERPs). It involves optimizing the website or webpage's content, structure, and backlinks to make it more relevant and useful to search engine users. The goal of SEO is to increase organic, non-paid traffic to a website, which can lead to increased visibility, higher traffic, and more conversions.

- SEO can be divided into two main categories: on-page optimization and off-page optimization. On-page optimization refers to the optimization of website content, structure, and code. This includes keyword research, optimization of title tags, meta descriptions, header tags, content, and images. On-page optimization also involves ensuring the website is mobile-friendly and has fast loading speeds.

- Off-page optimization refers to the optimization of external factors that can influence the website's ranking, such as backlinks, social media signals, and online directories. Building high-quality backlinks from reputable websites is an essential part of off-page optimization. Social media signals such as likes, shares, and comments can also influence a website's ranking.

- Keyword research: finding and analyzing the words and phrases that users type into search engines when looking for information, products, or services related to your website's topic.
- Content creation: producing high-quality, original, and engaging content that answers the user's query and provides value to them.

- Technical SEO: ensuring that your website is fast, secure, mobile-friendly, easy to crawl and index by search engines, and free of errors or issues that might affect its performance or usability.

- Analytics and reporting: measuring and analyzing the results of your SEO efforts using tools like Google Analytics, Google Search Console, etc., and making data-driven decisions to improve your strategy.

- SEO is an ongoing process that requires constant monitoring, testing, learning, and adapting to the changes in the search engine algorithms and user behavior. SEO is also influenced by factors such as your industry, competitors, goals,

budget, etc. Therefore, there is no one-size-fits-all approach to SEO.

- Search engines use complex algorithms to determine the relevance and quality of a website's content. These algorithms consider many factors, including the website's structure, content, backlinks, and user experience. To improve a website's ranking, SEO practitioners must stay up to date with the latest trends and best practices in SEO.

Overall, SEO is a complex and ongoing process that requires a combination of technical knowledge, creativity, and analytical skills. It involves both on-page and off-page optimization techniques, as well as ongoing analysis and refinement. By improving a website's ranking and visibility in search engine results, SEO can help businesses and organizations reach more customers, increase conversions, and ultimately grow their online presence.

Information about some important terms and plugins used in Project:
• Blogs: short for weblogs, are online platforms where individuals or organizations can publish content, such as articles, videos, podcasts, etc., on various topics and interact with their audience. Blogs can be used for personal, professional, or commercial purposes. Some examples of popular blogs are Medium, The Verge, and Mashable.

• Screaming Frog: a software tool that helps SEO professionals and web developers to crawl, audit, and analyze websites. Screaming Frog can perform various tasks, such as finding broken links, duplicate content, missing tags, redirects, etc., and provide useful data and insights for improving website performance and usability. Screaming Frog has a free version that can crawl up to 500 URLs and a paid version that can crawl unlimited URLs and has more features.

• Domain: a unique name that identifies a website on the internet. A domain consists of two parts: a top-level domain (TLD), such as .com, .net, .org, etc., and a second-level domain (SLD), which is the name chosen by the website owner. For example, in www.google.com, google is the SLD and .com is the TLD. A domain is registered with a domain name registrar and points to an IP address of a web server that hosts the website.

• Hosting: a service that provides space on a web server to store the files and data of a website and make them accessible on the internet. A web hosting provider rents out server space and resources to website owners and ensures that the website is online and secure. There are different types of web hosting services, such as shared hosting, dedicated hosting, cloud hosting, etc., depending on the needs and budget of the website owner.

• DNS: short for Domain Name System, is a system that translates domain names into IP addresses and vice versa. DNS allows users to access websites using human-readable names instead of numerical addresses. DNS also helps to route internet traffic and manage email delivery. DNS works by using a network of servers called name servers that store records of domain names and their corresponding IP addresses.

• SSL: short for Secure Sockets Layer, is a protocol that encrypts the data exchanged between a web browser and a web server. SSL helps to protect the privacy and security of online transactions and communications by preventing unauthorized access or tampering. SSL also helps to verify the identity of the website owner and ensure trustworthiness. SSL works by using digital certificates that contain information about the website owner and a public key that is used to encrypt and decrypt data. Websites that use SSL have a padlock icon in the browser address bar and use HTTPS instead of HTTP.

•	Payment gateway: a service that enables online merchants to accept and process payments from customers using various methods, such as credit cards, debit cards, net banking, UPI, wallets, etc. A payment gateway acts as an intermediary between the customer's bank and the merchant's bank and ensures that the transaction is secure and authorized. Some examples of popular payment gateways in India are Paytm, Razorpay, CCAvenue, etc.

•	Speed optimization: a process of improving the loading speed and performance of a website or an app by using various techniques, such as reducing file sizes, minifying code, caching data, using a content delivery network (CDN), etc. Speed optimization helps to enhance the user experience, reduce bounce rates, and improve SEO rankings. Some tools that can help with speed optimization are Google PageSpeed Insights, GTmetrix, Pingdom, etc.

•	Security plugins: software applications that help to protect a website or an app from various threats, such as malware, hacking, spam, phishing, etc. Security plugins can perform various functions, such as scanning for vulnerabilities, blocking malicious requests, enforcing strong passwords, encrypting data, etc. Some examples of popular security plugins for WordPress are Wordfence, Sucuri, iThemes Security, etc.

•	Social media & digital marketing: a form of online marketing that uses various social media platforms, such as Facebook, Twitter, Instagram, YouTube, etc., to promote a brand, product, service, or cause to a target audience. Social media & digital marketing can help to increase brand awareness, generate leads, drive traffic, boost sales, and build customer loyalty. Some tools that can help with social media & digital marketing are Hootsuite, Buffer, Sprout Social, etc.

•	Ubersuggest: a free SEO tool that helps to find and analyze keywords, competitors, backlinks, content ideas, and more for any website or niche. Ubersuggest can help to improve SEO strategy and optimize web pages for higher rankings and traffic. Ubersuggest is developed by Neil Patel, a renowned digital marketer and entrepreneur.

Chapter 6. IMPLEMENTATION

6.1 IMPLEMENTATION ENVIRONMENT

CMS: WordPress
Programming language: PHP
Web server: Apache
Hosting provider: GoDaddy

6.2 PROGRAM AND MODULES SPECIFICATION

The website can be developed using a combination of WordPress and GoDaddy. It is used for creating the structure and content of the website, while CSS isused for styling and layout. JS is used for adding interactivity and dynamic functionality to the website.

Some of the modules or components that can be included on the website are:

Home Page: The Home Page is the first page that a visitor sees when they visit the website. It should provide an overview of the E-commerce site and its offerings, including featured products, a search bar to find specific items, and a call-to-action to encourage visitors to explore further.

About Us Page: The About Us Page should provide information about the firm,including its history, mission, and values. It may also include information about the team and testimonials from satisfied clients.

Services Page: The Services Page should provide details about the various services that the firm offers, such as sales and information. It may also include information about any unique selling points or competitive advantages that the firm has.

Pricing Page: The Pricing Page should provide information about the fees and charges associated with the firm's services, as well as any special offers or promotions that may be available.

Contact Page: The Contact Page should include the firm's contact information, such as phone number, email address, and physical address. It may also include a contact form that visitors can use to get in touch with the firm.

This screenshots below shows how the different pages were designed using wordpress and later posted on site.
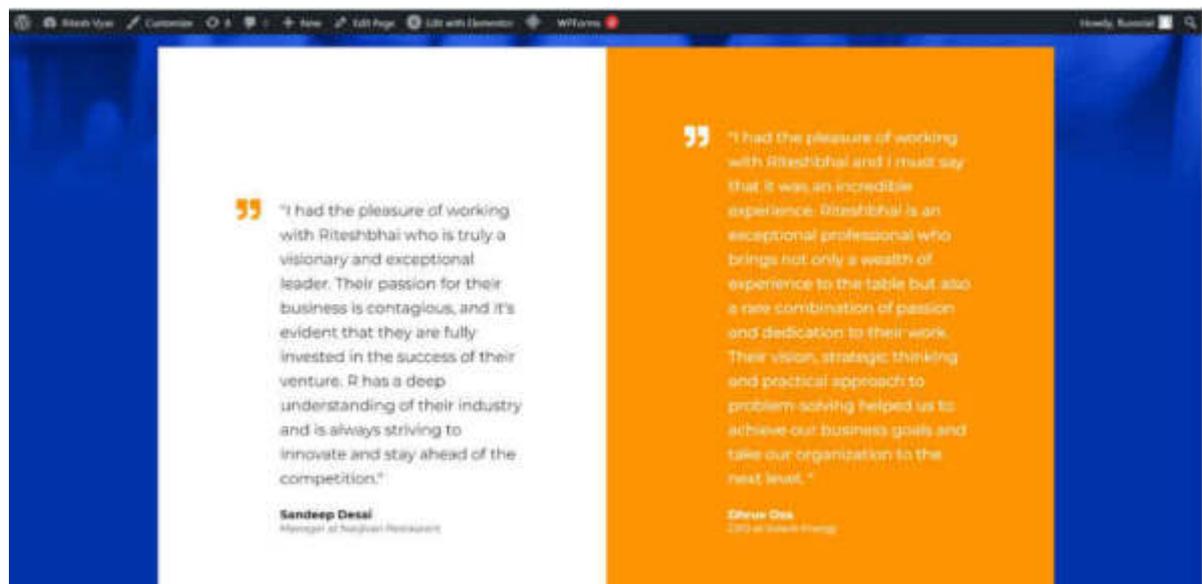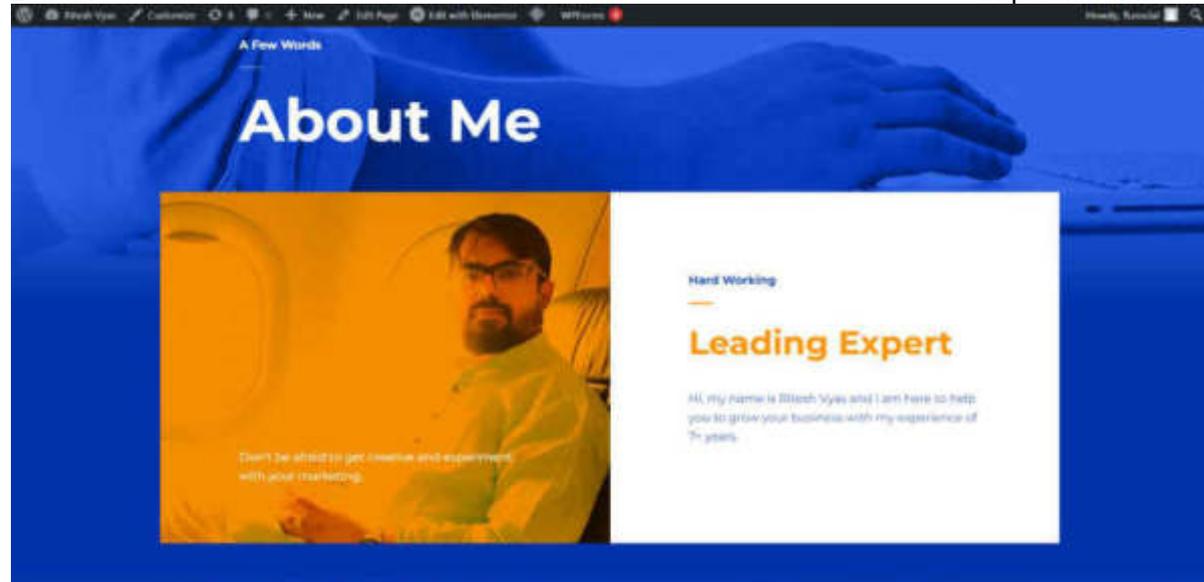
6.3 OUTCOMES

Ritesh's Blog seems to be a marketing and mentoring site that aims to teach people how to do a successful business with low capital. Some of the possible outcomes of a site like this are:

- Reaching more customers across India and beyond
- Reducing operational costs and increasing profit margins
- Providing a unique customer experience and improving customer loyalty
- Enhancing brand awareness and reputation through online marketing and social media

Of course, these outcomes depend on many factors, such as the quality of products and services, the design and functionality of the website, the competitiveness of prices and offers, and the customer feedback and reviews.

6.4 RESULT ANALYSIS

Accuracy: The level of accuracy in the proposed system will be higher. All operation would be done correctly, and it ensures that whatever information is coming from the server is accurate.

Reliability: The reliability of the proposed system will be high due to the above stated reasons. The reason for the increased reliability of the system is that now there would be proper storage of information.

No Redundancy: In the proposed system utmost care would be that no information is repeated anywhere, in storage or otherwise. This would ensure economic use of storage space and consistency in the data stored.

Screenshots of Site:

Chapter 7. TESTING

7.1 TESTING STRATEGY

The testing strategy for the frontend website development of the firm usingWP includes the following steps:

1. Unit Testing: Testing individual components and modules for functionality and performance.

2. Integration Testing: Testing the integration of different components and modules to ensure that they work together seamlessly.

3. User Acceptance Testing: Testing the website's functionality from the user's perspective to ensure that it meets their requirements and expectations.

4. Regression Testing: Testing the website after making changes or updates to ensure that the existing features are not affected.

5. Performance Testing: Testing the website's performance under different loads and conditions to ensure that it performs well under all circumstances.

7.2 TEST RESULTS AND ANALYSIS

All tests are going very good condition. We assign the name according to the models or modules name. Also, outputs or results are satisfactory. We achieved what we wanted at the beginning of the project. It is a very good experience for me to involve this process.

Here are some test results provided by a site named nibbler, which is basically used for testing many aspects of the site.

Here is a possible audit report from the Nibbler result:

The report is a website SEO audit for riteshvyas.com, a website that belongs to Ritesh Vyas, a web developer and designer. The report was generated by Nibbler, a free tool that tests websites for accessibility, SEO, social media, compliance and more[1]. The report gives an overall score of 7.4 out of 10 for the website, which means it is fairly good but has some areas for improvement. The report also provides scores for different aspects of the website, such as:

- Accessibility: 9.5 out of 10. This means the website is very accessible to mobile and disabled users.
- Experience: 7.8 out of 10. This means the website is likely to be satisfying for users, but could improve some aspects of design and usability.
- Marketing: 5.0 out of 10. This means the website is not well marketed and popular, and could benefit from more social media presence and links from other websites.
- Technology: 7.2 out of 10. This means the website is well designed and built, but could use some updates and optimizations.

The report also provides some top priorities for website improvement, such as:

- Adding a favicon to the website.
- Adding more content to the homepage and other pages.
- Adding more headings to the pages.
- Adding more images to the pages.
- Adding more internal links to the pages.
- Adding more external links to the pages.
- Adding more meta tags to the pages.
- Adding more structured data to the pages.

The report also provides some details and suggestions for each aspect of the website, such as:

- How fast the website loads and how it can be improved.
- How mobile-friendly the website is and how it can be improved.
- How well the website follows web standards and best practices.
- How secure the website is and how it can be improved.
- How well the website uses analytics and tracking tools.

- How well the website uses social media and how it can be improved.

Chapter 8. CONCLUSION

8.1 OVERALL ANALYSIS OF INTERNSHIP

The internship project aimed to develop a modern and responsive website for a firm using WP. Through the implementation and testing stages, the project successfully achieved the desired outcome and met all of the client's requirements.

As an intern at Flu Social, I was assigned to the website development team, where I worked on various projects for different clients. My main tasks included designing and coding web pages, testing and debugging websites, and updating and maintaining existing websites. I also learned how to use various tools and platforms such as WordPress, Shopify, Google Analytics, and Mailchimp.

During my internship, I gained valuable skills and knowledge in web development, digital marketing, and teamwork. I also had the opportunity to interact with other professionals in the field and learn from their feedback and guidance. I enjoyed working in a dynamic and creative environment where I could apply my theoretical knowledge to practical problems and challenges.

Overall, this project provided a great opportunity to apply the knowledge and skills gained during the internship. It also allowed for a deeper understanding of the importance of effective communication and collaboration in a team environment. The internship project provided valuable experience in website development using modern technologies and tools. The project also demonstrated the importance of communication and collaboration among team members to ensure the successful completion of the project.

Reflection

My internship at Flu Social was a rewarding and enriching experience that helped me grow as a web developer and a digital marketer. I learned how to work on real-world projects with real clients and deadlines. I also learned how to communicate effectively with my team members and clients. I

improved my technical skills in web development as well as my soft skills such as problem-solving, creativity, and adaptability.

I am grateful to Flu Social for giving me this opportunity to learn from their expertise and experience. I am also thankful to my supervisor Dron Joshi for his constant support and guidance throughout my internship. He gave me constructive feedback on my work and helped me overcome any difficulties or challenges that I faced. He also encouraged me to explore new ideas and technologies that could enhance my work.

I believe that this internship has prepared me well for my future career in web development and digital marketing. I have gained confidence in my abilities and potential as a web developer. I have also developed a passion for creating engaging and effective online solutions that can make a positive impact on people's lives.

References

During the project we took help from certain external sources. Some of them are as follows:

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Appendix

Flu Social

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
Info@flusocial.com

January 20, 2023

OFFER LETTER

Subject: Internship Confirmation Letter for Sachinkumar Rameshbhai Prajapati

Dear Sir/Ma'am,

This is to certify that Mr.Sachinkumar Rameshbhai Prajapati, student of Information & Technology Engineering in S.P.B.Patel Engineering College (Saffrony Institute of Technology). Semester 8 has been successfully allocated to his Internship from Flu Social.

Details of student are as below:

Name of the student: Sachinkumar Rameshbhai Prajapati

College: Gujarat Technological University (S.P.B.Patel Engineering College (Saffrony Institute of Technology))

Course: Bachelor of Engineering

Branch: Information & Technology Engineering

Enrollment Number: 190390116037

Project In: Web Development & SEO, eComm Platform

Project Description: WordPress Development with HTML,CSS & PHP, Digital Marketing, SEO, Graphics Designing & Content Creation.
An Online eCommerce Platform for IT Services /Reseller Global Platform.

Project Guide: Yash Patel

Technology: WordPress + Woocommerce with Yoast SEO, Screaming Frog, UberSuggest, Google Analytics, WebMaster, Hostinger Tools, CloudFlare, Facebook Business Ads Manager.

Duration: 12 Weeks (Starting from 23 Jan 2023)

We are confident that he will be able to make a significant contribution to the success of our company.

Best regards,

Dron Joshi (Founder & CEO)

INTERNSHIP AT 3i WEBEXPERTS PVT LTD.

AN INTERNSHIP REPORT

Submitted by

Vaidehi A. Prajapati

190390116038

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 3i WEBEXPERTS Pvt. Ltd.** has been carried out by **Vaidehi A. Prajapati** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

Date: 13 - 05 - 2023

Completion certificate

This is to certify that Vaidehi Amitkumar Prajapati, a student of Saffrony Institute of Technology, Linch has successfully completed her internship in the field of Web Development from 13th February 2023 to 13th May 2023 under the guidance of Mr. Nilesh Bhanushali.

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 her every success in her life and career.

Best Regards
3i webexperts Pvt Ltd

3iwebExperts
319-320/A1A2, Joyos Hubtown
Nr. Modhe Circle, Mehsana

Signature & Stamp : _____

Web Design & Development

A1A2/319-320, JOYOS Hubtown, Nr. Modhera Circle, Mehsana-384002, Gujarat, India
+91 96649 70476 | +91 77779 83824 | www.3iwebexperts.com | info@3iwebexperts.com

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 3i Webexperts Pvt. Ltd.** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar & Mr. Nilesh Bhanushali (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

Vaidehi A. Prajapati   _____

ACKNOWLEDGMENT

I am deeply grateful to 3i Webexperts for providing me with the opportunity to participate in their internship program. Special thanks to Mr. Nilesh Bhanushali for giving me this wonderful opportunity to grow as a professional and providing me a great start. I would like to express my sincere appreciation to the company's management and staff for their guidance, support, and encouragement throughout my internship.

I would like to thank my Head of the Department, Prof. Akshay Kansara for his constant guidance throughout my internship. I would like to thank my internal guide, Prof. Sushama Sainwar of Information Technology for her support and advices to get and complete internship in above said organization.

I am extremely great full to my department staff members and friends who helped me in successful completion of this internship

Once again, I would like to express my heartfelt appreciation to 3i Webexperts for this wonderful opportunity. I am grateful for the experience and the knowledge gained, and I will carry the lessons learned with me throughout my career.

Abstract

This report contains the work done by the author during her internship at *3i Webexperts Pvt Ltd*. It shows the work she did in the company during her internship period. This internship provided an opportunity to gain hands-on experience in the dynamic field of information technology with 3i Webexperts. As an intern, I worked closely with experienced professionals to develop my technical skills, learn about the latest technologies, and contribute to real-world projects.

During the internship, I had the chance to work on different aspects of software development such as coding, testing, and debugging. I also learned how to work with a team and communicate effectively with clients.

At 3i Webexperts, believe in nurturing talent and providing an environment where interns can grow and develop into successful professionals. The company is committed to providing its interns with the resources and support they need to succeed.

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.

List of Figures

Abbreviations

HTML	Hypertext Markup Language
XML	Extensible Markup Language
HOD	Head of the Department
UML	Unified Modeling Language
CSS	Cascading Style Sheet
DBMS	Database management system
My SQL	My Structure Query Language
BI	Business Intelligence
AJAX	Asynchronous JavaScript and XML
RIA	Rich Internet Application
CSS	Cascading Style Sheet

Table of Contents

CHAPTER 1: OVERVIEW OF THE COMPANY

3iwebexperts is a Multi Skilled and Full-Service Web Designing Company in India. 3iwebexperts is a pioneer in Web Designing, eCommerce, Digital Marketing and Search Engine Optimization. We are professional, forward thinker and professional who have great ability to decode our client's need into effective solutions. With Years of Great Experience as eCommerce Website Service Agency, we have been constantly helping our clients with Digital Marketing Services to transform their business.

3iwebexperts has become outsourcing powerhouse both onshore and offshore by delivering 100's of projects on timely basis. We are ranked one of the fastest growing Web Designing Company in India with 1000+ projects delivered across United States, UAE, UK, Canada, Australia and other countries. We are committed to being transparent and understanding with our clients. We are always open about what we do and strive for best long-term partnership.

1.1 HISTORY

3i Webexperts Pvt Ltd is a privately-owned technology company founded in 2007 by Mr. Pankaj Kumar Singh in Jaipur, Rajasthan, India. The company began as a small team of developers and designers, and over the years, it has grown to become a leading provider of software development and digital marketing services in India and globally.

The company's early focus was on providing web design and development services to clients in India. However, it quickly expanded its services to include mobile application development, e-commerce solutions, digital marketing, and IT consulting services. 3i Webexperts Pvt Ltd has since served clients from various industries, including healthcare, education, e-commerce, real estate, and hospitality.

Over the years, 3i Webexperts Pvt Ltd has received several awards and recognition for its outstanding work in the technology industry. In 2016, the company was awarded the "Best Digital Marketing Agency in Rajasthan" by the Rajasthan State Industrial

Development and Investment Corporation (RIICO). The company has also been featured in various technology publications, including TechCrunch, Entrepreneur India, and Your Story.

Today, 3i Webexperts Pvt Ltd continues to expand its services and offerings to meet the evolving needs of its clients. The company has a team of over 100 experienced professionals who work tirelessly to deliver high-quality solutions that help businesses grow and succeed in today's competitive landscape.

1.2   SCOPE OF WORK

3i Webexperts Pvt Ltd offers a wide range of services in software development, web design and development, mobile application development, e-commerce solutions, digital marketing, and IT consulting services. The company's scope of work includes:

1. Software Development: 3i Webexperts Pvt Ltd provides custom software development services to businesses of all sizes. The company has expertise in various technologies, including .NET, PHP, Python, and Java. Its software development services include software design, development, testing, and maintenance.

2. Web Design and Development: The company offers web design and development services, including responsive web design, CMS development, e-commerce website development, and website maintenance services.

3. Mobile Application Development: 3i Webexperts Pvt Ltd provides mobile application development services for Android and iOS platforms. The company's mobile app development services include mobile app design, development, testing, and maintenance.

4. E-commerce Solutions: The company offers e-commerce solutions, including e-commerce website design and development, payment gateway integration, and shopping cart development services.

5. Digital Marketing: 3i Webexperts Pvt Ltd provides a range of digital marketing services, including search engine optimization (SEO), pay-per-click (PPC) advertising, social media marketing, email marketing, and content marketing.

6. IT Consulting: The company provides IT consulting services to help businesses streamline their technology infrastructure and optimize their IT investments. Its IT consulting services include technology assessment, IT strategy development, and project management.

1.3   ORGANIZATION CHART
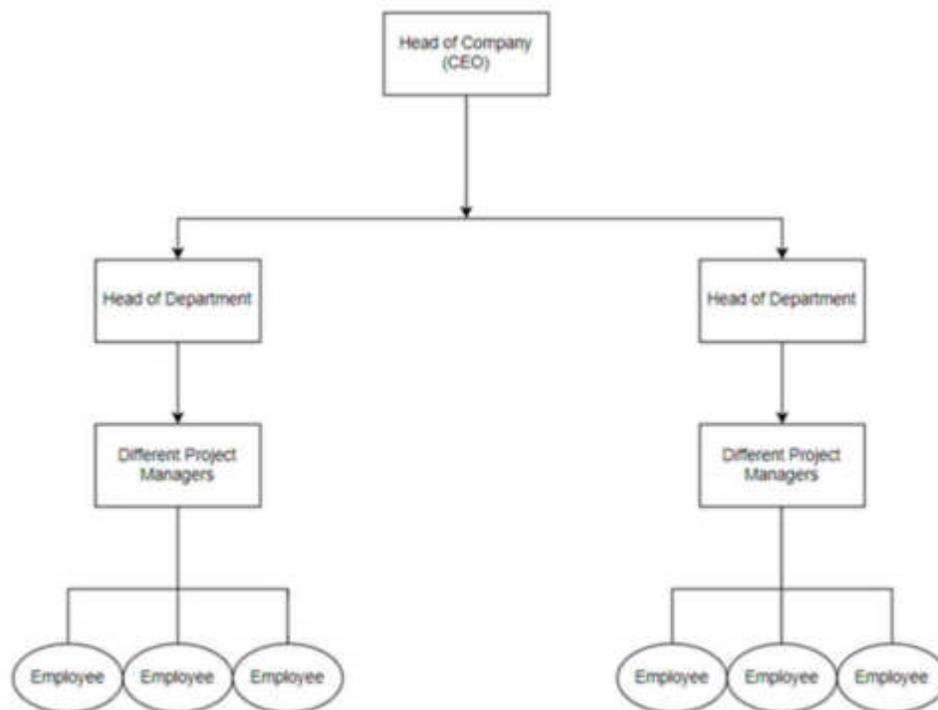
Fig 1.1 Flow of Organization

1.4   CAPACITY OF PLANT

Capacity: 100-150

CHAPTER 2: OVERVIEW OF DIFFERENT DEPARTMENT OF THE ORGANIZATION

2.1 DETAILS ABOUT THE WORK BEING CARRIED OUT IN EACH DEPARTMENT

The software development services of 3i webexperts are not limited to a single area or technology, but rather include every industry such as

- **Custom Software Development**

  Designing, building, deploying, and maintaining custom software solutions and services are all part of the custom software development process.

- **Web Development**

  Your unique business concepts demand responsive web experience. From analyzing disruptive B2B or B2C difficulties to developing an intuitive UI/UX, fully functioning, and strong web technology solution, 3i webexperts bold approach helps customers.

- **Dedicated Development Team**

  Hiring our professional software development team will increase your capacity to efficiently cater to your company goals.

- **Product Development**

  Using their expertise, 3i webexperts creates a comprehensive strategy to upgrade your legacy software system or develop new software products.

- **Ecommerce**

  Because ecommerce is one of the fastest growing industries, working with one of the best ecommerce development firms has become a top priority for many enterprises.

- **Mobile Apps**

  3i webexperts is a team of mobile app developers with years of expertise building high-performing, feature-rich native and cross-platform mobile applications for both iOS and Android devices that serve millions of people every day.

- **UI/UX Design**

  User interface that is appealing to the eye, resulting in increased business engagement and exceptional digital experiences 3i webexperts ability is to build appealing and intuitive designs using cutting-edge tools and technologies in conjunction with extensive creative design experience.

- **Software Testing & QA**

  3i webexperts offers Next-Generation software testing and Quality Assurance services. It guarantees a considerable increase in the speed and quality of delivering codes, as well as an improved Software development life cycle and cost-effectiveness.

- **Enterprise Solution**

  To improve operational efficiency, automate company operations, and improve customer satisfaction, modernize and expand your firm using Enterprise Software Development services. To refine and optimize intricate business processes, our professionals design and implement next-generation enterprise apps.

2.2 TECHNICAL SPECIFICATIONS OF MAJOR EQUIPMENT

Employees at 3i webexperts make use of various software for development in various departments. The following are a few of them:

- **Visual Studio Code**

  Deep remote development will be available in VS Code. You can connect to a container running a different OS and use all of the VS Code plugins, linting, and debugging features that are available in that environment.

- **Eclipse IDE**

  Eclipse is a programming platform with a built-in development environment. It includes a standard workspace as well as a plug-in framework for modifying the environment. It is the second-most-used Java development IDE, having formerly been the most popular.

- **IntelliJ IDEA**

  IntelliJ IDEA is a Java-based integrated development environment for creating computer software. JetBrains created it, and it comes in two flavors: an Apache 2 Licensed community edition and a proprietary commercial edition.

- **NetBeans**

  NetBeans is an IDE based on Java. NetBeans allows you to build applications out of a collection of modular software components called modules. NetBeans is a Java application that runs on Windows, Mac OS X, Linux, and Solaris.

- **Sublime Text**

  Sublime Text is a cross-platform source code editor that is available as a shareware download. It has support for a number of programming and markup languages built in. Plugins, which are often community-built and maintained under free-software licenses, allow users to extend the functionality of the system. Sublime Text offers a Python API for plugin development.

- **AWS**

  Amazon Web Services is an Amazon subsidiary that provides consumers, corporations, and governments with metered pay-as-you-go cloud computing platforms and APIs.

- **GitHub**

  GitHub, Inc. is a software development and version control startup that focuses on Git. It has both Git's and its own distributed version control and source code management functionalities.

- **Microsoft Visual Studio**

  Microsoft Visual Studio is a development environment from Microsoft. It's used to create, among other things, websites, web apps, software platforms, and mobile apps.

- **Apache Tomcat**

  Tomcat is an HTTP web server that runs Java programs in a "pure Java" environment.

- **MySQL**

  MySQL is a relational database management system that is free and open source.

2.3   SCHEMATIC LAYOUT WHICH SHOWS THE SEQUENCE OF OPERATION FOR   MANUFACTURING OF END PRODUCT
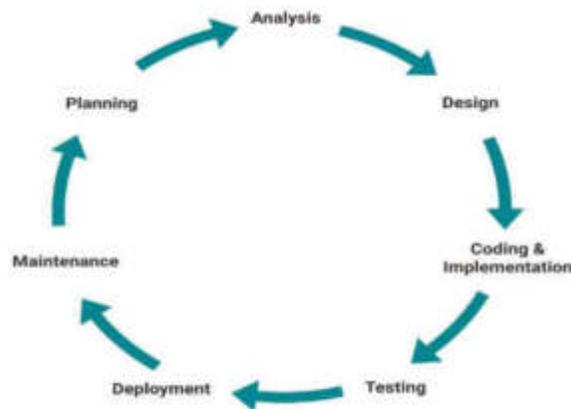
Fig. 2.1 Sequence of Operation

2.4   STAGE OF PRODUCTION

- **Planning**

  The planning stage (also known as the feasibility stage) is when developers start thinking about the next project. It assists in defining the problem and scope of any current systems, as well as determining the goals of new systems.

- **Analysis**

  The analysis process includes gathering all of the precise details needed for a new system as well as designing the first prototype designs. Developers commonly generate a software requirement specification, or SRS document. This document provides all of the system's software, hardware, and network specifications.

- **Design**

  Before moving on to the primary developer stage, the design stage is required. Developers will start by outlining the overall application's characteristics, as well as specialized aspects like User interfaces, System interfaces, Network and network requirements, and Databases. They'll normally modify the SRS document into a more logical structure that can later be translated into a computer language.

- **Coding and Implementation**

  The development stage is when programmers write code and construct the application based on the design papers and specifications that were prepared previously. Developers will use numerous tools such as compilers, debuggers, and interpreters while adhering to the organization's coding norms. Common programming languages include Java, C++, PHP, and other similar languages. Developers will choose the right programming code based on the project specifications and requirements.

- **Testing**

  The process does not end with the creation of software. It must now be thoroughly tested to ensure that no problems exist, and that the end-user experience is not damaged in any way. During the testing step, developers will go over their software with a fine-tooth comb, looking for any faults or errors that need to be noted, corrected, and retested. It's vital that the software conforms to the SRS document's quality requirements.

- **Deployment**

  After testing, the app's overall design will take form. Different modules or designs will be integrated into the core source code by developers, who will typically use training environments to uncover further flaws or issues. Finally, the information system will be created and integrated into its surroundings. The program is regarded as market-ready after it passes this stage and can be delivered to any end-user.

- **Maintenance**

  When software is published to the public, the SDLC does not end. Developers must now go into maintenance mode and begin practicing any procedures that are required to address concerns raised by end users. After the software has been deployed, developers are responsible for implementing any changes that the software may require.

CHAPTER 3: INTRODUCTION TO THE PROJECT

3.1 PROJECT SUMMARY

The Ala Carte Management System is a web-based application designed to help restaurant owners manage their menu items and orders efficiently. It is built using the React JS framework for the front-end and Django Rest API for the back-end, providing a smooth and responsive user experience while also providing robust back-end functionality. Customers can place orders online, view their order status, and receive notifications when their order is ready. Additionally, the system includes a reporting system to track sales, inventory, and order history, providing valuable insights to restaurant owners and helping them make informed business decisions.

3.2 PROJECT PURPOSE

The purpose of the Ala Carte Management System is to provide a streamlined and efficient solution for restaurant owners to manage their menu items and orders. The system aims to improve the customer experience by providing a convenient and hassle-free way for customers to place orders and receive updates on their status.

Additionally, the system helps restaurant owners to manage their operations more efficiently, by allowing them to track their sales, inventory, and order history. This information can help owners to make informed business decisions and optimize their operations.

The use of React JS and Django Rest API ensures a smooth and responsive user experience, while also providing robust back-end functionality. The system is designed to be easy-to-use and customizable, allowing restaurant owners to tailor it to their specific needs.

Overall, the purpose of the Ala Carte Management System is to provide restaurant owners with a comprehensive solution for managing their menu items and orders, improving the customer experience, and optimizing their operations.

3.3 PROJECT SCOPE

The Ala Carte Management System project is a web-based application that allows restaurant owners to manage their menu items and orders efficiently. It includes features such as menu management, order management, reporting system, customization, payment gateway, and delivery system. The goal is to provide a better customer experience and optimize operations.

3.4 PROJECT OBJECTIVE

Project objectives are what you plan to achieve by the end of your project. This might include deliverables and assets, or more intangible objectives like increasing productivity or motivation. Your project objectives should be attainable, time-bound, specific goals you can measure at the end of your project.

3.4.1 Main Objective:

The main objective of an a la carte system with ReactJS and Django REST API would likely be to provide a platform for managing customized orders for a business. The system would allow customers to select individual items from a menu and customize their order based on their preferences. The system would also provide a backend for managing the menu items, orders, and customer information.

The primary goal of such a system would be to streamline the ordering process, reduce errors, and improve customer satisfaction. By allowing customers to customize their orders, the system can provide a more personalized experience that meets their individual needs. Additionally, the system can help businesses manage their inventory and track customer orders to improve efficiency and reduce waste.

Overall, the main objective of an a la carte system with ReactJS and Django REST API would be to create a user-friendly platform that improves the ordering process for customers while providing businesses with a powerful backend for managing their operations.

3.4.2 Secondary Objective:

The secondary objective of an a la carte system with ReactJS and Django REST API could vary depending on the specific needs and requirements of the business or organization. Here are a few potential secondary objectives that the project could aim to achieve:

Improved data analytics: The system could be designed to collect and analyze data on customer orders, preferences, and behavior. By analyzing this data, businesses can gain insights into customer needs and preferences, which can inform future menu development and marketing strategies.

Integration with existing systems: The system could be designed to integrate with other existing systems, such as inventory management, payment processing, and customer relationship management (CRM) systems. This can help businesses streamline their operations and improve efficiency.

Enhanced security features: The system could be designed with robust security features to protect customer data and prevent unauthorized access. This can help businesses comply with data privacy regulations and build trust with their customers.

Multi-language support: The system could be designed to support multiple languages to cater to a diverse customer base. This can help businesses expand their reach and improve customer satisfaction for non-native speakers.

Overall, the secondary objectives of an a la carte system with ReactJS and Django REST API would depend on the specific needs and goals of the business or organization.

3.5 TECHNOLOGY AND LITERATURE OVERVIEW

The project involves the development of an a la carte system using ReactJS and Django REST API. Here's an overview of the technology and literature involved in the project:

Technology Overview:

ReactJS: ReactJS is a popular JavaScript library for building user interfaces. It is used for building reusable UI components and provides a declarative programming model that makes it easier to create complex UIs.

Django: Django is a high-level Python web framework that is designed for rapid development and clean, pragmatic design. It provides a powerful ORM and a wide range of built-in features for handling web requests, authentication, security, and database management.

Django REST framework: Django REST framework is a powerful and flexible toolkit for building Web APIs. It provides a set of tools and libraries for building RESTful APIs using Django, including serializers, authentication, and permissions.

Literature Overview:

RESTful Web Services: RESTful Web Services is a book by Leonard Richardson and Sam Ruby that provides a comprehensive guide to designing and building RESTful web services. The book covers topics such as resource modeling, URI design, hypermedia, and authentication.

ReactJS Essentials: ReactJS Essentials is a book by Artemij Fedosejev that provides a practical guide to building web applications with ReactJS. The book covers topics such as building components, handling events, managing state, and using third-party libraries.

Django for Beginners: Django for Beginners is a book by William S. Vincent that provides a step-by-step guide to building web applications with Django. The book covers topics such as setting up a development environment, building models and views, handling forms, and deploying a Django application.

Django RESTful Web Services: Django RESTful Web Services is a book by Gastón C. Hillar that provides a comprehensive guide to building RESTful web services using Django. The book covers topics such as serialization, authentication, and permissions, as well as advanced topics such as throttling and caching.

Overall, the project involves using modern web technologies and building on a solid foundation of best practices and industry-standard frameworks.

3.6 SYNOPSIS

The project is an a la carte system built using ReactJS and Django REST API. The system allows customers to customize their orders by selecting individual items from a menu and specifying their preferences. The system also provides a backend for managing the menu items, orders, and customer information.

The primary objective of the system is to streamline the ordering process, reduce errors, and improve customer satisfaction. By allowing customers to customize their orders, the system provides a more personalized experience that meets their individual needs. Additionally, the system helps businesses manage their inventory and track customer orders to improve efficiency and reduce waste.

The secondary objectives of the system may include improved data analytics, integration with existing systems, enhanced security features, and multi-language support.

The system uses ReactJS for building the user interface and Django REST API for handling the backend logic. The technology stack provides a powerful and flexible toolkit for building modern web applications, while the literature on RESTful web services, ReactJS, and Django provides guidance on best practices and industry-standard frameworks.

Overall, the project aims to create a user-friendly platform that improves the ordering process for customers while providing businesses with a powerful backend for managing their operations.

CHAPTER 4: PROJECT MANAGEMENT

4.1   PROJECT PLANNING OBJECTIVE

The primary objective of project planning is to define a roadmap for the project that outlines the scope, timelines, resources, and deliverables required to achieve the desired outcome. Here are some key project planning objectives for your project:

- Define the project scope: Clearly define the scope of the project, including the features and functionalities that will be included in the Ala Carte management system.
- Develop a project plan: Create a detailed project plan that outlines the tasks, timelines, milestones, and resources required for each stage of the project.
- Identify project risks: Identify and assess potential risks that could impact the project timeline or budget, and develop strategies to mitigate them.
- Define project roles and responsibilities: Clearly define the roles and responsibilities of each team member involved in the project, including developers, designers, testers, and project managers.
- Estimate project budget: Develop a detailed budget for the project, including the cost of resources, software licenses, and other expenses.
- Develop a project communication plan: Create a communication plan that outlines the channels and frequency of communication between team members, stakeholders, and clients.
- Define quality standards: Establish quality standards and testing criteria to ensure that the Ala Carte management system meets the desired level of quality and functionality.
- Monitor project progress: Continuously monitor project progress against the project plan and make adjustments as necessary to ensure that the project stays on track.

By achieving these objectives, you can ensure that your project is well-planned, well-executed, and meets the desired outcome of delivering a functional Ala Carte management system with ReactJS and Django Rest API.

4.1.1 Software Scope:

The software scope of the Ala Carte management system project with ReactJS and Django Rest API would include the features and functionalities that will be developed as part of the software application.

- User registration and authentication: Allow users to register and log in to the system, with different access levels based on their roles.
- Menu management: Allow restaurant owners or managers to create and manage menus, including adding, updating, and deleting menu items.
- Ordering system: Provide a user-friendly interface for customers to place orders, with the ability to customize orders and add special instructions.
- Payment integration: Integrate a payment gateway to allow customers to pay for their orders online, securely and efficiently.
- Reporting and analytics: Provide restaurant owners or managers with insights into their sales, order trends, and customer behavior, through reports and dashboards.

4.1.2 Resources:

Project resources are components that are necessary for successful project implementation. They include people, equipment, money, time, knowledge – basically, anything that you may require from the project planning to the project delivery phases.

4.1.2.1 Human Resources:

Human resources play a critical role in the success of any software development project, including the Ala Carte management system project with ReactJS and Django Rest API. Here are some of the key roles and responsibilities of human resources in the project:

- Project Manager: The project manager is responsible for overall project planning, execution, and monitoring. They will work closely with the development team and stakeholders to ensure that the project is delivered on time, within budget, and meets the desired quality standards.
- Developers: The development team will be responsible for designing, coding, testing, and deploying the software application. They will work with project managers,

designers, and testers to ensure that the application meets the functional and non-functional requirements of the project.

- Designers: Designers will work on the user interface and user experience of the application. They will collaborate with the development team to ensure that the application is visually appealing, easy to use, and intuitive.

- Testers: Testers will be responsible for testing the application to ensure that it meets the functional and non-functional requirements of the project. They will work with developers and project managers to identify and resolve any bugs or issues that arise during testing.

- Business Analysts: Business analysts will work closely with project stakeholders to identify the functional and non-functional requirements of the application. They will also work with developers and testers to ensure that the application meets these requirements.

- Technical Writers: Technical writers will be responsible for documenting the application, including user manuals, technical guides, and API documentation.

- System Administrators: System administrators will be responsible for configuring, deploying, and maintaining the application in the production environment. They will ensure that the application is available, secure, and scalable.

4.1.2.2 Reusable Software Resources:

In software development, reusability is an important aspect that helps to save time, effort, and resources.

- Frameworks and Libraries: ReactJS and Django Rest API are themselves reusable frameworks and libraries that can help in the development of the application. ReactJS provides reusable components that can be used across different parts of the application, while Django Rest API provides a set of APIs and libraries that can be used to build RESTful web services.

- Open Source Libraries: There are several open-source libraries available that can be used to enhance the functionality of the application. For example, libraries for payment integration, authentication, and authorization can be used to speed up the development process.

- Templates and Themes: Pre-built templates and themes can be used to provide a consistent look and feel to the application. These templates can be customized as per the specific requirements of the project.
- Code Snippets: Reusable code snippets can be used to perform common tasks such as data validation, input sanitization, and error handling. These snippets can be easily integrated into the application code to save development time.

By leveraging these reusable software resources, the development team can save time and effort in the development process, while also ensuring a consistent level of quality across different parts of the application.

4.1.2.3 Environment Resources:

In addition to human and software resources, the Ala Carte management system project with ReactJS and Django Rest API would also require various environmental resources to support its development, testing, and deployment.

- Development Environment: The development team would require a set of development tools such as code editors, debuggers, compilers, and version control systems. These tools help to improve developer productivity, enhance code quality, and facilitate collaboration.
- Testing Environment: The testing team would require a testing environment that includes testing tools, simulators, emulators, and virtual machines. The testing environment should be designed to closely mimic the production environment and should be capable of simulating different user scenarios and load levels.
- Server Infrastructure: The server infrastructure is required to deploy the application in the production environment. This may include physical or virtual servers, load balancers, firewalls, and network switches. The infrastructure should be scalable, secure, and highly available.
- Database Infrastructure: The database infrastructure is required to store and manage the application data. This may include relational or NoSQL databases, backup and recovery systems, and monitoring tools. The database infrastructure should be designed to handle high volumes of data and queries, while also ensuring data consistency, availability, and security.

By ensuring that the necessary environmental resources are in place, the development team can build, test, and deploy the Ala Carte management system with greater speed, accuracy, and efficiency.

4.1.3 Project Development Approach:

A possible project development approach for building an Ala carte management system with ReactJS and Django Rest API could be:

- Define the project requirements and create a detailed project plan: Start by gathering the requirements for the system and creating a project plan that outlines the key milestones, deliverables, and timelines.
- Design the user interface: Design the user interface of the system using ReactJS. This involves creating wireframes and prototypes to get a better understanding of how the system will function and how users will interact with it.
- Develop the Django Rest API: Create the Django Rest API that will handle the backend functionality of the system, such as user authentication, data storage, and retrieval.
- Integrate the frontend and backend: Integrate the ReactJS frontend with the Django Rest API backend. This involves connecting the frontend components to the backend API endpoints to enable data transfer between the two.
- Test and debug the system: Test the system thoroughly to ensure that it meets the project requirements and functions as expected. Debug any issues that arise during testing.
- Deploy the system: Deploy the system to a production environment, such as a web server, to make it accessible to users.
- Maintain and update the system: Maintain and update the system regularly to ensure that it remains secure, up-to-date, and meets changing user needs.

Throughout the development process, it's important to follow best practices for coding, version control, and project management to ensure that the project is completed on time and within budget. Additionally, using tools such as Git for version control and Agile methodologies for project management can help streamline the development process and improve collaboration among team members.

4.2   PROJECT SCHEDULING

Scheduling in project management is the listing of activities, deliverables, and milestones within a project. A schedule usually includes a planned start and finish date, duration, and resources assigned to each activity. Effective project scheduling is a critical component of successful time management, especially for professional service businesses.

4.2.1 Timeline Chart:
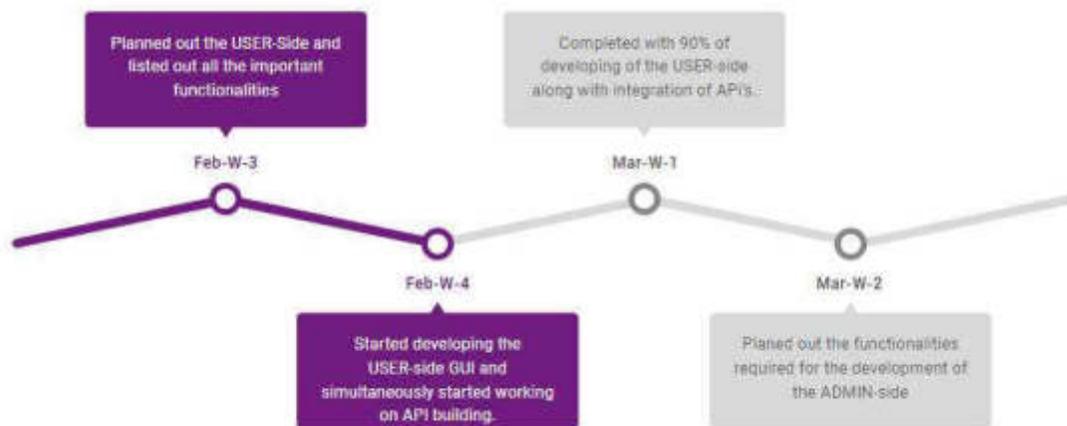
Fig 4.1. Month-1 Timeline
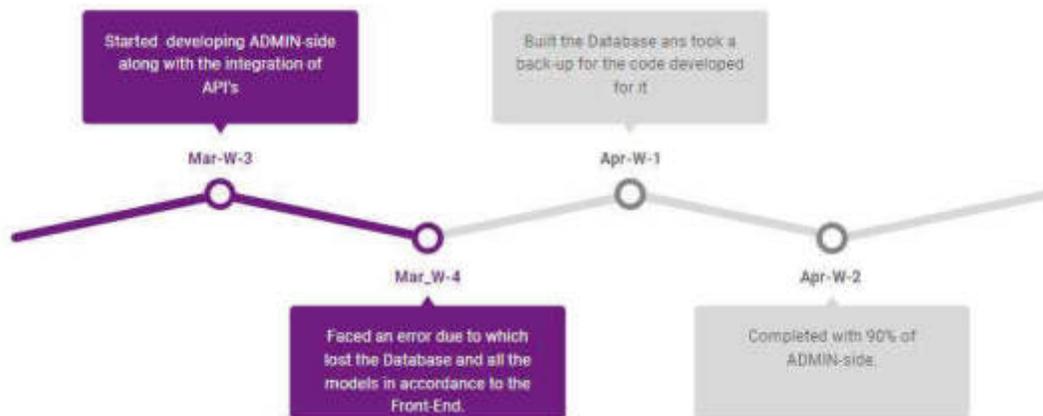
Fig 4.2. Month -2 Timeline
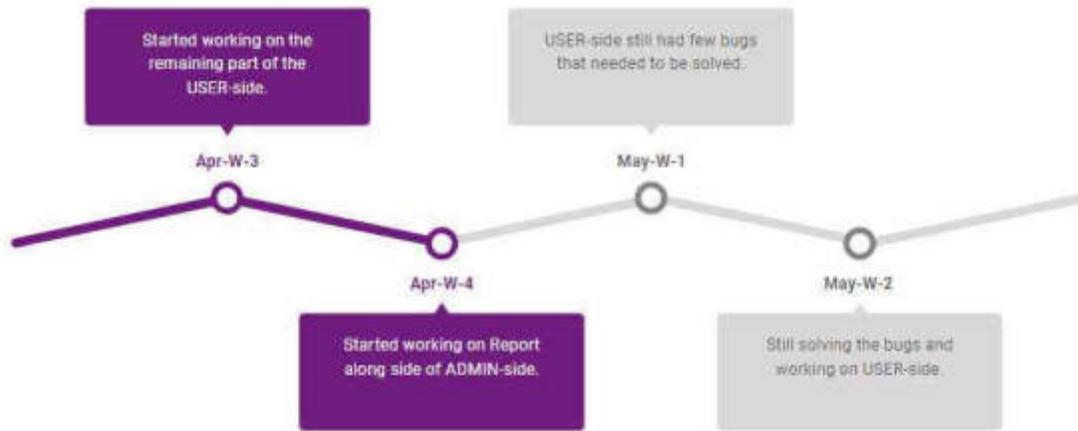
Fig 4.3. Month -3 Timeline

4.3   RISH MANAGEMENT

Risk management is an important part of project management that involves identifying, assessing, and mitigating risks that may impact the project's success. Effective risk management helps minimize the likelihood and impact of potential issues, improving the project's chances of success.

Here are the key steps in the risk management process for a project:

- Identify Risks: Identify potential risks that could impact the project. These could include technical risks (such as software bugs), organizational risks (such as changes in leadership), and external risks (such as changes in regulations).
- Assess Risks: Assess the likelihood and potential impact of each risk. This can be done by assigning each risk a probability and impact score, based on the likelihood of occurrence and the potential consequences.
- Prioritize Risks: Prioritize the risks based on their likelihood and potential impact. Focus on the risks that are most likely to occur and have the greatest potential impact on the project's success.
- Develop Risk Response Strategies: Develop strategies for mitigating each identified risk. These strategies could include risk avoidance (avoiding the risk altogether), risk transfer (transferring the risk to a third party), risk mitigation (reducing the likelihood or impact of the risk), and risk acceptance (accepting the risk and preparing contingency plans).

- Implement Risk Response Strategies: Implement the risk response strategies for each identified risk. This may involve revising the project plan, changing project activities, or revising the project budget.

- Monitor Risks: Continuously monitor the identified risks to ensure that the risk response strategies are effective. Assess the impact of any changes on the project, and adjust the risk management plan as needed.

It's important to note that risk management is an ongoing process that should be integrated into the overall project management plan. By proactively identifying and mitigating risks, project managers can improve the chances of success and minimize the impact of any potential issues.

CHAPTER 5: SYSTEM REQUIREMENTS

5.1 USER CHARACTERISTICS

User characteristics are an important consideration when planning and developing a project. Understanding the needs, preferences, and behaviors of users can help ensure that the project meets their requirements and is successful.

- Demographics: Consider the demographic characteristics of the users, such as age, gender, income, education, and location. This information can help determine the design and functionality of the project to best suit the target audience.

- Goals and Objectives: Understand the goals and objectives of the users, such as what they hope to accomplish by using the project. This information can help guide the development of the project and ensure that it meets the needs of the target audience.

- Experience and Expertise: Consider the users' level of experience and expertise in the subject matter related to the project. This information can help determine the level of detail and complexity of the project, as well as the need for instructional or educational materials.

- Communication Preferences: Understand how the users prefer to communicate, such as through email, phone, or in-person meetings. This information can help ensure that the project team is able to effectively communicate with the users and gather feedback throughout the project.

- Technology Usage: Consider the users' level of comfort and experience with technology. This information can help determine the level of complexity and functionality of the project, as well as the need for user support and training.

By understanding these user characteristics, project teams can develop a project that meets the needs and preferences of the target audience, improving the chances of project success. It's important to gather this information through user research and feedback throughout the project development process.

5.2 FUNCTIONAL REQUIREMENTS

Functional requirements are a specific type of requirement that describes the functions or features that a product, system, or project must perform in order to meet its intended purpose. These requirements describe what the product or system must do in order to meet the needs and expectations of the users.

- User Authentication: The system must require users to authenticate with a valid username and password before granting access to the system.

- Data Entry: The system must allow users to enter data into specific fields and save that data to the system.

- Reporting: The system must be able to generate reports based on the data entered by users.

- Search Functionality: The system must allow users to search for specific records or data within the system.

- Notifications: The system must provide notifications to users based on specific events or actions taken within the system.

- Integration: The system must integrate with other systems or platforms, such as third-party software or databases.

- Security: The system must include appropriate security measures, such as encryption and access controls, to protect sensitive data.

Functional requirements should be specific, measurable, and achievable within the project scope and budget. They should also be testable and verifiable, so that project teams can confirm that the requirements have been met. Effective functional requirements are essential for successful project development and implementation, as they help ensure that the final product meets the needs and expectations of the users.

5.3   NON-FUNCTIONAL REQUIREMENTS

Non-functional requirements are a specific type of requirement that describes the qualities or characteristics that a product, system, or project must possess in order to meet its intended purpose. Unlike functional requirements, which describe what a product or system must do, non-functional requirements describe how it must perform.

- Performance: The system must be able to handle a certain number of users or transactions per second, and response times must meet specific thresholds.

- Availability: The system must be available for use during specific hours or must have specific levels of uptime, and downtime must be minimized.

- Scalability: The system must be able to handle an increasing number of users or transactions without degradation in performance.

- Reliability: The system must be able to operate without failure for a certain period of time, and must be able to recover from failures quickly and without data loss.

- Security: The system must be secure, protecting against unauthorized access, data breaches, and other security risks.

- Usability: The system must be easy to use and intuitive for users, with clear and consistent navigation and controls.

- Compatibility: The system must be compatible with specific operating systems, browsers, or other software.

Non-functional requirements are often more difficult to measure and verify than functional requirements, but they are equally important for successful project development and implementation. They help ensure that the final product not only meets the functional requirements but also possesses the qualities and characteristics necessary for the product to be effective and reliable.

5.4   SOFTWARE & HARDWARE REQUIREMENTS

Software and hardware requirements are a critical part of any project, as they help ensure that the project can be successfully developed, deployed, and maintained. Here are some examples of software and hardware requirements, as well as server hosting requirements:

5.4.1 Software Requirements:

- Operating System: The project may require a specific operating system, such as Windows or Linux.

- Programming Language: The project may require a specific programming language, such as Python or Java.

- Development Tools: The project may require specific development tools, such as an integrated development environment (IDE) or code editor.

- Database: The project may require a specific type of database, such as MySQL or PostgreSQL.
- Third-Party Libraries or APIs: The project may require the use of third-party libraries or APIs to support certain features or functionality.

5.4.2 Hardware Requirements:

- Processor: The project may require a specific type of processor, such as Intel or AMD.
- Memory: The project may require a certain amount of memory, such as 8GB or 16GB.
- Storage: The project may require a certain amount of storage, such as 500GB or 1TB.
- Graphics Card: The project may require a specific graphics card for processing certain types of data or for rendering graphics.

5.4.3 Server Hosting Requirements:

- Hosting Provider: The project may require a specific hosting provider, such as Amazon Web Services (AWS) or Microsoft Azure.
- Server Type: The project may require a specific type of server, such as a virtual private server (VPS) or dedicated server.
- Bandwidth: The project may require a certain amount of bandwidth to support user traffic and data transfer.
- Security: The project may require specific security measures, such as firewalls, SSL certificates, or data encryption.

  It's important to carefully consider and document software and hardware requirements, as well as server hosting requirements, during project planning and development. This helps ensure that the project can be successfully developed and deployed, and can help avoid potential issues or delays in the project timeline.

CHAPTER 6: DETAIL DESCRIPTION

6.1   USER/EMPLOYEE MODULE

This module is responsible for managing user accounts, access controls, and user permissions.

User Roles and Permissions: The module should support different user roles with varying levels of access, such as restaurant manager, waiter, chef, and cashier.

Access Controls: The module should provide access controls to restrict user access to specific features or areas of the system, such as menu editing or order processing.

Password Management: The module should provide password management features, such as password reset and password strength requirements, to ensure that user accounts are secure.

Overall, the user/employee module is essential for managing user accounts and access controls in the a la carte menu management system.

The module should be user-friendly and secure, providing employees with the tools they need to effectively manage the restaurant`s menu and orders.

6.2   COMPANY MODULE

The company module is an important component of the a la carte menu management system. This module is responsible for managing company-related information and settings. The following are some key features of the company module:

- Company Profile Management: The module should allow the restaurant to manage its profile information, such as its name, address, phone number, and email address.
- Payment Management: The module should provide features for managing payment methods and payment processing for orders, such as integrating with payment gateways and managing payment settings.

- Tax and Discount Management: The module should allow the restaurant to manage tax rates and discounts for menu items and orders.

- Menu Management: The module should allow the restaurant to manage its menu, including adding and removing menu items, editing prices and descriptions, and managing menu categories.

- Order Management: The module should provide features for managing orders, such as tracking order status, managing order history, and generating reports on sales and customer behavior.

- Inventory Management: The module should provide features for managing inventory, such as tracking stock levels and generating reports on inventory usage.

- Analytics and Reporting: The module should provide detailed analytics and reporting features, such as sales reports, customer behavior analysis, and inventory usage reports.

- Security and Privacy: The module should ensure that company data is secure and protected, with measures in place to prevent data breaches and unauthorized access.

Overall, the company module is essential for managing company-related information and settings in the a la carte menu management system. The module should be user-friendly and customizable, providing the restaurant with the tools it needs to effectively manage its menu and orders, as well as to make informed business decisions based on data and analytics.

6.3   ADMINISTRATOR MODULE

The administrator module is an important component of the a la carte menu management system. This module is responsible for managing system settings, security, and maintenance. The following are some key features of the administrator module:

- User Management: The module should allow the system administrator to manage user accounts, including adding and removing users, modifying user permissions, and resetting passwords.

- System Configuration: The module should allow the system administrator to configure system settings, such as email templates, notification settings, and system behavior.

- Backup and Recovery: The module should provide features for backing up and recovering system data in case of data loss or system failure.

- Security Management: The module should provide features for managing system security, such as user authentication and access controls, as well as implementing security measures to protect against cyberattacks and data breaches.

- System Monitoring: The module should provide features for monitoring system performance and identifying issues or errors that may affect system stability or performance.

- Reporting and Analytics: The module should provide detailed reports and analytics on system performance, user behavior, and other key metrics.

  System Upgrades and Maintenance: The module should provide features for upgrading the system and managing maintenance activities, such as software updates and bug fixes.

CHAPTER 7: SYSTEM DESIGN

7.1   DATA FLOW DIAGRAM
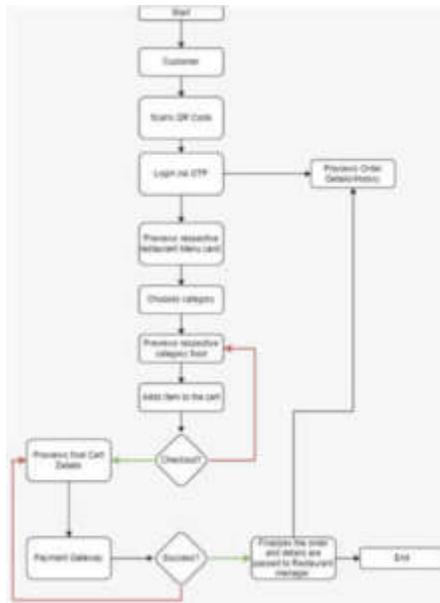
Fig 7.1. Dataflow Customer
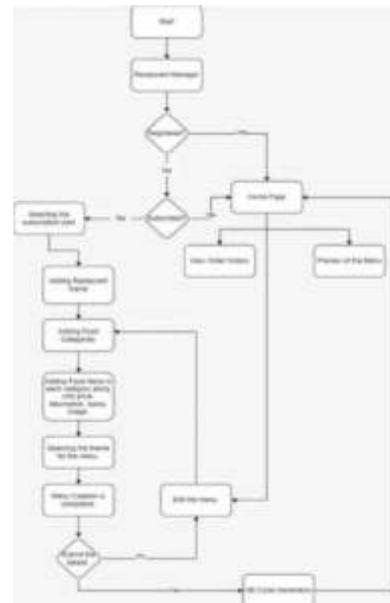
Fig 7.2. Dataflow Manager

7.2   GLIMPSE OF WEB APPLICATION

7.2.1 Customer Side:

Fig 7.3. User Login Page
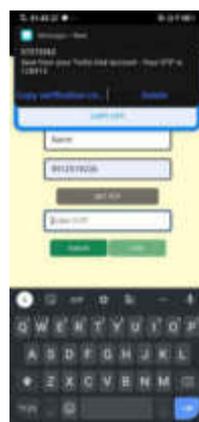
Fig 7.4. User Gets OTP

Fig 7.5. Restaurant Interface
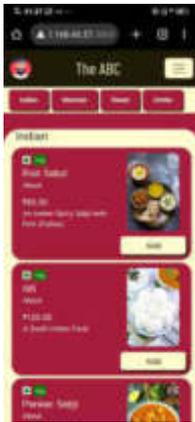
Fig 7.6. Indian Cuisine   **Fig 7.7. Adding Indian Item**   **Fig 7.8. Adding Mexican**
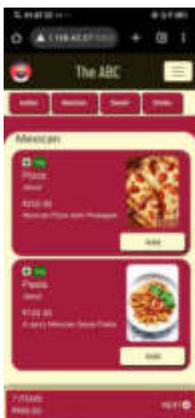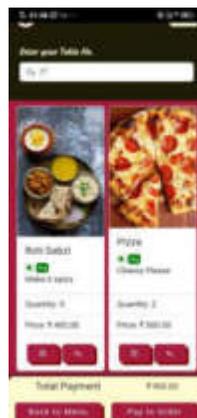
Fig 7.9. Total Items   **Fig 7.10. Checkout**   **Fig 7.11. Payment Mode**
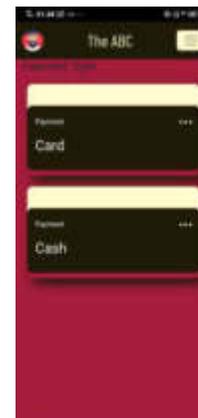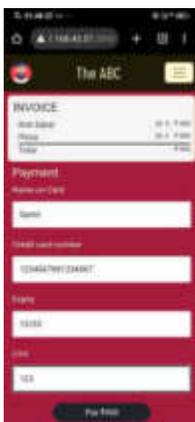
Fig 7.12. Enters Card Detail   **Fig 7.13. Correct Details**   **Fig 7.14. Order History**
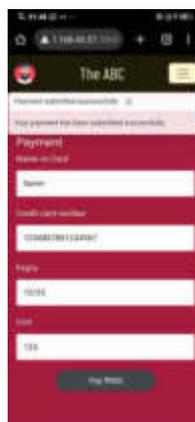
7.2.2 Admin Side:

Fig 7.15. Admin Login Validated
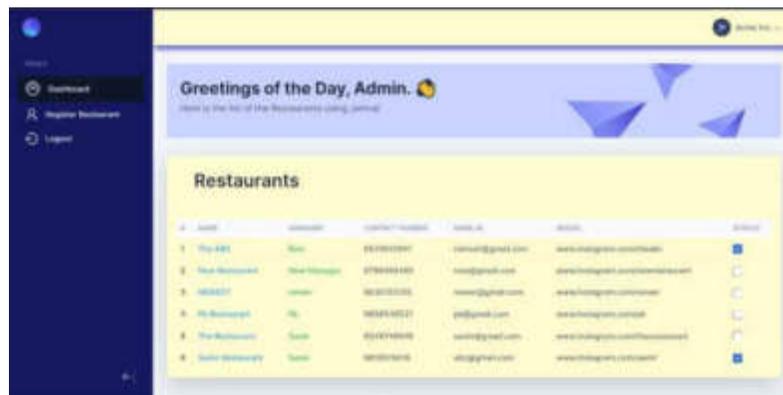
Fig 7.16. Admin Dashboard
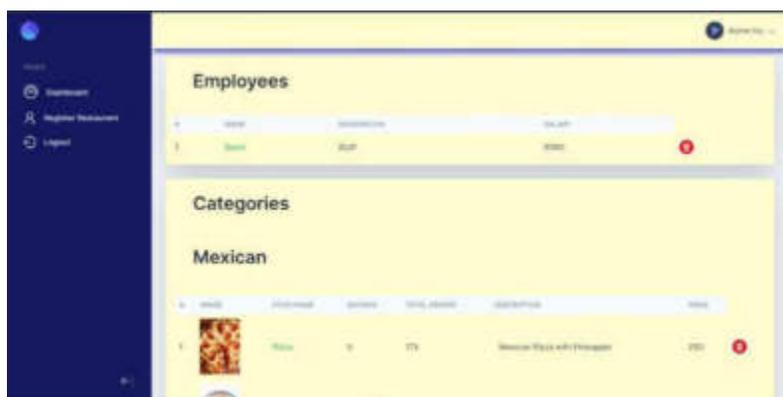
Fig 7.17. Admin can check Restaurant Details

Fig 7.18. Admin can register new Restaurant

Fig 7.19. Admin/Manager can register new Restaurant

7.2.3 Manager Side:
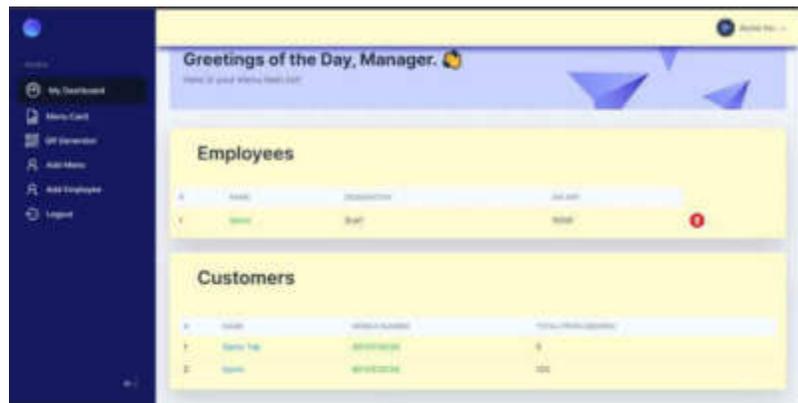
Fig 7.21. Manager Dashboard
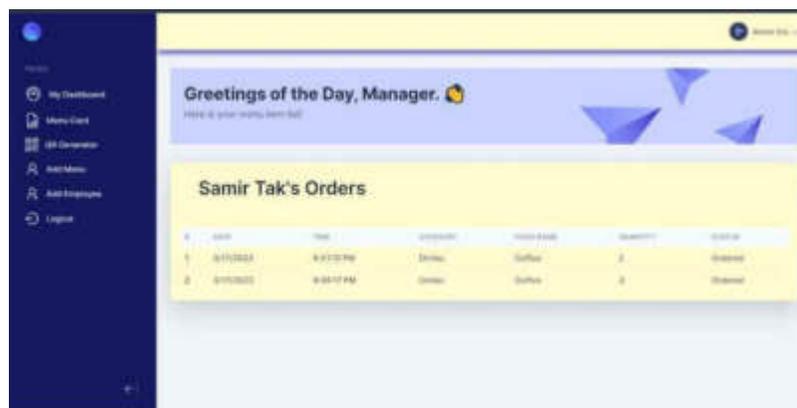
Fig 7.22. Check user order history
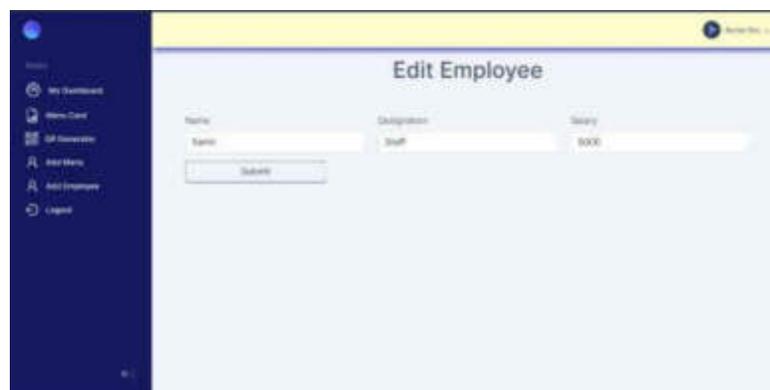
Fig 7.23. Edit Employee Details
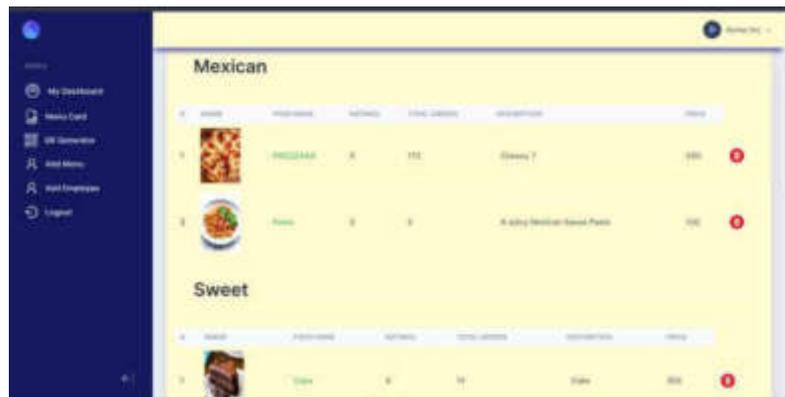
Fig 7.24. Can check Menu Items

Fig 7.25. View QR and download it
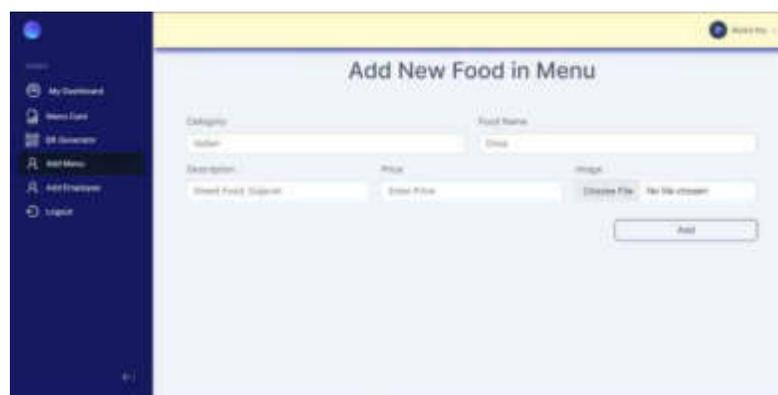
Fig 7.26. Add new item in Menu

Fig 7.27. Register new Employee

CHAPTER 8: LIMITATIONS AND FUTURE ENHANCEMENTS

8.1   LIMITATIONS

- Limited customization options: Depending on the specific requirements of the client, the system may have limited options for customizing the user interface or adding new features.

- Security concerns: While the system is designed to be secure and protect user data, there is always a risk of data breaches or other security threats that could compromise the system.

- Scalability: If the system is used by a large number of users or businesses, there may be scalability issues that arise as the system needs to handle more data and transactions.

- Integration with external systems: The system may need to integrate with external systems or services, such as payment gateways or inventory management systems, which could present technical challenges or require additional development work.

8.2   FUTURE ENHANCEMENTS

- Mobile application: Develop a mobile application for the system to allow users to easily access and use the system on their smartphones or tablets.

- Artificial intelligence: Integrate artificial intelligence (AI) and machine learning (ML) algorithms to provide personalized menu recommendations based on user preferences, order history, and other factors.

- Social media integration: Allow users to share menu items or promotions on social media platforms, such as Facebook or Twitter, to increase visibility and reach a wider audience.

- Loyalty program: Implement a loyalty program that rewards regular customers with discounts, free items, or other incentives to encourage repeat business and customer loyalty.

- Analytics and reporting: Provide detailed analytics and reporting capabilities to help businesses track sales, customer behavior, and other metrics, and make data-driven decisions to improve their operations and menu offerings.

CHAPTER 9: CONCLUSION

In conclusion, the a la carte menu management system project is a comprehensive solution for restaurants and food businesses to manage their menus and orders more efficiently. The system provides a user-friendly interface for customers to browse menus and place orders, as well as an administrative module for businesses to manage their inventory, pricing, and promotions. The project was developed using modern technologies such as ReactJS and Django REST API and was tested using black-box and white-box testing methodologies to ensure that it meets the functional and non-functional requirements.

Through the feasibility study, we have determined that the project is technically feasible, operationally feasible, economically feasible, and schedule feasible. The system has several features, including order tracking, menu customization, and promotion management.

There are some potential limitations to the system, including limited customization options, security concerns, and scalability issues. However, there are also opportunities for future enhancements, such as developing a mobile application, implementing AI and ML algorithms, and providing detailed analytics and reporting capabilities.

Overall, the a la carte menu management system project has the potential to significantly improve the efficiency and profitability of restaurants and food businesses, and represents a valuable contribution to the food industry.

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Appendix

GUJARAT TECHNOLOGICAL UNIVERSITY
(Established under Gujarat Act No. 20 of 2007)
ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી
(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 2

Feedback Form by Industry expert

Student Name: VAIDEHI A. PRAJAPATI   Date: 13-05-23

Work Supervisor: Mr. NILESH BHANUSHALI   Title: SDE - INTERN

Company/Organization: 3i WEBEXPERTS PVT. LTD.

Enrollment No: 190390116038

Internship Address: A1/A2/319-320, JOYOS HUBTOWN, NEAR. MODHERA Rd. MEHSANA

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):

Additional comments, if any: Vaidehi is very hardworking and grasps everything with ease.

Signature of Industry person with name and Stamp:

3iwebExperts
319-320/A1A2 Joyos Hubtown.
Nr. Modhe Circle. Mehsana
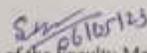
Signature of the Faculty Mentor

INTERNSHIP AT FLUSOCIAL PVT. LTD.

AN INTERNSHIP REPORT

Submitted by

Yash Ganeshbhai Prajapati

190390116039

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information technology 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 Flu Social** has been carried out by **Yash Ganeshbhai Prajapati** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology Engineering, 8th Semester of GujaratTechnological University, Ahmedabad during the academic year 2022-23.

Sign

Sign

Prof. Sushama Sainwar

Prof. Akshay Kansara

Internal Guide

Head of Department

COMPANY CERTIFICATE

FLU SOCIAL

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(+91) 99255 92391
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Info@flusocial.com

FLU SOCIAL
MARKETING

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Yash Ganeshbhai Prajapati** (Enrollment No: **190390116039**) 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.

Dron Joshi
CEO, Flu Social

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 (18:06:42)

This is to certify that, *Prajapati Yash Ganeshbhai* (Enrolment Number - 190390116039) working on project entitled with *Intership at Flu social Marketing* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student :   Prajapati   Yash   Ganeshbhai

Name of Guide :   Miss. Sushma Sainwar

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, 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 Flu social Marketing** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar(Internal Guide) & Mr. 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.   **Yash Ganeshbhai Prajapati**

ACKNOWLEDGMENT

Acknowledgement is just a way to express gratitude, something so deep that it cannot be express fully. Nobody is complete on its own. He/She needs someone's help in his/her life. The best way to have a good idea is to have lots of ideas. It is a great sense of satisfaction that we present our real venture in practical computing in the form of project work. The best way to have a good idea is to have lots of ideas. We have sincere feeling that the credit of the project could not be narrowed down. It is also a matter of privilege and an honor of us to work on the project "Moctor – The Property Management site". We wish to express our heart full thanks to all who assisted us during the project.

Certainly, the project could not have been completed without valuable suggestions and guidance from various sources. Very special thanks to the entire faculty and especially, who helped us to create such a system. We are very grateful to **S.P.B. Patel Engineering College** and to our college **Department of Information Technology Engineering** in which we are going to submit our project.

Your Sincerely,

Yash Prajapati

(190390116039)

Abstract

This document provides an overview about the Property Management System web application and solution that can be provided to fulfill the objective of business. The manual real estate agency follows a lengthy and hectic process. People need to meet the agent in person, for checking the Property details and also needs to visit the location. It takes long time to look for the desired location and desired type of property. Thus we've proposed a property management system to overcome this difficulty. This online Property management system can help you to get best property by just sitting at home or anywhere. People can book their favorite property online just after a few clicks. In this system the agents can add the property for selling/ renting purpose and users can buy or book a property for rent.

List of Figures

List of Table

Abbreviations

HTML	Hypertext Markup Language
CSS	Cascadindg Style Sheets
JS	Javascript
QA	Quality Assurance

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CHAPTER 1: INTRODUCTION OF COMANY

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:

- Digital Marketing
- Web Development
- Social Media engaging
- Branding
- SEOs

1.3 OBJECTIVES OF THE COMPANY:

- Flu Social Marketing that provides Digital Marketing, E-Commerce, Designing & management tools software & solutions help you find. Flu Social advanced Marketing to create your professional site in an instant Experience freedom and the ability to customize your site as you wish! We suggest Social Media posts, festival post, all type of posts in creative manner.
- Our company provides website developing, branding, digital marketing.
- The key trends are analyzed and according to trends the work allotted to the team and also accepting the projects related to the future aspects.

CHAPTER 2: INTRODUCTION OF WORDPRESS

2.1 TECHNOLOGY PREVIEW

WordPress:

WordPress is a free and open-source content management system (CMS) that is used to create websites, blogs, and online stores. It was initially released in 2003 by Matt Mullenweg and Mike Little as a fork of b2/cafelog. Today, it powers over 40% of all websites on the internet and is one of the most popular CMS platforms available.

WordPress is built using PHP programming language and MySQL database. There are two main ways to use WordPress: WordPress.com and self-hosted WordPress.org. WordPress.com is a free platform that allows users to create and host their website or blog on WordPress's servers. Users can choose from a variety of themes and plugins to customize their website, but they have limited control over the functionality of the website.

Self-hosted WordPress.org, on the other hand, requires users to download and install the WordPress software on their own web hosting servers. This option gives users complete control over their website's design, functionality, and content. Users can choose from thousands of free and paid themes and plugins to customize their website and add features such as contact forms, e-commerce functionality, social media integration, and much more.

WordPress is known for its user-friendliness, flexibility, and customization options. It comes with a built-in editor that allows users to create and edit content without any coding knowledge. It also supports multiple users with varying levels of access, making it an ideal platform for team collaboration. Additionally, WordPress is SEO-friendly and allows users to optimize their content for search engines with plugins such as Yoast SEO.

2.2 FOUNDATION OF WORDPRESS:

- WordPress was released on May 27, 2003 by its founders **Mike Little** and **Matt Mullenweg**. The name WordPress was suggested by a friend of Matt Mullenweg, **Christine Selleck Tremoulet**. The name was completely her idea.

- After thousands of commits to the official SVN repository, WordPress first version 0.7 was released on May 27, 2003.
- Next version 0.1 was released in January 2004 which is also called Davis version. Name Davis was given by Matt as he has affection towards jazz. From now on, all the updates are named on jazz.

2.3 WP.COM:

WordPress.com is the site where you don't have to do anything. All the developing work will be handled itself. You don't have to purchase software, manage web server or pay for hosting.

There are some limitations with this site. For example, by default your domain name includes wordpress.com, you can't modify your site's coding, upload any themes or plugins. Your site will be free for the lifetime, but you have to pay to upgrade it for more specifications.

Upgrades also allow you to use a custom domain like you can use anything as the domain. Further upgradation also enhances appearance of your site, upload videos or photos and many more.

Your site will be secured and spam free as it will be under WordPress security. You only have to sign in and choose your blog name and focus on your content.

This site is preferred by everyone but mostly bloggers, photographers, artists, etc.

2.4 WP.ORG:

WordPress.org is the site where you have to manage your own blog or website. You can find free WordPress software and install on your web server.

It gives full control and freedom over your site including the WordPress software. Most of the WordPress showcase sites are made on self-hosting.

With full control it also places full responsibility of the site upon the user. From technical dealing to security issues each and everything has to be managed by the user itself.

2.5 INSTALL WORDPRESS

- We need to download the latest version of WordPress from the official WordPress site **www.wordpress.org** in our system.

- WordPress downloaded in zipped format. This WordPress zipped folder hasto be placed in XAMPP folder **C:/xampp/htdocs**

- Unzip the WordPress folder here and name it anything. Here, we have named it as WordPress.

- WordPress can be installed using local servers like XAMPP, WAMPP, etc. Here we are using Xampp for localhost. Open **phpMyAdmin** from the XAMPP server control panel and create database name WordPress. This database stores all information about our WP site.
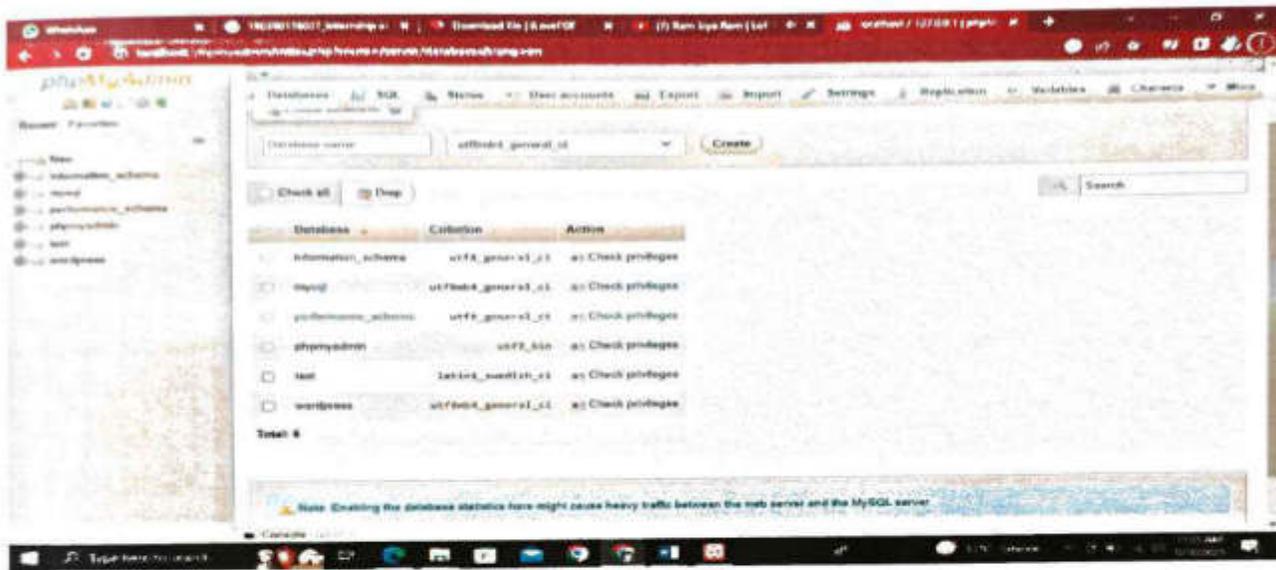
Fig 2.5.1 Create Database

- Now, open your browser and go to **http://localhost/wordpress/**
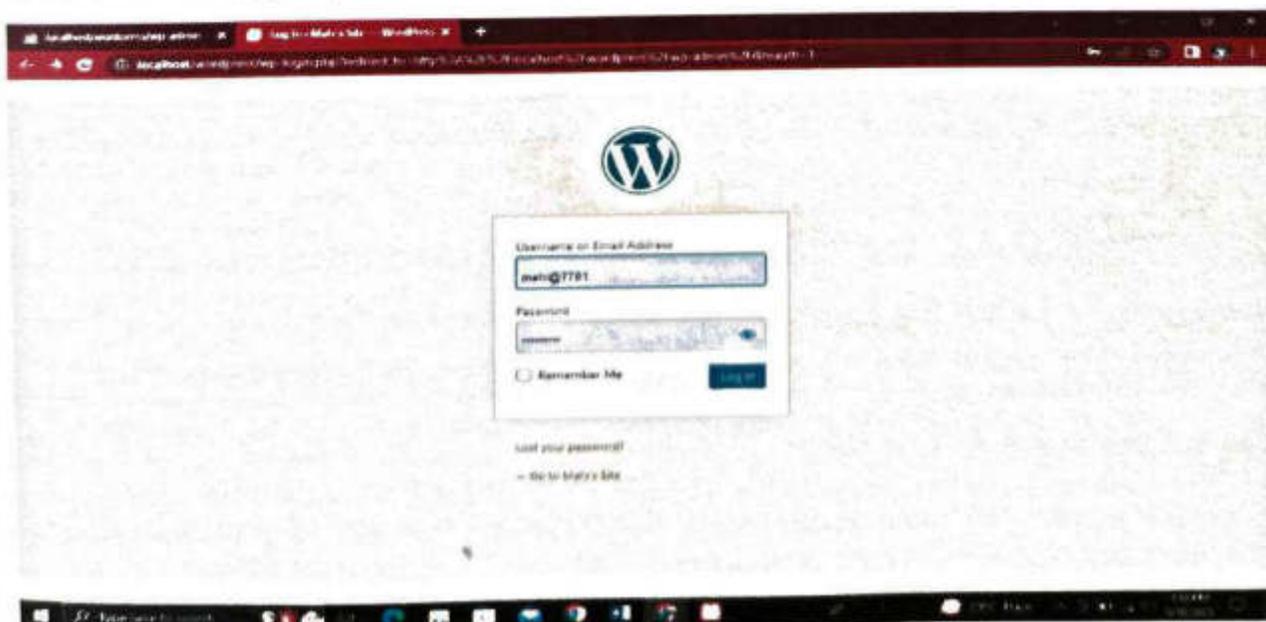
Fig 2.5.2 WP Database Configuration
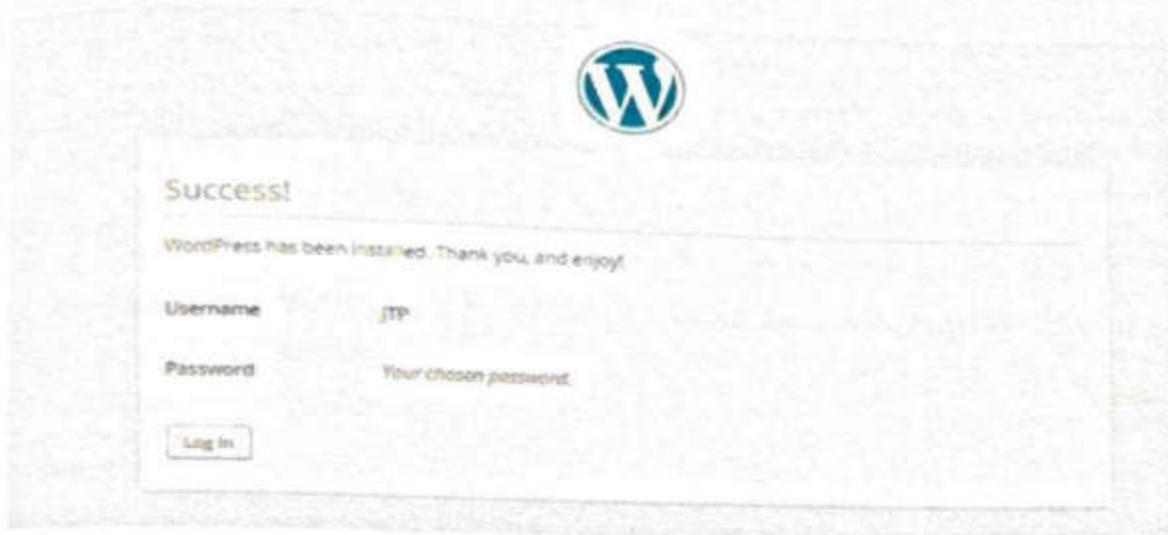
2.6 WORDPRESS BENEFITS

1. Easy to install and setup

- WordPress is extremely easy to setup and install.
- It comes down to a simple one-click installation.

2. Simple, Straightforward, and easy to use

- It comes with intuitive design, directions, and tutorials to get you started and keep you going.

3. Cost Effective and Cheap

- You can even get WordPress for free!
- Even if you opt for a paid version or use hosting or plugins that cost a few dollars here and there, the total all-in cost for using the WordPress platform will most likely cost you less than $100.
- This is extremely cheap compared to other alternatives.

4. Search Engine and SEO friendly

- Another **WordPress benefit** is that it is built and structured with search engines and SEO in mind.
- This means that your website needs to be easy for search engines like Google, Yahoo, and Bing to crawl through and parse your data. With WordPress, this comes built-in.
- By building your website on WordPress, you can get lots of search engine traffic to your site over the long run.

5. Responsive Website Design

- We need a website that is responsive to a large variety of different devices
- You want your whole website to look amazing no matter what devices your visitors are using.
- With WordPress, they have responsive website designs and themes.

7. Access your site from anywhere in the world

- You can access your website from any computer in the world, so long as you have internet connection.
- This is extremely important if you're a travel-minded person – as you could realistically travel anywhere in the world and still work on your website!
- Digital nomads and travelling website owners have grown in popularity over the past decade because of this functionality.

8. Most plugins and apps

- WordPress has over **54,000+ plugins**.
- Plugins are applications that help you customize and run WordPress however you like.
- They include email marketing plugins, design plugins, speed plugins, and more.

9. Website Security

- Wordpress allowing you to enhance the security of your website from hacks, vulnerabilities, etc.

- Although, WordPress even comes with security measures such as "https://" built-in should you so choose.

- This will give you peace of mind knowing that your website is free from hackers and other security mishaps.

CHAPTER 3: INTRODUCTION OF PROJECT

Web applications have become a much-needed and most feasible way of expanding any business or idea. A lot of developers are working hard to maintain the quality and standards of various applications. In this internship, I got the opportunity to learn such technologies and work on some great products. During the training period, interns are exposed to a variety of activities in the field of duties, even though the job is not done entirely by interns for security or regular students were briefed and clear guidance and useful enough as a piece of general knowledge, as well as exposed to the real working environment and can learn social skills such as communication and Team Work.

3.1 PROJECT SUMMARY

The Property Management website project in WordPress is such a online platform that shows the works of properties and their houses for rent/sell. Hence the main function of this system or company is to convert the manual trading service of properties / flats in the better quality service that customers want. The functionality of this system is as like handling the properties or property management and handles the main function that mentioned above.

The website is built on the WordPress content management system, which is known for its user-friendly interface and flexibility. With WordPress, dealers can easily update their website's content, add new properties, and customize the design to suit their brand.

3.2 PURPOSE

The website should be easy to navigate and visually appealing to visitors. To achieve this, the website's layout should be designed to showcase the best properties for rent or buy.

The website's navigation should be simple and intuitive, allowing visitors to quickly find the information they need. The use of clear headings, subheadings, and drop-down menus can help organize the website's content and make it easier to navigate.

3.3 OBJECTIVE

The Property Management website is an interactive, effective and revenue-generating designed for the Property Selling Industry. The main objective of this website is to help the people and public to display unlimited number of property listings on the They can also include blog posts that discuss current trends in property and design.

3.4 TECHNOLOGY AND TOOL

Backend	:	PHP and JavaScript
Frontend	:	HTML,CSS, JavaScript,PHP
Database	:	MySQL

CHAPTER 4: PROJECT MANAGEMENT

4.1 SEQUENCE OF OPERATIONS FOR MANUFACTURING END PRODUCT
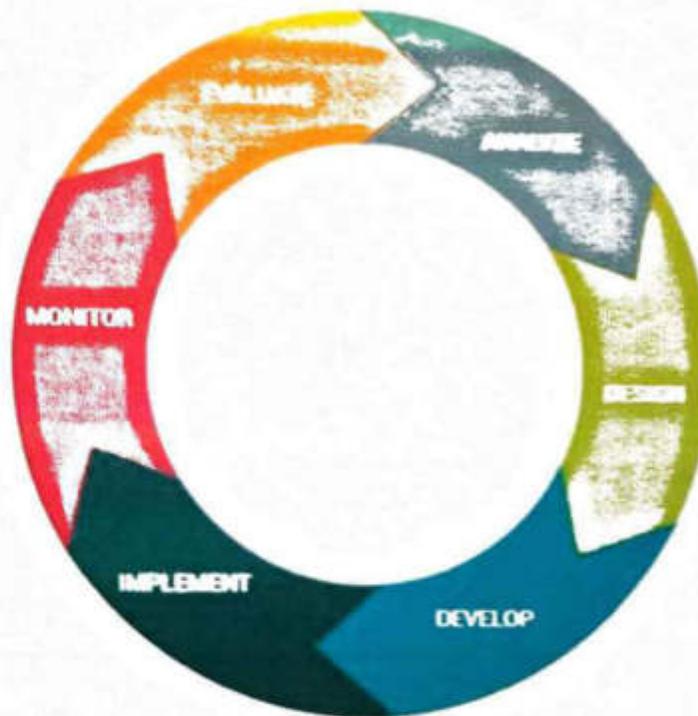
Fig 4.1.1 Operations for developing

Requirements Analysis: In requirement analysis phase the initial discussion with clients is carried out requirements are gathered understood and a software required speciation's document is prepared.

Planning: after discussion with client's teams are formed according to the need for project. The resource estimation is carried out. Requirements are prioritized and work flow is discussed and the requirements to be accumulated in the prototype are decided.

Design: the structured to be followed and to be implemented is designed the desired outcome is designed and teams are assigned tasks accordingly.

4.2 PROJECT DEVELOPMENT STEPS

We follow a simple step for making this website, firstly we visit so many sites and observe their process for creating our project. Later on, we collect all require resources and utilize it in a proper manner. The company instructs us to how to make it.

The First step for our project is creating a data dictionary. After that we create use case diagram for project. After that we started implementation of our project.

4.3 PROJECT COST ESTIMATION

The answer to this question really depends on what kind of website you are trying to build. A typical personal website can cost as low as $100. The cost of a business website can range from anywhere between $100 per year to as high as $30,000 per year.

4.4 PROJECT SCHEDULING
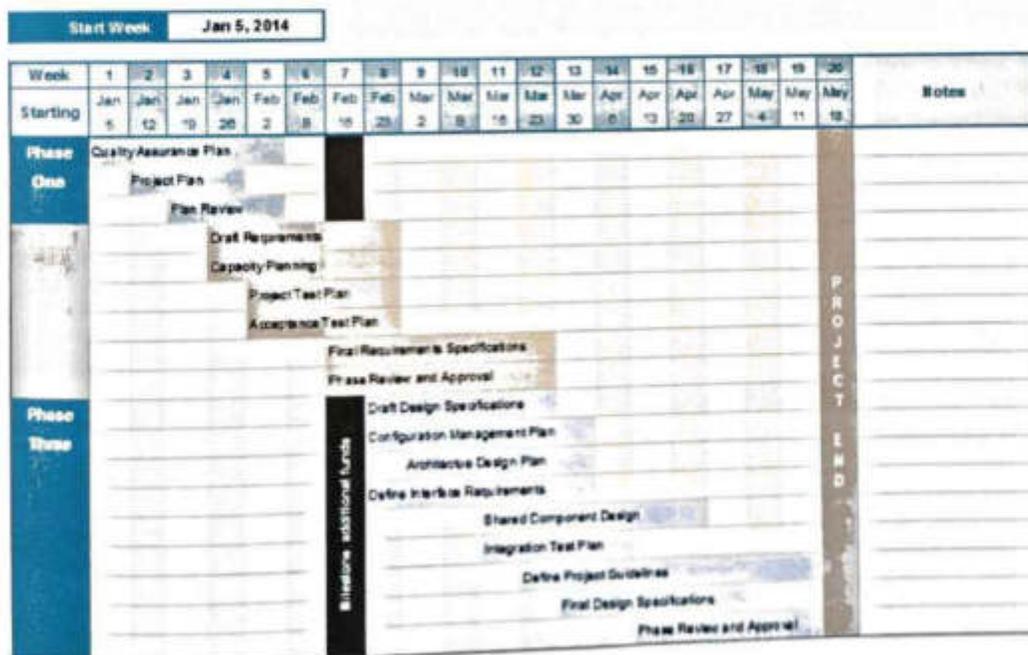
Fig 4.4.1 Project Scheduling

CHAPTER 5: SYSTEM ANALYSIS

5.1 SYSTEM FEASIBILITY

Preliminary investigation examine project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time.

5.1.1 FINANCIAL ANALYSIS

A system can be developed technically and that will be used if installed must still be a good investment for the organization. Financial benefits must equal or exceed the costs. The system is economically feasible.

It does not require any addition hardware or software. Since the interface for this system is developed using the existing resources and technologies available at NIC, there is nominal expenditure and financial feasibility for certain.

5.1.2 TECHNOCAL REQUIREMENTS

Creating a WordPress website requires certain technical knowledge. We need to make sure that we have the necessary skills and resources to complete the project successfully.

Some of the technical requirements include knowledge of HTML, CSS, and PHP, and with web hosting and domain registration. We also need to ensure that the website is optimized for search engines and mobile devices.

5.1.3 MARKETING ANALYSIS

Before creating any project, it's important to make a market analysis to determine there is a demand for the product and service or not. In the case of a WordPress website, there are many factors to consider.

Firstly, we need to identify the target audience for the website. This will help us to determine what kind of content to create and how to structure the site.

5.2 ACTIVITIES IN NEW PROPOSED SYSTEM

- real-time updates
- cloud-based storage
- 3D modeling
- architects can work more efficiently and effectively
- resulting in better designs and happier clients.

5.3 FEATURES OF NEW PROPOSED SYSTEM

Admin: Admin is the one who administers the system and input updates.

Firm Owner: Seller is the one who can add their sites in the website andanalysis its related queries.

Product-Detail: It displays the design services like interior ,exterior,description of sites.

5.4   LIST MAIN MODULES / COMPONENTS / SYSTEM

Home Page:

Description of Firm Services Provide by Firm

Contact Detail

Project:

Interior Designed Projects

Exterior Designed Projects

Testimonials :

Happy Clients

Contact page:

Email form

Location

About US:

Company portfolio

5.5 SELECTION OF HARDWARE / SOFTWARE / METHODOLOGY / TECHNIQUES /

- **Software Requirement**

    - Web server   :   Nginx or Apache with mod-rewrite module
    - Disk space   :   At least 1 GB
    - PHP   :   Version 7.4 or higher
    - Database   :   MySQL 5.015 or higher (An alternative is
                           MariaDB, version 10.1 or higher)

- **Hardware Requirement**

    - RAM (Random Access Memory)   :   At least 512 MB
    - CPU (Central Processing Unit)   :   At least 1.0 GHz
    - Support for HTTPS

Table 5.5.1 Software and Hardware Requirement

CHAPTER 6: SYSTEM DESIGN

6.1 DIAGRAMS

6.1.1 SYSTEM FLOW DIAGRAM
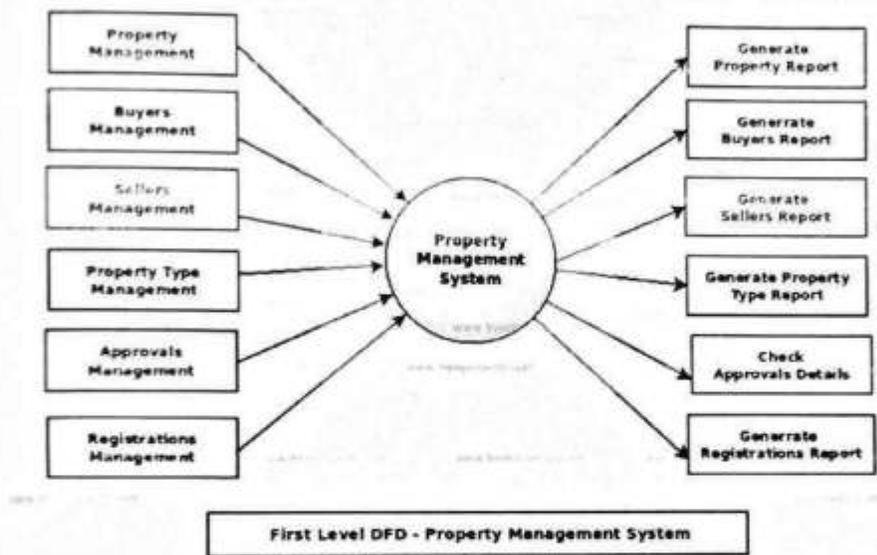
Fig 6.1.1 System Flow Diagram

6.1.2 SYSTEM DIAGRAM
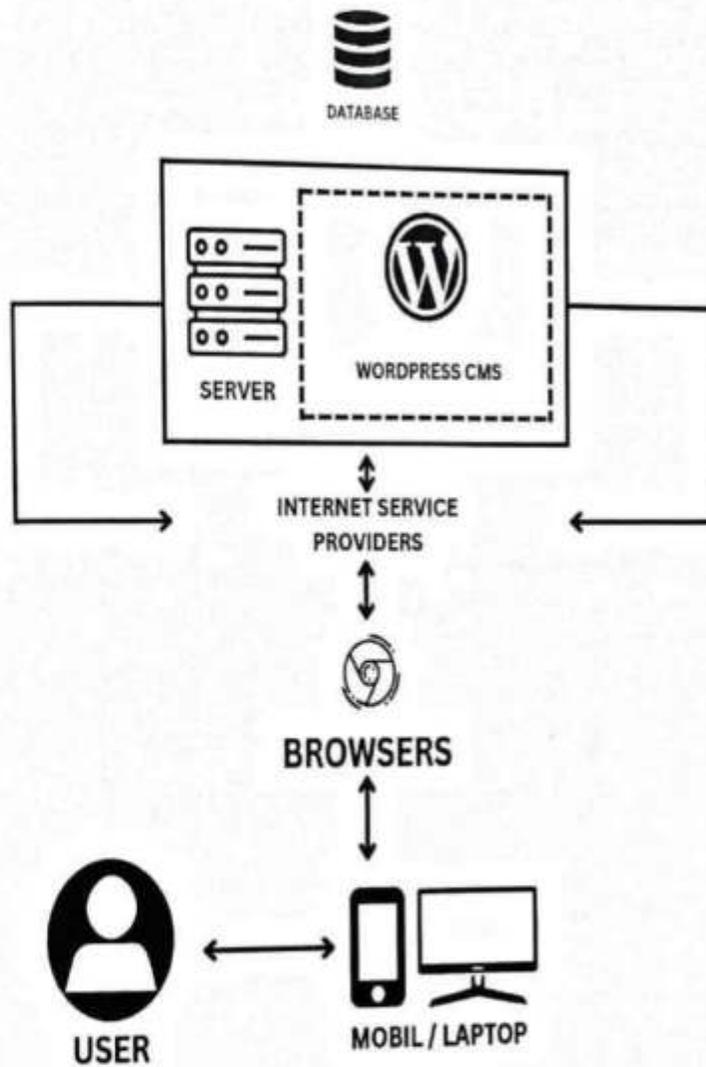
Fig 6.1.2 System Interaction Diagram

6.1.3 ACTIVITY DIAGRAM
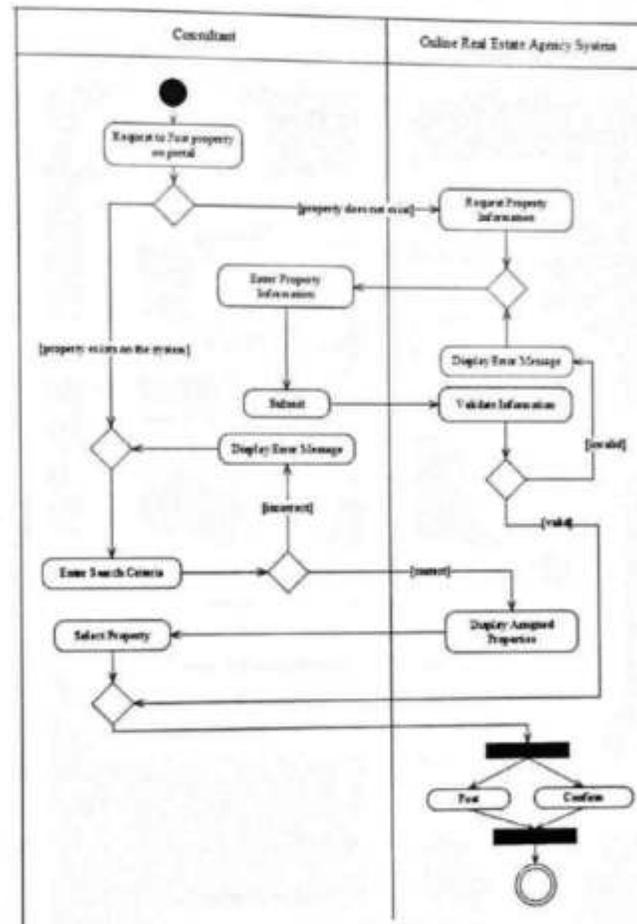
Fig 6.1.3 Activity Diagram

6.2 DATA DICTIONARY

Wordpress is an open source database management system (DMS) which most internet providers or hosting companies provide as a database server. WordPress blogs depend mainly on MySQL databases for storing information regarding the blog. The most common lingo used for this in WordPress industry is "WordPress database".

You can easily access MySQL in the cPanel provided by localhost. Accessing MySQL (PHPmyAdmin) database will help you to do following things:

- Optimize your WordPress database
- Take the backup of database
- Drop a table

However, in 99% of the cases, you don't have to directly deal with MySQL database when you work with directly hosted websites. Rather, you can use plugins to do all the tasks.

Fig 6.2.1 Database page 1
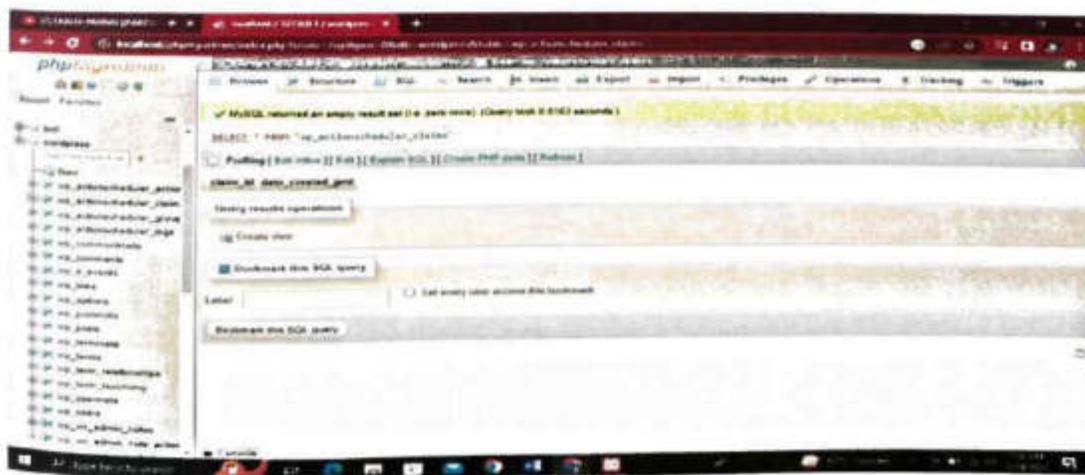
Fig 6.2.2 Database page 2

CHAPTER 7: IMPLEMENTATION

7.1 IMPLEMENTATION PLATFORM

- Working platform: WordPress
- Programming language: HTML, CSS, PHP, JavaScript
- Web server: Apache
- Hosting provider: GoDaddy

7.2 MODULE SPECIFICATION

Admin Module: An admin enables administrators of an application, website, or IT system to manage its configurations, settings, content, and features and carry out oversight functions critical to the business. It allows them to view the state of the platform and take any action in the performance of their duties.

Seller Module: A seller's agent is a real estate professional (a Realtor, a real estate agent or a real estate broker) who helps prepare and list a property for sale (the latter being the reason they're also known as listing agents). They represent the person selling a property and must work in their best interests.

Marketing Module: Real estate marketing is a marketing strategy that involves promoting your unique value proposition to the general public to establish a brand, gain customers, analysis tool, SEO increase sales & revenue by closing real estate transaction

7.3 PLUGINS USED FOR THIS PROJECT

Starter templates :- Create professional designed pixel perfect websites in minutes with the Starter Templates plugin. This plugin gives you access to 280+ pre-made full website templates and individual pages for your favorite page builder such as Elementor, Beaver Builder and the Block Editor Lite Speed Cache for WordPress (LSCWP) is an all-in-one site acceleration plugin, featuring an exclusive server-level cache and a collection of optimization features.

WP Forms Lite:- Wordpress contact form builder plugin a developer to create a WordPress contact form. That's why we use WP Forms, a drag & drop WordPress form builder that's easy & powerful.

WP Forms allows you to create beautiful contact forms, feedback form, subscription forms, payment forms, and other types of forms for your site in minutes, not hours A very simple plugin to add portfolio – The Most creative Mobile touch Slider – for WordPress.

Woo Commerce :- Woo Commerce is the world's most popular open-source e-Commerce solution. The core platform is free, flexible, and amplified by a global community. The freedom of open-source means you retain full ownership of your store's content and data forever.

- Whether you're launching a business, taking brick-and-mortar retail online, or developing sites for clients, use Woo Commerce for a store that powerfully blends content and commerce.

Elementor :- Elementor is the leading website building platform for WordPress, enabling web creators to build professional, pixel-perfect websites with an intuitive visual builder. Quickly create amazing websites for your clients or your business with complete control over every piece, without writing a single line of code. Join a vast community of web creators from all around the world who deliver exceptional websites using Elementor.

7.4 SEO (SEARCH ENGINE OPTIMIZATION)

What Is SEO?

SEO stands for search engine optimization, which is a set of practices designed to improve the appearance and positioning of web pages in organic search results. Because organic search is the most important way for people to discover and access online content, a good SEO strategy is essential for improving the quality and quantity of traffic to your website.

The key difference between SEO and paid advertising is that SEO involves "organic" ranking, which means you don't pay to be in that space. To make it a bit simpler, search engine optimization means taking a piece of online content and optimizing it so search engines like Google show it towards the top of the page when someone searches for something.

When it comes to broader SEO, there are two equally important paths: **on-page SEO** and **off-page SEO.**

ON PAGE SEO :- In this way, on-site SEO is less about keyword repetition or placement and more about understanding who your users are, what they're looking for, and about what topics (keywords) can you create content that best fulfills that need. Pages that meet these criteria have content that is:

- **In-depth.** It's more or less assumed that content must be sufficiently thorough in order to stand a good chance at ranking.
- **User-friendly.** Is the content readable? Is it organized on your site in such a way that it's easily navigable? Is it generally clean, or with ads and affiliate links?
- **Unique.** If not properly addressed, content duplicated from elsewhere on your site (or elsewhere on the Internet) may impact a site's rank.
- **Trustworthy.** Does your content stand on its own as a reliable resource for information on a particular topic?
- **Aligned with user search intent.** Part of creating and optimizing for quality content is also delivering on searcher expectations. Content topics should align with the search queries for which they rank.

OFF PAGE SEO :- It also known as off-site SEO, describes optimization techniques that can improve your ranking in search engine results pages (SERPs). These techniques, however, happen outside of your site and involve attracting links from other websites, shares on social media, and mentions across the web.

Off-page SEO is an effort (such as through social media marketing or influencer marketing) to generate links and ratings, so your site rises in credibility and rank. Off-page SEO is out of your control.

7.5 SOME IMPORTANT TERMS USED FOR PROJECT

7.5.1 DOMAIN

- A domain name refers to the URL people type in a web browser's address bar to access your site. In other words, domain names offer a convenient way for people to access websites. The numerical label assigned to every website and server on the internet, also known as an **IP address**.

- Generally, domain names are comprised of two main parts – a **second-level domain** (SLD) and a **top-level domain** (TLD). Second-level domains usually consist of words or phrases, while top-level domains are the predetermined extensions that follow. For example, in the case of **google.com**, the second- level domain is **google**, and **.com** is the TLD.

7.5.2 HOSTING

- Web hosting services allow you to publish the website on the internet. If you buy a hosting service from a provider, you will have a portion of their web servers to store your website's files and data.

- Besides, a hosting provider usually offers customer support, server maintenance, and website builders to help users create and maintain their site. In addition to storing website files, a web host protects the server and your website files from malicious attacks.

- Some web hosting companies, such as Hostinger, also provide domain registration to help you create a website even quicker and more efficiently.

7.6 IMAGES OF WEBSITE
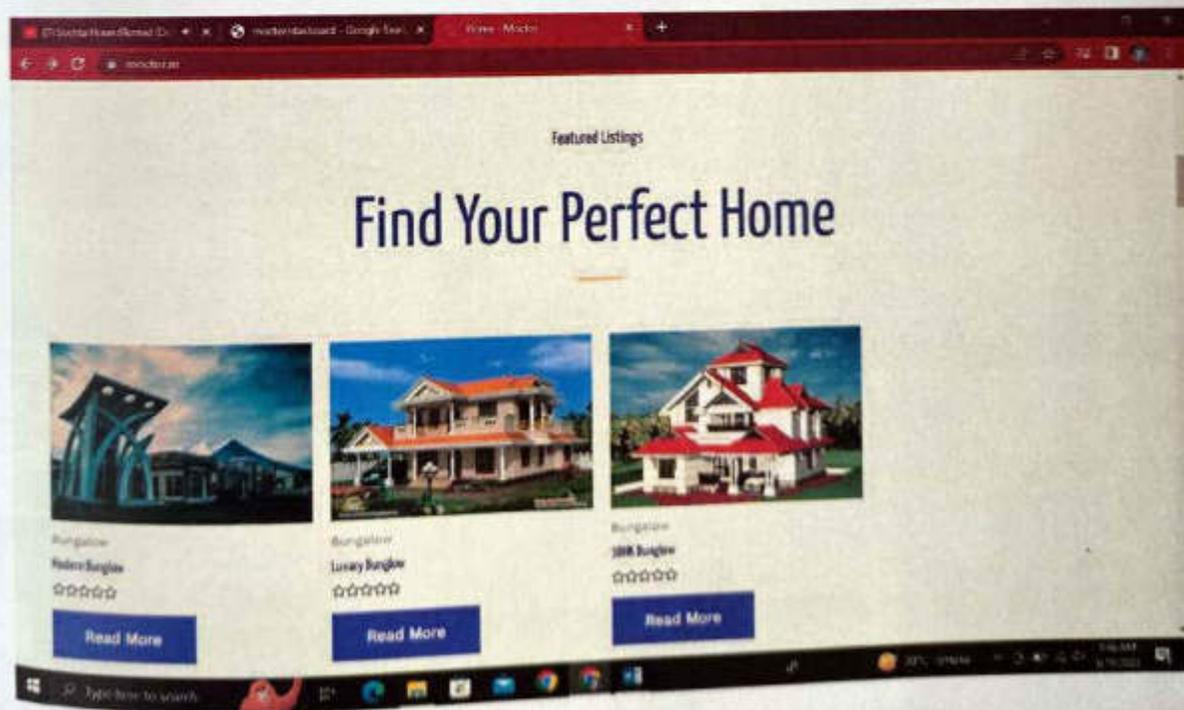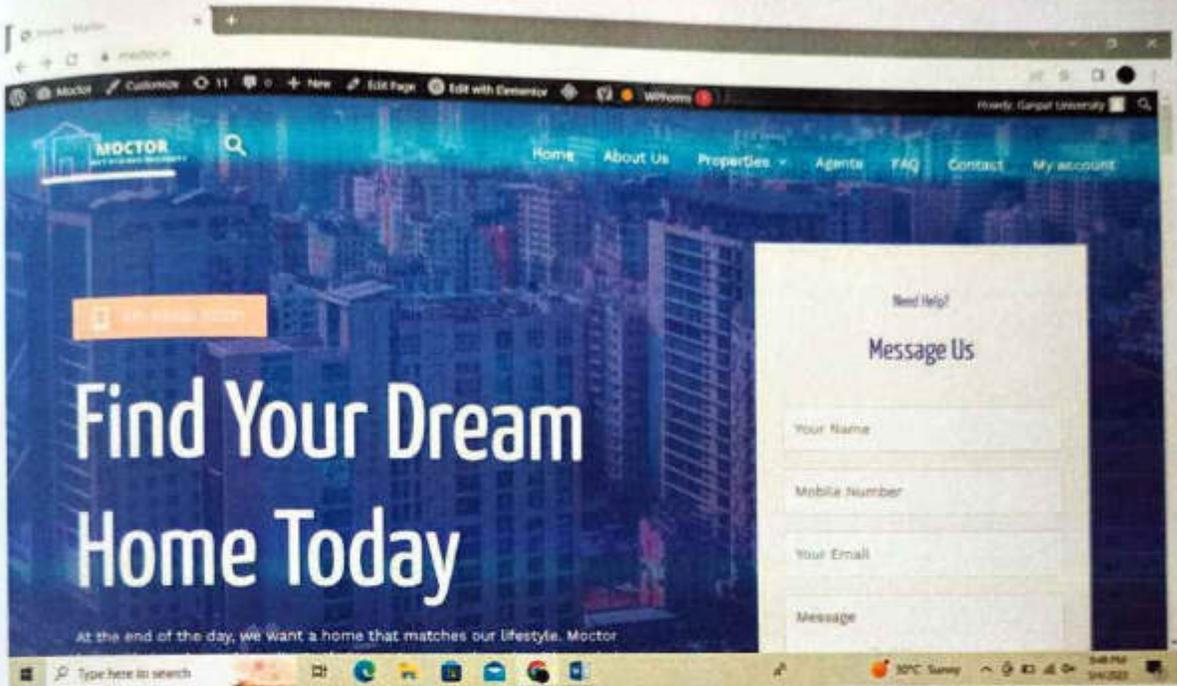
Fig 7.6.1 Home Page
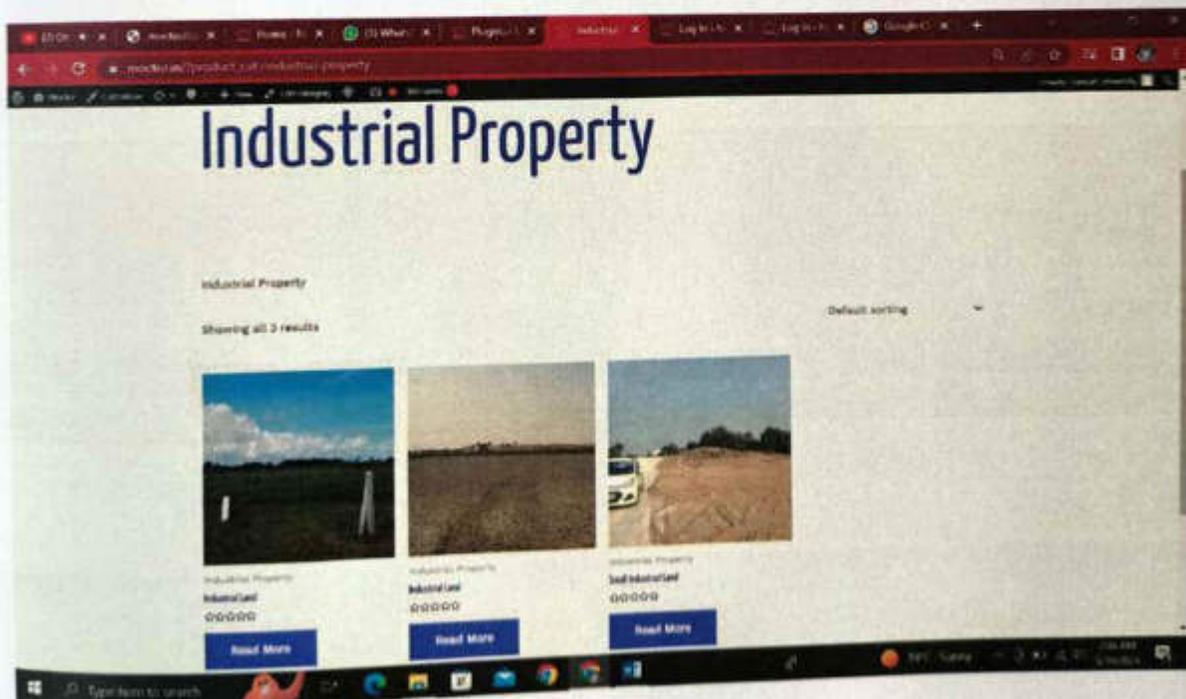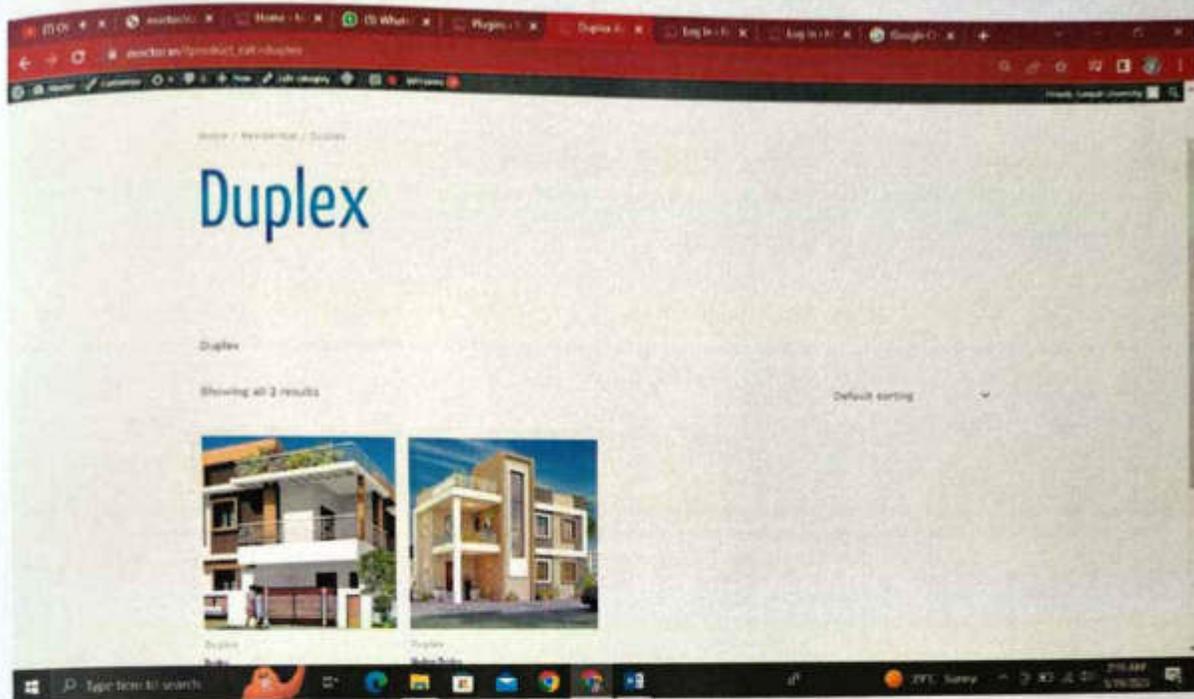
Fig 7.6.2 Home Page
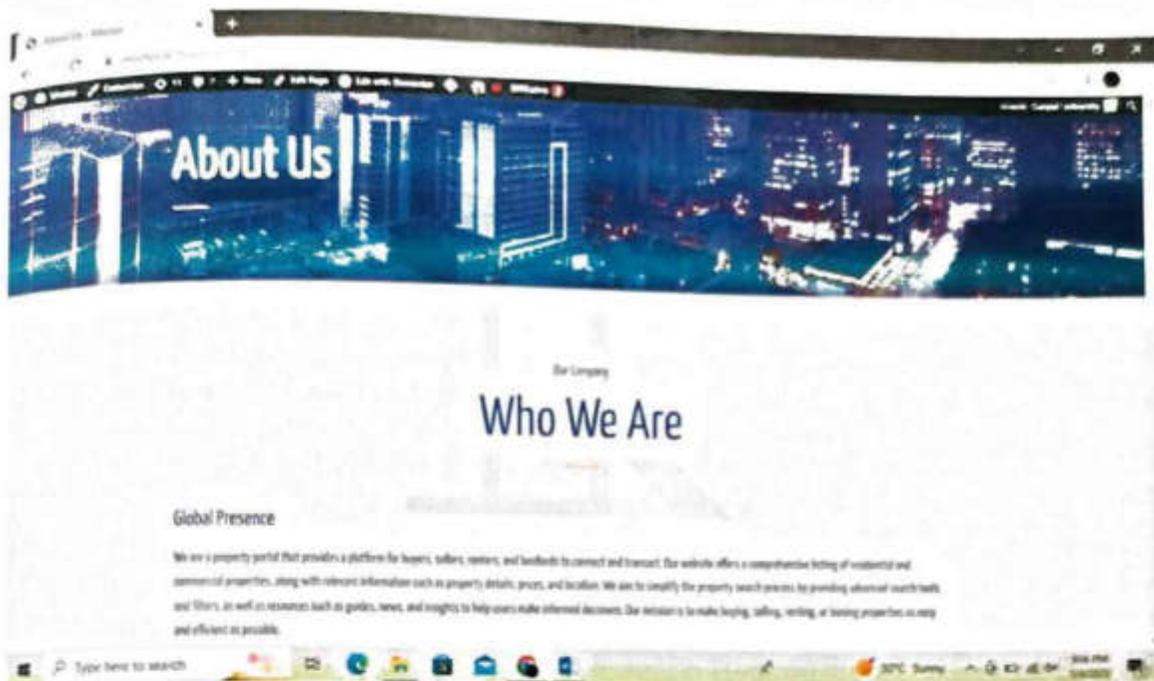
Fig 7.6.3 About Us Page
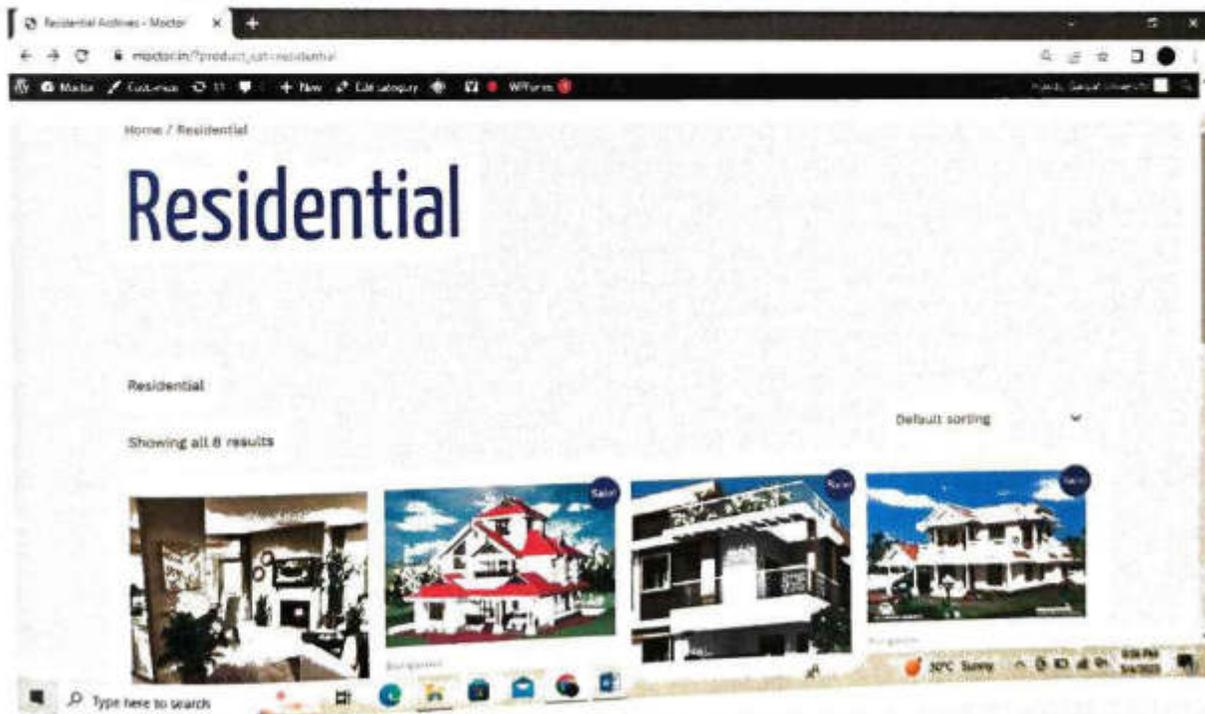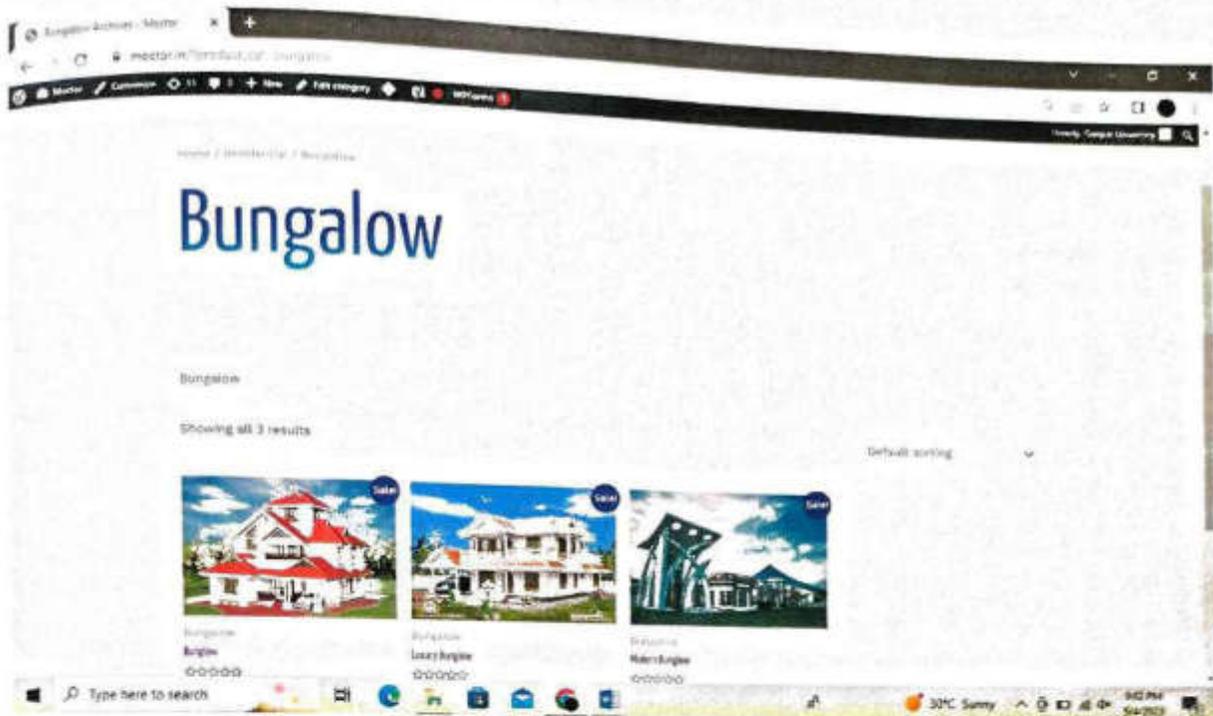
Fig 7.6.4 Project Property Page 1
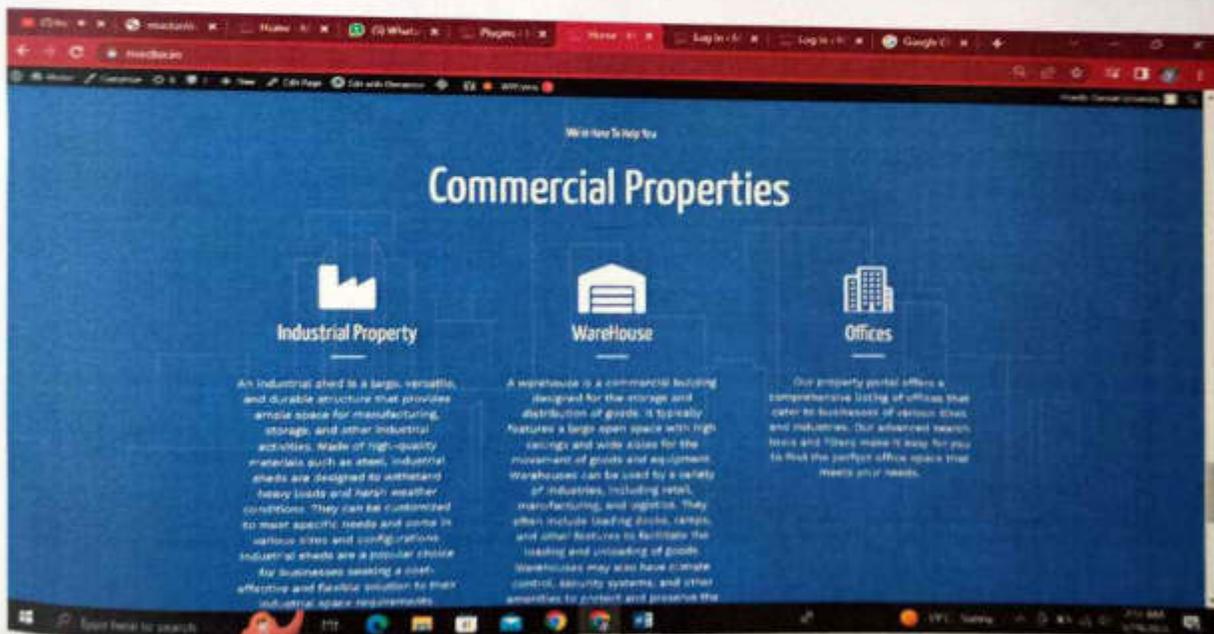
Fig 7.6.5 Project Property Page 2
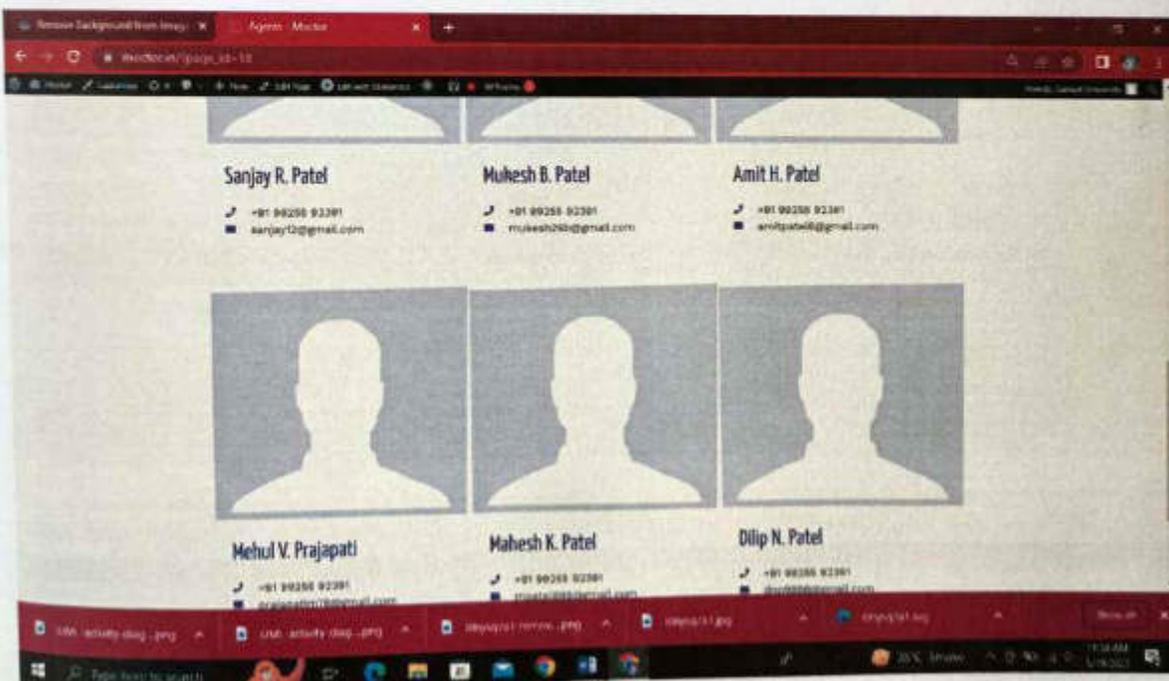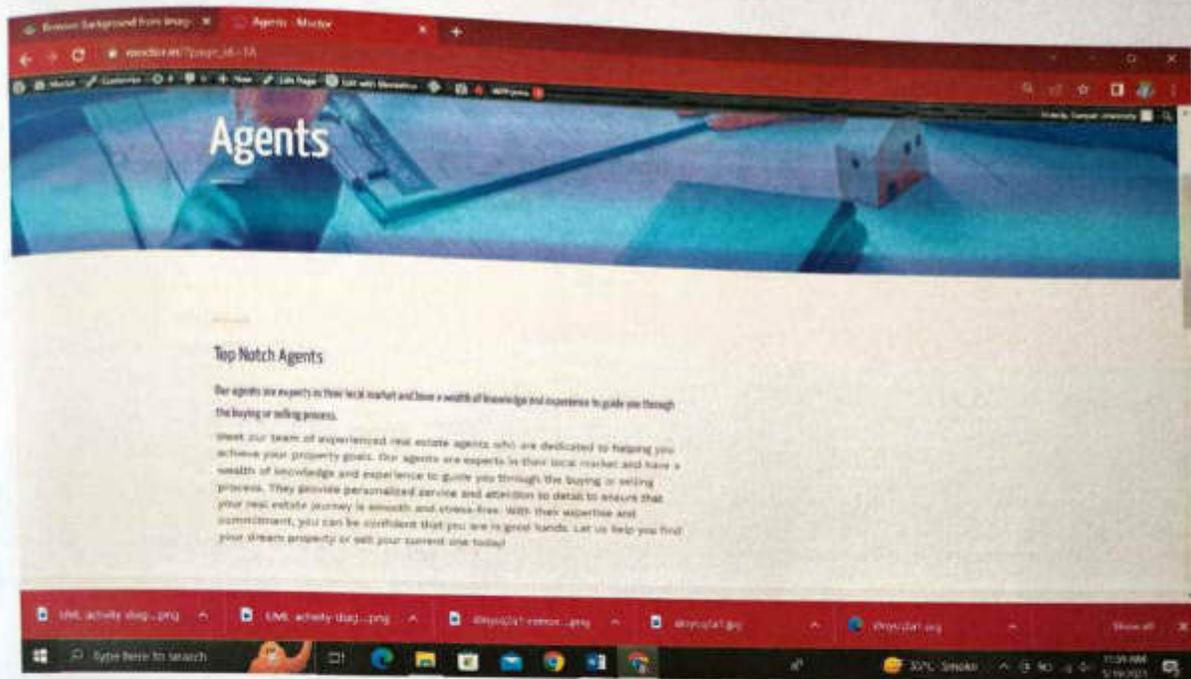
Fig 7.6.6 Project Page
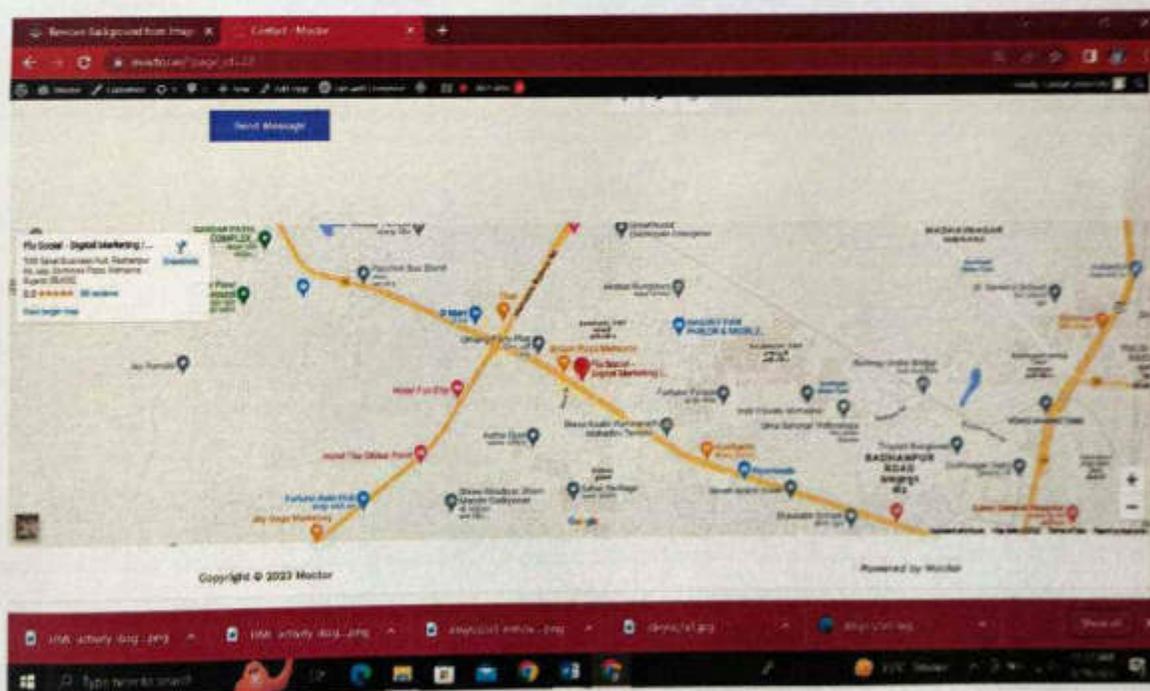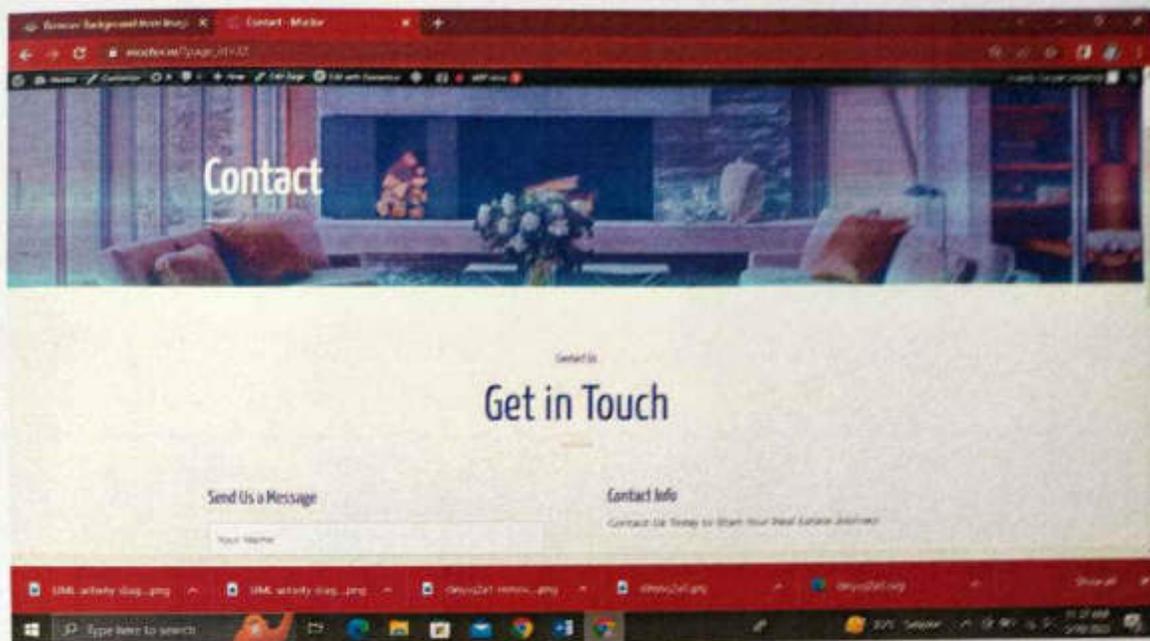
Fig 7.6.7 Contact US Page

Fig 7.6.8 About Us Page

Fig 7.6.9 Dashboard

Fig 7.6.10 Dashboard
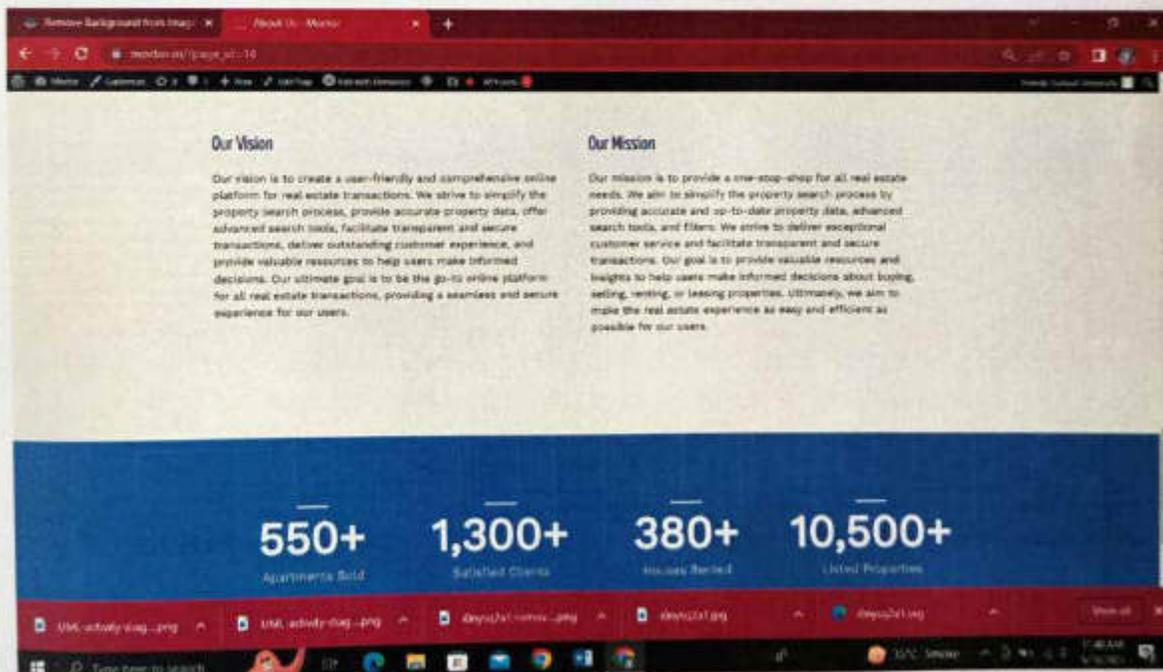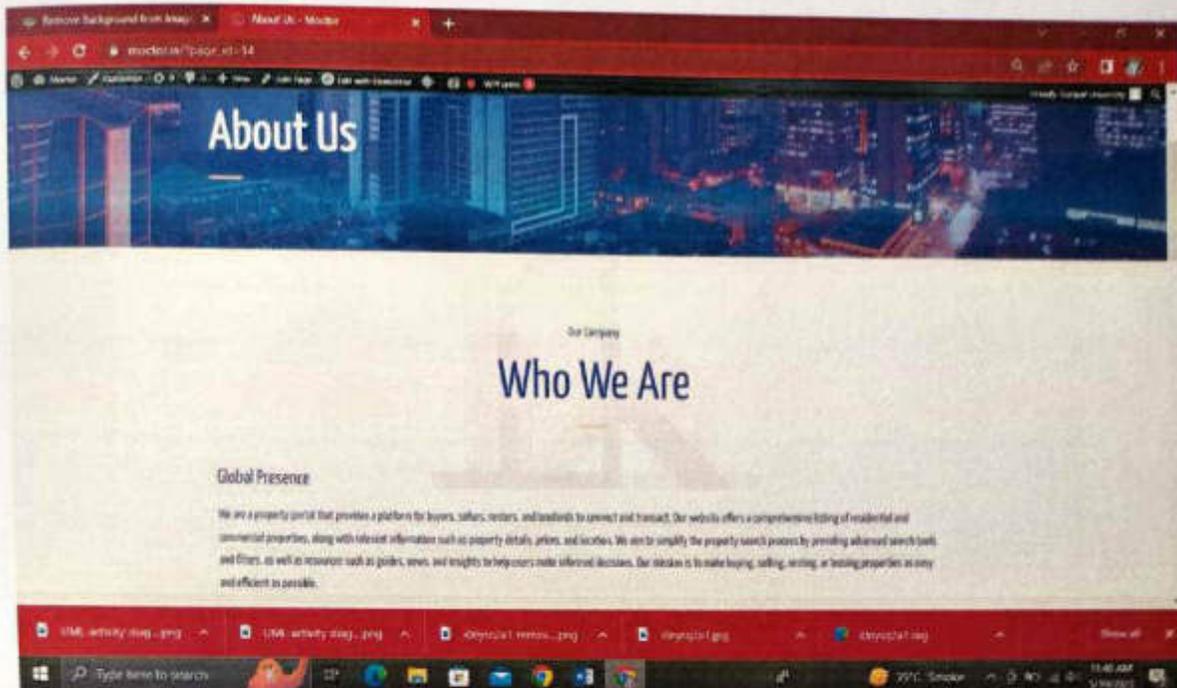
CHAPTER 8: TESTING

8.1 TESTING PLAN

- The testing plan serves as a roadmap for the testing team and help to ensure that all testing activities are executed efficiently and effectively.

- Testing should be documented to provide efficient resource control monitoring.

- Test Plan: A test plan is a document that consists of all future testing-related activities.It is prepared at the project level and in general, it defines work products to be tested, how they will be tested, and test type distribution among the testers.

- It acts as a quick guide for the testing process.

- It determines the time, cost and effort.

- Avoid lengthy paragraph.

- Update plan.

- Don't use outdated document.

8.2 TEST RESULT AND ANALYSIS

- Test results and analysis are an essential part of the testing process. After executing that, the testing team analyzes the test results to identify any defects, issues and other problems with the software application or system under test.

- Collect test results: The first step is to collect the test results generated during the testing process. This includes test case execution results.

- Identify defects: Review the test results to identify any defects or issues with the application or system under test.

- Analyze defects: Analyze each defect in detail to determine its solution.

- Report defects: Report the defects to the development team using a defect tracking tool.

- Retest defects: After the defects have been fixed, the testing team should retest them to ensure that they have been resolved correctly.

- Provide feedback: Provide feedback to the development team.

8.3 THE BENEFITS OF WEB APPLICATION TESTING

Guarantee of functionality :-

Your React Native developer might have overlooked some things during the development stage, and that's why you need to have a helping hand. This kind of assistance comes from companies that will make sure that your business logic and app work fine. Remember that some basic errors overlooked on the development stage and skipped because of the unavailability of website testing services.

Mobile devices setups :-

Only one customer out of three come to your website via desktop. More than 65% of visitors use a mobile device to see the content of a website. That's why software testing services, like Brand – Test Fort are really needed. You don't need your website bugged or frozen on mobile devices, this kind of problems usually occur on the testing stage.

Cross-browser compatibility :-

Most of the solutions for software products come for chrome browser first. It's a good choice because over 63% of customers come from Chrome, but dozens of other browsers also share the market. For all other browsers, it's also needed to check the performance of your custom web product in order to bring more users. A startup offshore QA company may help you to make cross-browsing features right.

Performance monitoring :-

If your product or platform is slow or bugged, no one will want to use your services, make orders, see through the list of your store and etc. Your discount on retail products will not work because customers will not be able to make orders via your website. In order to avoid that, you need to hire a software testing services company. There are available QA testing services and solutions that will continuously monitor the overall performance.

CHAPTER 9: CONCLUSION AND DISCUSSION

9.1 OVERALL ANALYSIS OF INTERNSHIP

This project is about for buying Properties and seller can sell Properties. The software takes care of all the requirements of the process and is capable to provide easy and effective storage of information related to customers and owner that come up to the system. In this system customers can easily view for some special Properties for live. And they can find all types of Properties according of their needs. In this system admin can provide preference according of customer their needs.

I have learnt so many things such as managing URLs, database queries and many more the project is for preference of sites.

9.2 DATES OF CONTINUOUS EVALUATION

- ➤ All the reviews were conducted via offline mode.
- • First review was conducted on 18/03/2023.
- • Second review was conducted on 06/05/2023.
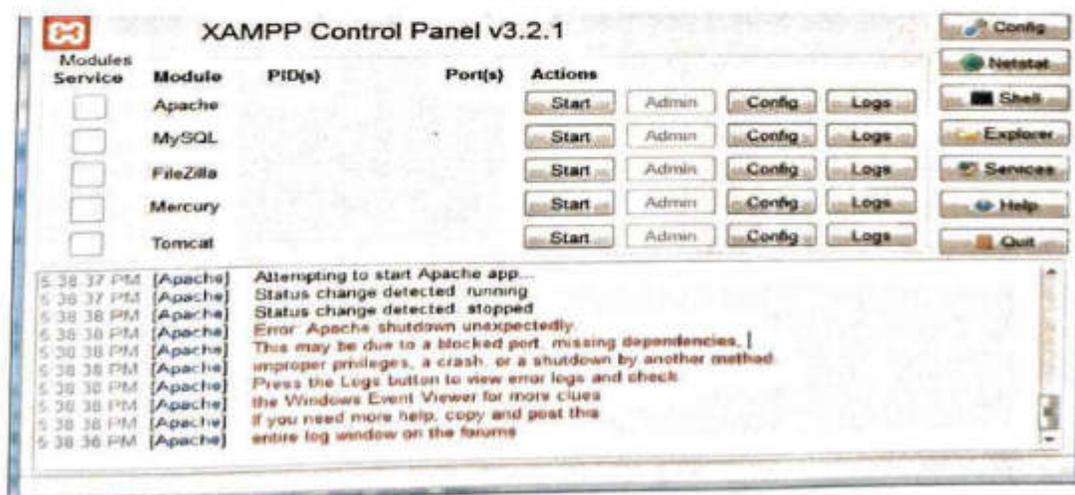
Fig 9.2 Problem During Internship Project Development

> The solution of this problem is given below

- Rename folder mysql/data to mysql/data_old.
- Make a copy of mysql/backup folder and name it as mysql/data
- Copy all your database folders. from mysql/data_old into mysql/data (except mysql, performance_schema, and phpmyadmin folders).
- Copy mysql/data_old/ibdata1 file into mysql/data folder.
- Start MySQL from XAMPP control panel.
- Xampp Running Successfully

9.3 SUMMARY OF INTERNSHIP 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 conditions did not permit. I got insight into professional practice. Related to my study I learned more about how to make project with Wordpress. 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

[1]   https://developer.wordpress.org/

[2]   https://www.javatpoint.com/wordpress-tutorial

[3]   https://youtu.be/GlLRYml8mCY

[4]   https://wordpress.org/documentation/

[5]   https://www.hostinger.in/tutorials/how-to-make-a-wordpress-site-live?ppc_campaign=google_search_generic_hosting_all&bidkw=defaultkeyword&lo=92986 51&gclid=CjwKCAjwuqiiBhBtEiwATgvixFdfCUpq6PyeXKnDT_UBcYE2vPKXtDZQY35j Azgf5qcOwzUbjfL6QxoCCs4QAvD_BwE

Appendix

Flu Social

T-8 Saket Business Hub Radhanpur
Road, Mehsana(- 91) 99255 92391
Info@flusocial.com

FLU SOCIAL MARKETING

January 20, 2023

OFFER
LETTER

Subject: Internship Confirmation Letter for Yash Ganeshbhai Prajapati

Dear Sir/Ma'am,

This is to certify that Mr. Yash Ganeshbhai Prajapati, student of Information & Technology Engineering in S.P.B.Patel Engineering College (Saffrony Institute of Technology). Semester 8 has been successfully allocated to his Internship from Flu Social.

Details of student are as below:

Name of the student: Yash Ganeshbhai Prajapati

College: Gujarat Technological University (S.P.B.Patel Engineering College (Saffrony Institute of Technology))

Course: Bachelor of Engineering

Branch: Information & Technology Engineering

Enrollment Number: 190390116039

Project In: Web Development & SEO, eCommerce Platform

Project Description: WordPress Development with HTML,CSS & PHP, Digital Marketing, SEO, Graphics Designing & Content Creation.
An Online eCommerce Platform for IT Services /Reseller Global Platform.

Project Guide: Yash Patel

Technology: WordPress + Woocommerce with Yoast SEO, Screaming Frog, UberSuggest, Google Analytics, WebMaster, Hostinger Tools, CloudFlare, Facebook Business Ads Manager.

Duration: 12 Weeks (Starting from 23 Jan 2023)

We are confident that he will be able to make a significant contribution to the success of our company.

Best regards,

Dron Joshi (Founder & CEO)

Internship at BrainerHub Solutions LLP Company

AN INTERNSHIP REPORT

Submitted By

Shivam Ramkumar Rajput

190390116040

In partial fulfilment for the award of the degree of

BACHELOR OF ENGINEERING

in

Information Technology

S.P.B Patel Engineering College
(Saffrony Institute of Technology)

Mehsana – 384435

Gujarat Technological University, Ahmedabad

April 2023

S.P.B Patel Engineering College

(Saffrony Institute of Technology)

Mehsana – 384435

CERTIFICATE

This is to certify that the internship report submitted along with the project entitled has been carried out by **Shivam Ramkumar Rajput** is successfully completed the internship from 25th Jan 2023 to 19th Apr 2023 (12 weeks) under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of the Department

BrainerHub
convert idea into business

INTERNSHIP LETTER

Date: 19/04/2023

To Whom it May Concern

This is to certify that Mr. Shivam Ramkumar Rajput, S/O- Mr. Ramkumar Rajput, a student of B.E in IT, Saffrony Institute Of Technology, Linch, enrollment no. is 190390116040 has joined Software Developer -Trainee internship program from 25ᵗʰ January 2023 to 19ᵗʰ April 2023 at this Company. You will work 8 hours per day for the duration of the internship program. During the period of his full time programme with us he was found punctual, hardworking and inquisitive.

If you have any questions, please feel free to contact Urvashi Shankhala - 9327971548 We are please you've decided to join BrainerHub Solutions.

Sincerely,

Urvashi Shankhala
HR Manager
BrainerHub Solutions LLP

H 406, titanium square, Thaltej, Ahmedabad,
Gujarat 380054

+91 79 4899 3210
www.brainerhub.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 : 17 May 2023 (10:26:09)

This is to certify that, **Rajput Shivam Ramkumar** (Enrolment Number - 190390116040) working on project entitled with **Internship At Brainerhub** from **Information Technology** department of **S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA** had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student :   R a j p u t   S h i v a m Ramkumar

Name of Guide :   Miss. Sushma Sainwar

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)

Mehsana – 384435

DECLARATION

I hereby declare that the internship report titled "Software Developer - Trainee," submitted in partial fulfillment of the degree of Bachelor of Engineering in Information Technology to Gujarat Technological University, Ahmedabad is a true and original record of the project work carried out by me at BrainerHub LLP, Ahmedabad, under the supervision of Mr. Mandip Vaghasiya.

I confirm that no part of this report has been directly copied from any student's report or taken from any other source without proper citation and due reference. All sources of information used in the preparation of this report have been acknowledged and referenced appropriately.

Shivam Ramkumar Rajput

Name of Student   Sign of Student

ACKNOWLEDGMENT

ABSTRACT

This internship report documents my learning experience in mobile application development using React Native, a popular open-source framework for building native mobile applications. The project was completed during my internship at **BrainerHub Solutions LLP** under the guidance of **Mr. Mandip Vaghasiya** in the summer of 2023.

The report describes the learning process, including the various tools and technologies used in the project architecture, and the implementation of various features such as user interface design, data storage, and third-party integrations. The learning process also involved understanding the fundamentals of JavaScript, React, and React Native and applying them to develop the mobile application.

Overall, this internship provided me with a valuable learning experience in mobile application development using React Native and helped me to develop my technical skills, problem-solving abilities, and teamwork skills. The knowledge and experience gained during this internship will undoubtedly prove beneficial in my future endeavors in this field.

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

Symbol	Description
JS	JavaScript
EOD	End of day
CSS	Cascading style sheet
QA	Quality Assurance

Table of Contents

CHAPTER 1. OVERVIEW OF THE COMPANY

BrainerHub Solutions - LLP

Company

BrainerHub Solutions is a prominent application and web development company based in India. They provide comprehensive product engineering services in custom application development and digital solutions. Their expertise lies in advanced web and mobile development and SAP services, delivered with a keen eye on industry trends.

Founded in 2015, the company strongly emphasizes client satisfaction and strives to provide quality solutions that improve business efficiency consistently. Their team comprises professionals with diverse backgrounds, allowing for a broader range of outlooks and problem-solving approaches.

1.1 Values of BrainerHub Solutions

Collaboration and Teamwork

Trust

Customer Satisfaction

Embrace Impossible Challenges

1.2 Scope of Work

- Mobile Application
- Web Development
- UI/UX Design
- DevOps
- Quality Assurance
- Blockchain Servies
- Artificial Intelligence/ Machine Learning

CHAPTER 2. OVERVIEW OF DIFFERENT DEPARTMENTS

1. Mobile Application

BrainerHub is a reputable mobile application development company known for creating innovative and user-friendly mobile apps. They specialize in developing apps for both iOS and Android platforms, ensuring compatibility across a wide range of devices. With a focus on user experience, their team of skilled developers designs intuitive and visually appealing apps that are easy to navigate. BrainerHub's mobile apps cater to various industries, offering functionalities for entertainment, communication, productivity, gaming, shopping, and social networking. They leverage the capabilities of mobile devices, integrating features like GPS and cameras to provide unique and interactive experiences.

BrainerHub prioritizes usability, performance, and security, regularly updating and improving their apps based on user feedback and emerging technologies. With their expertise, BrainerHub delivers exceptional mobile apps that exceed client expectations and provide users with convenient and engaging experiences.

Services:

- Native iOS Apps
- Native Android Apps
- Cross Platform
- Hybrid Apps
- PWA (Progressive Web App)

2. Digital Solutions

BrainerHub is a reputable web development company specializing in creating visually appealing and user-friendly websites. Their skilled team of developers and designers uses the latest technologies and frameworks to build responsive websites that work across different devices and browsers. They focus on delivering a seamless user experience and pay attention to factors such as navigation and page loading speed. BrainerHub collaborates closely with clients to understand their business objectives and creates custom web

solutions tailored to their needs. They prioritize security and implement robust measures to protect websites from potential threats.

Overall, BrainerHub offers customized and secure web development services that align with client's goals and provide an optimal user experience.

Services

- Enterprise Solutions
- ECommerce
- CMS
- API & Backend
- Custom Development
- WordPress Development

3. Quality Engineering

BrainerHub excels in UI/UX design, focusing on creating visually appealing and user-friendly digital experiences. Their team of designers and UX experts craft intuitive interfaces that enhance user satisfaction. In UI design, they ensure visual elements align with brand identity, while UX design emphasizes user needs and goals. Through research and testing, BrainerHub creates user-centered designs that optimize usability and accessibility. They also prioritize responsive design for consistent experiences across devices. Collaborating closely with clients, BrainerHub aligns its designs with brand identity and business goals.

Overall, their UI/UX design services encompass visually appealing interfaces, optimized usability, user research, and seamless experiences across platforms.

Services:

- Discovery Workshop
- Analysis
- Wireframe
- UI/UX Design
- Branding Design

4. DevOps

BrainerHub's DevOps department is dedicated to integrating software development and operations to enhance efficiency. They collaborate with stakeholders to establish a continuous delivery pipeline, automating processes and optimizing development stages. The team leverages various tools and technologies to streamline integration, allowing faster deployments and improved software quality. Infrastructure management and provisioning are key areas of focus, ensuring scalable resources to support application development.

Continuous monitoring and prompt issue resolution ensure optimal performance and user experience. Security measures are implemented throughout the development and deployment lifecycle. BrainerHub's DevOps department plays a vital role in delivering high-quality software applications efficiently.

Services:

- Setup
- Automation
- Continuous Delivery
- Monitoring

5. Quality Assurance

The Quality Assurance department at BrainerHub is responsible for creating and implementing robust testing strategies and methodologies. They design test plans, develop test cases, and perform various types of testing, including functional testing, performance testing, security testing, and usability testing. They work closely with developers to identify and address any issues or bugs before software is released. The team also focuses on user experience, ensuring that software applications are intuitive and meet user expectations. Collaboration with the development team and adherence to quality standards and processes are key aspects of their work.

The QA department contributes to the release management process, ensuring proper testing before deployment. Overall, BrainerHub's QA department plays a crucial role in delivering

high-quality software solutions to clients through thorough testing and continuous improvement.

Services

- Manual QA Testing
- Web Testing Automation
- Mobile App Testing
- Performance Testing

6. Blockchain Services

BrainerHub's Blockchain Services department is dedicated to leveraging blockchain technology to provide innovative solutions to its clients. This department specializes in the development, implementation, and maintenance of blockchain-based applications and platforms. They have expertise in various blockchain platforms and frameworks and offer services such as development, consulting, integration, smart contract development, security, and training.

The team works closely with clients across industries to create innovative blockchain solutions that enhance efficiency, transparency, and security. BrainerHub combines its blockchain knowledge with industry-specific expertise to deliver customized and scalable solutions.

Services

- DeFi App
- Tokenization
- Rollups Development
- NFT and Metaverse
- Supply Chains
- Blockchain Explorer

7. Artificial Intelligence/ Machine Learning

BrainerHub's AI/ML department is dedicated to leveraging cutting-edge technologies to deliver intelligent and data-driven solutions. Their team of experienced data scientists and AI specialists develops custom AI and ML models to address complex business challenges. They offer services in AI solution development, machine learning, natural language processing (NLP), computer vision, AI consulting, and model evaluation and optimization.

Working closely with clients across industries, BrainerHub combines its expertise with advanced methodologies to create AI-driven solutions that drive business growth and innovation.

Services

- Decision-Making Solution
- Predictive Modeling
- Chat bots
- Natural language processing
- Computer vision

2.1 Sequence of Operation

BrainerHub Solutions follows both *Agile* and *SDLC* (Software Development Life Cycle) methodologies for software development, depending on the project requirements and client preferences. These methodologies provide a structured approach to the development process, ensuring that software applications are delivered on time and within budget.
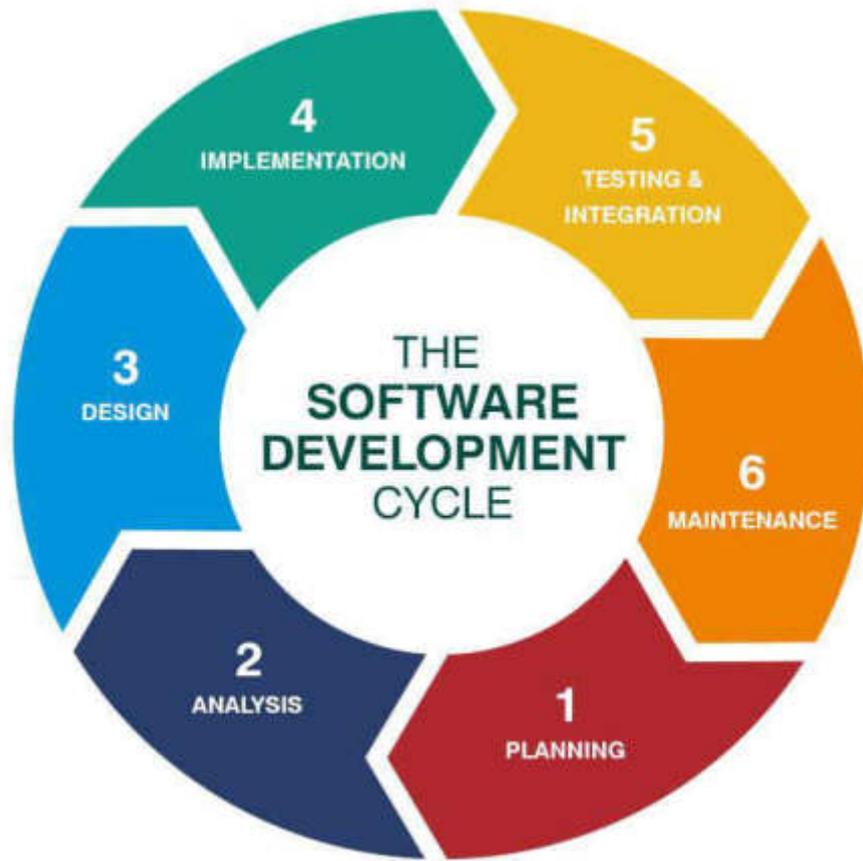
Fig 2.1 Software Development Life Cycle
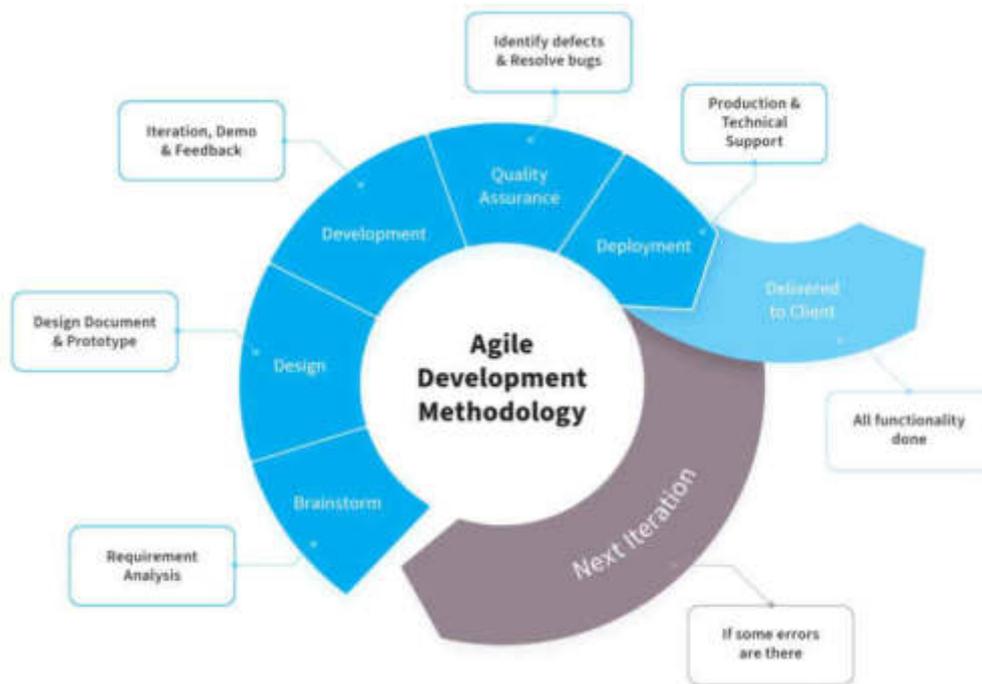
Fig 2.2 Agile Development Methodology

2.2 Stages of Production

<u>Requirements gathering and analysis</u>

It involves identifying, defining, and documenting the requirements and constraints of a project, which are used to develop a project plan that outlines the scope, timeline, budget, and resources required to successfully complete the project. By gathering and analyzing requirements, project teams can ensure that they deliver a product that meets the needs and expectations of all stakeholders and that they manage changes to the requirements throughout the project lifecycle. Effective requirements gathering and analysis can help ensure project success and reduce the risk of costly errors or delays.

<u>Design the requirements</u>

Designing requirements involves defining the needs and goals of the project, identifying the key features and functionalities that the project must deliver, and specifying the constraints and limitations that must be taken into account during the development process. The requirements must be documented clearly and concisely to ensure that all stakeholders have a shared understanding of what is expected from the project.

<u>Construction/ Iteration</u>

The construction phase involves acquiring resources, executing tasks, and managing the project, while iteration involves reviewing and refining the project plan to ensure it aligns with stakeholder expectations and meets desired outcomes.

<u>Deployment</u>

The development phase is where the project plan is executed, and deliverables or solutions are built and tested. It involves quality control, risk management, and stakeholder engagement.

<u>Testing</u>

Testing involves evaluating project deliverables to ensure they meet desired quality standards. Testing can be done using various methods, such as automated or manual testing, and includes creating test plans, and cases, and analyzing test results. Testing helps identify

defects, bugs, or issues that may affect the project's performance, functionality, or usability, allowing for early correction and increasing stakeholder confidence while reducing implementation risks.

<u>Feedback</u>

In the Feedback phase we collect and analyze the feedback from stakeholders to identify areas for improvement and make necessary adjustments to the project

CHAPTER 3. INTERNSHIP AND PROJECT OVERVIEW

3.1 Internship Summary

- Providing practical experience in a real-world setting, internships are structured programs aimed at giving students new to a subject the opportunity to develop skills valued by employers and strengthen their resumes with observable job experience. While schools and institutions may assist students in finding suitable programs, it ultimately falls on would-be interns to thoroughly investigate potential internships to ensure that they meet their training objectives.

- I have done my internship program at BrainerHub Solutions LLP. The internship program was entitled Software Developer-Trainee, the program is designed in such a way that it emphasized maximum knowledge distribution to us in terms of technical skills and soft skills other than the syllabus we had learned in college.

- During my 12-week internship at BrainerHub, I gained a comprehensive understanding of the inner workings of software development industries, including the management and development of customer projects. I worked on a variety of technologies and projects, which allowed me to apply and expand my knowledge.

- During the internship period I have trained in technologies for frontend technologies, backend technologies, Database, Figma, and Firebase.

JavaScript	Firebase	Figma
React	React-Native	Firestore

- During the internship, I completed the assignment and developed a project named "Private Teacher" using technologies like CSS, JavaScript, Firebase, React-Native, and Firestore.

3.2 Purpose

- The purpose of this internship is to expose students to real work environment experience at the same time. An internship also allows you to observe what the work environment is like and if it's something you'd like to do for the rest of your life. I

will be able to obtain real-world experience, expand my knowledge, and discover if I am in the correct professional sector by participating in an internship. Internships not only provide you with first-hand experience in the real world, but they also help you comprehend the career path for the job title you want. You can learn how to apply the skills you learned during your internship.

- Furthermore, it is a fantastic learning curve for young grads and students who want to meet new people and make professional contacts.

- Working as a professional for an organization involves more than just business and technical expertise. One will need people skills as well, since no matter how talented you are, you won't be able to excel in any job unless you learn to collaborate and work as part of a team.

- It also aids me to know how to operate under pressure and why deadlines are important. An internship exposes you to the hardships of working life, and having this experience will help you talk about similar scenarios in future interviews and demonstrate to employers that you would be a good match for their organization.

3.3 Objective

The objectives of the internship program are as follows:

- To build strength, teamwork spirit, and self-confidence in students' life.
- Provides the opportunity to learn real-life work skills and etiquette hands-on at a real job.
- To Gain valuable skills, knowledge, and experience in a field to allow you to make a career transition.
- Explore a career interest, develop skills, and gain experience.
- Internship, focus on the skills you will learn and the experiences you will have, not simply on the company name to help you apply the theory and skills you have learned in the classroom setting, and for your personal development.

3.4 Internship Plan

- The internship program duration is of 12 weeks. There are five working days a week from 9:30 am to 6:30 pm. The tasks are assigned by the team leader.

- The plan also consists of several minor projects on multiple technologies like React-Native, JavaScript, and Firebase authentication.

Topic to cover in javascript Inbox ×

Mandip Vaghasiya <mandeep.branehub@gmail.com>
to me

let, var, const
- object class array
- arrow functions, normal functions
- operators
- string functions, math functions, array methods
- Todo operations .. (insert, update, delete from array)
- array sorting, array filters
- Date and time methods
- loops
- How to use regex
- JSON
- this keyword and stric mode
- Error handling (try, catch finally) vloocks
- Functions Scope
- map and filter functions
- splice and slice functions
- find, findIndex, some functions
- break continue, return use
- switch case and if, else conditions
- Types of array
- Number methods
- ES6
- async await
- JS versions difference
- spread operators
- ternary operators

Thanks & Regards,
Mandip Vaghasiya

Fig 3.4.1 Internship Plan 1
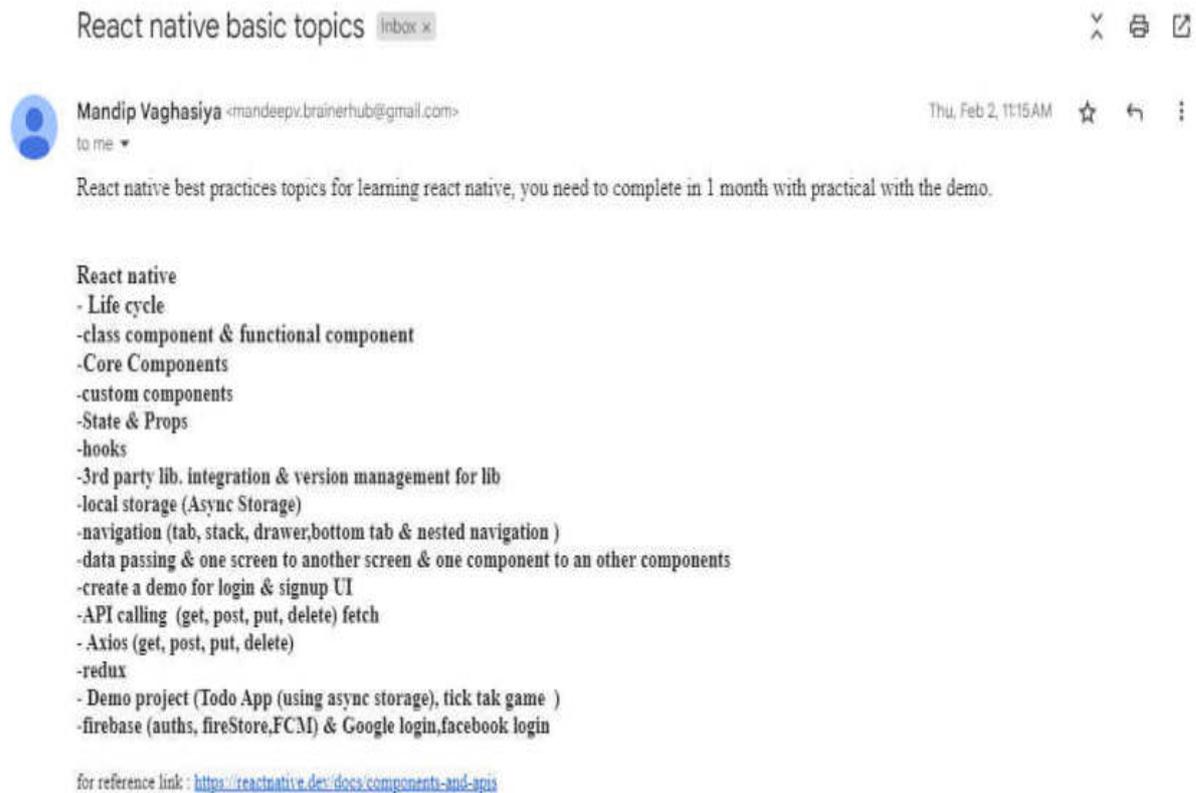
Fig 3.4.2 Internship Plan 2

3.5 Roles and Responsibilities

- During the internship program, my responsibilities are to undergo training and learn multiple technologies like JavaScript, CSS, Firebase, Figma, and Firestore.
- To gain technical knowledge and also to build soft skills which will ultimately make me a better employee. And complete the assignments which were assigned to me.
- Understand the task, if I didn't understand then ask for help and complete the assignment before or on time.

3.6 Project Detail

Private Teacher

3.6.1   Project Profile

- A mobile application, also known as a mobile app, is a software program specifically designed to run on mobile devices such as smartphones or tablets. Mobile apps can be developed for various operating systems, including Android, iOS, and Windows Phone.

- Overall, the profile of a mobile app is shaped by its purpose, user interface, features, compatibility, security, performance, and updates. A well-designed mobile app that meets these criteria can provide a valuable and engaging experience for users.

3.6.2 Project Description

Private Teacher is an Ed-Tech mobile application built using React Native, designed to provide a seamless online teaching experience. With this app, users can access a wide range of online courses and lectures, making learning accessible and convenient. The user interface of the app is intuitive and easy to navigate, with a modern and visually appealing design. Users can easily browse and search for courses by topic, level, and instructor, and can access detailed course descriptions, including course syllabus, requirements, and duration. Users can also communicate with instructors and other students through the app's messaging system and participate in discussion forums. The app also features a live-streaming option for online lectures, enabling users to attend virtual classes and interact with instructors in real-time. Users can also access pre-recorded lectures and materials at any time, allowing for a flexible and personalized learning experience.

3.6.3 Objectives

- To provide a convenient and accessible online learning platform: The app is designed to make learning more accessible and convenient, by providing a wide range of courses and lectures that can be accessed anytime and anywhere through mobile devices.

- To offer a personalized learning experience: The app enables users to enroll in courses and track their progress, providing a personalized learning experience that adapts to each user's needs and preferences.

- To promote interaction and communication between students and instructors: The

app features a messaging system and discussion forums, enabling students to interact with each other and instructors to get feedback and support.

- To ensure the security and privacy of user data: The app is built with robust encryption and authentication measures in place to protect user data and prevent unauthorized access.

3.6.4 Features

- Accessibility
- Course Enrollment
- Course Materials
- Live Streaming
- Messaging System
- Personalization
- Security

3.6.5 Technologies Used

- React-Native
- CSS
- JavaScript
- Firebase
- Figma
- Firestore

3.6.6 Why to Use?

Fig 3.6.6 Why to use

3.7 Project Scheduling
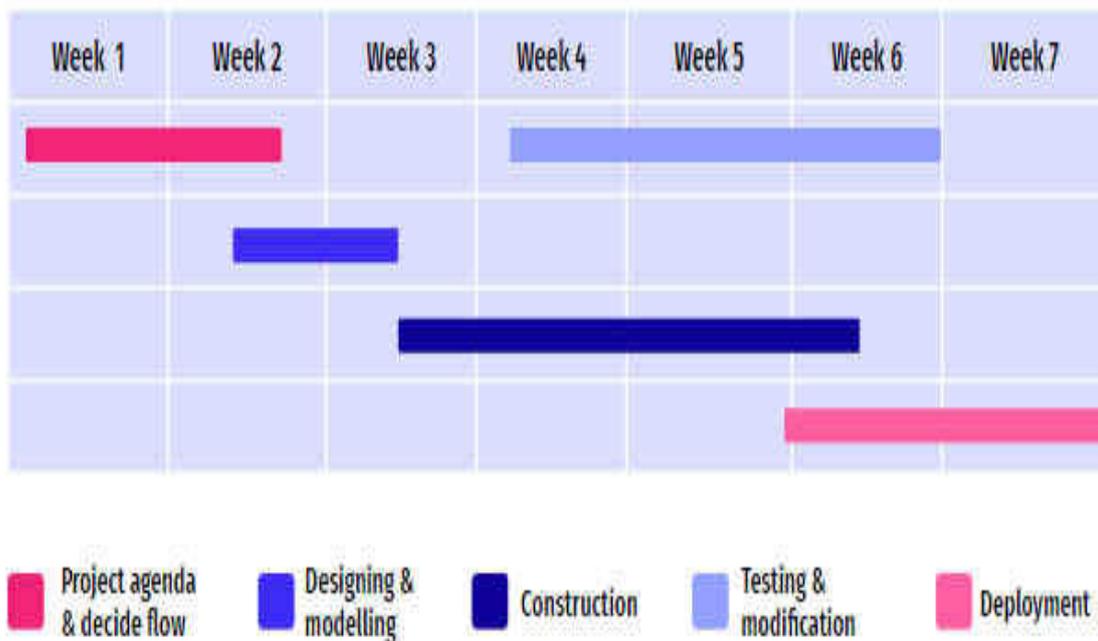
Fig 3.7 Project Scheduling
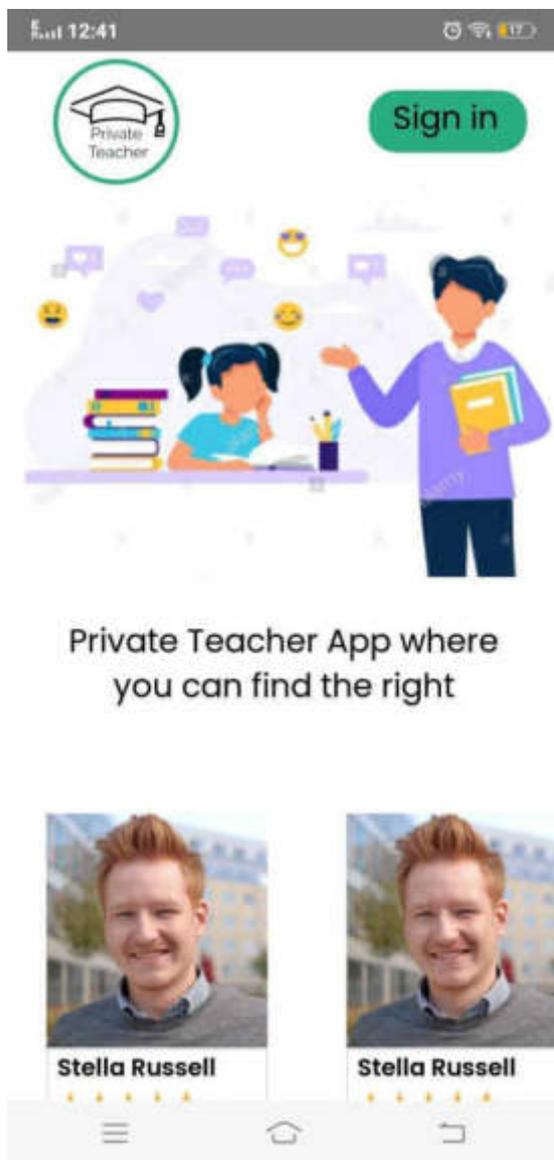
Fig 3.8 Home Screen
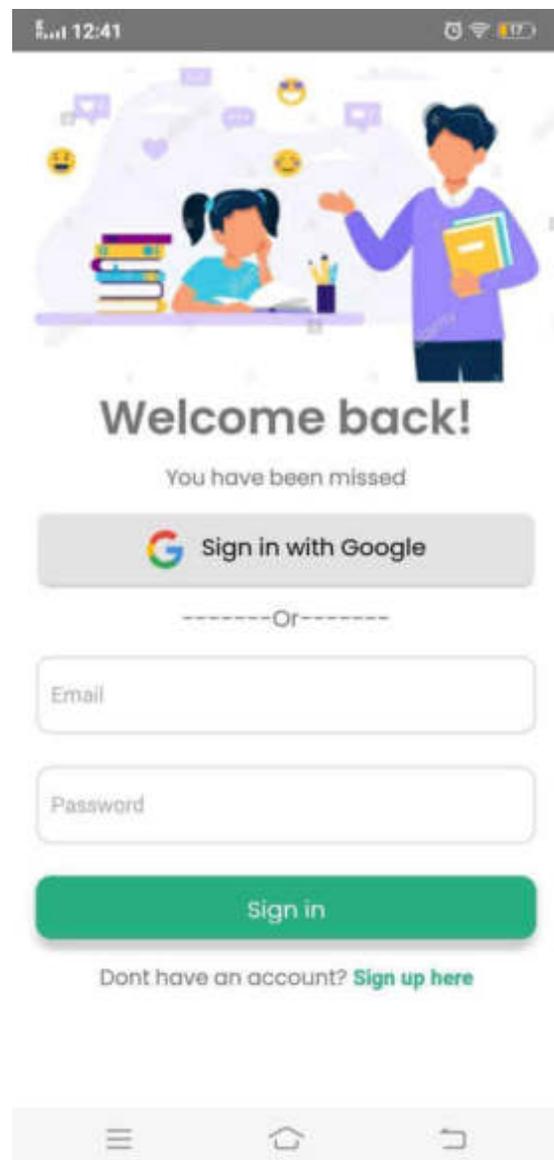
Fig 3.9 Sign-Up Screen

Fig 3.10 User Selection Screen
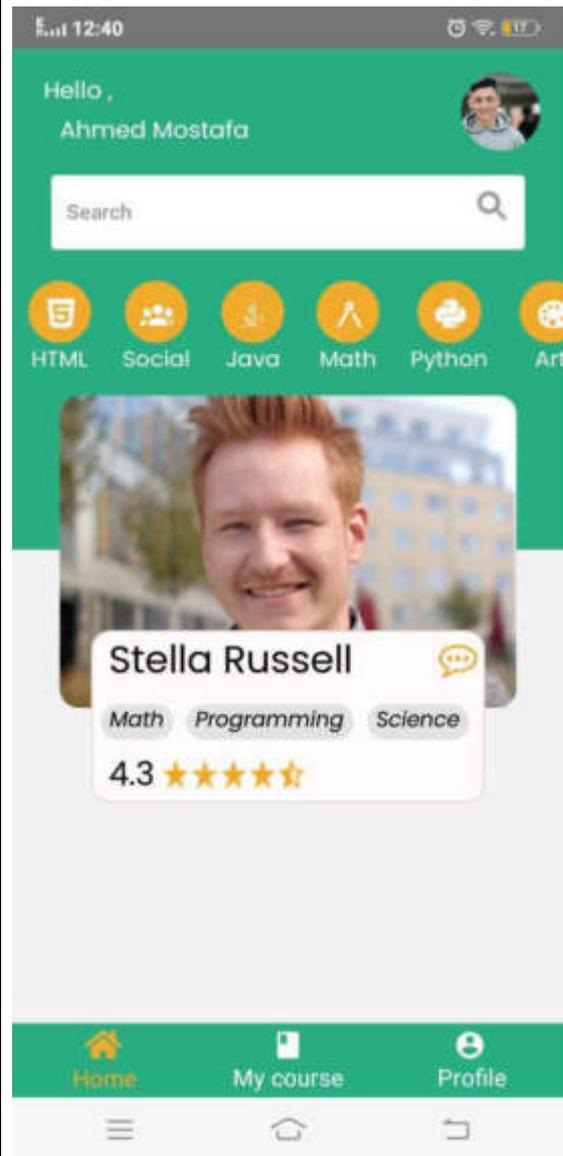
Fig 3.11 Student Home Screen
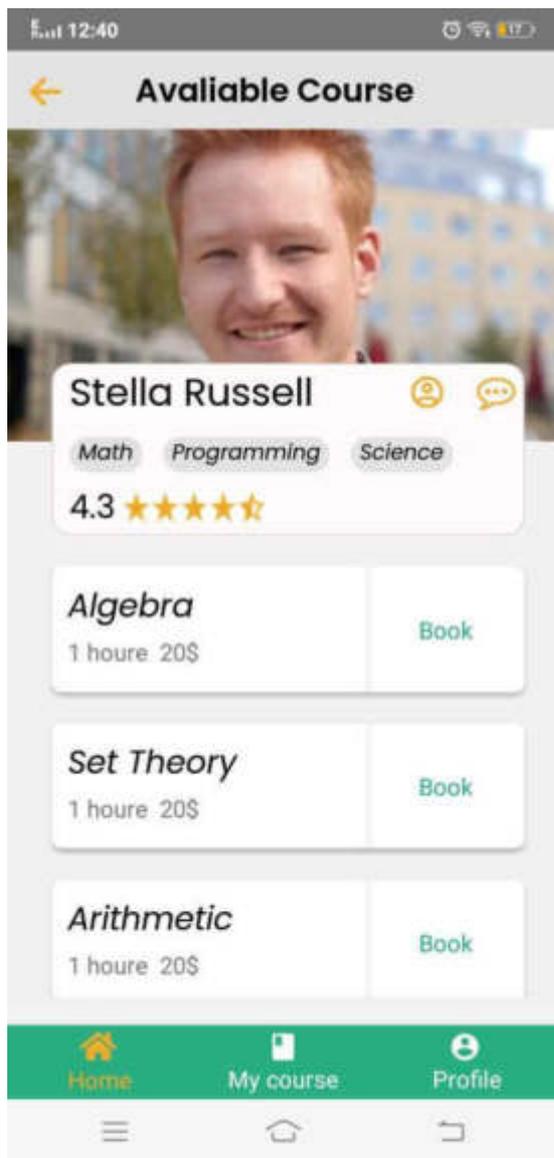
Fig 3.12 Available Courses Screen   Fig 3.13 Course Detail Screen
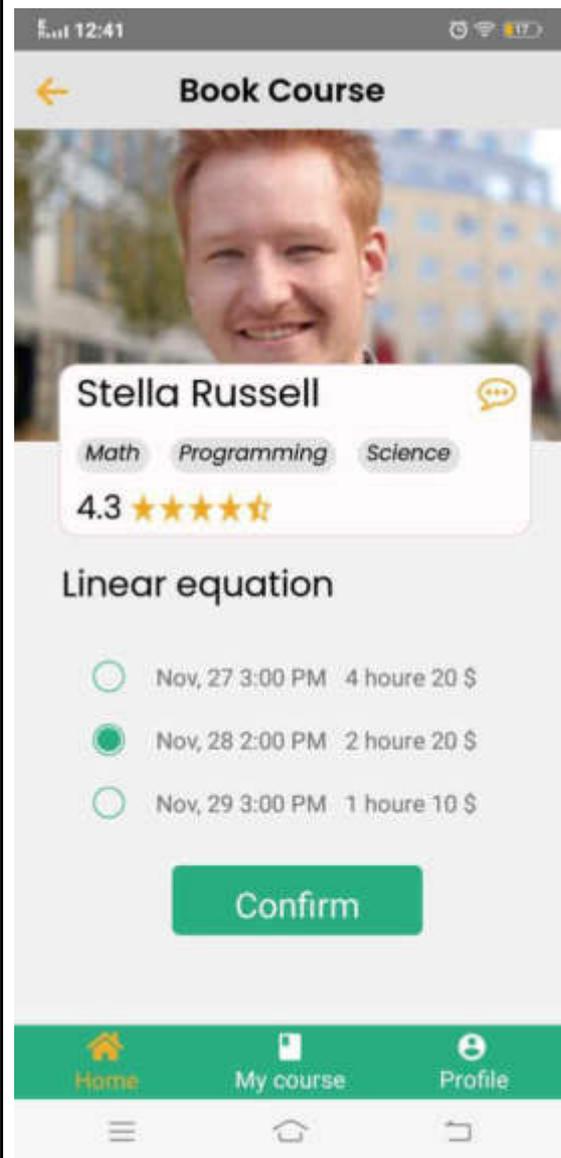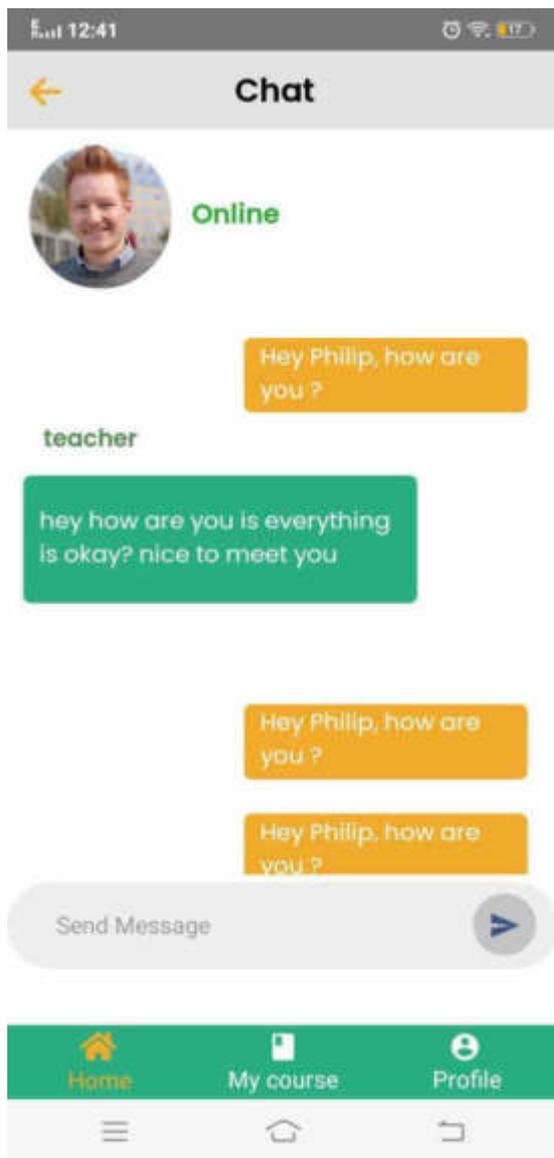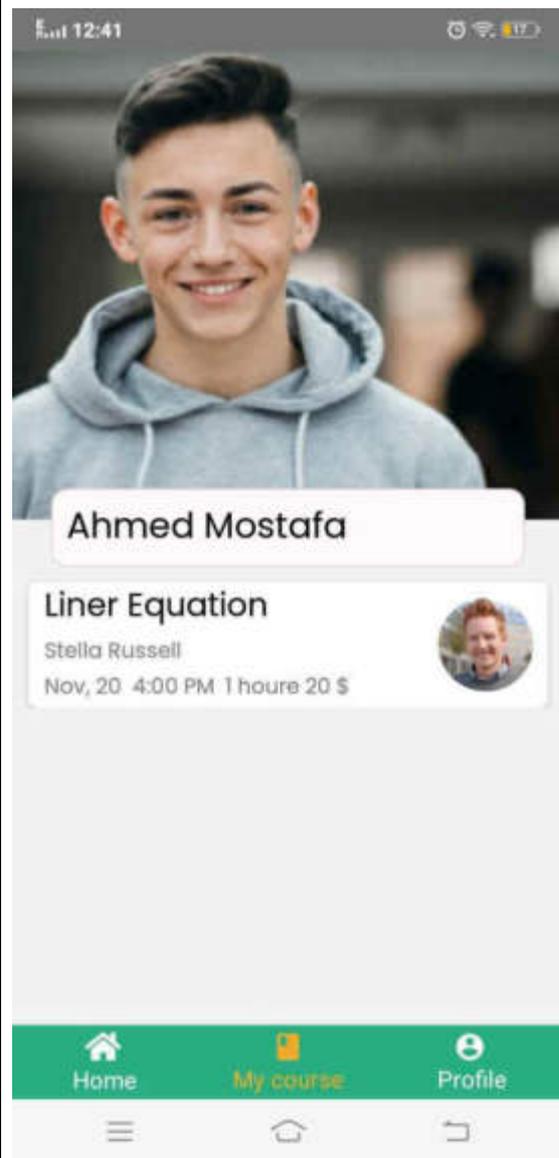
Fig 3.14 Chat Screen   Fig 3.15 Enrolled Courses Screen
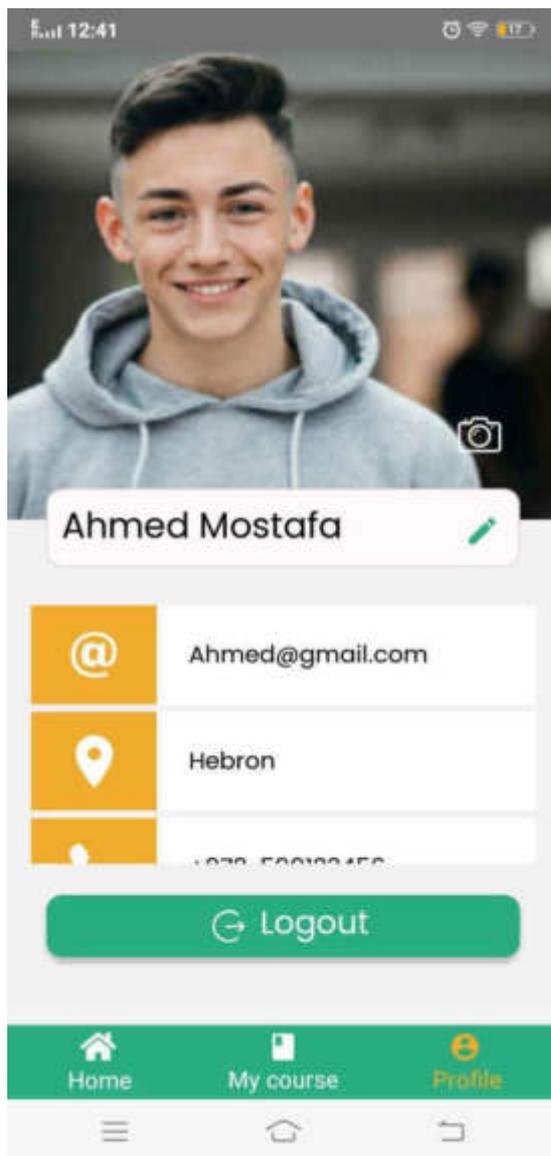
Fig 3.16 Student Profile Screen   Fig 3.17 Instructor Courses Screen
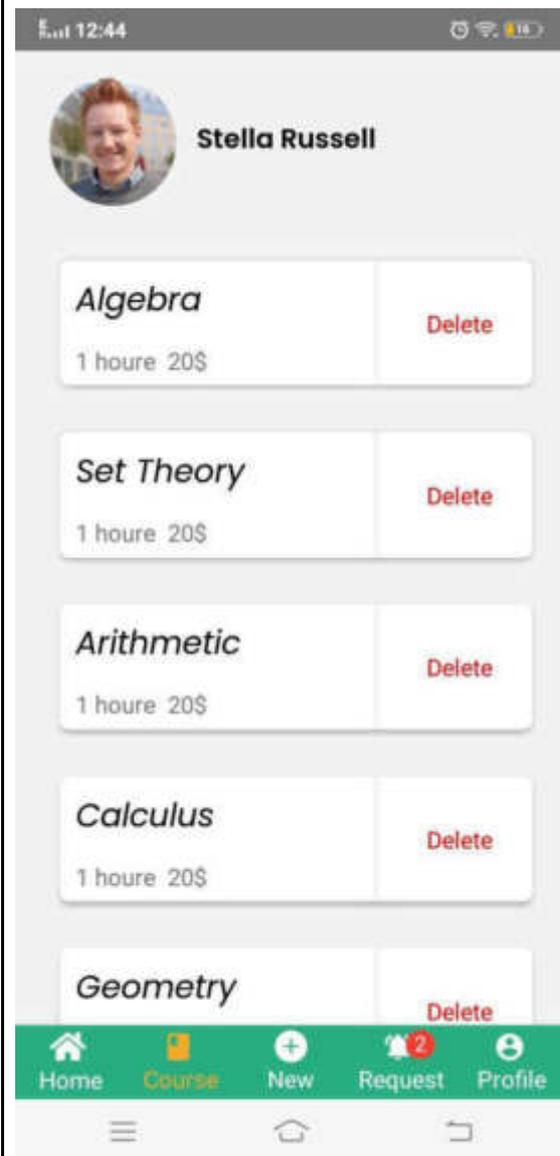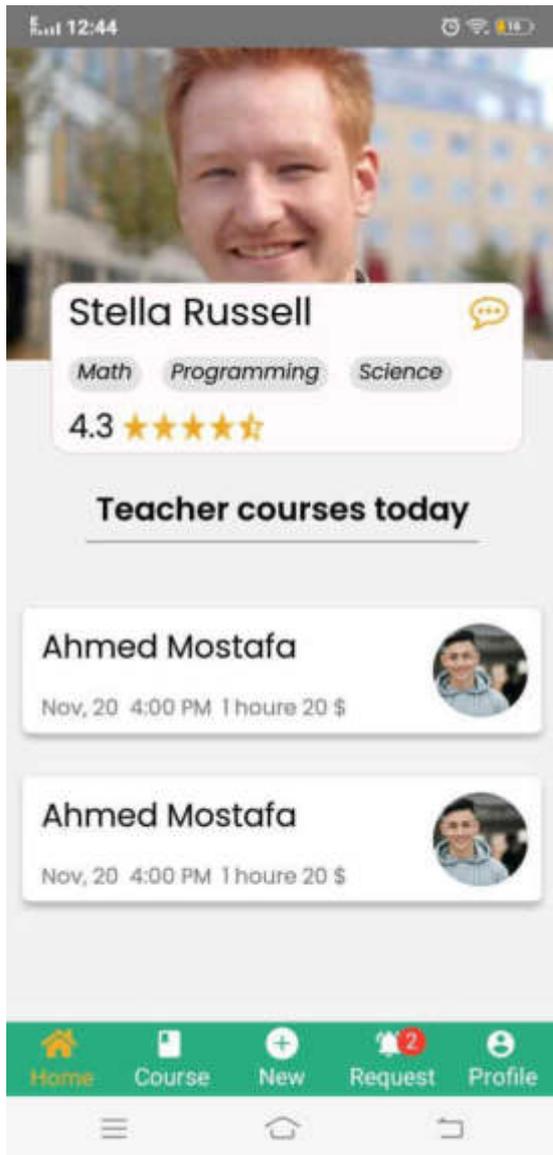
Fig 3.18 Todays Courses Screen   Fig 3.19 New Course Screen
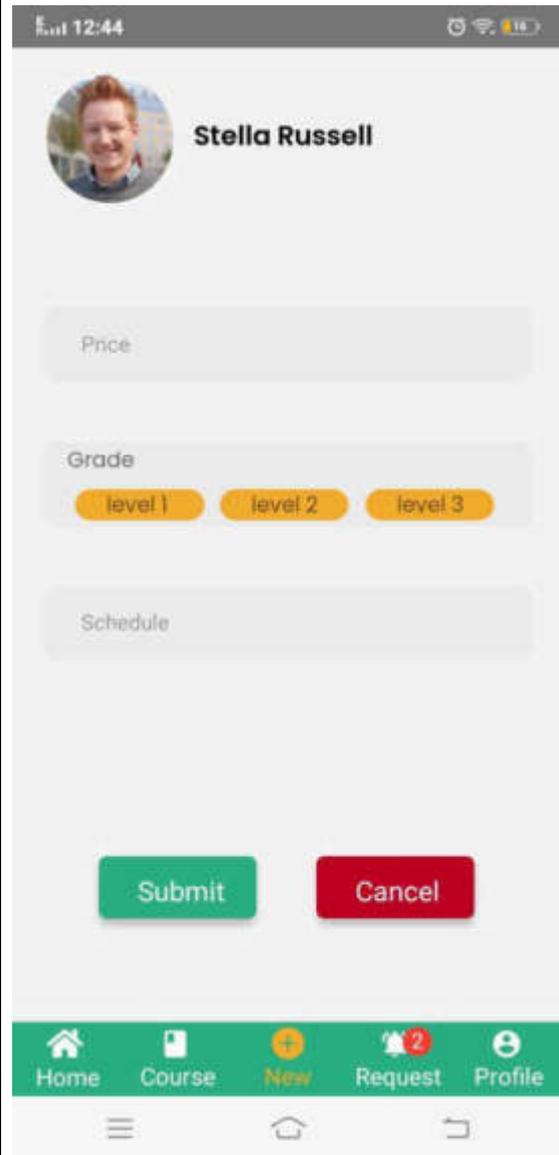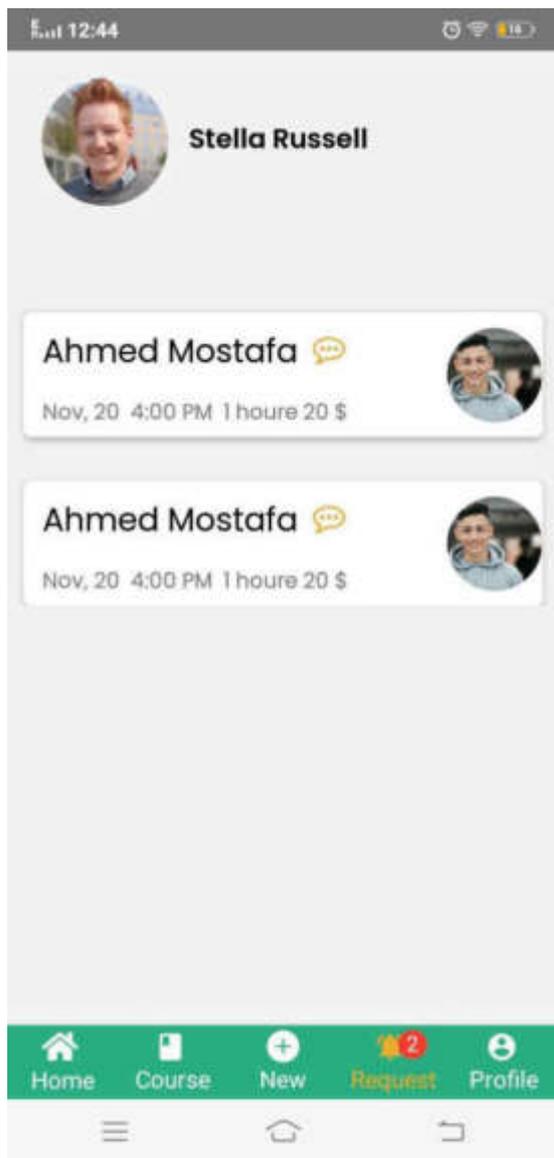
Fig 3.20 Request Screen   Fig 3.21 Instructor Profile Screen
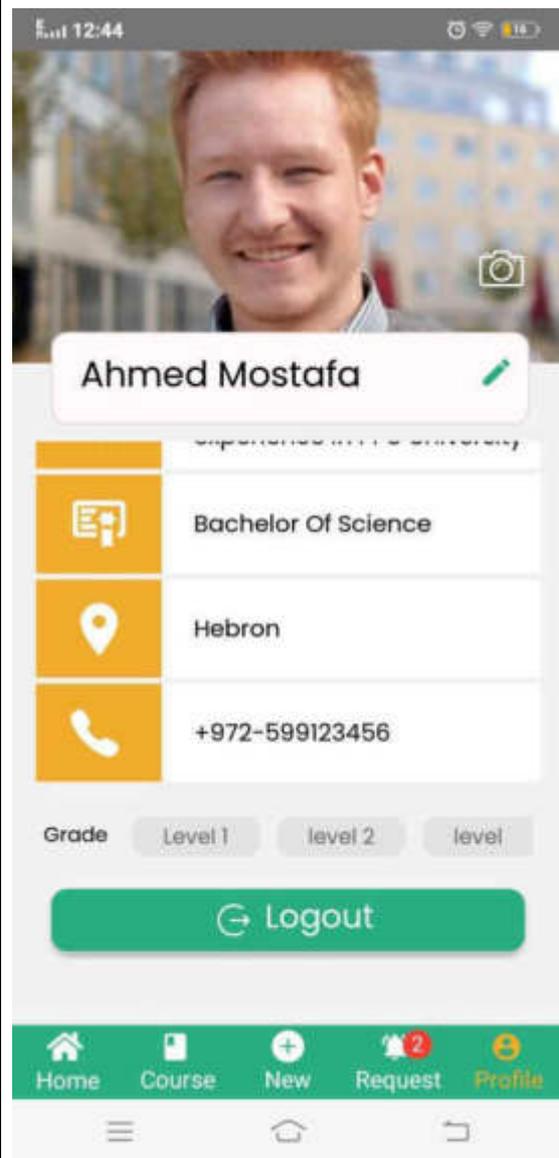
CHAPTER 4. FEASIBILITY STUDY

A feasibility analysis determines whether or not the proposed software project is feasible. When a need for software develops, you do not immediately plunge into building the program. Instead, we must first assess specific data to determine whether or not the program is worthwhile, which is referred to as a feasibility study. The feasibility study analyses whether or not the software project can be completed technically, organizationally, and commercially, among other factors. Each organization, on the other hand, conducts the feasibility study in a unique manner. Other people do it meticulously and methodically, while others do it on the spur of the moment, and some people don't do it at all.

4.1 Technical Feasibility

- The technical feasibility study determines whether the current technology and technical staff available with the organization will accomplish the software's development or not. The key issues that must be addressed during the technical feasibility study.

- The Private Teacher mobile application built using React Native is the assessment of the app's functionality, scalability, security, and performance under different usage scenarios.

- The app must be designed to integrate seamlessly with backend systems, ensure optimal performance, and be secure.

4.2 Operational Feasibility

- Though the software project is feasible from the technical aspect what if you need to make major organizational changes. It will make things more complex. To check if the software is organizationally or operationally feasible. The system is very easy to use and operate.

4.3 Economic Feasibility

- For software to be economically feasible the cost expends to develop the software must exceed its benefits. The assessment involves identifying the costs associated with

  1. Developing and maintaining the app.
  2. Identifying potential revenue streams.
  3. Estimating the size of the target market.
  4. Cost invested in Installation of the software.
  5. The cost required in operating the software

CHAPTER 5. ANALYSIS
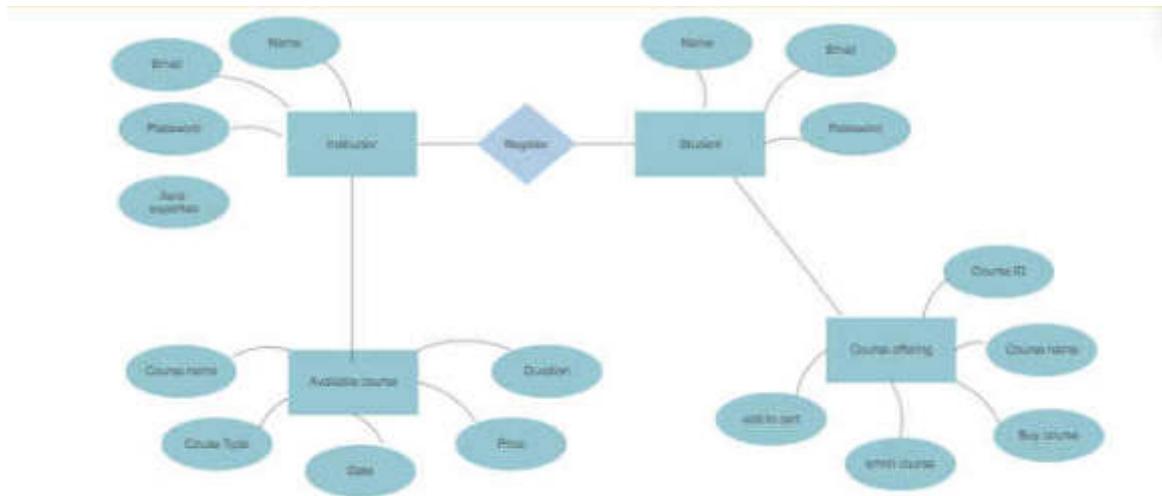
5.1 ER Diagram

Fig 5.1 ER Diagram

5.2 Data Flow Diagram
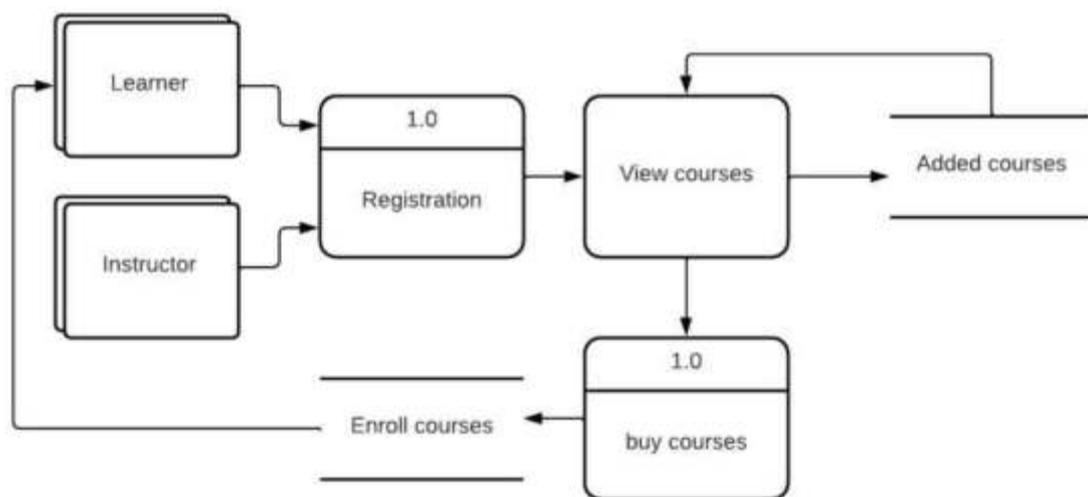
Fig 5.2 Data Flow Diagram

5.3 Class Diagram
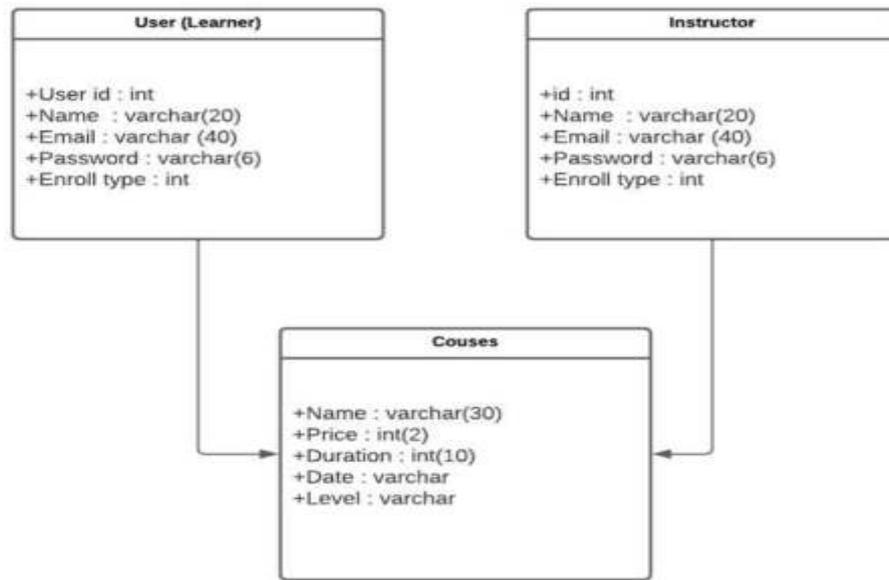
Fig 5.3 Class Diagram

5.4 Use Case Diagram
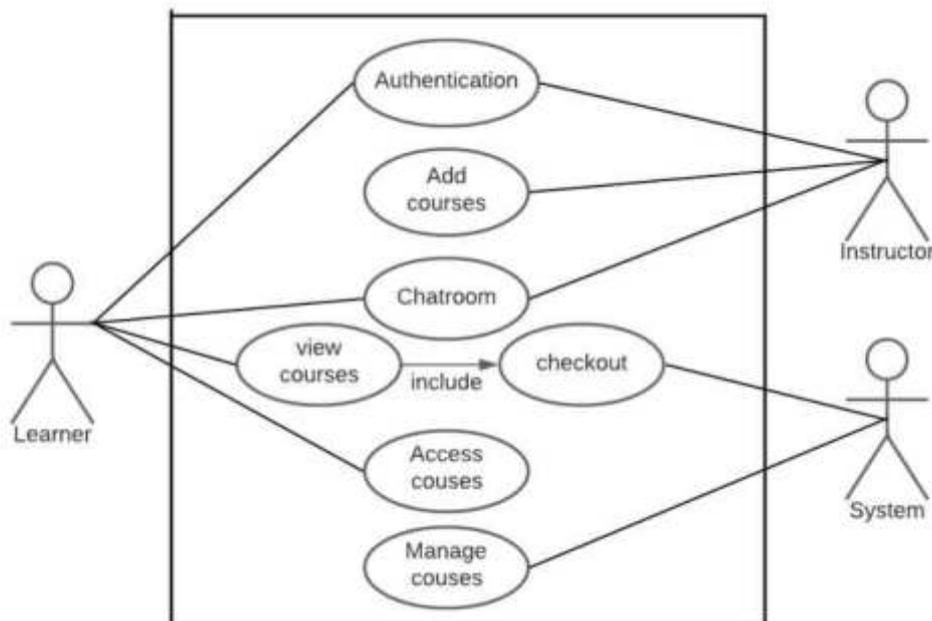
Fig 5.4 Use Case Diagram

5.5 Sequence Diagram
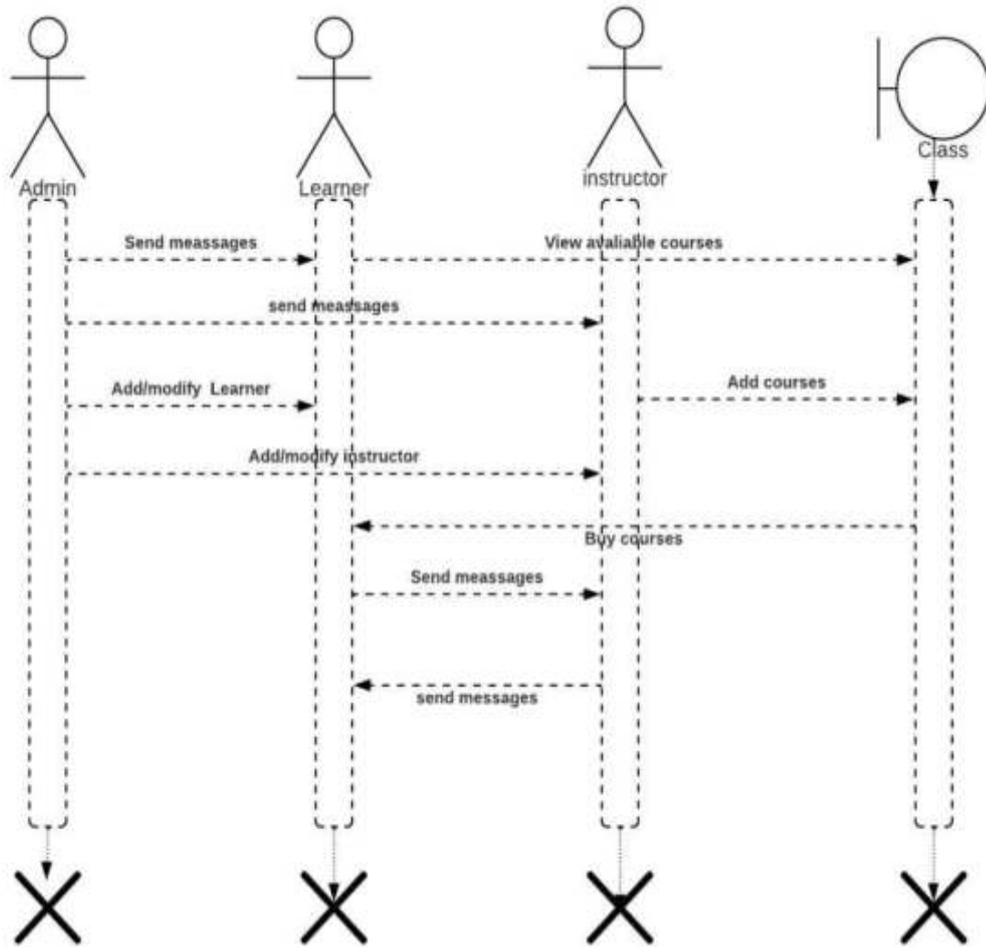
Fig 5.5 Sequence Diagram

5.6 Activity Diagram
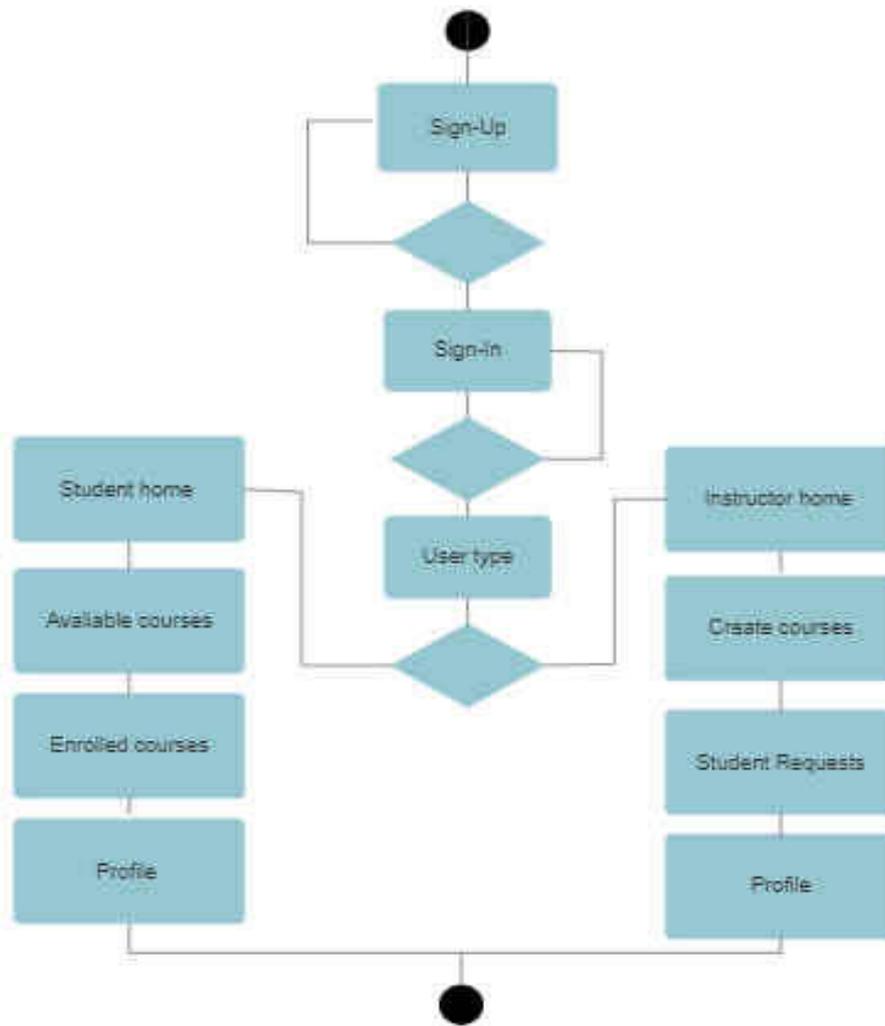
Fig 5.6 Activity Diagram

CHAPTER 6. DESIGN

6.1 User Table

Table 6.1 User Sign-up Database
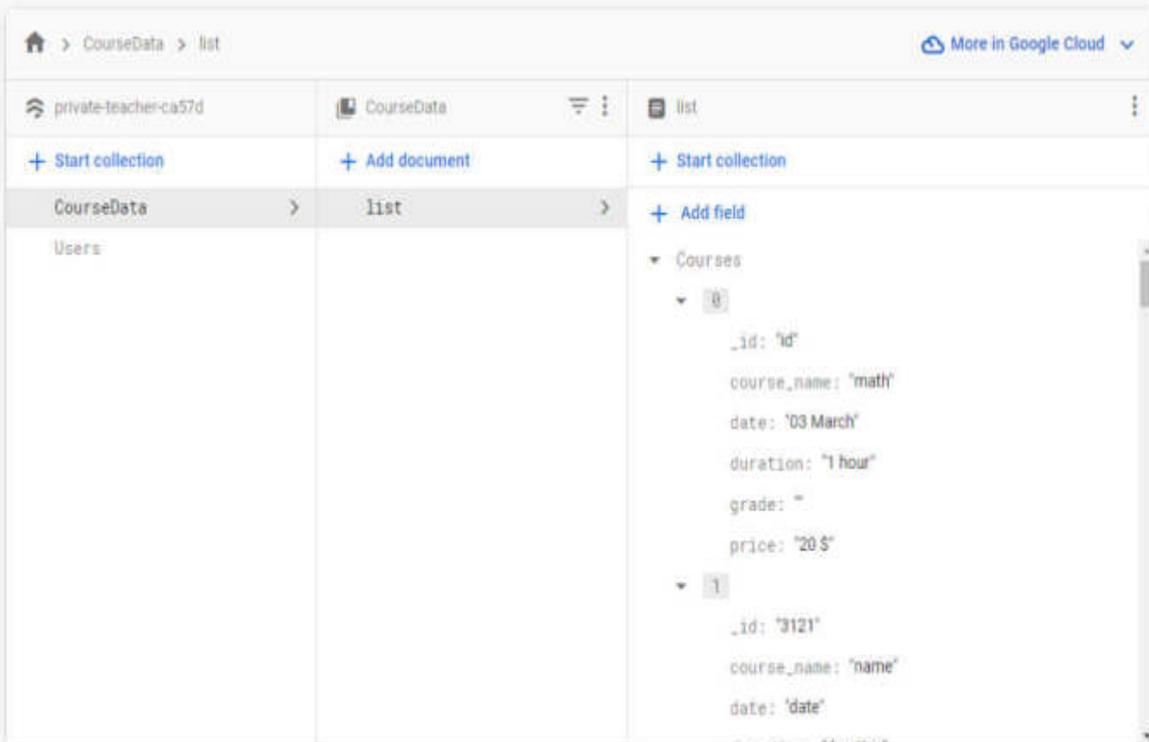
Table 6.2 Courses Database

Table 6.3 User Login Database

CHAPTER 7. TESTING

7.1 Testing Methods

Testing methods are usually conducted in order and include:

- **Unit testing:**

  Unit testing is the first level of testing and is often performed by the developers themselves. It is the process of ensuring individual components of a piece of software at the code level are functional and work as they were designed to. In the system, individual components are validated like all widgets of the Application.

- **Integration testing:**

  After each unit is thoroughly tested, it is integrated with other units to create modules or components that are designed to perform specific tasks or activities. Validate or test Module.

- **System Testing:**

  System testing is a black box testing method used to evaluate the completed and integrated system, as a whole to ensure it meets specified requirements. It checks the system as a combination of modules.

- **Acceptance Testing:**

  Acceptance testing is the last phase of functional testing and is used to assess whether or not the final piece of software is ready for delivery. Non-functional testing methods incorporate all test types focused on the operational aspects of a piece of software. These include:

  - Performance testing
  - Security testing
  - Usability testing

7.2 Test Cases

Test-Case	Test Scenario	Test-Case Title	Pre-requisites	Test Steps	Expected Results (ER)	Actual Result (AR)	Status
1	Home Page	Home redirection	Open Application	1. Click on the application icon	User Should be able to see the Home screen of the application	User is successfully able to redirect to the home screen of the application	Pass
2	Sign-In	Login Functionality	Go to Sign-in screen	1. Click on the application icon 2. Click on the Sign-up button 3.Click on "Sign-in here" button 4.Enter credentials 5.Click Sign-In Button	User Should be able to Sign-in to his/her account and should be able to use the different functionalities	User can Sign-in to his account and is being able to use the different functionalities	Pass
3	Sign-Up	Register Functionality	Go to Sign-up screen	1. Click on the application icon 2. Click on the Sign-up button 3. Click on "Sign-in here" button 4. Enter the necessary detail 6. Click Sign-up button	User should get a confirmation of being sign-up and then should be able to sign-in in the account afterward	User is being able to sign-up himself in the system and can sign-up afterward	Pass

| 4 | Services | Services functionality | Go to the Home screen | 1. Open application 2. Sign in onto the application 3. Click Search Button 4. Go to Services screen | User should be able to see all the services provided by the system in detail | User is able to go to the Services screen and is able to see all the information in detail | Pass |
| 5 | Logout | Logout Functionality | Go to Profilr screen | 1. Open application 2. Sign in onto the application 3. Click on the profile screen 4. Click on logout button | User should be able to logout to the application | User is able to Login and then go to the Profile screen and able to click on the logout button | Pass |

Table 7.1 Test Cases Created

CHAPTER 8. CONCLUSION AND FUTURE WORK

8.1 Conclusion

- Overall, the internship and project I completed to partially fulfill the requirements for the degree of Bachelor of Engineering from Gujarat Technological University were incredibly beneficial for me in many ways.

- The internship under the Brainerhub helped me to learn Project Development, Project Management, and Testing in a corporate environment.

- I have developed an ed-tech mobile application that can be used as an intermediate between faulty and learner.

- The application provides the learner a platform where the professional, experienced faculty's made amazing courses that will help the learner build their skills.

- The Ed-tech application is built using technologies like React-Native, CSS, JavaScript, and Firebase.

8.2 Future Work

- We can integrate with additional learning management systems to expand the app's course catalog.

- Also we can develop virtual and augmented reality features to enhance the learning experience.

- Integration with AI-powered chatbots for personalized learning experiences and improve student engagement.

- Integration with social media platforms to allow for better communication and collaboration between students and instructors.

- Development of language translation features to make the app accessible to users who speak different languages.

- Expansion of the app's user base through targeted marketing and partnerships with educational institutions.

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FluSocial Digital Marketing

AN INTERNSHIP REPORT

Submitted by

Rathod Rakeshkumar Bharatji

190390116041

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 FluSocial** has been carried out by **Rathod Rakeshkumar Bharatji** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of S.P.B. Patel Engineering College(Saffrony Institute of Technology), during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

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FLU SOCIAL
MARKETING

May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Rakeshkumar Bharatji Rathod** (Enrollment No: **190390116041**) 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.

Dron Joshi
CEO, Flu Social

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

DECLARATION

We hereby declare that the Internship / Project report submitted along with the Internship / Project entitled **Ryan Avenue** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar & Dron Joshi (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.

             Rakesh   Sign of Student

1.   **Rathod Rakeshkumar Bharatji**   _____

ACKNOWLEDGMENT

Acknowledgement is just a way to express gratitude, something so deep that it cannot be express fully. Nobody is complete on its own. He/She needs someone's help in his/her life.

The best way to have a good idea is to have lots of ideas. We have sincere feeling that the credit of the project could not be narrowed down. It is a great sense of satisfaction that we resent our real venture in practical computing in the form of project work. It is also a latter of privilege and an honor of us to work on the project "RyanAvenue". We wish to express our heart full thanks to all who assisted us during the project.

Certainly, the project could not have been completed without valuable suggestions and guidance from various sources. Very special thanks to the entire faculty and especially Dron Joshi, who helped us to create such a system. We are very grateful to S.P.B. Patel Engineering College, Mehsana and to our college Department of Computer Engineering in which we are going to submit our project.

With Sincere regards from,

Rakesh Rathod

Abstract

Ryan Avenue is a website that offers a wide range of products and services for consumers in India. The website features categories such as electronics, home and kitchen, fashion, and beauty, among others. Customers can browse through a variety of items, including smartphones, laptops, clothing, cosmetics, and more. The site also provides customer reviews and ratings, allowing shoppers to make informed decisions before making a purchase. Ryan Avenue also offers payment options such as credit and debit cards, net banking, and cash on delivery. With its diverse range of products, easy-to-use interface, and convenient payment options, Ryan Avenue is a one-stop-shop for all of your online shopping needs in India.

List of Figures

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

Table of Contents

Chapter 1. INTRODUCTION

1.1 COMPANY PROFILE:

FluSocial is a digital marketing agency based in Mehsana, India. It provides services such as website development, branding, SEO, social media marketing, and more. It has over 10 years of experience and has satisfied more than 1000 customers. Some of its clients include theriseonic.com, blissaquaworldresort.com, liive.org, and adatewithcharlotte.com. FluSocial aims to build and grow stronger relationships with its customers by using advanced marketing tools and creative innovation.

1.2 MISSION AND VISION OF THE COMPANY:

According to the founder of FluSocial, Dron Joshi, the vision of the company is to "WOW" the world with what can be achieved online. The company aims to use advanced marketing tools and creative innovation to help its customers grow their businesses and brands online. FluSocial also wants to provide effective and affordable digital marketing solutions that suit the needs and goals of its customers.

1.3 SERVICES PROVIDED BY COMPANY

FluSocial provides a range of services related to digital marketing, website development, and branding. Some of the services are:
- Generating leads for online businesses
- Designing and developing websites that combine aesthetics, functionality, and content.
- Simplifying brand management with a platform that connects everything and everyone, which is important to the growth of the brand.
- Performing SEO (search engine optimization) to improve the visibility and ranking of websites on search engines.
- Managing social media marketing campaigns to reach and engage potential customers.
- Providing 24x7 support and creative innovation to customers

Appendix

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

CHAPTER 2: INTRODUCTION OF PROJECT

The project aims to create an online store called Ryan Avenue that caters to various shopping needs of customers. The store offers products from different brands and categories, such as clothing, accessories, electronics, home decor, and more. The store also has a physical location in Mehsana, Gujarat, where customers can check the products before buying. The store provides free shipping, easy returns, and secure payment options for customer satisfaction. The project's objective is to deliver quality products at affordable prices and excellent customer service through Ryan Avenue.

2.1 PROJECT SUMMERY

Ryan Avenue is an online store that aims to provide a variety of products and services to customers. The project involves creating a website and an app for the store, as well as setting up a physical store in Mehsana, Gujarat. The project also involves marketing and promotion of the store, as well as managing the inventory and logistics. The project's goal is to create a successful online store that offers quality products at affordable prices and excellent customer service.

2.2 PURPOSE

The purpose of this site is to sell a variety of products online, such as clothing, accessories, electronics, home decor, and more. The site also allows customers to contact the store, visit the physical store in Mehsana, Gujarat, and get updates on new arrivals and offers. The site's mission is to provide quality products at affordable prices and excellent customer service.

2.3 SCOPE

The scope of this project is to create an online store that can compete with other e-commerce platforms in the market. The project covers the following aspects:
- Designing and developing a website and an app for the online store
- Setting up and managing a physical store in Mehsana, Gujarat
- Marketing and promoting the online store through various channels
- Managing the inventory and logistics of the products
- Providing customer support and feedback mechanisms
- Evaluating the performance and profitability of the online store

2.4 OBJECTIVES

- To offer a variety of products from different brands and categories
- To provide quality products at affordable prices and excellent customer service
- To attract and retain customers through loyalty programs and offers.
- To increase the sales and revenue of the online store
- To create a positive brand image and reputation for the online store

2.5 TECHNOLOGY AND TOOLS

CMS: WordPress
Programming language: PHP
Web server: Apache
Hosting provider: GoDaddy

CHAPTER 3: PROJECT MANAGEMENT

3.1 PROJECT DEVELOPMENT STEPS
- Define the project scope, objectives, and deliverables.
- Conduct a market research and analysis to identify the customer needs and preferences, the competitors, and the opportunities.
- Design and develop a prototype of the website and the app for the online store.
- Test and validate the prototype with potential customers and stakeholders.
- Set up and manage the physical store in Mehsana, Gujarat
- Launch the website and the app for the online store.
- Market and promote the online store through various channels.
- Manage the inventory and logistics of the products.
- Provide customer support and feedback mechanisms.
- Evaluate the performance and profitability of the online store.
- Implement improvements and enhancements based on feedback and data.

3.2 PROJECT EFFORT AND TIME, COST ESTIMATION
Project effort and time: The project is estimated to require about 3 months to complete, with a team of 1 man working on it. The project will follow an agile methodology, with sprints of 2 weeks each. The project will have 6 phases: planning, design, development, testing, launch, and evaluation. Each phase will have its own tasks, milestones, and deliverables.

3.3 ROLES AND RESPONSIBILITY
Name: Rakesh Rathod
Responsibility: Web Developer

3.4 PROJECT SCHEDULING

Gantt Chart for Project Scheduling

CHAPTER 4: SYSTEM ANALYSIS

4.1 STUDY ON CURRENT SYSTEM

An overview of the current trends and challenges in e-commerce, which is the online buying and selling of goods and services. The report highlights four key trends: mobile commerce, social commerce, omnichannel commerce, and artificial intelligence. These trends offer various benefits and opportunities for e-commerce businesses to reach and satisfy customers, as well as increase their efficiency and profitability. The report also identifies four main challenges: cybersecurity, competition, customer retention, and regulation. These challenges pose various risks and threats for e-commerce businesses, such as data breaches, identity theft, customer churn, and legal compliance. The report suggests that e-commerce businesses need to adopt effective strategies and solutions to cope with these challenges and leverage the trends to gain a competitive edge in the market.

4.2 PROBLEM AND WEAKNESS OF CURRENT SYSTEM

The report identifies and analyzes some of the major problems and weaknesses of current e-commerce systems, such as security, privacy, tax, customer experience, competition, cart abandonment, return and refund, price and shipping, regulation, and data security. There are some examples and explanations of these problems and weaknesses, as well as their impacts and causes. The report suggests some possible solutions for these problems and weaknesses, such as implementing robust security measures, optimizing website design and functionality, differentiating from competitors, simplifying the checkout process.

4.3 REQUIREMENTS OF NEW SYSTEM

A wave of social and economic changes often follows in the wake of the new technology. New opportunities may arise to improve a production process or to do something that was not previously possible. The goal of this project is to create a new e-commerce system that can sell various products online. To achieve this, the project follows a series of steps, such as choosing a content management system (CMS), creating an account and a domain name, selecting, and customizing an e-commerce theme or template, building, and optimizing the web pages, creating product listings, setting up a payment gateway, inventory and tax tools, and shipping options, and testing and launching the e-commerce site. The project also seeks feedback from friends, family, or potential customers to improve the site.

4.4 SYSTEM FEASIBILITY

A feasibility study is a preliminary assessment that assists management in determining if a system is viable for development or not.
• It recognizes the possibilities of enhancing an existing system, creating a new system, and producing revised estimations for ongoing system development.
• It is used to sketch out the problem and determine whether a practical or acceptable solution exists.
• The primary goal of a feasibility study is to affirm the scale of the problem rather than solving it.
• A feasibility study produces a formal system proposal, which serves as a decision document and describes the whole nature and scope of the proposed system.

There are many types of feasibility study like technical feasibility, Operational/ Behavioral feasibility, Economic feasibility, Scheduling feasibility.

Steps involved in feasibility analysis:

1. Form a project team and appoint a project leader.
2. Prepare system flowcharts.
3. Enumerate potential proposed system.
4. Define and identify characteristics of proposed system.
5. Determine and evaluate performance and cost effectiveness of each proposed system.
6. Weight system performance and cost data.
7. Select the best-proposed system.
8. Prepare and report final project directive to management. Technical feasibility aids in gaining access to existing resources as well as technology essential for completing the user's needs in the software within the budget and schedule constraints.

In the technical feasibility, the following tasks are done:

• Assists in assessing the stability of the technology employed.
• Is the required technology available?
• Or are the proposed functionalities viable to integrate with current/available technology?
• Examine the technical talents and talents of software development team members.

Ryanavenue.in is an e-commerce website that sells various products such as clothing, accessories, electronics, and home decor. The website is based in Gujarat, India and has a contact number, email address, and physical store location. The website claims to offer high-quality products, fast delivery, easy returns, and secure payments.

The feasibility report aims to evaluate the viability of ryanavenue.in as an e-commerce business. The report will cover the following aspects:

- Market analysis: The report will analyze the size, growth, trends, and competition of the e-commerce market in India and Gujarat. The report will also identify the target audience, customer needs, and preferences of ryanavenue.in.
- Technical analysis: The report will assess the design, functionality, performance, and security of ryanavenue.in. The report will also examine the web hosting, domain name, payment gateway, inventory management, and shipping options of ryanavenue.in.
- Financial analysis: The report will estimate the costs, revenues, profits, and risks of ryanavenue.in. The report will also evaluate the pricing strategy, sales forecast, break-even point, and return on investment of ryanavenue.in.
- Legal analysis: The report will review the compliance of ryanavenue.in with the relevant laws and regulations in India and Gujarat. The report will also consider the tax implications, intellectual property rights, consumer protection rights, and privacy policies of ryanavenue.in.

The feasibility report will conclude with a recommendation on whether ryanavenue.in is a feasible e-commerce business or not. The recommendation will be based on the findings and analysis of the above aspects. The recommendation will also suggest some areas of improvement or potential challenges for ryanavenue.in.

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

This is concerned with specifying equipment and software that will successfully satisfy the user requirement. The technical needs of the system may include.

4.4.2 Can the system be implemented using the current technology and within the given cost and schedule constraints?

The system should be easy to operate and should be such that it can be developed within short period of time and fit in the limited budget of the user. Technical feasibility is the study of resource availability that may affect the ability to achieve an acceptable system. This evaluation determines whether the technology needed for the proposed system is available. Utilize the current technology and resources.

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

Currently, it is not but in future it will be integrated with social media and other system. This current system can easily integrate with other systems which are already in place such as social media, live servers, marketing sites and many more.

4.7 LIST MAIN MODULES / COMPONENTS / PROCESSES / TECHNIQUES OF NEW SYSTEM / PROPOSED SYSTEM

Main Modules:
Home Page:
Login
Registration
Search product
Product category
Seller:
Login
Registration
Cart Page:
Product Detail
Total amount
Payment Option
Checkout Page:
Product Detail
Address
Order page:
Product Detail
Order status

- Product module: This module will handle the creation, management, and display of product listings on the e-commerce website. It will include features such as product categories, tags, filters, reviews, images, prices, variations, and descriptions. It will also integrate with the inventory module to track the stock levels and availability of products.
- Customer module: This module will handle the registration, authentication, and profile management of customers on the e-commerce website. It will include features such as customer login, sign up, password reset, account settings, order history, wish list, and newsletter subscription. It will also integrate with the payment module to store and process customer payment information.

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- Cart module: This module will handle the addition, removal, and modification of products in the customer's shopping cart on the e-commerce website. It will include features such as cart summary, quantity adjustment, coupon code application, and checkout button. It will also integrate with the product module to display the product details and prices in the cart.
- Payment module: This module will handle the processing and confirmation of customer payments on the e-commerce website. It will include features such as payment gateway integration, payment method selection, payment confirmation page, and invoice generation. It will also integrate with the order module to update the order status and details after payment.
- Order module: This module will handle the creation, management, and fulfillment of customer orders on the e-commerce website. It will include features such as order number generation, order confirmation email, order tracking page, order cancellation option, and order completion email. It will also integrate with the inventory module to update the stock levels and availability of products after order.
- Inventory module: This module will handle the tracking and updating of product stock levels and availability on the e-commerce website. It will include features such as inventory dashboard, inventory reports, inventory alerts, and inventory adjustments. It will also integrate with the product module to display the product stock levels and availability on the product pages.
- Shipping module: This module will handle the calculation and display of shipping costs and options on the e-commerce website. It will include features such as shipping method selection, shipping rate calculation, shipping address verification, and shipping confirmation email. It will also integrate with the order module to update the order status and details after shipping.
- Marketing module: This module will handle the promotion and optimization of the e-commerce website. It will include features such as SEO tools, analytics tools, email marketing tools, social media integration tools, and loyalty program tools. It will also integrate with the customer module to collect and analyze customer data and behavior for marketing purposes.

4.8 SELECTION OF HARDWARE / SOFTWARE / ALGORITHMS / METHODOLOGY / TECHNIQUES / APPROACHES AND JUSTIFICATION

- The selection of hardware and software for an e-commerce system depends on various factors such as website traffic, product complexity, customer needs, and budget.
- The hardware components for an e-commerce system may include a server, a printer, and an EFTPOS system, which need to have enough processing power, memory, storage space, bandwidth, speed, quality, paper capacity, security, reliability, and compatibility.
- The software components for an e-commerce system may include a domain name, a hosting provider, a content management system (CMS), a web design template, a product catalogue, a shopping cart, a checkout page, a payment gateway, an inventory management system.

Software Requirement
Operating System : Windows 10 or Linux
User Interface : HTML, CSS, Bootstrap, Django Templates

Client-side Scripting : Django
Programming Language : Django, Python
Web Technologies : Django, Python
IDE/Workbench : Visual Studio Code
Database : Postgres
Hardware Requirements
Processor : Intel core i3
Hard Disk : 10GB
RAM : 4GB or more

Use case Diagram

ER Diagram

Product
- -product_id : int
- -product_name : string
- -product_description : string
- -product_price : double
- -product_image : string
- -category_id : int

0..*   1

0..*

Category
- -category_id : int
- -category_name : string

1

OrderDetail
- -order_detail_id : int
- -order_id : int
- -product_id : int
- -quantity : int
- -price : double

0..*

1

Order
- -order_id : int
- -order_date : date
- -order_total : double
- -customer_id : int

1

0..*

Customer
- -customer_id : int
- -customer_name : string
- -customer_email : string
- -customer_password : string
- -customer_address : string
- -customer_phone : string

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CHAPTER 6: IMPLEMENTATION

6.1 IMPLEMENTATION PLATFORM / ENVIRONMENT
- CMS: WordPress
- Programming language: PHP
- Web server: Apache
- Hosting provider: GoDaddy

6.2 PROCESS / TECHNOLOGY / MODULES SPECIFICATION(S)

Technology:

WordPress:
WordPress is a free and open-source content management system (CMS) that is used to create websites, blogs, and online stores. It was initially released in 2003 by Matt Mullenweg and Mike Little as a fork of b2/cafelog. Today, it powers over 40% of all websites on the internet and is one of the most popular CMS platforms available.

WordPress is built using PHP programming language and MySQL database. It can be installed on a web server to create a website or blog without the need for coding skills. There are two main ways to use WordPress: WordPress.com and self-hosted WordPress.org.

WordPress.com is a free platform that allows users to create and host their website or blog on WordPress's servers. Users can choose from a variety of themes and plugins to customize their website, but they have limited control over the functionality of the website.

Self-hosted WordPress.org, on the other hand, requires users to download and install the WordPress software on their own web hosting servers. This option gives users complete control over their website's design, functionality, and content. Users can choose from thousands of free and paid themes and plugins to customize their website and add features such as contact forms, e-commerce functionality, social media integration, and much more.

WordPress is known for its user-friendliness, flexibility, and customization options. It comes with a built-in editor that allows users to create and edit content without any coding knowledge. It also supports multiple users with varying levels of access, making it an ideal platform for team collaboration. Additionally, WordPress is SEO-friendly and allows users to optimize their content for search engines with plugins such as Yoast SEO.

In conclusion, WordPress is a versatile and user-friendly CMS platform that allows users to create and manage their website or blog without any coding skills. It offers a range of customization options, supports multiple users, and is SEO-friendly. Whether you're a

blogger, small business owner, or an e-commerce entrepreneur, WordPress can help you create a professional and functional online presence.

Definition of some plugins that has been used in site:

WordPress plugins are PHP scripts that extend the functionality of WordPress websites by adding new features or enhancing existing ones. WordPress plugins are often developed by volunteers and are usually free to the public. They can be downloaded from the WordPress Plugin Directory or installed directly from the WordPress dashboard. WordPress plugins can be categorized into different types based on their purpose and functionality. Some of the common types of WordPress plugins are:

- SEO plugins: These plugins help optimize websites for search engines by improving their speed, performance, content, and meta tags. Some examples of SEO plugins are Yoast SEO, All in One SEO Pack, and Rank Math.
- Ecommerce plugins: These plugins allow websites to sell products or services online by creating online stores, payment gateways, shipping options, and inventory management. Some examples of ecommerce plugins are WooCommerce, Easy Digital Downloads, and BigCommerce.
- Booking and scheduling plugins: These plugins enable websites to accept bookings or appointments from customers or clients by creating calendars, forms, and reminders. Some examples of booking and scheduling plugins are WooCommerce Bookings, WPForms, and BirchPress.
- Social media plugins: These plugins help websites connect with social media platforms by adding social sharing buttons, feeds, widgets, and analytics. Some examples of social media plugins are Jetpack, Social Snap, and Smash Balloon.
- Security plugins: These plugins help protect websites from hackers, malware, spam, and other threats by adding firewalls, backups, scanners, and captcha. Some examples of security plugins are Sucuri, Wordfence, and iThemes Security.
- Analytics plugins: These plugins help measure and analyze website traffic and behavior by adding tracking codes, reports, and dashboards. Some examples of analytics plugins are Google Analytics for WordPress, MonsterInsights, and ExactMetrics.
- Design plugins: These plugins help customize the appearance and layout of websites by adding themes, page builders, sliders, galleries, and fonts. Some examples of design plugins are Elementor, Divi Builder, and Smart Slider 3.

SEO (Search Engine Optimization):

Search engine optimization (SEO) is the process of improving the visibility and ranking of a website or webpage in search engine results pages (SERPs). It involves optimizing the website or webpage's content, structure, and backlinks to make it more relevant and useful to search engine users. The goal of SEO is to increase organic, non-paid traffic to a website, which can lead to increased visibility, higher traffic, and more conversions.

SEO can be divided into two main categories: on-page optimization and off-page optimization. On-page optimization refers to the optimization of website content, structure, and HTML code. This includes keyword research, optimization of title tags, meta descriptions, header tags, content, and images. On-page optimization also involves ensuring the website is mobile-friendly and has fast loading speeds.

Off-page optimization refers to the optimization of external factors that can influence the website's ranking, such as backlinks, social media signals, and online directories. Building high-quality backlinks from reputable websites is an essential part of off-page optimization. Social media signals such as likes, shares, and comments can also influence a website's ranking.

Keyword research: finding and analyzing the words and phrases that users type into search engines when looking for information, products, or services related to your website's topic.
Content creation: producing high-quality, original, and engaging content that answers the user's query and provides value to them.

Technical SEO: ensuring that your website is fast, secure, mobile-friendly, easy to crawl and index by search engines, and free of errors or issues that might affect its performance or usability.

Analytics and reporting: measuring and analyzing the results of your SEO efforts using tools like Google Analytics, Google Search Console, etc., and making data-driven decisions to improve your strategy.

SEO is an ongoing process that requires constant monitoring, testing, learning, and adapting to the changes in the search engine algorithms and user behavior. SEO is also influenced by factors such as your industry, competitors, goals, budget, etc. Therefore, there is no one-size-fits-all approach to SEO.

Search engines use complex algorithms to determine the relevance and quality of a website's content. These algorithms consider many factors, including the website's structure, content, backlinks, and user experience. To improve a website's ranking, SEO practitioners must stay up to date with the latest trends and best practices in SEO.

Overall, SEO is a complex and ongoing process that requires a combination of technical knowledge, creativity, and analytical skills. It involves both on-page and off-page optimization techniques, as well as ongoing analysis and refinement. By improving a website's ranking and visibility in search engine results, SEO can help businesses and organizations reach more customers, increase conversions, and ultimately grow their online presence.

Information about some important terms and plugins used in Project:
- Blogs: short for weblogs, are online platforms where individuals or organizations can publish content, such as articles, videos, podcasts, etc., on various topics and interact with their audience. Blogs can be used for personal, professional, or commercial purposes. Some examples of popular blogs are Medium, The Verge, and Mashable.

- Screaming Frog: a software tool that helps SEO professionals and web developers to crawl, audit, and analyze websites. Screaming Frog can perform various tasks, such as finding broken links, duplicate content, missing tags, redirects, etc., and provide useful data and insights for improving website performance and usability.

Screaming Frog has a free version that can crawl up to 500 URLs and a paid version that can crawl unlimited URLs and has more features.

- Domain: a unique name that identifies a website on the internet. A domain consists of two parts: a top-level domain (TLD), such as .com, .net, .org, etc., and a second-level domain (SLD), which is the name chosen by the website owner. For example, in www.google.com, google is the SLD and .com is the TLD. A domain is registered with a domain name registrar and points to an IP address of a web server that hosts the website.

- Hosting: a service that provides space on a web server to store the files and data of a website and make them accessible on the internet. A web hosting provider rents out server space and resources to website owners and ensures that the website is online and secure. There are different types of web hosting services, such as shared hosting, dedicated hosting, cloud hosting, etc., depending on the needs and budget of the website owner.

- DNS: short for Domain Name System, is a system that translates domain names into IP addresses and vice versa. DNS allows users to access websites using human-readable names instead of numerical addresses. DNS also helps to route internet traffic and manage email delivery. DNS works by using a network of servers called name servers that store records of domain names and their corresponding IP addresses.

- SSL: short for Secure Sockets Layer, is a protocol that encrypts the data exchanged between a web browser and a web server. SSL helps to protect the privacy and security of online transactions and communications by preventing unauthorized access or tampering. SSL also helps to verify the identity of the website owner and ensure trustworthiness. SSL works by using digital certificates that contain information about the website owner and a public key that is used to encrypt and decrypt data. Websites that use SSL have a padlock icon in the browser address bar and use HTTPS instead of HTTP.

- Payment gateway: a service that enables online merchants to accept and process payments from customers using various methods, such as credit cards, debit cards, net banking, UPI, wallets, etc. A payment gateway acts as an intermediary between the customer's bank and the merchant's bank and ensures that the transaction is secure and authorized. Some examples of popular payment gateways in India are Paytm, Razorpay, CCAvenue, etc.
- Speed optimization: a process of improving the loading speed and performance of a website or an app by using various techniques, such as reducing file sizes, minifying code, caching data, using a content delivery network (CDN), etc. Speed optimization helps to enhance the user experience, reduce bounce rates, and improve SEO rankings. Some tools that can help with speed optimization are Google PageSpeed Insights, GTmetrix, Pingdom, etc.
- Security plugins: software applications that help to protect a website or an app from various threats, such as malware, hacking, spam, phishing, etc. Security plugins can perform various functions, such as scanning for vulnerabilities, blocking malicious requests, enforcing strong passwords, encrypting data, etc.

Some examples of popular security plugins for WordPress are Wordfence, Sucuri, iThemes Security, etc.

- Social media & digital marketing: a form of online marketing that uses various social media platforms, such as Facebook, Twitter, Instagram, YouTube, etc., to promote a brand, product, service, or cause to a target audience. Social media & digital marketing can help to increase brand awareness, generate leads, drive traffic, boost sales, and build customer loyalty. Some tools that can help with social media & digital marketing are Hootsuite, Buffer, Sprout Social, etc.
- Ubersuggest: a free SEO tool that helps to find and analyze keywords, competitors, backlinks, content ideas, and more for any website or niche. Ubersuggest can help to improve SEO strategy and optimize web pages for higher rankings and traffic. Ubersuggest is developed by Neil Patel, a renowned digital marketer and entrepreneur.
-

6.3 FINDINGS/RESULTS/OUTCOMES

Ryanavenue.in seems to be an online store that sells clothing, accessories, and electronics in India. Some of the possible outcomes of an e-commerce site like this are:

- Reaching more customers across India and beyond
- Reducing operational costs and increasing profit margins
- Providing a unique customer experience and improving customer loyalty
- Enhancing brand awareness and reputation through online marketing and social media

Of course, these outcomes depend on many factors, such as the quality of products and services, the design and functionality of the website, the competitiveness of prices and offers, and the customer feedback and reviews.

6.4 RESULT ANALYSIS

Accuracy: The level of accuracy in the proposed system will be higher. All operation would be done correctly, and it ensures that whatever information is coming from the server is accurate.

Reliability: The reliability of the proposed system will be high due to the above stated reasons. The reason for the increased reliability of the system is that now there would be proper storage of information.

No Redundancy: In the proposed system utmost care would be that no information is repeated anywhere, in storage or otherwise. This would ensure economic use of storage space and consistency in the data stored.

CHAPTER 7: TESTING

7.1 TESTING PLAN \ STRATEGY
We decided to test each and every model and module so that, we ensure the result. We perform these activities on the website and clarify all the things. If we find some problems or errors, then we try to solve them out there. So, we go each model and modules day by day.

7.2 TEST RESULTS AND ANALYSIS
All tests are going very good condition. We assign the name according to the models or modules name. Also, outputs or results are satisfactory. We achieved what we wanted at the beginning of the project. It is a very good experience for me to involve this process.

Here are some test results provided by a site named nibbler, which is basically used for testing many aspects of the site.

Here is a possible audit report from the Nibbler result:

Audit Report for ryanavenue.in

This report summarizes the findings of the Nibbler tool for testing the website ryanavenue.in. The report covers four key areas: accessibility, SEO, social media and technology. The report also provides recommendations for improving the website performance and user experience.

Accessibility

Accessibility refers to how easy it is for people with disabilities and different devices to use the website. The website has a good accessibility score of 8.2 out of 10, which means it meets most of the accessibility standards and best practices. However, there are some areas that need improvement, such as:

- Adding descriptive alt attributes to all images for screen readers and search engines.
- Using headings and lists to structure the content and make it easier to scan and navigate.
- Avoiding using images of text or low-contrast colors that may be hard to read.
- Providing captions or transcripts for audio and video content.

SEO

SEO stands for search engine optimization, which is the process of improving the website visibility and ranking on search engines. The website has a low SEO score of 4.5 out of 10, which means it has many issues that affect its SEO performance and potential. Some of the issues are:

- Lacking keywords, descriptions, and schema markup that help search engines understand what the website is about and display relevant information in the search results.
- Having duplicate or missing meta tags that may confuse search engines and users.
- Having low content quality and readability that may reduce user engagement and trust.

- Having broken links or redirects that may affect user experience and SEO ranking.

Social Media

Social media refers to how well the website connects with social media platforms and engages with its audience. The website has a low social media score of 3.5 out of 10, which means it has very limited social media presence and activity. Some of the issues are:

- Having unverified Facebook and Instagram accounts that may reduce credibility and reach.
- Lacking Twitter and Google+ accounts that may limit exposure and opportunities.
- Having low social media engagement and followers that may affect brand awareness and reputation.
- Not linking the social media accounts back to the website that may affect traffic and conversions.

Technology

Technology refers to how well the website uses modern and reliable technologies and has a secure connection. The website has a good technology score of 7.5 out of 10, which means it uses up-to-date technologies and has a valid SSL certificate. However, there are some areas that need improvement, such as:

- Optimizing the images for web performance and reducing their size to improve loading speed and bandwidth usage.
- Minifying the CSS and JavaScript files to reduce their size and improve loading speed and performance.
- Using a CDN (content delivery network) to deliver the website content faster and more reliably across different locations.

Recommendations

Based on the findings of the Nibbler tool, here are some recommendations for improving the website performance and user experience:

- Add more relevant and original content to the website, especially on the home page and product pages, to increase user engagement and trust.
- Optimize the images for web performance and use descriptive alt attributes for accessibility.
- Add more meta tags and schema markup to improve SEO ranking and visibility.
- Verify the social media accounts and link them back to the website. Increase the social media activity and followers.
- Create a Twitter and Google+ account and link them to the website.
- Minify the CSS and JavaScript files to improve loading speed and performance.
- Use a CDN to deliver the website content faster and more reliably.

Conclusion

This report has summarized the findings of the Nibbler tool for testing the website ryanavenue.in. The report has covered four key areas: accessibility, SEO, social media and technology. The report has also provided recommendations for improving the website performance and user experience.

The website has a score of 6.2 out of 10, which means it has some strengths but also many weaknesses. The website needs to improve its SEO, social media, content quality, loading speed, and performance to achieve better results.

The Nibbler tool is a free but limited tool for testing websites. It only audits the first 5 pages of the website that it finds. For a more comprehensive and accurate audit report, you may need to use a professional SEO audit platform or service.

Screenshots of Site:
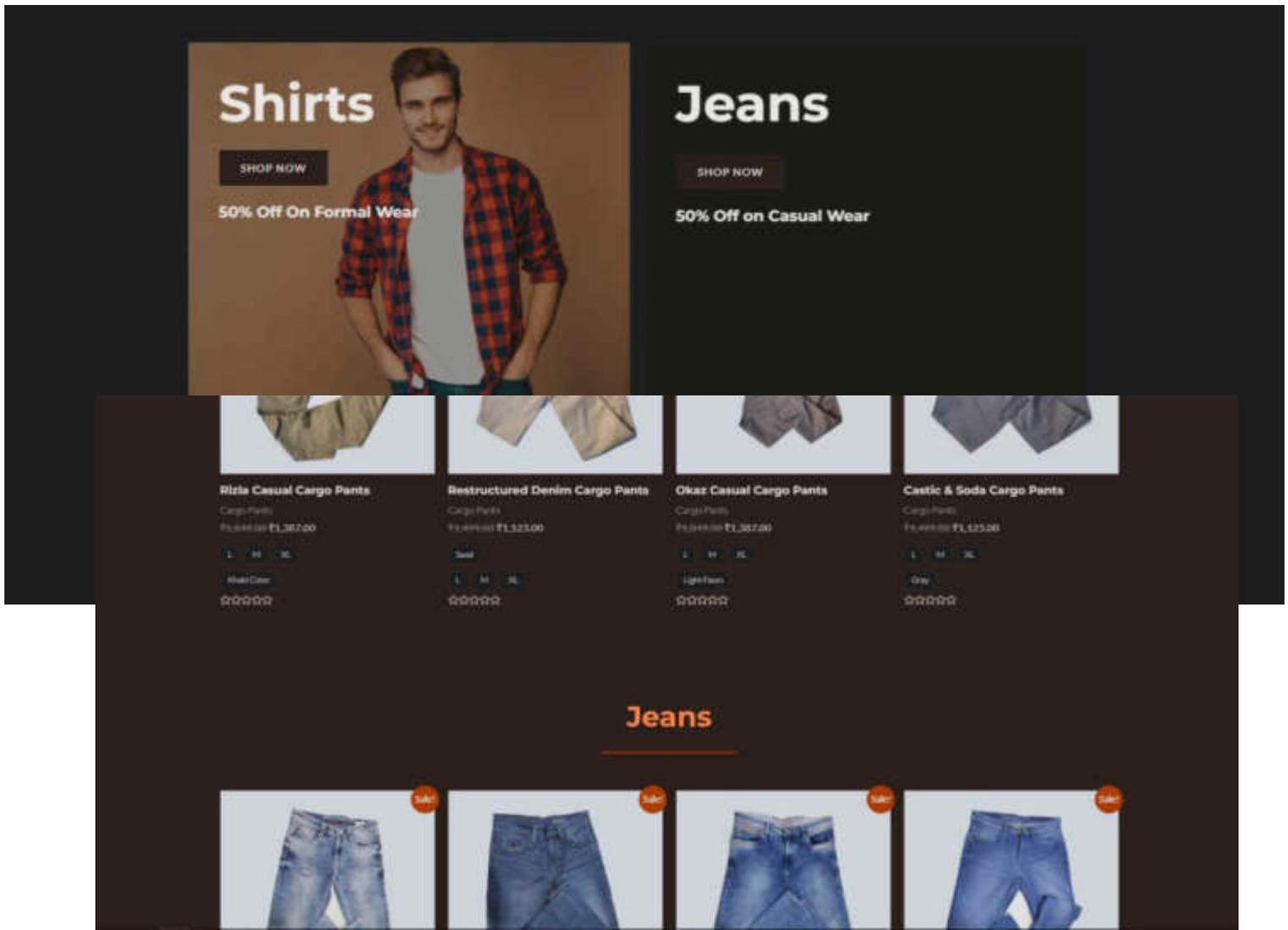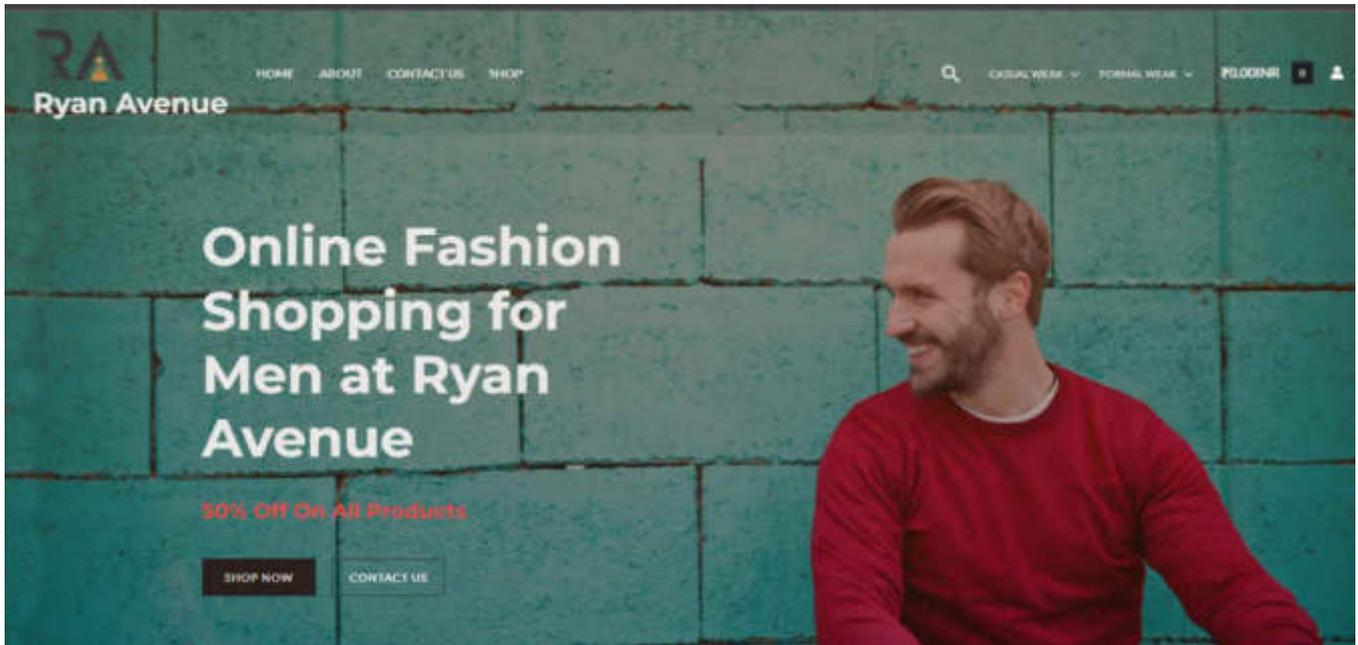
Free Shipping

We provide shipping Free Shipping all over India.

Premium Quality

We provide 100% Genuine Products

Great Offers

We provide Great Offers with Easy Returns.

Secure Payments

We accept Digital Payments using 3D Secure Gateways.

Useful Links

Privacy Policy
Refund Policy
Terms & Conditions

Connect With Us

For Him

Casual Wear
Casual Shirts
T-Shirts
Jeans
Cargo Pants
Lowers
Hoodies
Formal Wear
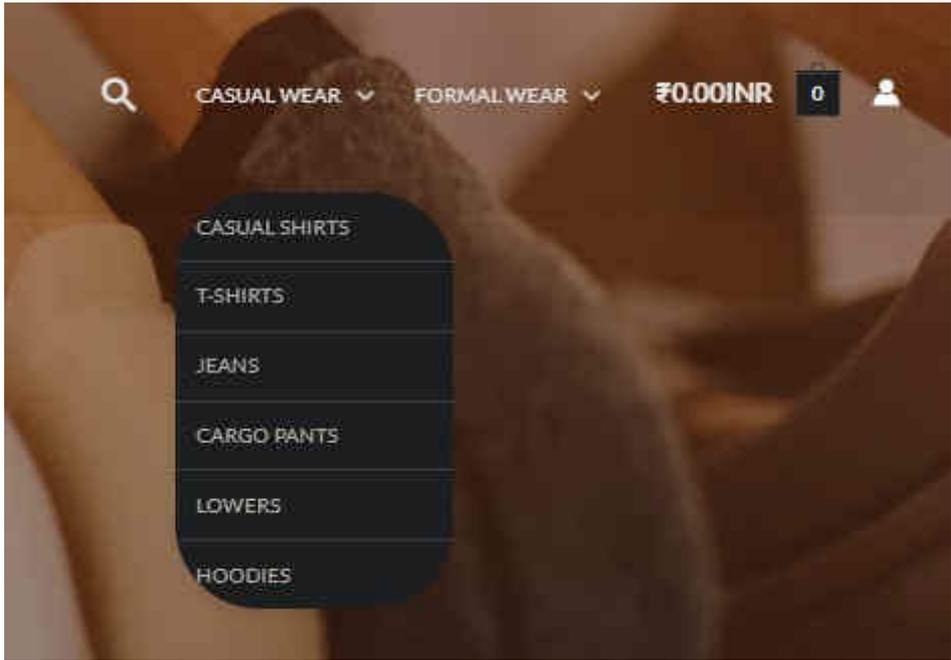
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(2) Flu Social – Digital Marketing | SEO | Website Development in Mehsana. https://flusocial.com/.

(3) Flu Social | LinkedIn. https://in.linkedin.com/company/flu-social.

(4) What is Flu Social? Company Culture, Mission, Values. https://www.glassdoor.ca/Overview/Working-at-Flu-Social

Flu Social Pvt Ltd.

AN INTERNSHIP REPORT

Submitted by

Raval Gauravkumar Rasikbhai

190390116042

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 Flu Social Marketing** has been carried out by **Raval Gauravkumar Rasikbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of S.P.B. Patel Engineering College (Saffrony Institute of Technology) during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

Flu Social

T-8 Saket Business Hub
Radhanpur Road, Mehsana
(+91) 99255 92391
Info@flusocial.com

January 20, 2023

OFFER LETTER

Subject: Internship Confirmation Letter for Gauravkumar Rasikbhai Raval

Dear Sir/Ma'am,

This is to certify that Mr. Gauravkumar Rasikbhai Raval, student of Information & Technology Engineering in S.P.B.Patel Engineering College (Saffrony Institute of Technology). Semester 8 has been successfully allocated to his Internship from Flu Social.

Details of student are as below:

Name of the student: Gauravkumar Rasikbhai Raval

College: Gujarat Technological University (S.P.B.Patel Engineering College (Saffrony Institute of Technology))

Course: Bachelor of Engineering

Branch: Information & Technology Engineering

Enrollment Number: 190390116042

Project In: Web Development & SEO, eComm Platform

Project Description: WordPress Development with HTML,CSS & PHP, Digital Marketing, SEO, Graphics Designing & Content Creation.
An Online eCommerce Platform for IT Services /Reseller Global Platform.

Project Guide: Yash Patel

Technology: WordPress + Woocommerce with Yoast SEO, Screaming Frog, UberSuggest, Google Analytics, WebMaster, Hostinger Tools, CloudFlare, Facebook Business Ads Manager.

Duration: 12 Weeks (Starting from 23 Jan 2023)

We are confident that he will be able to make a significant contribution to the success of our company.

Best regards,

Dron Joshi (Founder & CEO)

251320

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 **Education and Immigration** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar & Mr. 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.

                 Gaurav   Sign of Student

1.   **Raval Gauravkumar Rasikbhai**   _____

251320

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 (21:26:31)

This is to certify that, **Raval Gauravkumar Rasikbhai** (Enrolment Number - 190390116042) working on project entitled with **Internship at flusocial marketing** from **Information Technology** department of **S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA** had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student : Raval Gauravkumar Rasikbhai

Name of Guide : Miss. Sushma Sainwar

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.

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ACKNOWLEDGMENT

Acknowledgement is just a way to express gratitude, something so deep that it cannot be expressed fully. Nobody is completely on their own. He/she needs someone's help in his/her life.

I would like to take this opportunity to express my sincere appreciation to S.P.B. Patel Engineering College (Saffrony Institute of Technology) and all the faculties who have helped me in completing my project.

I am deeply grateful to my project guide Prof. Sushama Sainwar, whose constant guidance, constructive feedback, and unwavering support have been instrumental in shaping my project and ensuring its success.

I would also like to thank the other faculties of Information Technology who have shared their knowledge and expertise with me throughout my academic journey. Their dedication, enthusiasm, and support have been an inspiration to me.

Furthermore, I would like to extend my thanks to the non-teaching staff of the college, who have always been supportive and have provided me with the necessary resources and facilities to carry out my project work efficiently.

Last but not least, I am grateful to my family and friends, who have always encouraged me and stood by me during this project.

I would like to express my heartfelt gratitude to S.P.B. Patel Engineering College (Saffrony Institute of Technology) and all the faculties for their invaluable support and encouragement in my academic pursuits. Their guidance and mentorship have been a cornerstone in my personal and professional development.

With Sincere regards from,

Gaurav Raval

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Abstract

This abstract summarizes the key aspects of an education and immigration website, focusing on the use of technology and literature to provide valuable information and support to its audience. The website should incorporate a content management system for easy management and updates, online form builders for various purposes, translation services for accessibility, and chatbots for immediate assistance. The literature should include accurate and up-to-date information on immigration policies and education programs, inspiring success stories, and helpful resources and support. Overall, the education and immigration website can serve as a valuable resource for individuals seeking to improve their education or immigration.

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List of Figures

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Abbreviations

QA   :   Quality Assurance

QC   :   Quality Control

SSD   :   Solid State Drive

TTD   :   Test Driven Development

SEO   :   Search Engine Optimization

HTML :   Hypertext Markup Language

CSS   :   Cascading Style Sheets

UI   :   User Interface

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Table of Contents

Chapter 1. INTRODUCTION

1.1 COMPANY PROFILE:

- Flu Social is a digital marketing agency based in Mehsana, India. It provides services such as website development, branding, SEO, social media marketing, and more. It has over 10 years of experience and has satisfied more than 1000 customers. Some of its clients include theriseonic.com, blissaquaworldresort.com, liive.org, and adatewithcharlotte.com. Flu Social aims to build and grow stronger relationships with its customers by using advanced marketing tools and creative innovation.

1.2 MISSION AND VISION OF THE COMPANY:

- According to the founder of Flu Social, Dron Joshi, the vision of the company is to "WOW" the world with what can be achieved online. The company aims to use advanced marketing tools and creative innovation to help its customers grow their businesses and brands online. Flu Social also wants to provide effective and affordable digital marketing solutions that suit the needs and goals of its customers.

1.3 SERVICES PROVIDED BY COMPANY.

- Flu Social provides a range of services related to digital marketing, website development, and branding. Some of the services are:
- Generating leads for online businesses
- Designing and developing websites that combine aesthetics, functionality, and content.
- Simplifying brand management with a platform that connects everything and everyone, which is important to the growth of the brand.
- Performing SEO (search engine optimization) to improve the visibility and ranking of websites on search engines.
- Managing social media marketing campaigns to reach and engage potential customers.
- Providing 24x7 support and creative innovation to customers

CHAPTER 2: INTRODUCTION OF PROJECT

- The Boston Immigrations has a team of experienced and skilled manpower which provides best-in-class service and assistance from foreign education to travelers. Anticipating the demands of the travel industry, we have also set up a dedicated training division to ensure regular inflow of trained & skilled team members. We take personal interest to meet the requirements of our clients and hence, keep ourselves updated by participating in various seminars and education fairs to update our customers and assist them to build their career by providing best counseling. Understanding the client's profile, we put utmost effort to provide extreme assessment that brings suitable options on parameters related to education, finance, personal, professional and their own interest.

2.1 PROJECT SUMMERY

- The education and immigration project aims to provide a comprehensive online platform for individuals seeking to pursue educational opportunities abroad or immigrate to a new country. The project involves the development of a user-friendly website that offers a range of resources and information on topics such as visa requirements, language proficiency testing, academic programs, scholarships, and job opportunities.

2.2 PURPOSE

- The purpose of the education and immigration project is to provide a valuable resource for individuals who are interested in pursuing educational opportunities abroad or immigrating to a new country. The project aims to create a user-friendly website that provides accurate and up-to-date information on a range of topics related to education and immigration, including visa requirements, language proficiency testing, academic programs, scholarships, and job opportunities.

2.3 SCOPE

- The scope of the education and immigration project is to develop a comprehensive website that provides a range of resources and information for individuals who are interested in pursuing educational opportunities abroad or immigrating to a new country. The website will cover a broad range of topics related to education and immigration, including visa requirements, language proficiency testing, academic programs, scholarships, and job opportunities.

- The website will be designed to cater to individuals from various backgrounds and with different levels of experience. It will offer detailed information on different countries and academic institutions, as well as advice on visa applications and job searches. The website will also provide a forum for users to connect with others going through the same process and share their experiences and tips.

- The project will require research on visa requirements, academic programs, and job opportunities in various countries to ensure that the information provided is accurate and relevant. The website's design and structure will need to be user-friendly and accessible, with a clear navigation system and an intuitive interface.

- The education and immigration project will be marketed to individuals who are interested in pursuing educational opportunities abroad or immigrating to a new country. The website will be promoted through social media, search engine optimization, and other online marketing channels.

- Overall, the scope of the education and immigration project is to create a valuable resource for individuals seeking to pursue educational opportunities abroad or immigrate to a new country by providing them with accurate and up-to-date information, advice, and resources to achieve their goals.

2.4 OBJECTIVES

- To provide accurate and up-to-date information on a range of topics related to education and immigration, including visa requirements, language proficiency testing, academic programs, scholarships, and job opportunities.

- To create a user-friendly website that offers a comprehensive range of resources and advice for individuals seeking to pursue educational opportunities abroad or immigrate to a new country.

- To help individuals make informed decisions about their education and immigration goals by providing them with the necessary resources and tools.

- To provide a forum for users to connect with others going through the same process and share their experiences and tips.

- To empower individuals to pursue their dreams of a better education or a new life in a foreign country by offering a comprehensive online platform.

- To conduct research on visa requirements, academic programs, and job opportunities in various countries to ensure that the information provided is accurate and relevant.

- To design and develop a website that is accessible and user-friendly, with a clear navigation system and an intuitive interface.

- To market the education and immigration website to individuals seeking to pursue educational opportunities abroad or immigrate to a new country.

2.5 TECHNOLOGY AND TOOLS

- ➢ CMS: WordPress

- ➢ Programming language: PHP

- ➢ Web server: Apache

- ➢ Hosting provider: GoDaddy

CHAPTER 3: PROJECT MANAGEMENT

3.1 PROJECT DEVELOPMENT STEPS

- We follow a simple step for making this website, firstly we visit so many sites and observe their process for creating our project. Later on, we collect all required resources and utilize them in a proper manner. The company instructs us to how to make it. The First step for our project is creating a data dictionary. After that we created a use case diagram for the project. After that we started implementation of our project.

3.2 PROJECT EFFORT AND TIME, COST ESTIMATION

- This project took more than 3 months to complete it. However, it may take too long time for designing the website. Also, we are new in the company, so we don't know the proper workflow. Also, a lot of effort is needed to establish this website. Because we are fresher in the company, we don't have any idea related to the cost estimation of the project.

3.3 ROLES AND RESPONSIBILITY

- Name: Gaurav Raval
- Responsibility: Web Developer

3.4 PROJECT SCHEDULING

- An elementary Gantt chart or Timeline chart for the development plan is given below. This plan explains the tasks versus the time (in weeks) they will take to complete.

- It is also known as Bar chart is used exclusively for scheduling purpose. It is a project controlling technique. It is used for scheduling. Budgeting and resourcing planning. A Gantt is a bar chart with each bar representing activity. The bars are drawn against a time line. The length of time planned for the activity. The Gantt chart in the figure shows the Gray parts is slack time that is the latest by which a task has been finished.

	January		February				March				April	
Requirement Gathering	■											
Analysis		■										
Design			■	■	■	■						
Coding							■					
Testing								■	■	■		
Implement											■	■
	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2

Gantt Chart for Project Scheduling

CHAPTER 4: SYSTEM ANALYSIS

4.1 STUDY ON CURRENT SYSTEM

- The education and immigration site is an online platform that provides information and services related to education and immigration. The site is designed to be user-friendly, with accessible information on visa requirements, educational programs, immigration policies, and more. It offers online services such as visa applications, transcript requests, and course registration. The site prioritizes security measures to protect sensitive user information, and provides real-time updates on policies and procedures. Multilingual support is available to ensure inclusivity and accessibility for a wider range of users. Overall, the education and immigration site aims to make the education and immigration system more accessible and efficient, providing valuable resources and services to users.

4.2 PROBLEM AND WEAKNESS OF CURRENT SYSTEM

There are various problems and weaknesses associated with education and immigration systems across the world. Here are some of the key issues:

Education:
1. Inequality: One of the biggest issues with education systems is inequality. There are significant differences in access to quality education between different socio-economic groups, which can lead to perpetuating socio-economic disparities.

2. Standardized Testing: Some education systems rely too heavily on standardized testing, which can lead to an overemphasis on rote memorization and limited creativity and critical thinking.

3. Teacher Shortages: Many countries are facing teacher shortages, which can have a negative impact on the quality of education provided to students.

4. Cost: The cost of education can be prohibitively high for some students, making it difficult for them to access higher education and potentially limiting their future job opportunities.

Immigration:
1. Xenophobia and Discrimination: Immigration systems can be prone to xenophobia and discrimination, which can lead to unfair treatment of immigrants based on their ethnicity, religion, or country of origin.

2. Limited Opportunities: Some immigration systems have very limited opportunities for individuals to immigrate legally, leaving many individuals with few options for legally entering a country.

3. Long Wait Times: The immigration process can often be very lengthy, with

4.3 REQUIREMENTS OF NEW SYSTEM

- To The requirements of education and immigration can vary depending on the context, but here are some general requirements for each:

- Requirements of Education:

- Access: Education should be accessible to all, regardless of their socio-economic status, gender, ethnicity, or religion. This requires adequate funding, infrastructure, and policies that ensure equal access to education.
- Quality: Education should be of high quality and provide students with the knowledge, skills, and attitudes they need to succeed in life. This requires qualified teachers, relevant and up-to-date curricula, and effective teaching and learning methods.
- Equity: Education should be equitable, meaning that it addresses the diverse needs of learners and ensures that all students have an equal opportunity to succeed. This requires inclusive policies, practices, and resources that take into account the unique needs and circumstances of each student.
- Innovation: Education should be innovative, meaning that it embraces new technologies, approaches, and ideas that enhance learning outcomes and prepare students for the future. This requires investment in research and development, collaboration between stakeholders, and a willingness to experiment with new methods and tools.

- Requirements of Immigration:

- Integration: Immigrants should be able to integrate into the host society and participate fully in its social, economic, and cultural life. This requires policies and programs that facilitate language learning, cultural orientation, and access to social services.

- Diversity: Immigration should promote diversity and multiculturalism, meaning that it recognizes and values the unique contributions of immigrants to the host society. This requires policies and programs that promote intercultural dialogue, respect for diversity, and the celebration of cultural differences.

- Security: Immigration should ensure the security and safety of both immigrants and host communities, meaning that it screens immigrants for potential risks and provides adequate protection against discrimination, exploitation, and violence.

- Skill-Based: Immigration should prioritize skill-based immigration, meaning that it attracts highly skilled immigrants who can contribute to the host country's economic growth and development. This requires policies that recognize and value skills, education, and experience, and that facilitate the recruitment and retention of skilled immigrants.

4.4 SYSTEM FEASIBILITY

- System feasibility refers to the practicality of implementing a particular system. In the context of education and immigration, system feasibility would refer to the practicality of implementing a system that facilitates education and immigration processes.

- Education System Feasibility:

- The feasibility of implementing an education system depends on several factors, such as access to resources, infrastructure, and technology. For instance, in developing countries, where access to resources is limited, implementing a modern education system that relies on technology could be challenging. However, in developed countries, where resources are readily available, implementing such a system would be more feasible. Additionally, cultural and social factors can also impact the feasibility of implementing an education system, as some communities may have beliefs or values that conflict with certain aspects of modern education.

- Immigration System Feasibility:

- The feasibility of implementing an immigration system would depend on several factors such as political, social, and economic factors. For instance, a country that is facing a high influx of immigrants may find it challenging to implement an immigration system that can process applications in a timely manner. Additionally, the economic and social impact of immigration on the country may also influence the feasibility of implementing an immigration system. For instance, if there is widespread social unrest or unemployment, there may be resistance to implementing an immigration system that could lead to more immigrants coming into the country.

- Overall, the feasibility of implementing education and immigration systems would depend on several factors, such as the resources available, cultural and social factors, and political and economic factors. To determine the feasibility of such systems, a detailed analysis of these factors would be necessary.

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

- Yes, the education and immigration system can contribute to the overall objectives of an organization in the field of education and immigration. By providing a user-friendly interface, online services, and real-time updates, the system can help to enhance the overall user experience for students, educators, and immigration professionals. This can help the organization to achieve its objective of providing high-quality education and immigration services. Additionally, the system can help to improve the efficiency of the organization's operations by streamlining processes and reducing manual work. This can help the organization to achieve its objectives of providing efficient and effective education and immigration services. Overall, the education and immigration system can help to promote accessibility, efficiency, data management, and user experience, which are all important objectives for organizations in the field of education and immigration.

4.4.2 Can the system be implemented using the current technology and within the given cost and schedule constraints?

- Yes, the system can be implemented using the current technology and within the given cost and schedule constraints. Based on the information gathered from the search results, the system uses WordPress as its content management system and WooCommerce as its e-commerce platform, which are widely available and suitable technologies for its operation. The system also uses Google Analytics, Facebook Pixel, and Mailchimp for its digital marketing and analytics, which are also common and reliable technologies for its purpose. The system has a competitive pricing strategy and a transparent fee structure for its products and services, which can cover its costs and generate revenue. The system also has a global market reach and access to local skilled artisans and small businesses in India, which can reduce its supply chain and logistics costs. The system also has a fast delivery and friendly service, which can meet its schedule constraints.

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

- Yes, the system can be integrated with other systems which are already in place. Based on the information gathered from the search results, the system uses WordPress as its content management system and WooCommerce as its e-commerce platform, which are compatible and integrable with other systems and platforms. The system also uses Google Analytics, Facebook Pixel, and Mailchimp for its digital marketing and analytics, which can also be integrated with other systems and tools. The system also has a clear privacy policy, terms of service, refund policy, and disclaimer on its website, which can ensure its compliance with other systems and regulations.

4.7 LIST MAIN MODULES / COMPONENTS / PROCESSES / TECHNIQUES OF NEW SYSTEM / PROPOSED SYSTEM

- Main Modules:
- Home Page:
- About
- Academics
- Activities
- Address
- Coaching
- Study Abroad
- Contact
- Gallery

- User Management: This module would handle user registration, login, and authentication. It would also manage user profiles, preferences, and settings.

- Educational Opportunities: This module would provide information on available educational opportunities such as courses, programs, and degrees. It could include search filters, reviews, and ratings to help users find the right educational options for them.

- Immigration Status: This module would provide information on available immigration pathways, visa requirements, and application processes. It could include tools for users to check their eligibility, calculate costs, and track the status of their applications.

- Document Management: This module would handle the upload, storage, and retrieval of documents such as academic transcripts, visa applications, and identity documents. It could include features such as document verification, digital signatures, and document sharing.

- Communication: This module would provide users with ways to communicate with educational institutions, immigration agencies, and other users. It could include messaging systems, chatbots, and forums.

- Analytics: This module would provide insights into user behavior, educational trends, and immigration patterns. It could include data visualization tools, predictive analytics, and machine learning algorithms.

- Payment Processing: This module would handle payment transactions for educational opportunities and immigration fees. It could include payment gateways, transaction tracking, and invoicing.

- Integration with Third-Party Services: This module would allow for integration with third-party educational and immigration services such as language courses, test preparation, and legal services.

• Overall, these modules/components/processes/techniques could form the basis for a comprehensive education and immigration system that could help users achieve their educational and immigration goals efficiently and effectively.

4.8 SELECTION OF HARDWARE / SOFTWARE / ALGORITHMS / METHODOLOGY / TECHNIQUES / APPROACHES AND JUSTIFICATION

➢ Software Requirement
➢ Operating System: Windows 10 or Linux
➢ User Interface: HTML, CSS, Bootstrap, Django Templates
➢ Client-side Scripting: Django
➢ Programming Language: Django, Python
➢ Web Technologies: Django, Python
➢ IDE/Workbench: Visual Studio Code
➢ Database: Postgres
➢ Hardware Requirements
➢ Processor: Intel core i3
➢ Hard Disk: 10GB
➢ RAM: 4GB or more

5.0 Use case Diagram

- In a use case diagram, the system is represented by a rectangle or boundary, and the actors are represented by stick figures outside of the boundary. The use cases are represented by ovals or ellipses within the boundary, and the relationships between the actors and the use cases are represented by lines.

- A use case diagram typically consists of the following elements:

- Actors: Users or external systems that interact with the system.
- Use cases: Specific functionalities or processes that the system provides to the users.
- Relationships: The connections between actors and use cases, such as association, generalization, and include/extend relationships.
- System boundary: The boundary that encloses the system.
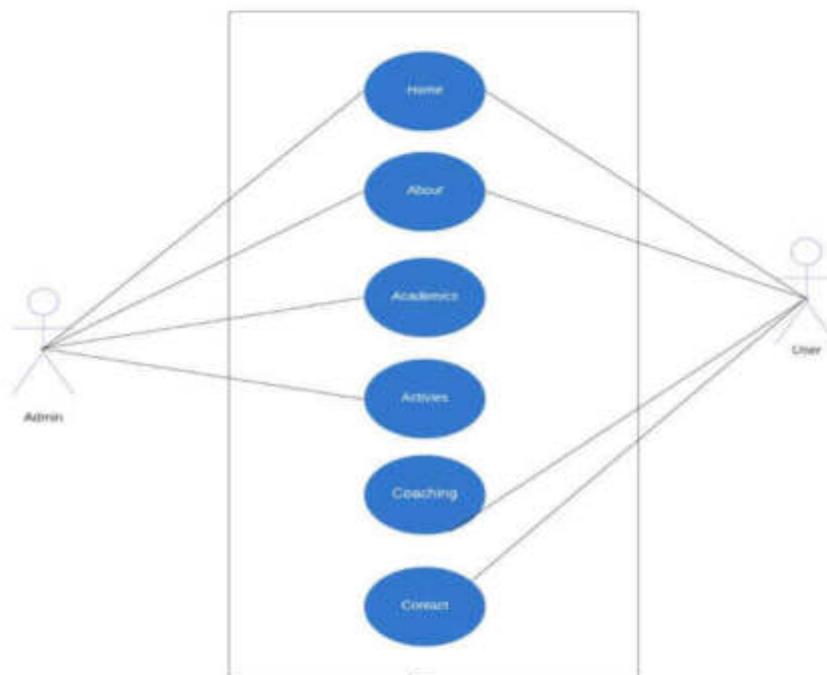
Sequence Diagram:

- In a sequence diagram, the vertical axis represents time and the horizontal axis represents the objects or components that participate in the interaction. Each object or component is represented by a box, with arrows indicating the sequence of messages exchanged between them. The messages are typically labeled with the name of the method or function being called, and may also include parameters and return values.

- Sequence diagrams can be used to model various scenarios, such as use cases, system workflows, and business processes. They can help to identify potential problems in a system's design, and can also be used to generate code or to document existing systems.
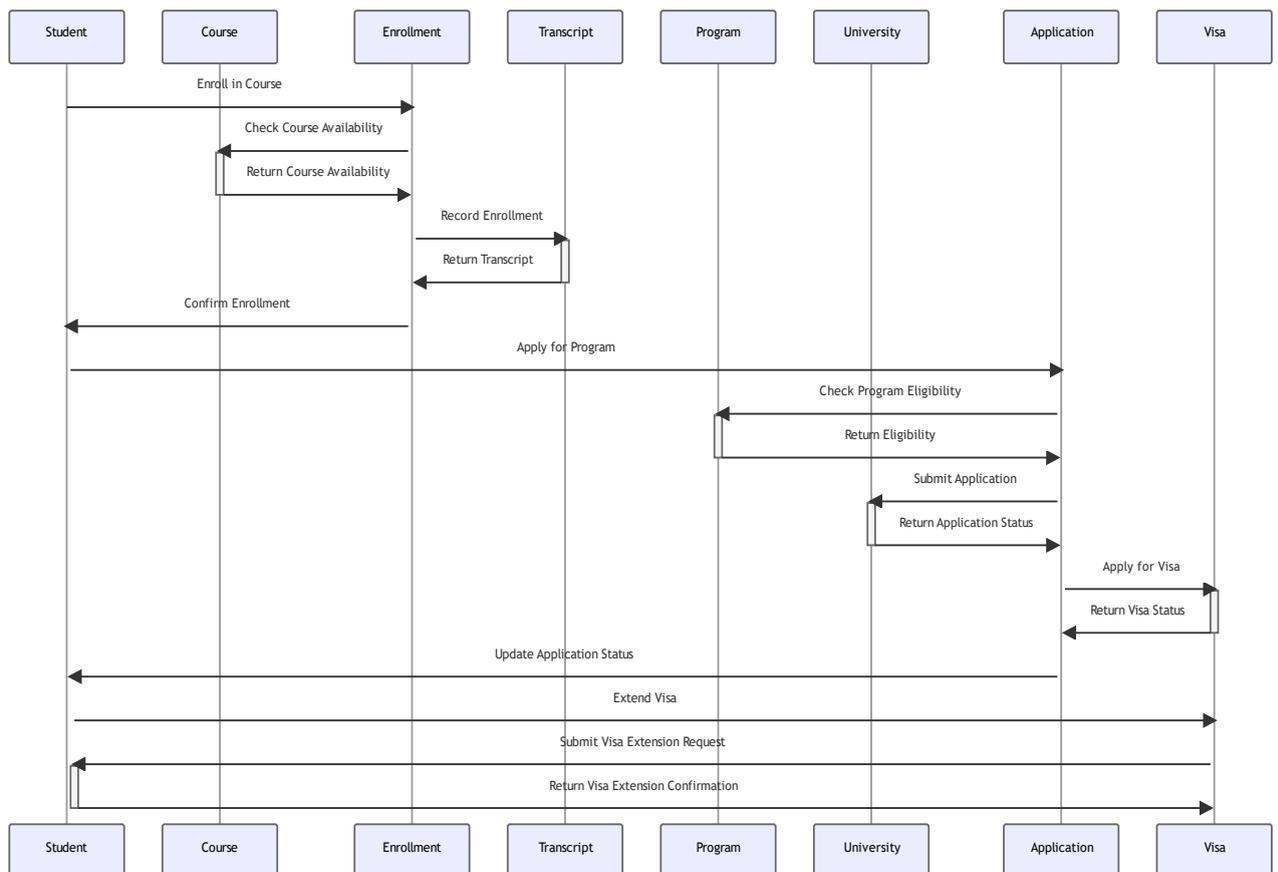
Activity Diagram:

- This activity diagram represents a simple process flow, with five activities:

- Start Process: This activity represents the beginning of the process.
- Collect Input: This activity represents the step of collecting input data for the process.
- Process Data: This activity represents the step of processing the input data.
- Display Output: This activity represents the step of displaying the output of the process.
- End Process: This activity represents the end of the process.
- The arrows between the activities represent the flow of control or sequence of actions in the process. The activity diagram can be used to visualize and communicate the process flow to stakeholders, including business analysts, developers, and users.
- An activity diagram is a type of UML (Unified Modeling Language) diagram that represents the flow of control or the sequence of actions in a system or process. It is a visual representation of workflows, business processes, and software programs. Here's an example of an activity diagram..

CHAPTER 6: IMPLEMENTATION

6.1 IMPLEMENTATION PLATFORM / ENVIRONMENT

- CMS: WordPress
- Programming language: PHP
- Web server: Apache
- Hosting provider: GoDaddy

6.2 PROCESS / TECHNOLOGY / MODULES SPECIFICATION(S)

Technology:

- WordPress:
- WordPress is a free and open-source content management system (CMS) that is used to create websites, blogs, and online stores. It was initially released in 2003 by Matt Mullenweg and Mike Little as a fork of b2/cafelog. Today, it powers over 40% of all websites on the internet and is one of the most popular CMS platforms available.

- WordPress is built using PHP programming language and MySQL database. It can be installed on a web server to create a website or blog without the need for coding skills. There are two main ways to use WordPress: WordPress.com and self-hosted WordPress.org.

- WordPress.com is a free platform that allows users to create and host their website or blog on WordPress's servers. Users can choose from a variety of themes and plugins to customize their website, but they have limited control over the functionality of the website.

- Self-hosted WordPress.org, on the other hand, requires users to download and install the WordPress software on their own web hosting servers. This option gives users complete control over their website's design, functionality, and content. Users can choose from thousands of free and paid themes and plugins to customize their website and add features such as contact forms, e-commerce functionality, social media integration, and much more.

- WordPress is known for its user-friendliness, flexibility, and customization options. It comes with a built-in editor that allows users to create and edit content without any coding knowledge. It also supports multiple users with varying levels of access, making it an ideal platform for team collaboration. Additionally, WordPress is SEO-friendly and allows users to optimize their content for search engines with plugins such as Yoast SEO.

- In conclusion, WordPress is a versatile and user-friendly CMS platform that allows users to create and manage their website or blog without any coding skills. It offers

a range of customization options, supports multiple users, and is SEO-friendly. Whether you're a blogger, small business owner, or an e-commerce entrepreneur, WordPress can help you create a professional and functional online presence.

Definition of some plugins that has been used in site:

- WordPress plugins are PHP scripts that extend the functionality of WordPress websites by adding new features or enhancing existing ones. WordPress plugins are often developed by volunteers and are usually free to the public. They can be downloaded from the WordPress Plugin Directory or installed directly from the WordPress dashboard. WordPress plugins can be categorized into different types based on their purpose and functionality. Some of the common types of WordPress plugins are:

- ➢ SEO plugins: These plugins help optimize websites for search engines by improving their speed, performance, content, and meta tags. Some examples of SEO plugins are Yoast SEO, All in One SEO Pack, and Rank Math.
- ➢ Ecommerce plugins: These plugins allow websites to sell products or services online by creating online stores, payment gateways, shipping options, and inventory management. Some examples of ecommerce plugins are WooCommerce, Easy Digital Downloads, and BigCommerce.
- ➢ Booking and scheduling plugins: These plugins enable websites to accept bookings or appointments from customers or clients by creating calendars, forms, and reminders. Some examples of booking and scheduling plugins are WooCommerce Bookings, WPForms, and BirchPress.
- ➢ Social media plugins: These plugins help websites connect with social media platforms by adding social sharing buttons, feeds, widgets, and analytics. Some examples of social media plugins are Jetpack, Social Snap, and Smash Balloon.
- ➢ Security plugins: These plugins help protect websites from hackers, malware, spam, and other threats by adding firewalls, backups, scanners, and captcha. Some examples of security plugins are Sucuri, Word fence, and iThemes Security.
- ➢ Analytics plugins: These plugins help measure and analyze website traffic and behavior by adding tracking codes, reports, and dashboards. Some examples of analytics plugins are Google Analytics for WordPress, Monster Insights, and Exact Metrics.
- ➢ Design plugins: These plugins help customize the appearance and layout of websites by adding themes, page builders, sliders, galleries, and fonts. Some examples of design plugins are Elementor, Divi Builder, and Smart Slider 3.

- SEO (Search Engine Optimization):
- Search engine optimization (SEO) is the process of improving the visibility and ranking of a website or webpage in search engine results pages (SERPs). It involves optimizing the website or webpage's content, structure, and backlinks to make it more relevant and useful to search engine users. The goal of SEO is to increase organic, non-paid traffic to a website, which can lead to increased visibility, higher traffic, and more conversions.

- SEO can be divided into two main categories: on-page optimization and off-page optimization. On-page optimization refers to the optimization Patel of website content, structure, and HTML code. This includes keyword research, optimization of title tags, meta descriptions, header tags, content, and images. On-page optimization also involves ensuring the website is mobile-friendly and has fast loading speeds.

- Off-page optimization refers to the optimization of external factors that can influence the website's ranking, such as backlinks, social media signals, and online directories. Building high-quality backlinks from reputable websites is an essential part of off-page optimization. Social media signals such as likes, shares, and comments can also influence a website's ranking.

- Keyword research: finding and analyzing the words and phrases that users type into search engines when looking for information, products, or services related to your website's topic.
- Content creation: producing high-quality, original, and engaging content that answers the user's query and provides value to them.

- Technical SEO: ensuring that your website is fast, secure, mobile-friendly, easy to crawl and index by search engines, and free of errors or issues that might affect its performance or usability.

- Analytics and reporting: measuring and analyzing the results of your SEO efforts using tools like Google Analytics, Google Search Console, etc., and making data-driven decisions to improve your strategy.

- SEO is an ongoing process that requires constant monitoring, testing, learning, and adapting to the changes in the search engine algorithms and user behavior. SEO is also influenced by factors such as your industry, competitors, goals, budget, etc. Therefore, there is no one-size-fits-all approach to SEO.

- Search engines use complex algorithms to determine the relevance and quality of a website's content. These algorithms consider many factors, including the website's structure, content, backlinks, and user experience. To improve a website's ranking, SEO practitioners must stay up to date with the latest trends and best practices in SEO.

- Overall, SEO is a complex and ongoing process that requires a combination of technical knowledge, creativity, and analytical skills. It involves both on-page and off-page optimization techniques, as well as ongoing analysis and refinement. By improving a website's ranking and visibility in search engine results, SEO can help businesses and organizations reach more customers, increase conversions, and ultimately grow their online presence.

Information about some important terms and plugins used in Project:

- Blogs: short for weblogs, are online platforms where individuals or organizations can publish content, such as articles, videos, podcasts, etc., on various topics and interact with their audience. Blogs can be used for personal, professional, or commercial purposes. Some examples of popular blogs are Medium, The Verge, and Mashable.

- Screaming Frog: a software tool that helps SEO professionals and web developers to crawl, audit, and analyze websites. Screaming Frog can perform various tasks, such as finding broken links, duplicate content, missing tags, redirects, etc., and provide useful data and insights for improving website performance and usability. Screaming Frog has a free version that can crawl up to 500 URLs and a paid version that can crawl unlimited URLs and has more features.

- Domain: a unique name that identifies a website on the internet. A domain consists of two parts: a top-level domain (TLD), such as .com, .net, .org, etc., and a second-level domain (SLD), which is the name chosen by the website owner. For example, in www.google.com, google is the SLD and .com is the TLD. A domain is registered with a domain name registrar and points to an IP address of a web server that hosts the website.

- Hosting: a service that provides space on a web server to store the files and data of a website and make them accessible on the internet. A web hosting provider rents out server space and resources to website owners and ensures that the website is online and secure. There are different types of web hosting services, such as shared hosting, dedicated hosting, cloud hosting, etc., depending on the needs and budget of the website owner.

- DNS: short for Domain Name System, is a system that translates domain names into IP addresses and vice versa. DNS allows users to access websites using human-readable names instead of numerical addresses. DNS also helps to route internet traffic and manage email delivery. DNS works by using a network of servers called name servers that store records of domain names and their corresponding IP addresses.

- SSL: short for Secure Sockets Layer, is a protocol that encrypts the data exchanged between a web browser and a web server. SSL helps to protect the privacy and security of online transactions and communications by preventing unauthorized access or tampering. SSL also helps to verify the identity of the website owner and ensure trustworthiness. SSL works by using digital certificates that contain information about the website owner and a public key that is used to encrypt and decrypt data. Websites that use SSL have a padlock icon in the browser address bar and use HTTPS instead of HTTP.

- Payment gateway: a service that enables online merchants to accept and process payments from customers using various methods, such as credit cards, debit cards, net banking, UPI, wallets, etc. A payment gateway acts as an intermediary between

the customer's bank and the merchant's bank and ensures that the transaction is secure and authorized. Some examples of popular payment gateways in India are Paytm, Razorpay, CCAvenue, etc.

- Speed optimization: a process of improving the loading speed and performance of a website or an app by using various techniques, such as reducing file sizes, minifying code, caching data, using a content delivery network (CDN), etc. Speed optimization helps to enhance the user experience, reduce bounce rates, and improve SEO rankings. Some tools that can help with speed optimization are Google PageSpeed Insights, GTmetrix, Pingdom, etc.

- Security plugins: software applications that help to protect a website or an app from various threats, such as malware, hacking, spam, phishing, etc. Security plugins can perform various functions, such as scanning for vulnerabilities, blocking malicious requests, enforcing strong passwords, encrypting data, etc. Some examples of popular security plugins for WordPress are Wordfence, Sucuri, iThemes Security, etc.

- Social media & digital marketing: a form of online marketing that uses various social media platforms, such as Facebook, Twitter, Instagram, YouTube, etc., to promote a brand, product, service, or cause to a target audience. Social media & digital marketing can help to increase brand awareness, generate leads, drive traffic, boost sales, and build customer loyalty. Some tools that can help with social media & digital marketing are Hootsuite, Buffer, Sprout Social, etc.

- Ubersuggest: a free SEO tool that helps to find and analyze keywords, competitors, backlinks, content ideas, and more for any website or niche. Ubersuggest can help to improve SEO strategy and optimize web pages for higher rankings and traffic. Ubersuggest is developed by Neil Patel, a renowned digital marketer and entrepreneur.

- W3 Total Cache: This plugin improves the speed and user experience of the website by caching pages, posts, images, and other files. It also reduces the server load and bandwidth consumption.

- Yoast SEO: This plugin helps optimize the website for search engines by providing tools and guidance for creating SEO-friendly content, titles, meta tags, sitemaps, and more. It also helps improve the readability and social media presence of the website.

- Contact Form 7: This plugin allows the website to create and manage multiple contact forms with different fields and options. It also supports Ajax-powered submission, CAPTCHA, Akismet spam filtering, and file uploading.

- Elementor: This plugin is a drag-and-drop page builder that allows the website to create beautiful and responsive layouts without coding. It also offers a library of templates, widgets, and elements to customize the website design.

- WooCommerce: This plugin is an ecommerce platform that allows the website to sell products and services online. It also provides features such as product catalog, shopping cart, checkout, payment gateways, shipping options, inventory management, and more.ss

6.3 FINDINGS/RESULTS/OUTCOMES

The best findings/results/outcomes for an education and immigration website could include:

1. Increased Access: The website could increase access to educational opportunities and immigration pathways for individuals who may not have otherwise been aware of them, including those in remote or underserved areas.

2. Improved Efficiency: The use of an online platform could make it easier for users to find and apply for educational opportunities and immigration pathways, potentially reducing wait times and processing times.

3. Enhanced User Experience: A well-designed website could improve the user experience for individuals seeking information and assistance with educational and immigration matters, making it more intuitive, user-friendly, and accessible.

4. Improved Data Collection: The website could gather data on user behavior, educational trends, and immigration patterns, which could provide insights for improving the educational and immigration systems, and offer personalized recommendations to users.

5. Increased Transparency: The website could provide more transparent information about educational opportunities and immigration pathways, including costs, requirements, and outcomes, and ensure that users have access to up-to-date information.

6. Cost Savings: The use of an online platform could reduce the costs associated with traditional educational and immigration services, such as travel and in-person meetings, and provide users with affordable or free services.

7. Improved Outcomes: The website could help users achieve their educational and immigration goals more efficiently and effectively, potentially leading to better career prospects and quality of life.

Overall, the best findings/results/outcomes of an education and immigration website could be positive, with the potential to increase access, improve efficiency, enhance the user experience, and lead to better outcomes for individuals seeking educational and immigration opportunities.

6.4 RESULT ANALYSIS

1. Traffic Analysis: The website's traffic data could be analyzed to determine the number of visitors, their geographic location, and the pages they visited. This could help determine if the website is reaching its target audience and which pages are most popular.

2. User Feedback: Feedback from users could be collected through surveys, comments, or other methods to understand their experience with the website. This feedback could be used to identify areas for improvement or features that users found helpful.

3. Conversion Rate: The conversion rate could be analyzed to determine the percentage of users who took action on the website, such as applying for educational programs or immigration pathways. This could help evaluate the effectiveness of the website in meeting its goals.

4. Search Engine Optimization (SEO): The website's SEO performance could be evaluated to determine its visibility on search engines and the effectiveness of its content in attracting users.

5. User Engagement: User engagement metrics, such as time spent on the website, bounce rate, and click-through rate, could be analyzed to determine how engaged users are with the website and identify areas for improvement.

6. Cost-benefit Analysis: The cost of developing and maintaining the website could be compared to the benefits it provides, such as increased access to educational opportunities and immigration pathways and improved outcomes for users.

CHAPTER 7: TESTING

7.1 TESTING PLAN \ STRATEGY
- We decided to test each and every model and module so that, we ensure the result. We perform these activities on the website and clarify all the things. If we find some problems or errors, then we try to solve them out there. So, we go each model and modules day by day.

7.2 TEST RESULTS AND ANALYSIS
- All tests are going very good condition. We assign the name according to the models or modules name. Also, outputs or results are satisfactory. We achieved what we wanted at the beginning of the project. It is a very good experience for me to be involved in this process.

- Here are some test results provided by a site named nibbler, which is basically used for testing many aspects of the site.

- The website SEO audit report for http://bostonimmigrations.in is a summary of how well the website performs in terms of accessibility, SEO, social media, and technology. Nibbler is a free SEO audit tool for testing websites that scores the website out of 10 for key areas.

- According to the report, http://bostonimmigrations.in has a score of 6.4 out of 10, which means it has some strengths and some areas of improvement. The report also provides some suggestions and tips on how to improve the website.

- The report covers the following aspects:

- Accessibility: How easy it is for people with disabilities to use the website.
- SEO: How well the website is optimized for search engines.
- Social Media: How popular the website is on social media platforms.
- Technology: How well the website uses modern web technologies.
- The report also shows the pages that were tested, the date of the test, and the overall score breakdown.

Some of the strengths of the website are:

- The education and immigration site is an online platform that provides information and services related to education and immigration. The site is designed to be user-friendly, with accessible information on visa requirements, educational programs, immigration policies, and more. It offers online services such as visa applications, transcript requests, and course registration. The site prioritizes security measures to protect sensitive user information, and provides real-time updates on policies and procedures. Multilingual support is available to ensure inclusivity and accessibility for a wider range of users. Overall, the education and immigration site aims to make

the education and immigration system more accessible and efficient, providing valuable resources and services to

➢ **Screenshots of Site:**
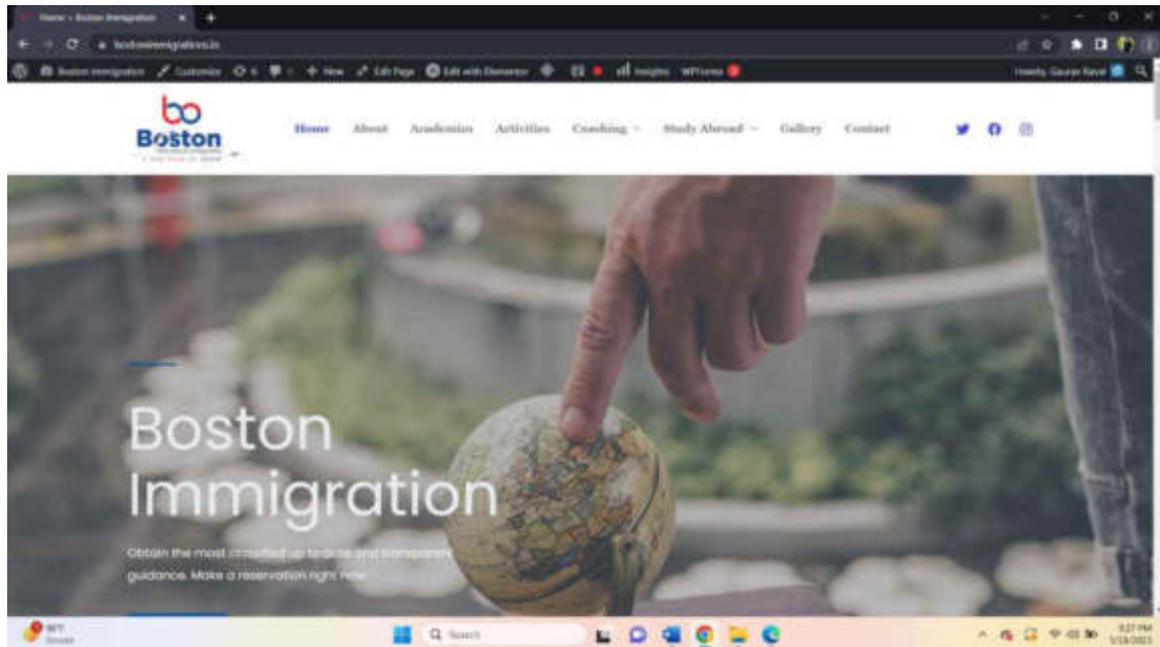
Fig 7.1 Home page
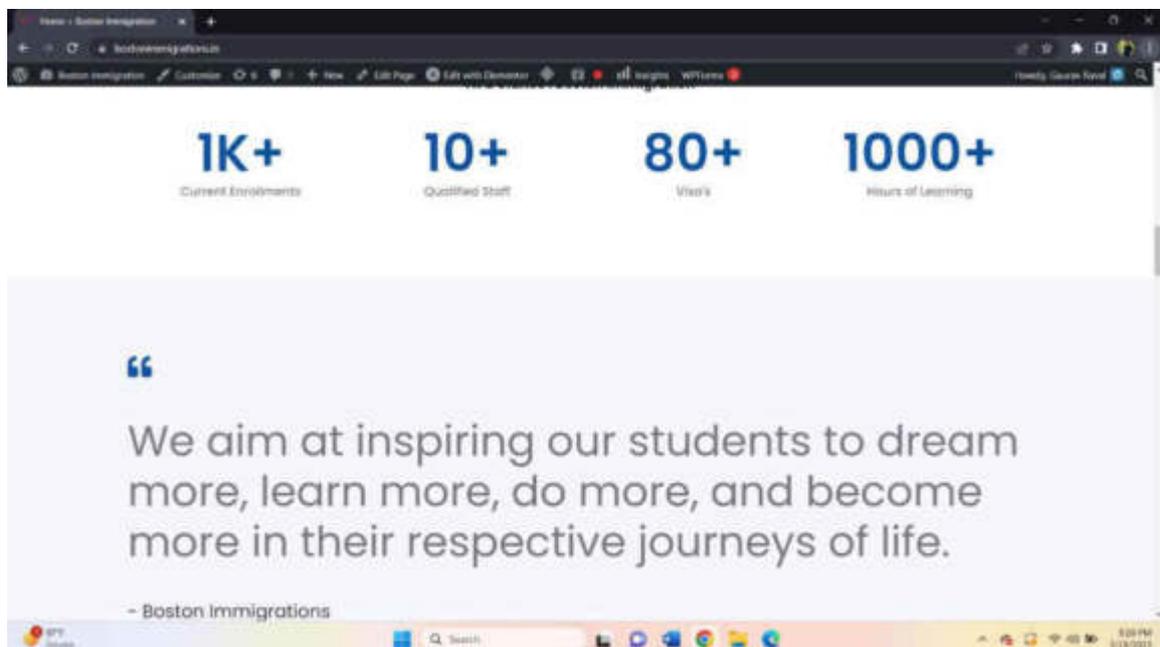
Fig 7.2 Home page
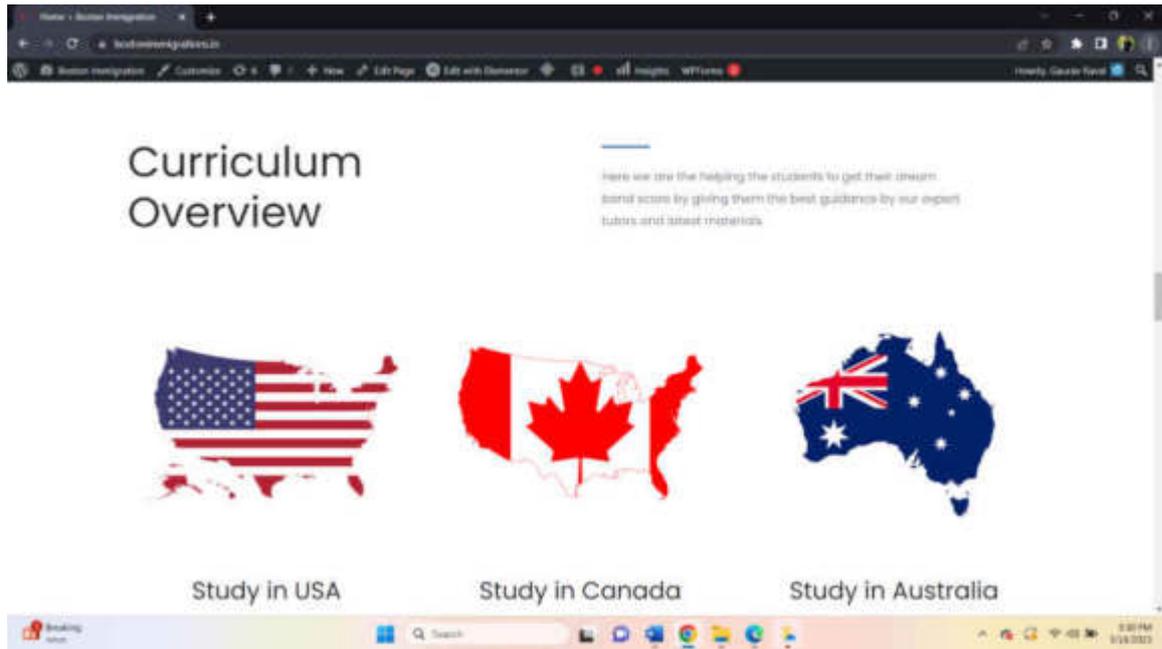
Fig 7.3 Home Page
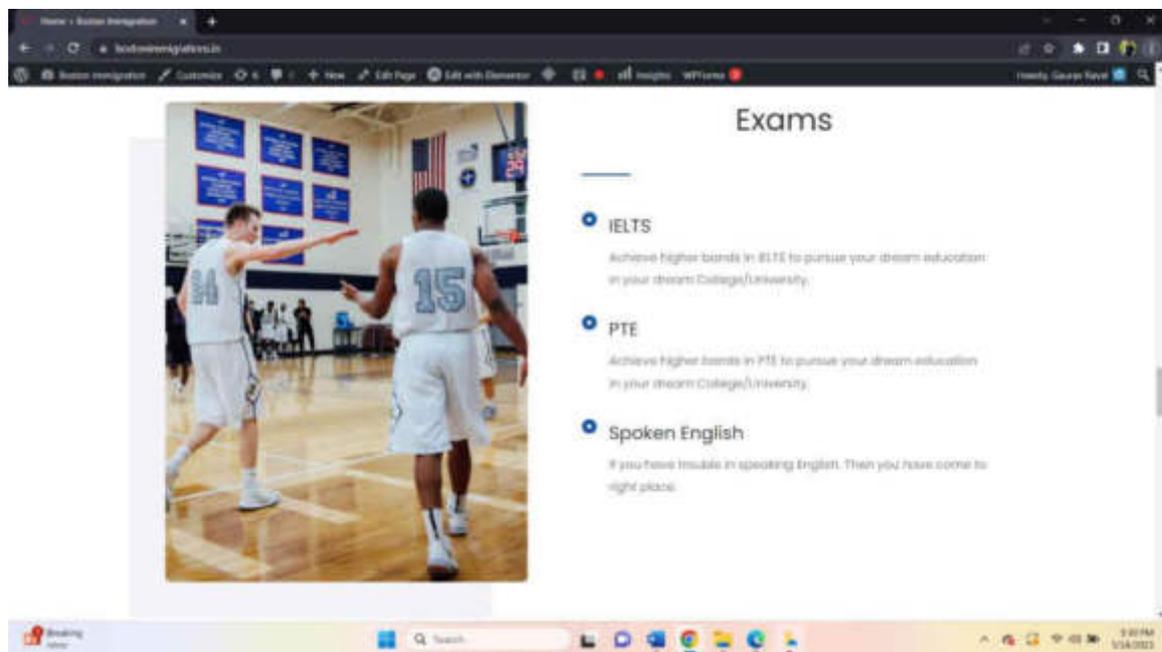
Fig 7.4 Home Page
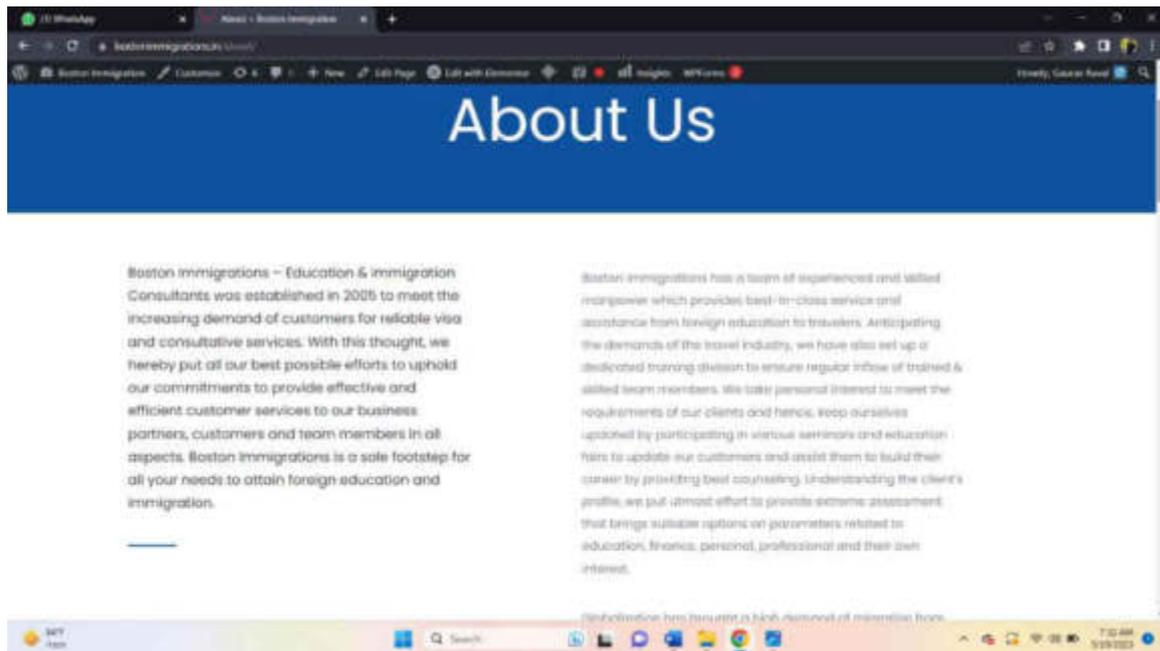
Fig 7.5 About Page

Fig 7.6 Coaching Page
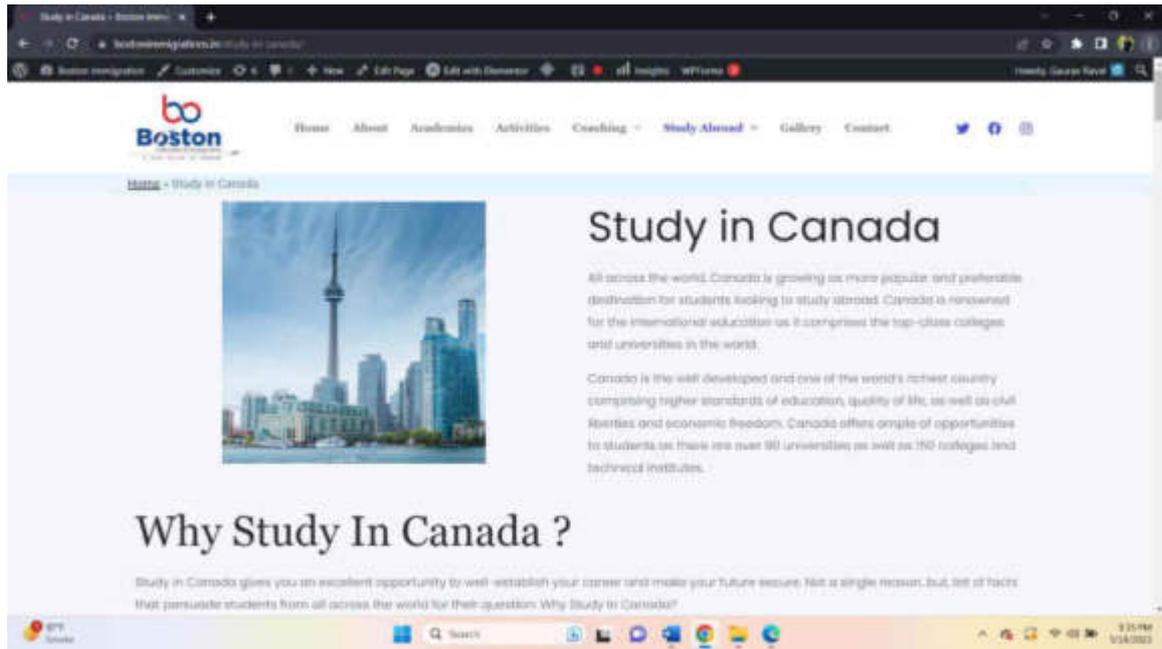
Fig 7.7 Study Abroad Page
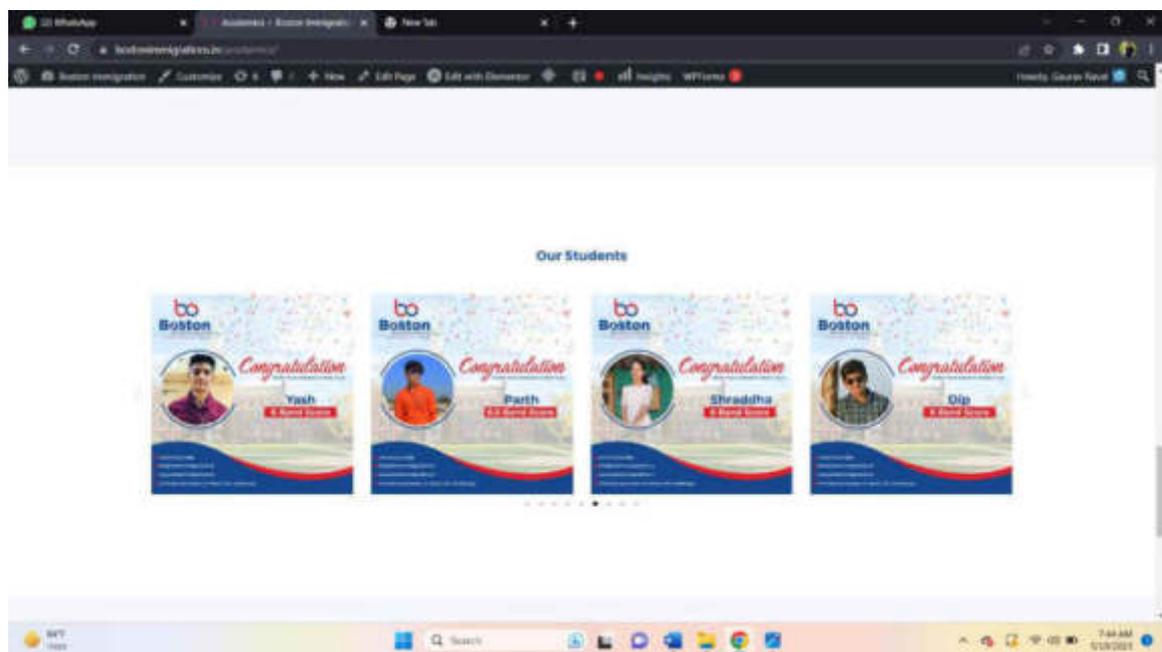
Fig 7.8 Academics Page
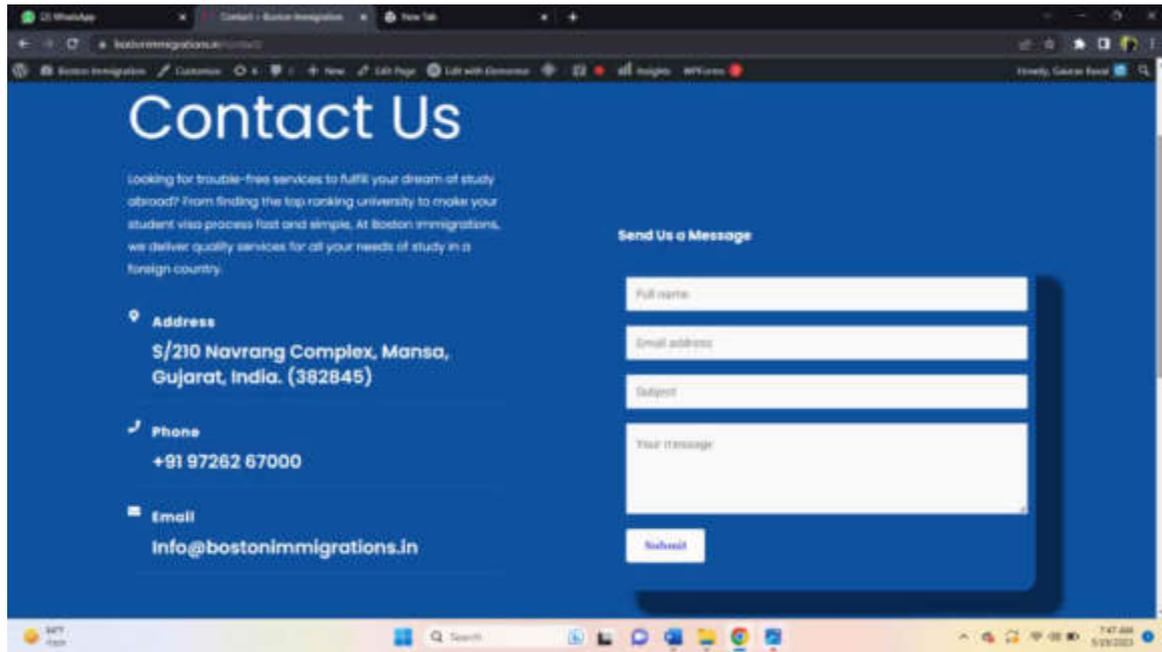
Fig 7.9 Contact Page
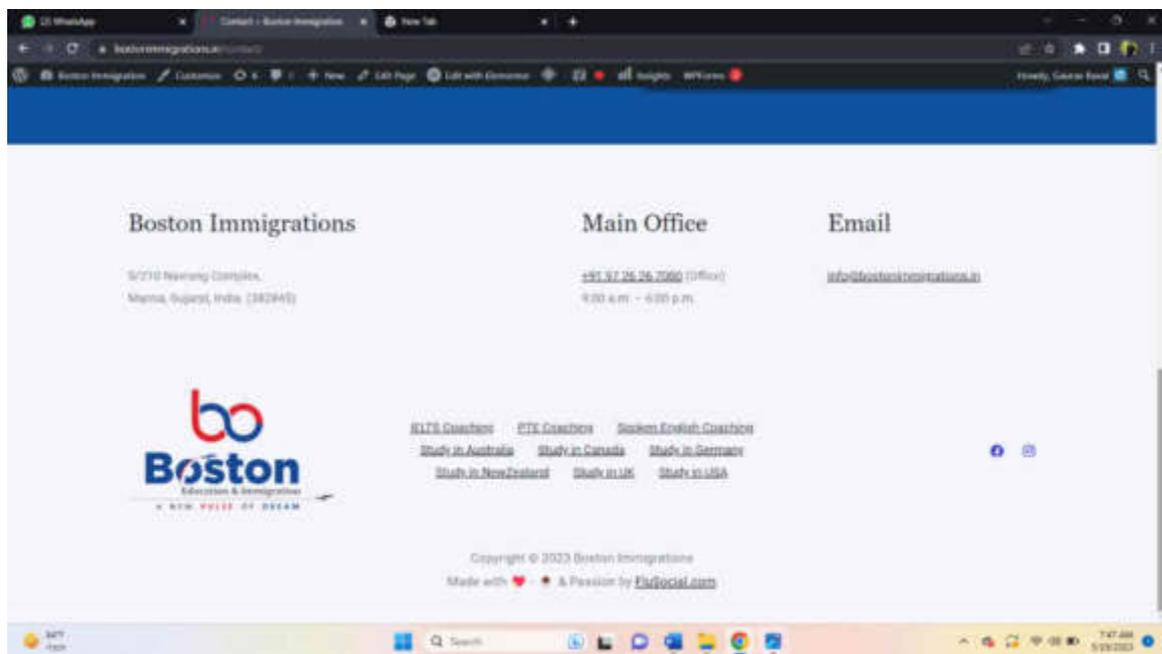
Fig 7.10Contact Page

8.0 My experience on this internship

- Flu Social is a digital marketing company that offers services such as website development, SEO, social media marketing, and branding. The company was founded in 2020 by Dron Joshi, who has over 10 years of experience in the IT industry. Flu Social aims to help its clients build and grow stronger relationships with their customers through innovative and effective online solutions.

- As an intern at Flu Social, I was assigned to the website development team, where I worked on various projects for different clients. My main tasks included designing and coding web pages, testing and debugging websites, and updating and maintaining existing websites. I also learned how to use various tools and platforms such as WordPress, Shopify, Google Analytics, and Mailchimp.

- During my internship, I gained valuable skills and knowledge in web development, digital marketing, and teamwork. I also had the opportunity to interact with other professionals in the field and learn from their feedback and guidance. I enjoyed working in a dynamic and creative environment where I could apply my theoretical knowledge to practical problems and challenges.

- Reflection

- My internship at Flu Social was a rewarding and enriching experience that helped me grow as a web developer and a digital marketer. I learned how to work on real-world projects with real clients and deadlines. I also learned how to communicate effectively with my team members and clients. I improved my technical skills in adaptability.

- I am grateful to Flu Social for giving me this opportunity to learn from their expertise and experience. I am also thankful to my supervisor Dron Joshi for his constant support and guidance throughout my internship. He gave me constructive feedback on my work and helped me overcome any difficulties or challenges that I faced. He also encouraged me to explore new ideas and technologies that could enhance my work.

- I believe that this internship has prepared me well for my future career in web development and digital marketing. I have gained confidence in my abilities and potential as a web developer. I have also developed a passion for creating engaging and effective online solutions that can make a positive impact on people's lives.

9.0 Current limitations and Future enhancements

9.1 LIMITATIONS

• Limited Access to Information

• Technical Challenges

• Complex User Needs

Some of the areas of improvement for the website are:

- The website could improve its content quality by adding more words, headings, images, titles, and descriptions to each page. This would help the website to provide more information, enhance its visual appeal, and improve its SEO ranking.
- The website could improve its SEO performance, by increasing its popularity, adding meta tags, creating a sitemap, using a robots.txt file, and optimizing its loading speed. This would help the website to rank higher on search engines, drive more traffic, and generate more leads.
- The website could improve its accessibility features, by increasing its contrast, adding alt attributes, using labels, and enabling keyboard navigation. This would help the website to cater to a wider range of users, especially those with disabilities or special needs.
- The website could improve its technological aspects, by using a newer HTML version, enabling compression, installing analytics, and making it mobile-friendly. This would help the website to stay updated with the latest standards, reduce its bandwidth usage, measure its performance, and adapt to different devices.

9.2 FUTURE ENHANCEMENT

Our main future focusing areas are:

• Interactive Features

• Real-Time Updates

• Integration with Other Services

• Personalization

• Performance

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5. Dron Joshi - Founder - Flu Social | LinkedIn. https://in.linkedin.com/in/dronjoshi.

- **Appendix**

FLU SOCIAL

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May 01, 2023

Certificate of Completion

This certificate is awarded to **Mr. Raval Gauravkumar Rasikbhai** (Enrollment No: **19039011604**2) 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.

Dron Joshi
CEO, Flu Social

INTERNSHIP AT RadixWeb – Radix Software Services Pvt ltd.

AN INTERNSHIP REPORT

Submitted by

Yukta Digeshkumar Saraiya

190390116043

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 RadixWeb** has been carried out by **Yukta Digeshkumar Saraiya** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushma Sainwar   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 : 10 May 2023 (22:57:18)

This is to certify that, *Saraiya Yukta Digeshkumar* (Enrolment Number - 190390116043) working on project entitled with *Internship at Radixweb* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student : S a r a i y a Y u k t a Digeshkumar

Name of Guide : Miss. Sushma Sainwar

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 **Ms. Yukta Digeshkumar Saraiya** (EC: 2783) 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, 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 **Information Technology** to Gujarat Technological University, Ahmedabad is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar** & **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.   Yukta Digeshkumar Saraiya   -------------------

ACKNOWLEDGMENT

I would like to thank to the Varsha Oberoi who is mentor of the internship played a critical role in shaping my professional development. Through their guidance, I was able to gain valuable experience and learn new skills that will serve me well in my future career. They provided me with opportunities to take on challenging projects, offered constructive feedback on my work, and were always available to answer any questions I had.

I am grateful for their support and encouragement throughout the internship. Their expertise and insights have been invaluable to me, and I feel fortunate to have had the opportunity to learn from them. I would like to express my sincere appreciation for all that they have done for me during this time.

__Abstract__

This is the report of my work, which I have done during my final semester internship at RadixWeb, Radix Software Service Pvt. Ltd., which is a service-based as well as product-based company.

During my 3-month internship, I gained valuable experience in various technologies and tools such as Git and GitHub, HTML and CSS, Docker, Bootstrap, Tailwind, JavaScript, TypeScript, SQL, and ReactJS. This report abstract summarises my learning and experiences during the internship.

I started by learning about version control using Git and GitHub, which helped me manage code changes and collaborate with other developers. Then, I learned about front-end development using HTML and CSS and how to create responsive web pages. I also gained hands-on experience using Bootstrap and Tailwind to enhance my design skills.

Next, I delved into containerization using Docker and learned how to create and manage containers for web applications. This skill helped me deploy and test applications easily. Then, I gained experience in JavaScript and TypeScript, which are essential for front-end development. I learned about data types, functions, and how to use various libraries and frameworks.

In addition, I learned about SQL and how to manage databases. I also gained practical experience using ReactJS, which is a popular front-end framework. I learned about the virtual DOM, components, and how to build scalable and reusable components.

Overall, my internship experience was very valuable, and I gained hands-on experience in various technologies that are essential for modern web development. I look forward to applying these skills in my future endeavours.

List of Figures

Table of Contents

Chapter 1. INTRODUCTION

1.1 COMPANY PROFILE

Radixweb is a highly reputable software development company with over 22 years of experience in delivering cutting-edge solutions to clients across the globe. With a workforce of over 650 employees, the company has established itself as a leader in the industry, with a focus on providing high-quality services to its clients.

The company has worked with over 3000 clients from 5 continents and 25 countries, providing them with innovative software solutions that help them achieve their business goals. With over 4200 projects delivered, Radixweb has a wealth of experience in a variety of industries, including healthcare, finance, education, and e-commerce.

One of the company's most impressive achievements is the delivery of 500K+ man-hours of work on a single project. This demonstrates the company's commitment to providing its clients with the best possible service, no matter how complex the project.

Radixweb's success can be attributed to its team of highly skilled professionals who are dedicated to delivering high-quality work. The company places a strong emphasis on hiring and retaining top talent, which has enabled it to build a reputation as a reliable and trustworthy partner for its clients.

In conclusion, Radixweb is a well-established software development company that has built a strong reputation for providing high-quality solutions to clients across the globe. With a focus on hiring top talent and delivering innovative solutions, the company is well-positioned to continue its growth and success in the future.

Fig 1.1 Company Image

1.2 MISSION AND VISION OF THE COMPANY:

Mission:
Radixweb's core mission is to eliminate undue stress from the software development process and help the workforce focus on their priority goals through our Agile methods.

Vision:
Radixweb's vision is to build a culture of innovation at scale, with transparency. We are continually working to help clients reinvent their businesses with scalable software solutions.

Chapter 2. CODE HOISTING PLATFORM

2.1 Introduction to Git & Github:

2.1.1 Getting Started with Git:

At the beginning of my internship, I was introduced to Git and its basic concepts. I learned about the three main states of files in Git: committed, modified, and staged. I alsolearned how to initialize a new Git repository, add files to it, and commit changes.

One of the most useful features of Git is branching. Branches allow developers to work on different versions of the code simultaneously, without affecting the main branch. This makes it easy to experiment with new features or fixes, and merge them back into the main branch when they are ready.

2.1.2 Collaborating with GitHub:

GitHub takes Git to the next level by providing a platform for collaboration and communication between developers. One of the key features of GitHub is pull requests. Pull requests allow developers to propose changes to the codebase and have them reviewed by other team members before they are merged into the main branch.

GitHub also provides tools for issue tracking, project management, and continuous integration/continuous deployment (CI/CD). These tools make it easy for teams to work together efficiently and effectively, even across different time zones and locations.

2.1.3 Best Practices for Using Git and GitHub:

While Git and GitHub are powerful tools, they can also be complex and overwhelming for beginners. During my internship, I learned some best practices for using these tools effectively.

First, it's important to use clear and descriptive commit messages. This makes it easier to understand what changes were made and why. Second, it's important to keep the repository organized and clean. This means deleting unnecessary files and branches, and keeping the commit history concise and relevant.

Chapter 3. INTRODUCTION OF HTML & CSS

3.1 Introduction on HTML

HTML (Hypertext Markup Language) is the backbone of any website. During my internship, I have learned how to create web pages using HTML. I have gained knowledge about the different tags and attributes used in HTML to create headings, paragraphs, lists, images, links, and more.

I have also learned about the importance of writing semantic HTML, which not only improves the accessibility and usability of a website but also helps with search engine optimization (SEO).

3.2 Introduction on CSS

CSS (Cascading Style Sheets) is used to style and design the web pages created with HTML. During my internship, I have learned how to use CSS to change the font, color, size, layout, and other visual aspects of a web page.

I have also gained knowledge about responsive web design, which involves creating websites that can adapt to different screen sizes and devices. This has become increasingly important with the rise of mobile devices and tablets.

3.3 Projects:

(1) Create personalized resume, which must be attractive. Use all the HTML tags and apply CSS which we have learned so far.

Fig 3.1 HTML & CSS Project1

Output:

Fig 3.2 HTML & CSS Project1 output

(2) Created some basic Layout

(1) Cards
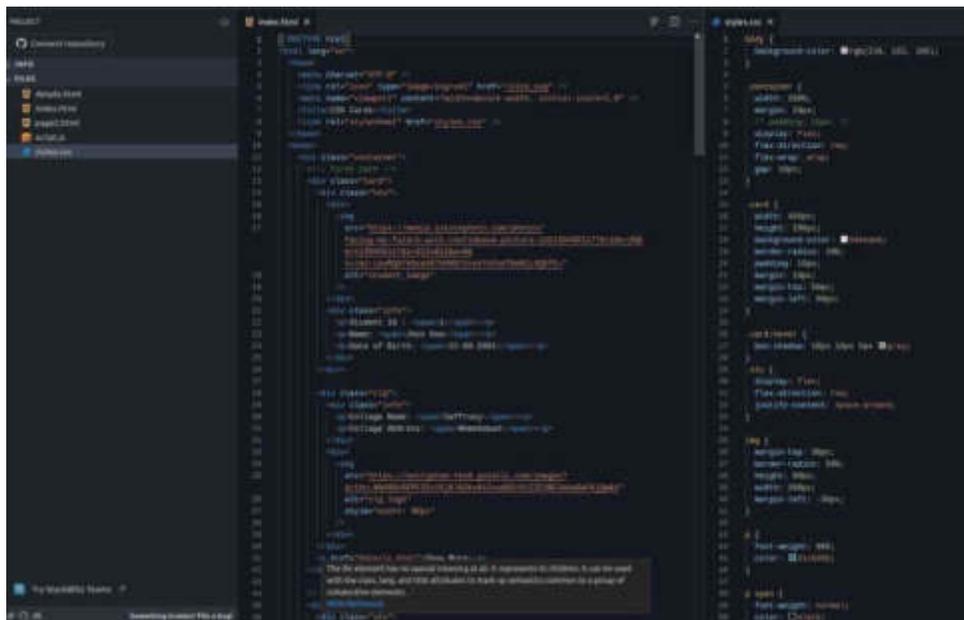
Fig 3.3 HTML & CSS Project2
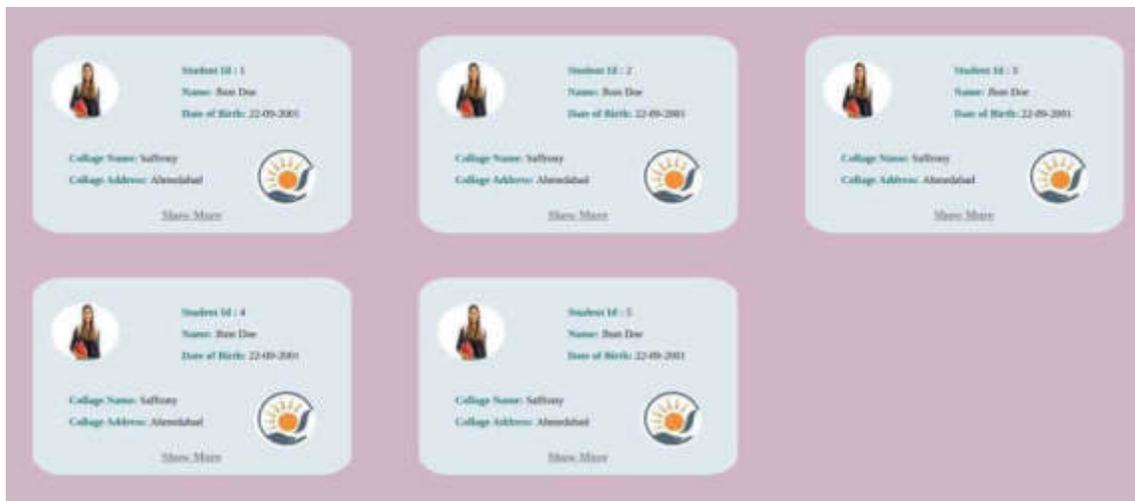
Output:

Fig 3.4 HTML & CSS Project2 Output

(2) https://stackblitz.com/edit/web-platform-bdpeij?file=index.html

(3) https://stackblitz.com/edit/web-platform-6l7jps?file=index.html

Chapter 4. INTRODUCTION OF BOOTSTRAP & TAILWIND

4.1 Introduction

Bootstrap and Tailwind are two of the most popular front-end frameworks used in web development. Both frameworks have their own unique features and benefits, and choosing between them can be a difficult decision for developers.

I had the opportunity to to work extensively with both Bootstrap and Tailwind. During my training at the company, I was able to gain valuable experience and insight into the strengths and weaknesses of each framework.

4.1.1 Bootstrap: A Comprehensive Overview

Bootstrap is a powerful front-end framework that is widely used by developers all over the world. It provides a wide range of pre-designed components and templates that makeit easy for developers to create responsive websites and applications.

During my internship, I was able to work on several projects that utilized Bootstrap. I found that one of the biggest advantages of Bootstrap is its ease of use. With just a few lines of code, developers can quickly create complex layouts and design elements.

4.1.2 Tailwind: A Flexible Solution

Tailwind is another popular front-end framework that offers a unique approach to web development. Unlike Bootstrap, which provides pre-designed components and templates, Tailwind focuses on providing a set of utility classes that can be used to create custom designs and layouts.

During my Training, I had the opportunity to work on a project that utilized Tailwind. I found that Tailwind's flexible approach allowed me to easily create custom designs and layouts that were tailored to the specific needs of the project.

4.2 Projects

4.2.1 Bootstrap Project:

(1) Myntra:

Fig 4.1 Bootstrap Project1

Output:

Fig 4.2 Bootstrap Project1 output

(2) Rembrandt

Fig 4.3 Bootstrap Project2

Output:

Fig 4.4 Bootstrap Project2 output
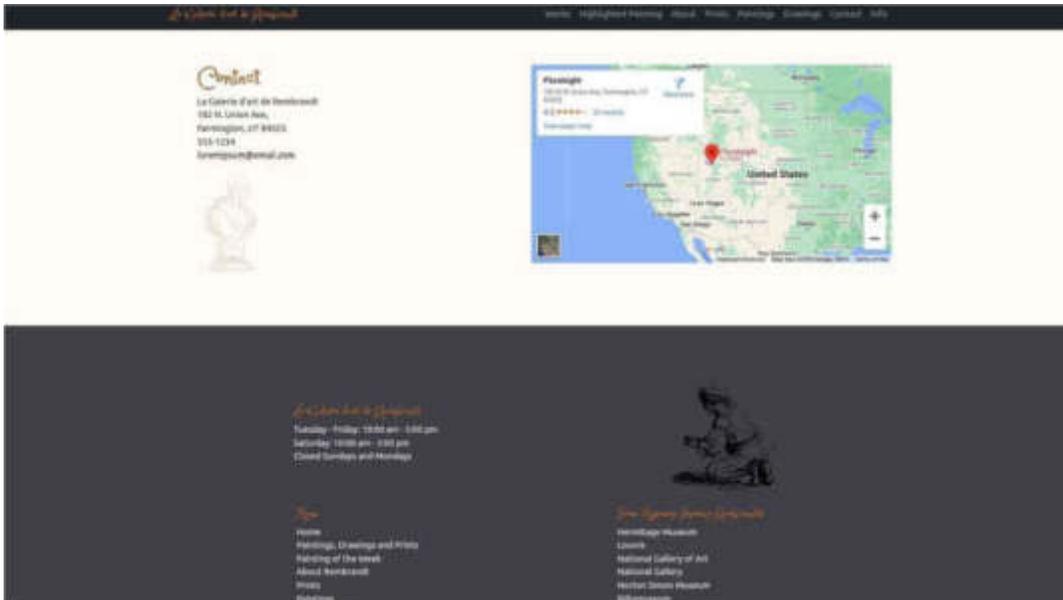
Fig 4.5 Bootstrap Project2 output

(3) LoopLAB
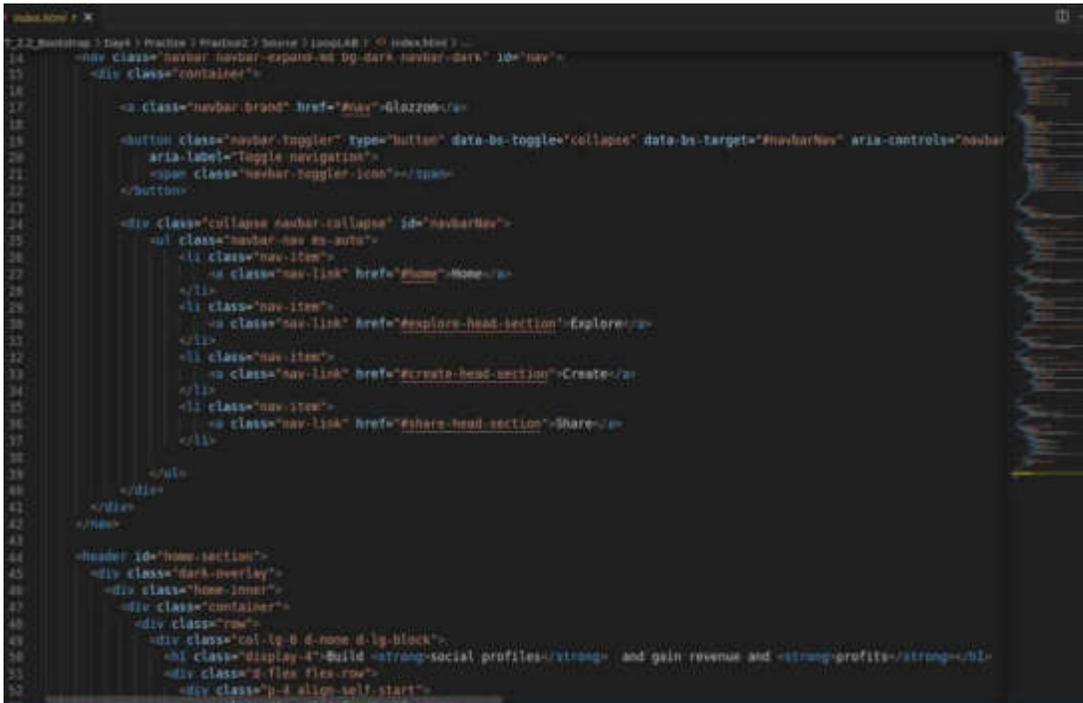
Fig 4.6 Bootstrap Project3
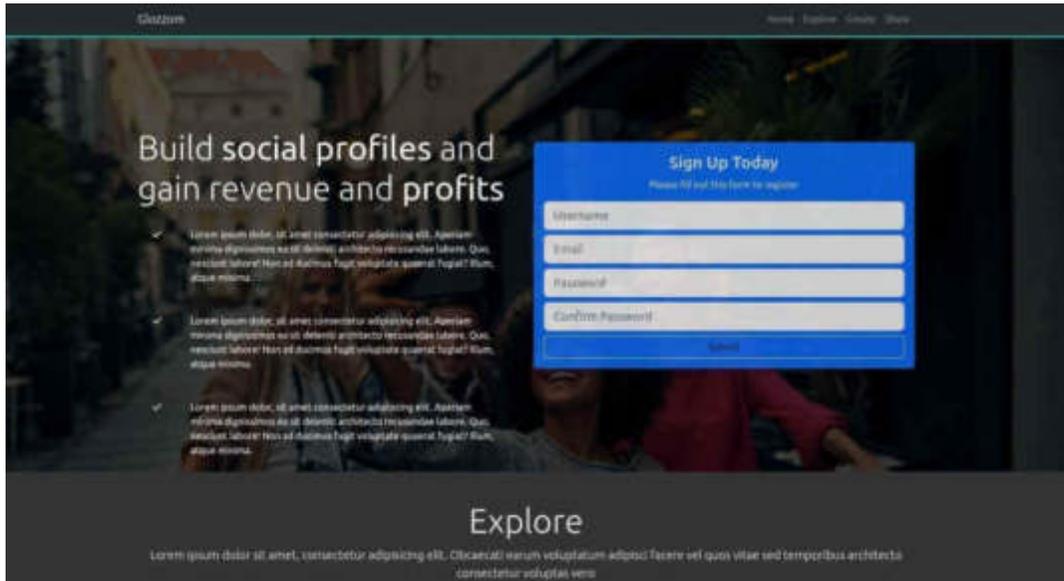
Output:

Fig 4.7 Bootstrap Project3 output

4.2.2 Tailwind Project:

(1) Portfolio

Fig 4.8 Tailwind Project1
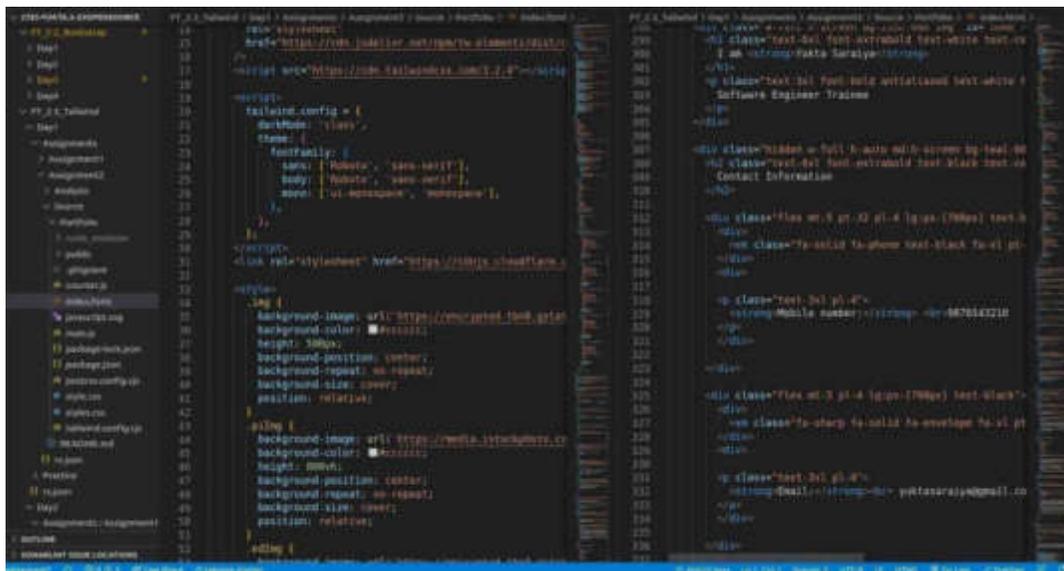
Fig 4.9 Tailwind Project1 output

(2) Layout using Tailwind

Fig 4.10 Tailwind Project2
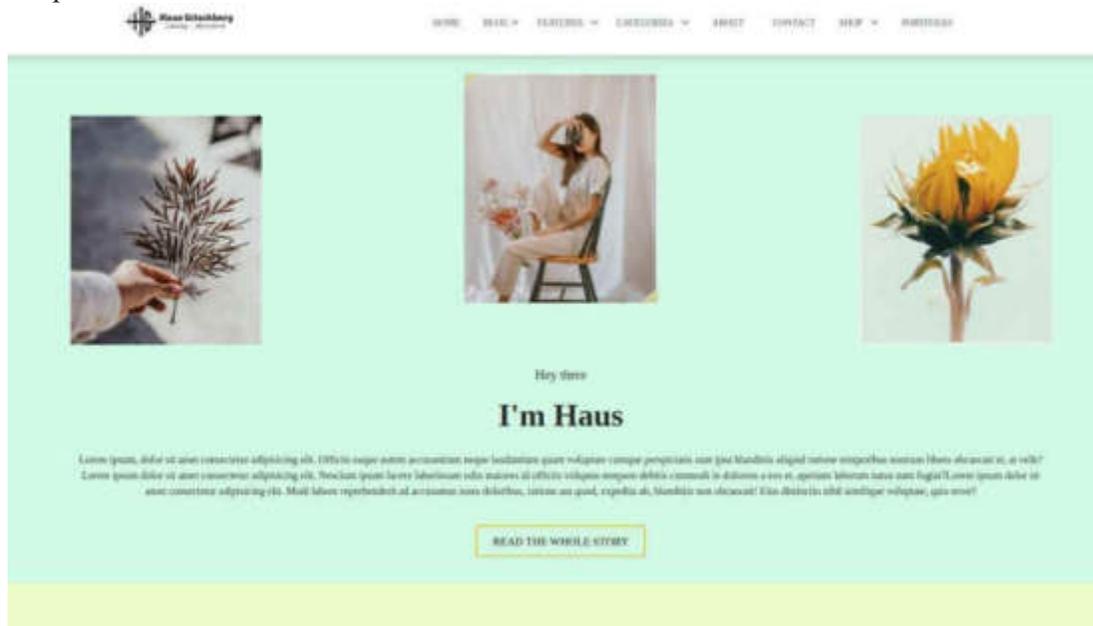
Output:

Fig 4.11 Tailwind Project2 output
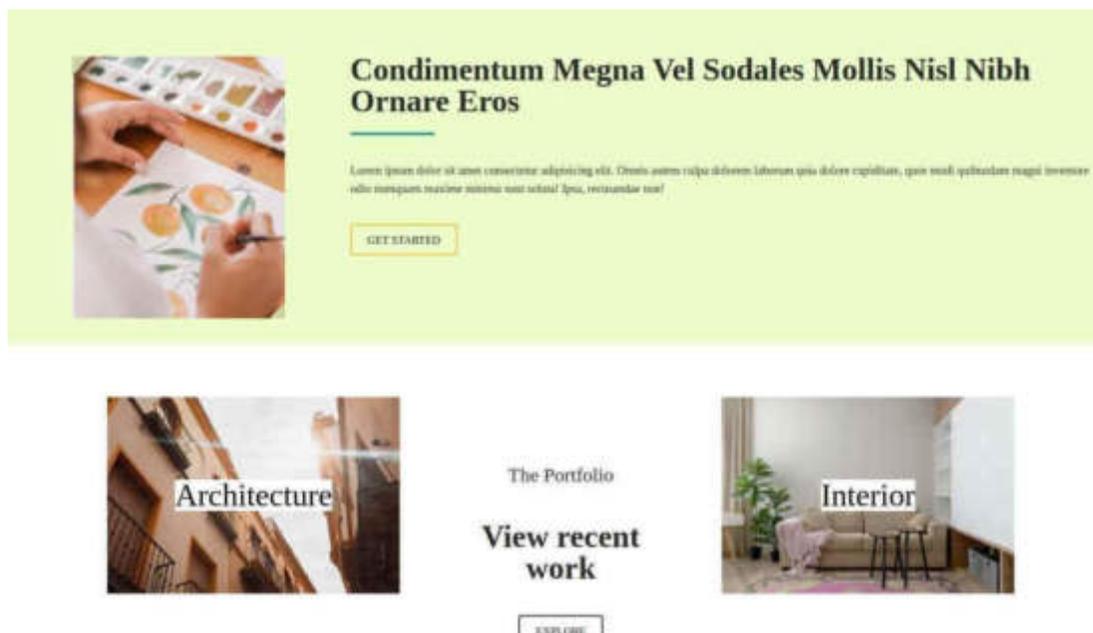
Fig 4.12 Tailwind Project2 output

Chapter 5. INTRODUCTION ON DOCKER

5.1 Introduction

Docker is a software platform that allows you to build, test, and deploy applications quickly.

It's an open-source platform.

It's used for developing, deploying, and managing applications in lightweight virtualized environments called containers.

Docker allows developers to package an application and its dependencies into a single container, which can then be easily distributed and deployed across different environments, such as development, testing, and production.

5.2 Image in docker

A Docker image is a read-only template that contains all the necessary files and instructions to create a container. It is a snapshot of a Docker container, including the application code, runtime, system tools, libraries, and configuration files.

A Docker image is created from a Dockerfile, which is a text file that contains a set of instructions for building the image. The Dockerfile specifies the base image to use, any additional software to install, environment variables to set, and other configurationdetails.

5.3 Container in docker

A container is a standard unit of software that packages up code and all its dependencies so the application runs quickly and reliably from one computing environment to another. A Docker container image is a lightweight, standalone, executable package of software that includes everything needed to run an application: code, runtime, system tools, system libraries and settings.

Container images become containers at runtime and in the case of Docker containers – images become containers when they run on Docker Engine. Available for both Linux and Windows-based applications, containerized software will always run the same, regardless of the infrastructure. Containers isolate software from its environment and ensure that it works uniformly despite differences for instance between development and staging.

5.4 Project

Fig 5.1 Docker Project1

Fig 5.2 Docker Project2

Chapter 6. INTRODUCTION OF JAVASCRIPT

6.1 Introduction

JavaScript is based on several core concepts, including variables, data types, functions, and control structures. Variables are used to store data, while data types define the type ofdata being stored.

Functions are blocks of code that perform specific tasks, and control structures are used to determine the flow of the program. These core concepts form the foundation of JavaScript programming and are essential for creating complex applications.

JavaScript is a versatile language that supports both procedural and object-oriented programming paradigms. Object-oriented programming allows developers to create reusable code by encapsulating data and functionality into objects.

In JavaScript, objects can be created using constructor functions or classes. These objects can then be used to create instances that inherit properties and methods from their parent objects, making it easier to manage complex applications.

6.2 Projects

(1) Create an application for performing basic math operations like Addition, Subtraction, Multiplication and Division.

Fig 6.1 JavaScript Project1

Output:

Fig 6.2 JavaScript Project1 output

(2) Design a form for storing employee details with validation.

Fig 6.3 JavaScript Project2

Output:

Fig 6.4 JavaScript Project2 output

(3) CRUD Application

Fig 6.5 JavaScript Project3

Output:

Fig 6.6 JavaScript Project3 output

Chapter 7. INTRODUCTION OF jQuery

7.1 Introduction

jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, and animation much simpler with an easy-to-use API that works across a multitude of browsers.

One of the key features of jQuery is its ability to select elements in the DOM using CSS-like selectors. This allows developers to easily manipulate the content of a page without having to write complex JavaScript code.

7.2 DOM Manipulation with jQuery

jQuery provides a number of methods for manipulating the DOM. These methods allow developers to add or remove elements from a page, change the content of existingelements, and modify the attributes of elements.

For example, the .html() method can be used to set the HTML content of an element, while the .attr() method can be used to get or set the value of an attribute on an element.

7.3 Event Handling with jQuery

jQuery makes it easy to handle events such as clicks, mouseovers, and key presses. The .on() method can be used to attach event handlers to elements on a page.

In addition, jQuery provides a number of shortcut methods for common events, such as .click(), .hover(), and .keypress(). These methods make it easy to quickly add interactivity to a page.

7.4 Projects

(1) CRUD Application using jQuery

Fig 7.1 jQuery Project1

Output:

Fig 7.2 jQuery Project1 output

Chapter 8. INTRODUCTION OF TYPESCRIPT

8.1 Introduction

TypeScript is a superset of JavaScript that adds optional static typing and other features to the language. It was developed by Microsoft in 2012 and has since gained popularity among developers for its ability to catch errors at compile-time rather than runtime. TypeScript code can be compiled into plain JavaScript, making it compatible with all JavaScript environments.

The benefits of using TypeScript include improved code quality, better maintainability, and increased productivity. By adding type annotations to variables, functions, and classes, developers can catch errors early and write more robust code. TypeScript also provides advanced features like interfaces, generics, and decorators that allow for more expressive and modular code.

8.2 TypeScript vs JavaScript

TypeScript and JavaScript are similar in many ways, but there are some key differences. One of the main differences is that TypeScript is a statically typed language, while JavaScript is dynamically typed. This means that TypeScript requires developers to declare the data types of variables, while JavaScript does not.

Another difference between TypeScript and JavaScript is that TypeScript supports object- oriented programming concepts such as classes and interfaces, while JavaScript does not. TypeScript also has a more advanced module system than JavaScript, making it easier to organize and reuse code.

8.3 Projects

(1) Store 5 employees' data in one array (ID, FirstName, LastName, Address, Salary). Do the operation searching by indexnumber, EmployeeID, Insert the employee, delete the employee from the Array.
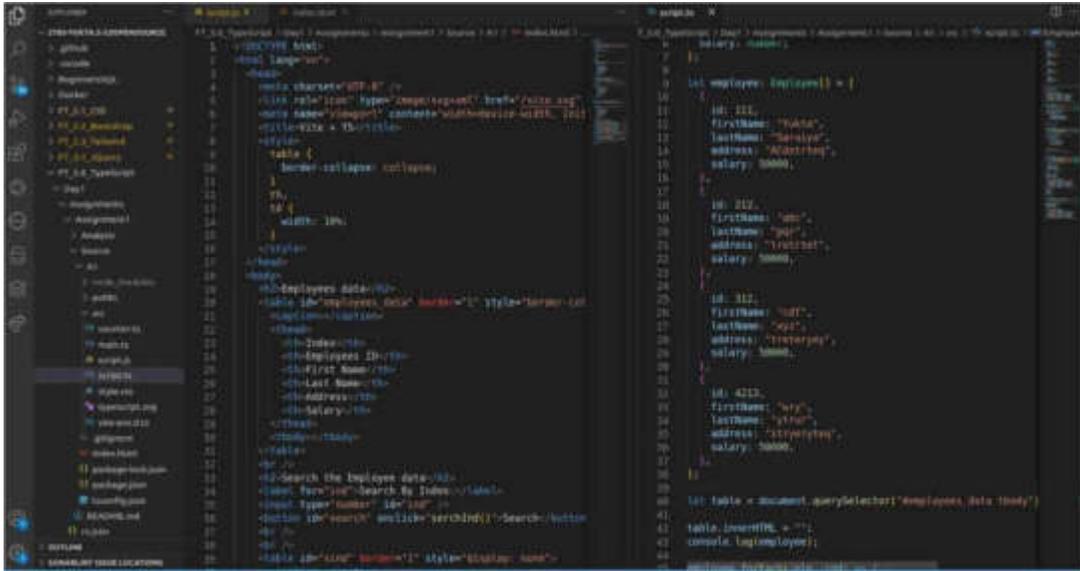
Fig 8.1 TypeScript Project1

Output:

Employees data

Index	Employees ID	First Name	Last Name	Address	Salary
0	111	Yukta	Saraiya	ACdstrteq	50000
1	212	abc	pqr	tretrtet	50000
2	312	cdf	xyz	treteryey	50000
3	4213	wry	ytrur	stryeryteq	50000

Search the Employee data

Search By Index: 2 [Search]

Employees ID	First Name	Last Name	Address	Salary
312	cdf	xyz	treteryey	50000

Search By Employee ID: 111 [Search]

Employees ID	First Name	Last Name	Address	Salary
111	Yukta	Saraiya	ACdstrteq	50000

Insert the Employee data

Employee ID: [Employee ID]

First Name: [First Name]

Last Name: [Last Name]

Address: [Address]

Salary: [Salary]

[Add Data]

Delete the Employee data

Delete Employee Data using Employee ID: [   ] [Delete Data]

Fig 8.2 TypeScript Project1 output

(2) Store 5 Employee Data(ID, Name, City, DOJ) in one Array. Search the employee with ID. Search the employees who has joined after year 2020. Search the employee who has joined after year 2020 and stays in Mumbai city.

Fig 8.3 TypeScript Project2

Output:

Fig 8.4 TypeScript Project2 output

(3) There is a retail shop which need to manage the inventory, whenever some purchase is being made product quantity should be reduced, if quanity is less than 5 reorder request should be raised.

Fig 8.5 TypeScript Project3

Output:

Fig 8.6 TypeScript Project3 output

Chapter 9. INTRODUCTION OF SQL

9.1 Introduction

SQL (Structured Query Language) is a programming language used to manage and manipulate relational databases. It allows users to insert, update, delete, and query data in a database.

SQL is widely used in various industries such as finance, healthcare, and e-commerce. It is an essential skill for data analysts and data scientists.

9.2 Basic SQL Commands

The basic SQL commands are SELECT, INSERT, UPDATE, and DELETE. The SELECT command retrieves data from a database based on certain conditions. The INSERT command adds new data to a database. The UPDATE command modifies existing data in a database. The DELETE command removes data from a database.

In addition to these basic commands, SQL also has other commands such as CREATE TABLE, ALTER TABLE, and DROP TABLE that allow users to create, modify, and delete tables in a database.

9.3 SQL Functions

SQL functions are built-in functions that perform calculations or operations on data in a database. Some common SQL functions include AVG, SUM, COUNT, MIN, and MAX. The AVG function calculates the average value of a set of numbers. The SUM function calculates the total sum of a set of numbers. The COUNT function counts the number of rows in a table. The MIN function finds the minimum value in a set of numbers. The MAX function finds the maximum value in a set of numbers.

SQL also has string functions such as CONCAT, SUBSTRING, and UPPER that allow users to manipulate text data in a database.

9.4 SQL Joins

SQL joins are used to combine data from two or more tables in a database. There are several types of SQL joins such as INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL OUTER JOIN. An INNER JOIN returns only the rows that have matching values in both tables. A LEFT JOIN returns all the rows from the left table and the matching rows from the right table. A RIGHT JOIN returns all the rows from the right table and the matching rows from the left table. A FULL OUTER JOIN returns all the rows from both tables.

SQL joins are important for data analysis because they allow users to combine data from multiple sources and perform more complex queries.

9.5 SQL Stored Procedure

A stored procedure is a prepared SQL code that you can save, so the code can be reused over and over again.

So if you have an SQL query that you write over and over again, save it as a stored procedure, and then just call it to execute it.

You can also pass parameters to a stored procedure, so that the stored procedure can act based on the parameter value(s) that is passed.

Chapter 1 0 . INTRODUCTION OF REACTJS

10.1 Introduction

ReactJS is a popular JavaScript library used for building user interfaces. It was developed by Facebook and has gained popularity due to its simplicity, scalability, and performance.

During my internship, I had the opportunity to work on several projects using ReactJS. I was impressed with how easy it was to write code and create reusable components.

10.2 Benefits of Using ReactJS

One of the main benefits of using ReactJS is its component-based architecture. This allows developers to create reusable UI components that can be easily integrated into different parts of an application.

Another benefit is its virtual DOM (Document Object Model) which allows for faster rendering and updates. This means that changes made in one part of the application are quickly reflected in other parts without having to reload the entire page.

10.3 Project

(1) Product app

Fig 10.1 Product App

Output:

Fig 10.2 Product App

Chapter 11. Introduction of the Project

11.1 Overview of the Project

News app is help us to get the live the news of categories like Entertainment, Sports, Health, Science, and Technology. The News API website and get a lot of the latest news categories, which you can use in my application.

11.2 Problem Definition

On social media, there is a lot of fake news. A news app allows users to easily access relevant and significant news every day, and the news is not fake because it is obtained from reliable sources. As more people read news on their smartphones and tablets, it is becoming increasingly important to customize news app experiences so that awareness can be spread to read a news whenever they have time to read a news and good user interface attract people to come and read a news.

11.3 Objectives

- User can browse news articles through various categories. App will enable user to view news details and images.

- The purpose of the project is to reduce the paper waste and user can see live news from anywhere and anytime.

11.4 Project Outcome
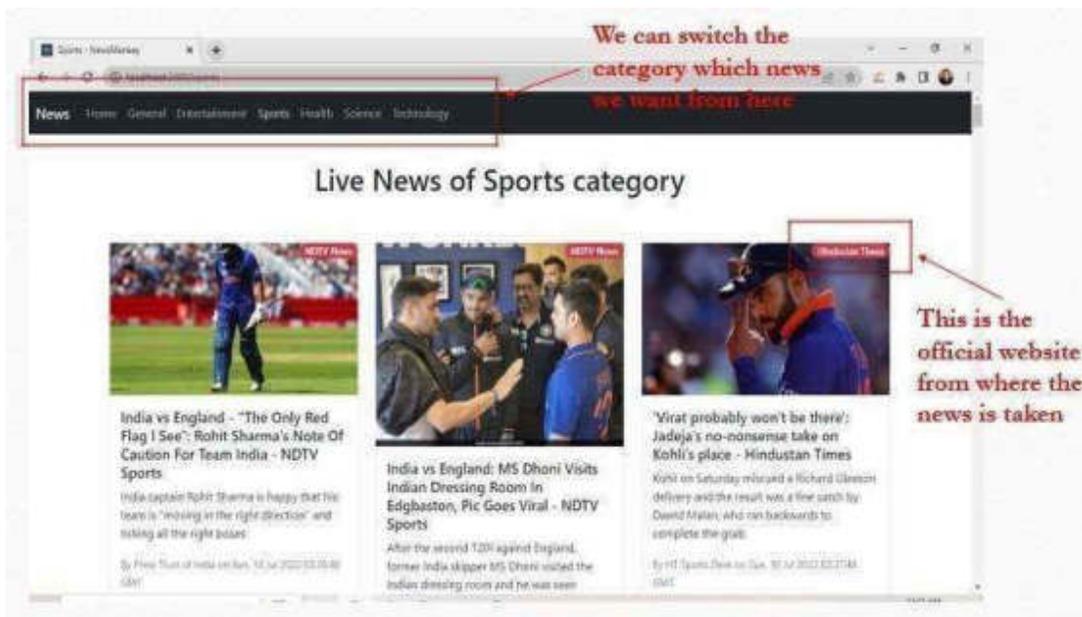
Fig 11.1 News App Project Output
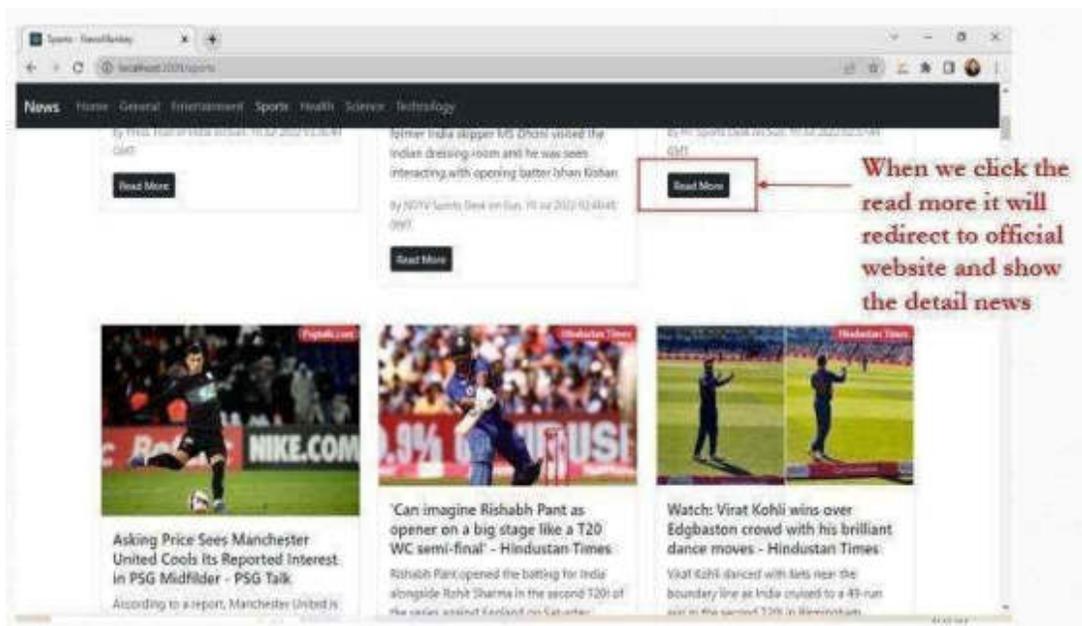
Fig 11.2 News App Project Output

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INTERNSHIP AT ALPHAVED PVT. LTD

AN INTERNSHIP REPORT

Submitted by

Harsh Falgunbhai Savaliya

190390116044

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 AlphaVed Private Limited** has been carried out by **Harsh Falgunbhai Savaliya** 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. Upasana Leela   Prof. Akhsay Kansara

Internal Guide   Head of Department

Date: May 12, 2023

Internship Completion Certificate

This is to certify that **Mr. Harsh Salaviya,** Student of **S.P.B Patel Engineering College, Mehsana** has successfully completed his internship in the role of **App Developer** at **Alphaved Pvt Ltd.** The internship start date was **5th December, 2022** and end date was **30th April, 2023.**

During the internship Harsh worked in various areas of App development focusing on Class and Functional Component, React Native Redux, Navigations, Firebase, Aws, Hooks. He worked sincerely at his tasks and did a very good job.

Harsh shows a lot of skill in his work and we found him to be extremely curious and hardworking. His association with us was beneficial and we wish him all the best in his future endeavors.

Should have any questions regarding the internship specifics. You are requested to contact us via email at hr@alphaved.com or you can contact us at +91 9737505533.

Sincerely,

For, Alphaved Pvt Ltd

Pratik Khunt

Pratik Khunt
Director

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 AlphaVed Private Limited** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bona fide record of original project work carried out by me under the supervision of **Prof. Sushma Sainwar** & **Mr. Pratik Khunt (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 Falgunbhai Savaliya**   _____

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 : 17 May 2023 (15:27:35)

This is to certify that, *Savaliya Harsh Falgunbhai* (Enrolment Number - 190390116044) working on project entitled with *Internship at "AlphaVed Private Limited"* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student : Savaliya Harsh Falgunbhai

Name of Guide : Miss. Sushma Sainwar

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

<u>Abstract</u>

This report presents the summary of the end-of-internship carried out at **AlphaVed.** The scope of this document is to describe the experience gained and it focuses on the achievements as an intern.

During the internship, I was involved in a variety of tasks and projects, which provided me with a comprehensive understanding of the company's operations and the challenges faced in the industry. I had the opportunity to work alongside a team of professionals who were dedicated as well as passionate about their work, and who were always willing to share their knowledge and expertise with me**.**

It also describes the training obtained during this period that I went through a mobile application building technology i.e. React Native. It shows the aspects as well as the implementation.

Abbreviations

Symbol	Description
RN	ReactNative
JS	JavaScript
TS	TypeScript
FB	FireBase
GIT	Global Information Tracker
API	Application Programming Interface
NPM	Node Package Manager

Contents

1. CHAPTER 1. Introduction

1.1 COMPANY PROFILE:

AlphaVed was founded with a vision to implement a wide range of software solutions to clients who have an eye for superior quality software. Our mission is to deliver the best possible reliable software to help our clients improve IT efficiency and business profitability.

We are experts in iOS, Android and Web Technologies. We have a young, dynamic and energetic group of developers, trying their best to make the world a better place for you by making quality applications. Our dedicated team for each technology is ready to serve you for your next project, get in touch with your requirements.

We stand on the pillars of vision & culture we have adopted in this era for technological advancements. We believe in collaboration of the efforts, alignment of goals, people we work with, and trust relationship with clients.

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1.2 Industry Specific Solutions of the Company:

- Healthcare Sector Solutions

- Sports Sector Solutions

- Transportation Industry Solutions

- Rental Management Industry Solutions

1.3 Scope of Work

- Mobile Application Development

- Web-App Development

- UI-UX Services

2. CHAPTER 2. Overview of Different Departments

2.1 Life Cycle of a project in AlphaVed
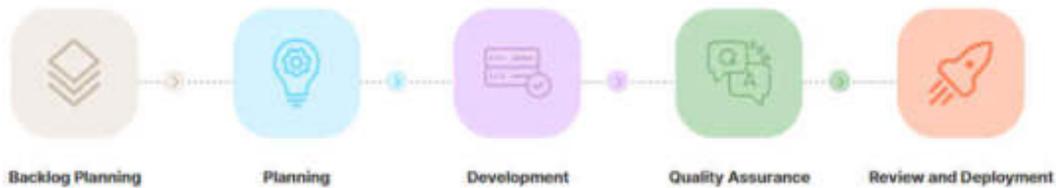
Fig 2.1 Agile Process

2.1.1 Mobile Application Development

At AlphaVed, we provide comprehensive custom mobile app development services, helping businesses create and develop mobile apps that encourage user engagement and help them establish brand loyalty. We follow an elaborate process that includes multiple stages of development, testing, deployment, and more. We utilize the latest technology in the market to ensure that it keeps up with the dynamic nature of technology in your business domain.

From native Android to iOS apps, AlphaVed develops high-functioning mobile applications services for businesses, creating the right balance between visuals, functionality, and ease of use to ensure that end users have phenomenal experiences using them.

- Native iOS App Development
- Native Android App Development
- Cross-platform App Development
- Wearable App Development
- React Native App Development
- Flutter App Development

2.1.2 Web App Development

The first point of contact between your business and potential online clients is your website. If it is slow, outdated, and has generic visuals, it will reflect poor service quality and drive hundreds of leads away, even if you provide the best services in your industry.

Web Technology We Use

PHP	.NET	Java	Wordpress	Laravel	Magento
HTML5	Angular Js	Node Js	MsSQL	Mongo DB	

At Unikwork, we understand the importance of quality websites in establishing your business online, and we are ready to help you develop websites that give your business authority in the industry you serve.

- Custom Website Development
- Web Application Development
- eCommerce Store Development
- Custom CRM/ERP Software Apps
- Full-Stack Development
- Responsive Web Apps
- Progressive Web Apps
- Bespoke CMS Development

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2.1.3 UI-UX Services

Create Unparalleled Experiences for Your Product Users - It is no secret that products that take long to respond drive even the most patient users away, especially when paired with aesthetically repulsive designs. At Unikwork, we help businesses like yours create unique digital experiences for their product users, drawing from the creativity, innovation, and expertise of our experienced UI/UX designers and developers.

From using the right visuals that align with your brand identity to integrating innovative features that improve the functionality of your products, our team works in close collaboration with you to ensure that we create premium quality designs that meet your business needs.

- Wireframes Designing
- Strategic Design Consulting
- High/Low fidelity Prototype
- Mobile App Design
- Responsive Web Design
- Information Architecture
- UX Analysis
- UI Design

3. CHAPTER 3. Internship and Project Overview

3.1 Internship Summary

- Internships are short-term work experiences offered by organizations to provide practical training and professional exposure to students and recent graduates. They typically last a few weeks to a few months and can be part-time or full-time. Internships serve several purposes. First, they offer students and graduates an opportunity to apply their academic knowledge in a real-world setting, gaining hands-on experience and practical skills. Second, internships allow individuals to explore different industries and career paths, helping them make informed decisions about their future. Third, internships provide networking opportunities and allow interns to establish professional connections within their chosen field. Finally, internships often serve as a pathway to full-time employment, as many companies use internships as a recruitment strategy to identify and groom potential talent.

- During my internship, I had the opportunity to work at AlphaVed Private Limited as an Application Developer -Trainee. The internship program focused on providing comprehensive training in technical skills and soft skills beyond what we had learned in college. It aimed to maximize knowledge dissemination among interns while offering practical experience in the field.

- Throughout my 12-week internship at Alphaved, I acquired an in-depth understanding of the intricacies involved in the Application Development industry. I had the opportunity to contribute to diverse projects and work with a range of technologies, enabling me to apply and enhance my existing knowledge.

3.2 Internship Planning Chart

Sr No	React Native Tasks
1	Learn Javascript
2	Setup of React-native CLI in mac and windows
3	Create React native project with command line(use in terminal)
4	Learn to install node modules
5	Learn components of React native like View,Text,TextInput,Button and so on
6	Learn react-native life cycles. Ex.mount,unmount..
7	Learn React native navigation
8	Learn how to Implement tab bar and customise in React native
9	Learn how to implement Drawer and customise in react native
10	Learn how to apply permission in react native android and ios
11	Learn how to pass data to another screen
12	Learn how to use camera,audio, video in react native
13	Learn basic animation using Animated
14	Learn how to fetch data from api
15	Learn how to customise fonts in project
16	Learn difference between class and function component
17	Learn typescript and ES6 in react native
18	Learn how to get current location in react native
19	Learn to manage pop-up dialog box, modal view in react native
20	Learn to use validation in react native
21	Learn to use loops in react native
22	Learn Redux structure
23	Learn how to use axios in react native for api
24	How to implement firebase in react native
25	how to implement firebase analytics, cloud firestore, cloud messaging in react native
26	How to implement local and push notification with or without firebase
27	How to implement social login in react native using firebase
28	Learn deeplinking in react native

29	Learn how to upload and download files in react native
30	Learn how to use Localization in react native
31	Learn to implement local database, SQlite database in react native
32	Learn how to change splash screen, app icon in react native
33	Learn how to implement listener and remove from the screen in react native
34	Learn how to implenent Mapview in react native
35	Learn how to make debug and release apk through terminal for android
36	learn to implement stripe payment and payment gatway in react native
37	Learn how to implement in-app purchasing in react native
38	Learn Sugar.js and underscorejs.js

3.3 Internship Objective

- The main objectives of internships in programming fields are skill development, professional exposure, networking, resume building, industry insights, and transitioning to full-time employment.

- Skill Development: Internships provide practical experience and an opportunity to develop technical skills in programming languages, software development methodologies, and tools commonly used in the industry.

- Professional Exposure: Internships allow students or aspiring programmers to gain exposure to real-world work environments and understand the expectations and requirements of the industry. This exposure helps in developing professional etiquette, teamwork, and communication skills.

- Networking: Internships offer opportunities to connect and build relationships with professionals in the field, including mentors, colleagues, and potential employers. Networking can provide valuable insights, guidance, and future job prospects.

- Resume Building: Internship experiences enhance a resume by demonstrating practical knowledge and industry-relevant skills. They serve as concrete evidence of a candidate's abilities and commitment to professional growth.

- Industry Insights: Through internships, individuals can gain firsthand knowledge about the challenges, trends, and innovations within the programming field. This understanding can help them make informed decisions about their career path and specialization.

- Transition to Full-Time Employment: For many interns, the ultimate objective is to secure a full-time job offer upon completion of their internship. Internships often serve as a pathway to permanent employment by providing an opportunity for employers to assess the intern's performance and suitability for long-term positions.

3.4 Technology Used

- React-Native
- CSS
- JavaScript
- Redux

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3.5 Internship Detail

- Instead of working on a single project, I got the opportunity to work on more than one project.

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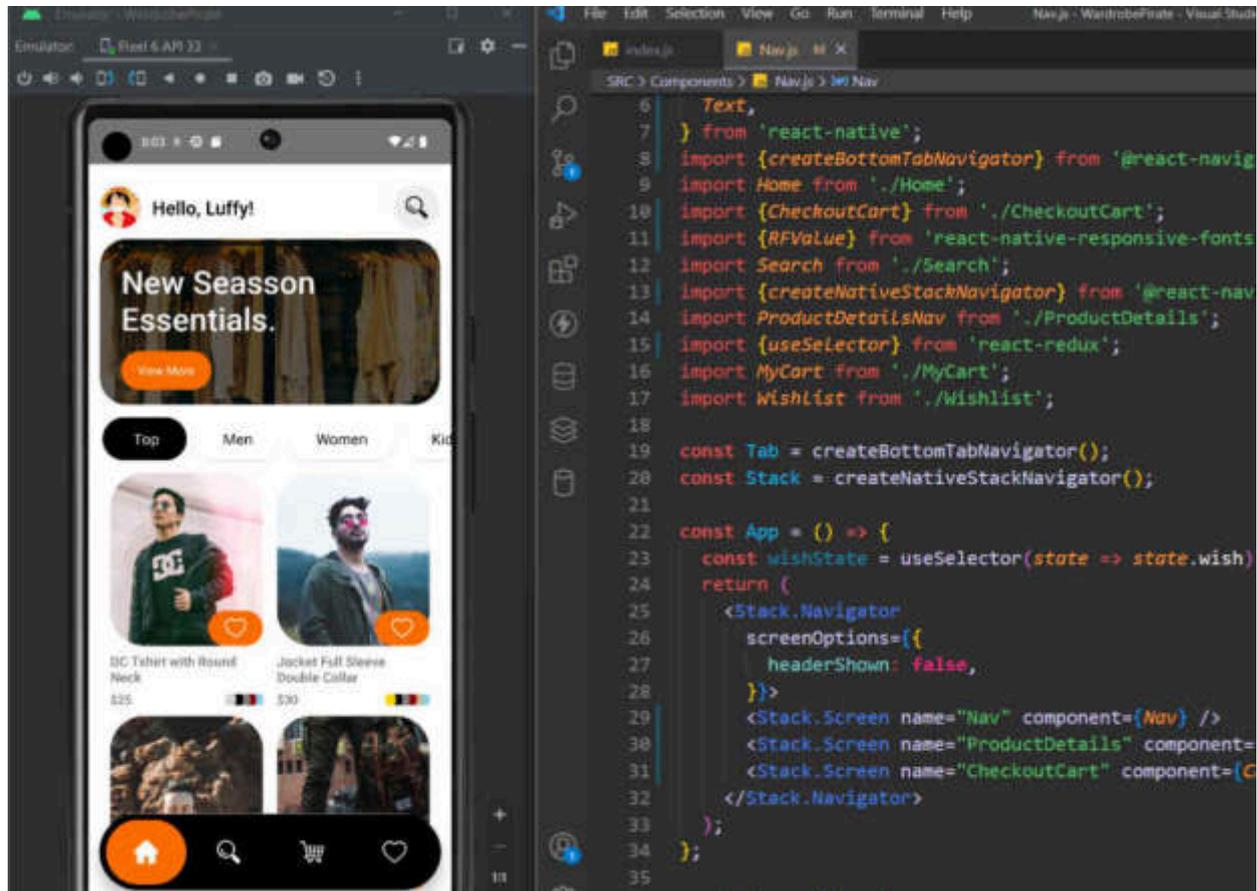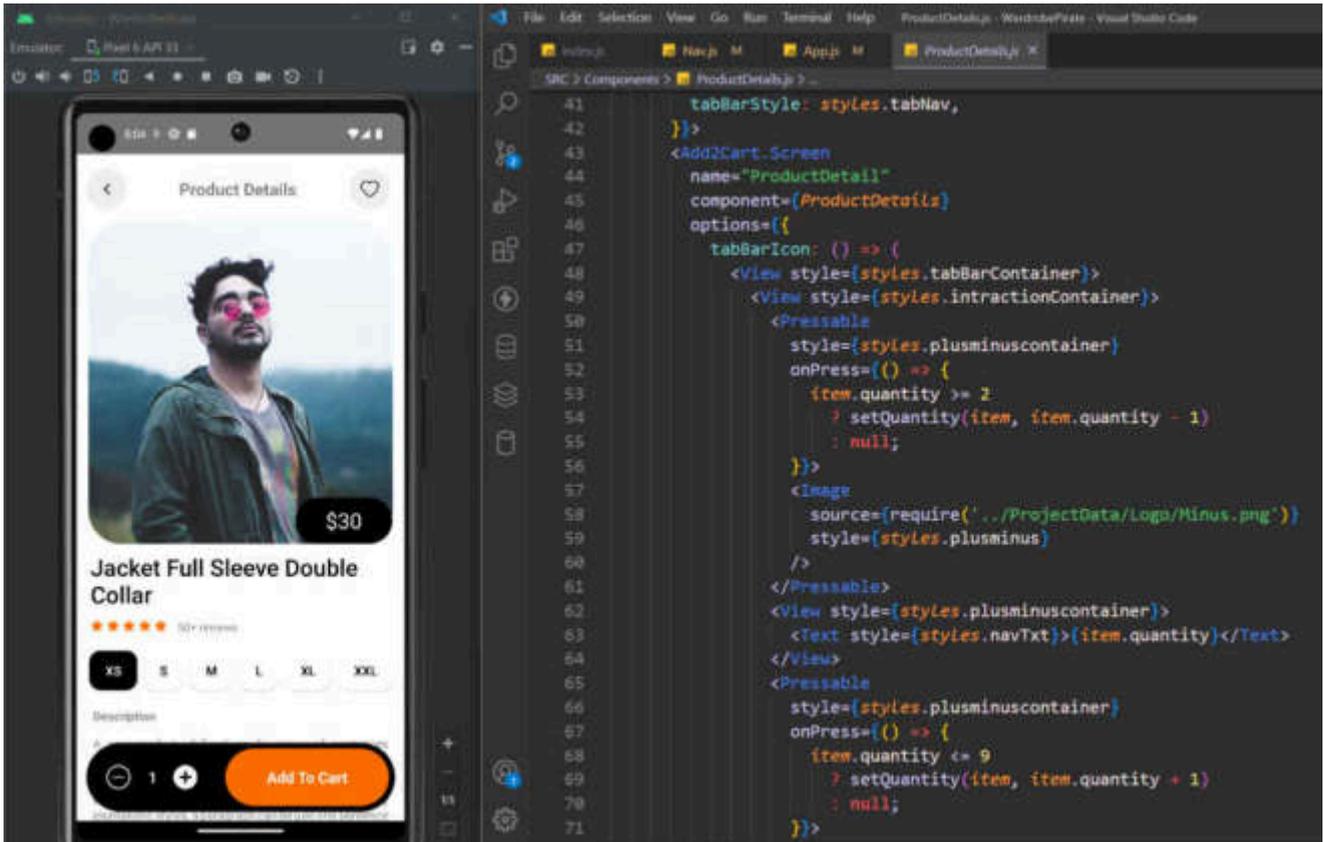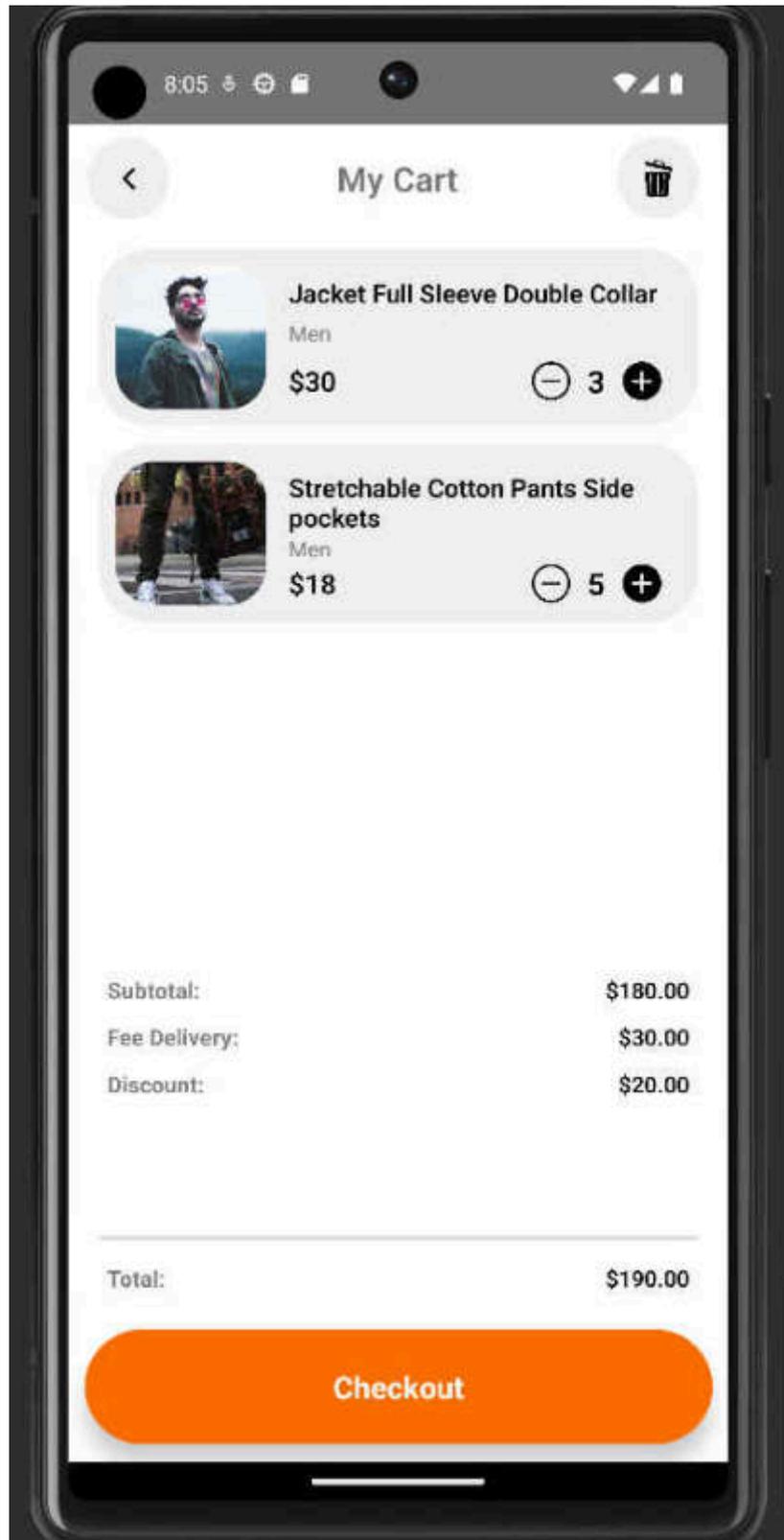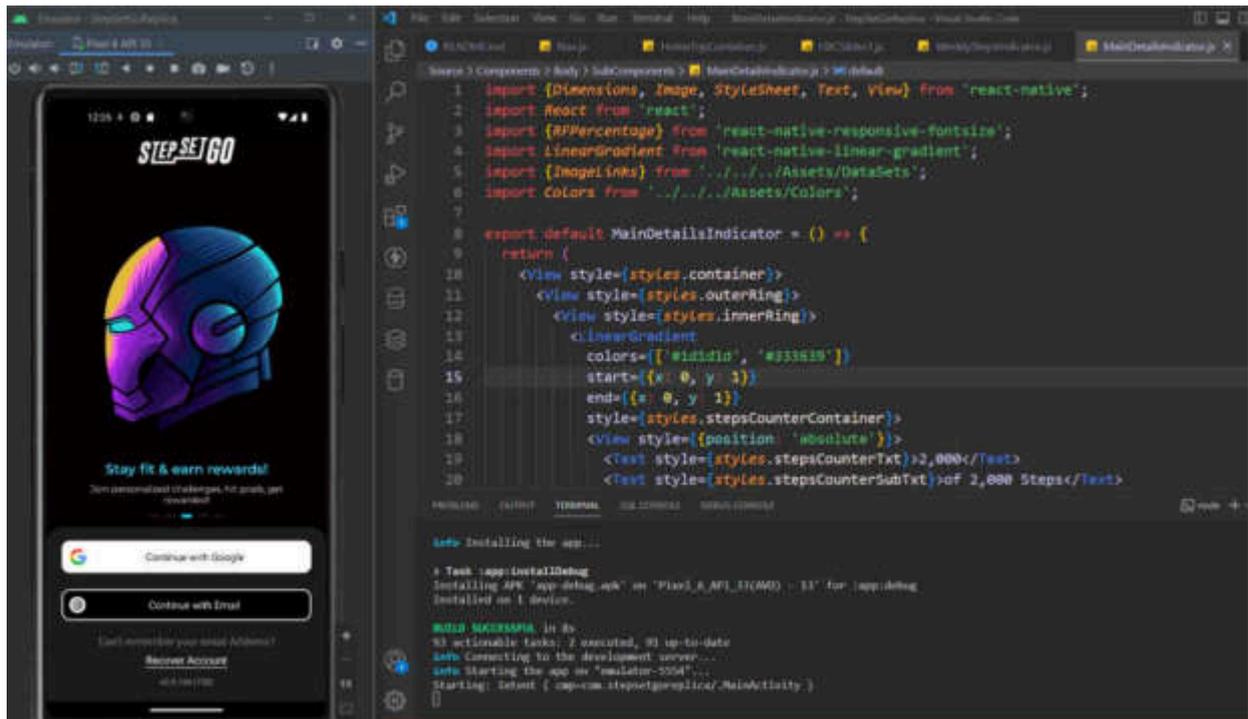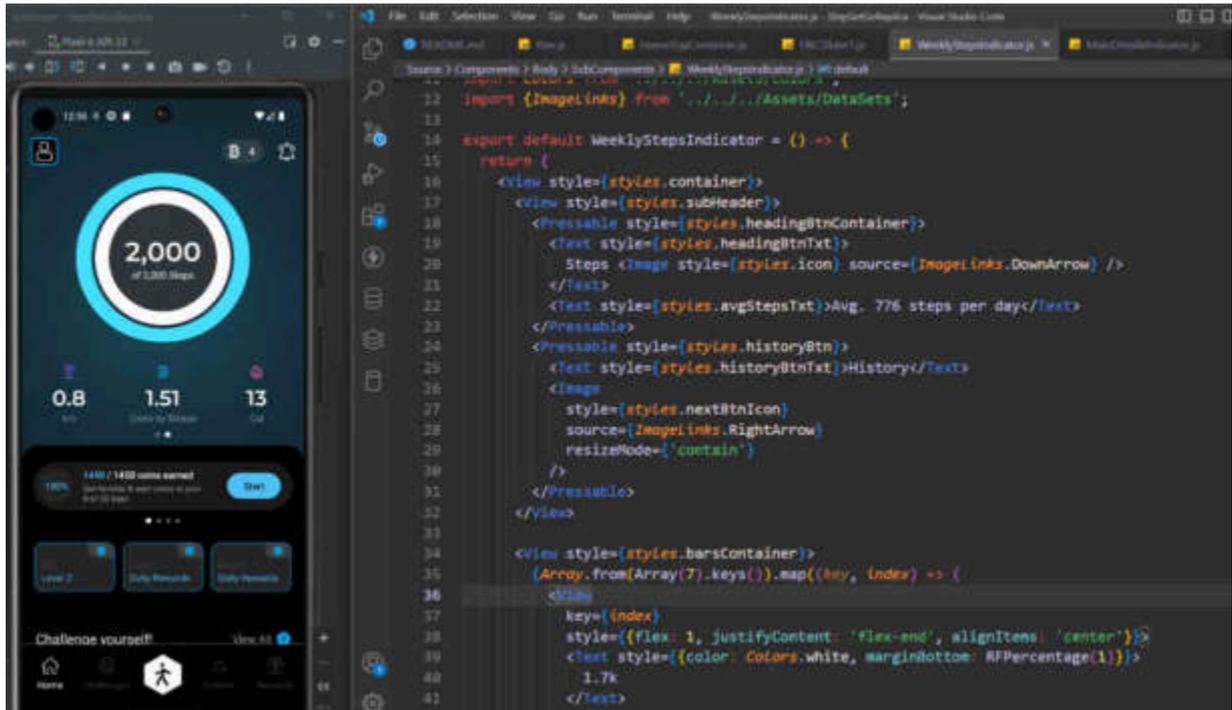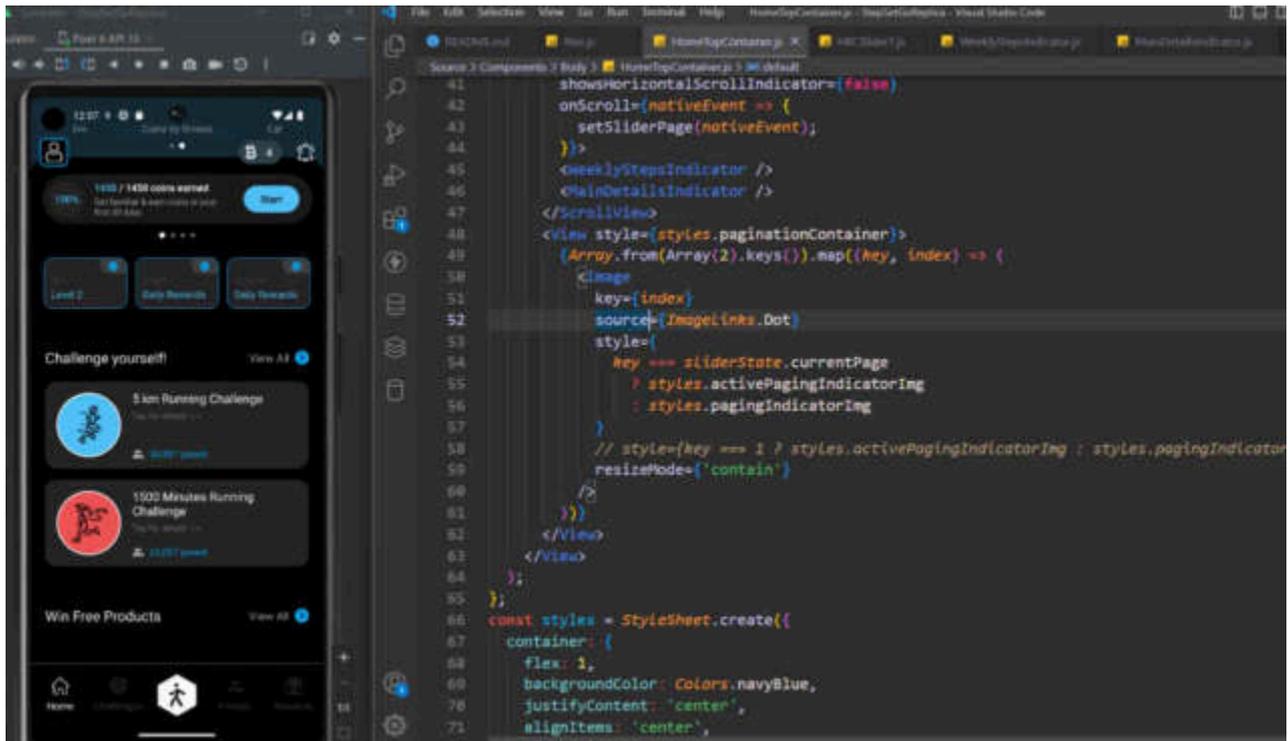
4. CHAPTER 4. Feasibility Study

A feasibility study suggests whether or not the proposed software project is feasible. When a need for software develops, we must first assess specific data to determine whether or not the program is worthwhile, which is referred to as a feasibility study.

The feasibility study analyzes whether or not the software project can be completed technically, organizationally, and commercially, among other factors. Each organization, on the other hand, conducts the feasibility study in a unique manner. Other people do it meticulously and methodically, while others do it on the spur of the moment, and some people don't do it at all.

The main aspect of the feasibility study for software development is to assess the project's viability and determine whether it can cause problems or not in the future. A feasibility study involves collecting and analyzing data from various sources like surveys, technical reports, risk assessments, etc.

4.1 Technical Feasibility

- Technical feasibility study determines whether the technology that we are using and the team will be able to accomplish or complete the software or not. The key issues that must be addressed during the technical feasibility study.
- Both apps built using React Native are the assessment of the application's functionality, scalability, and performance with several different scenarios.
- The Application should give optimal performance for all time to get better UX feedback for customers as well as for companies.

4.2 Operational Feasibility

- Though the software project is feasible from the technical aspect, what if you need to make major organizational changes. It will make things more complex. To check if the software is organizationally or operationally feasible. The system is very easy to use and operate.

4.3 Economic Feasibility

For software to be economically feasible the cost expended to develop the software must exceed its benefits. The assessment involves identifying the costs associated with

- Developing and maintaining the app.
- Identifying potential revenue streams.
- Estimating the size of the target market.
- Cost invested in Installation of the software.
- The cost required in operating the software

5. CHAPTER 5. Conclusion and Future Work

5.1 Conclusion

- The internship under the Company name helped me to learn Project Development, Project Management, and Testing in a corporate environment.
- I have worked on a mobile application that could be used for several use cases and connect users and our clients closely.
- The application provides a platform to convert clients with websites and with functions it is scalable as well.
- This application is built using technologies like React-Native, CSS, JavaScript, Redux and Firebase.

5.2 Future Work

- We can further provide directions inside MAP to navigate the available products location from their specific location.
- We can integrate a 3D model which can give an idea of how a product would look.
- Rather than directly calling screens, we can call the specific API to get data and use that data to develop a Screen and make the UI better.
- Analytics data can be improved to get more specific like to get location constantly and what age group the user falls in.

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References

1. "React-Native" Reference is Available:

   https://reactnative.dev/docs/getting-started

2. "Redux" Reference is Available:

   https://redux.js.org/introduction/getting-started

INTERNSHIP AT IBM SkillsBuild

AN INTERNSHIP REPORT

Submitted by

Krisha.N.Sheth

190390116045

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 **BrainStroke Analysis at IBM SkillBuilds along in connection with CSRBOX Foundation** has been carried out by **Krisha Nilesh Sheth** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology , 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushma Sainwar   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

Date: 26/04/2023

TO WHOM IT MAY CONCERN

This is to certify that Krisha Sheth, a student of Saffrony Institute of Technology has successfully completed her 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

Her 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 her internship program with us, she had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish her every success in her life and career.

For CSRBOX

Ms. Anjali Verma
Associate Consultant- IBM SkillsBuild
For IBM SkillsBuild (CSRBOX Foundation)
806-808, Shivalik Satyamev
Bopal, Near Vakil Saheb Bridge Ahmedabad,
Gujarat, India 380051

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 : 19 May 2023 (20:51:14)

This is to certify that, *Sheth Krisha Nilesh* (Enrolment Number - 190390116045) working on project entitled with **Brain Stroke Analysis** from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student :   Sheth Krisha Nilesh   Name of Guide :   Miss. Sushma Sainwar

Signature of Student : _____   *Signature of Guide : _____

Disclaimer :
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*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 / Project report submitted along with the Internship / Project entitled **IBM SkillBuilds along in connection with CSRBOX Foundation** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushma Sainwar & 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.   **Krisha Nileshbhai Sheth**   _____

ACKNOWLEDGMENT

First I would like to thank my University, for giving me the opportunity to do an internship within the organization. I would like to thank my constant meeting guide Mr.Tushar sharma &Ms. Alka for constantly reviewing the reports, solving our external doubts and guiding me.I would also like to thank Ms. Sharda Sharma,Project Manager at IBM. It is indeed with a great sense of pleasure and immense gratitude that I acknowledge the help of these individuals. I would like to thank my Head of the Department Mr. Akshay Kansara for his constructive criticism throughout my internship. I would like to thank Miss. Upasana Leela, College internship coordinator Miss. Sushma Sainwar, internship coordinator Department of Information Technology for their support and advice to get and complete internship in above said organization. I am extremely grateful to my department staff members and friends who helped me in successful completion of this internship.

.

Krisha Nileshbhai Sheth
(190390116045)

Abstract

This report is a detailed overview of my internship journey at IBMSkillBuild as a Data Analyst. During my Internship I have learned a lot about how the industry of machine learning, data science 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 workflow of Data Analyst roles and responsibilities. I have learned to work in a corporate space which not only enriched me professionally but also helped me grow personally as well. My contribution was appreciated by my supervisor and other members of the department. The career path I would be selecting for myself is quite influenced by my internship as I have had a great opportunity to practically see how the data analyst sector is working and evolving in the entire Globe. However, this report has been written in a short time. I have tried my level best to make it meaningful by reflecting my works at the Company. Also, I have summarized my overall experience, with my learning and challenges faced as an intern.

For survival prediction, our ML model uses a dataset to predict whether a patient is likely to get a stroke based on the input parameters like gender, age, various diseases, and smoking status. Unlike most of the datasets, our dataset focuses on attributes that would have a major risk factor of a Brain Stroke.

Key Words: Machine learning, Stroke, Classification, Supervised Learning.

List of Figures

List of Table

E-R Diagram Symbols :

Table 1. ER diagram Symbol

Entity	An entity is represented by a rectangle which contains the entity's name.
Weak Entity	An entity that cannot be uniquely identified by its attributes alone. The existence of a weak entity is dependent upon another entity called the owner entity.
Associative Entity	An entity used in a many-to-many relationship (represents an extra table). All relationships for the associative entity should be many
Attribute	In the Chen notation, each attribute is represented by an oval Containing attribute's name

Key attribute	An attribute that uniquely identifies a particular entity, the name of a key attribute is underscored.
Multivalue attribute	An attribute that can have many values (there are manydistinctvaluesenteredforitinthesamecolumnofthetable).Multivalued attribute is depicted by a dual oval.
Derived attribute	An attribute whose value is calculated (derived) from other attributes. The derived attribute may or may not be physically stored in the database. In the Chen notation, this attribute is represented by dashed oval.
Relationship	A relationship where entity is existence independent of other entities, and PK of Child doesn't contain PK component of Parent Entity. A strong relationship is represented by a single rhombus.
Relationship	A relationship where Child entity is existence dependent on parent ,and PK of Child Entity contains PK component of Parent Entity. This relationship is represented by a double rhombus.

Abbreviations

SRS -   Software Requirement Specification

DDS -   Design Document Specification

BMI -   Body mass index

SDLC -   Software Development Life Cycle

API -   Application programming interface

ML -   Machine Learning

Table of Contents

Chapter 1. INTRODUCTION

The purpose of this project "Brain Stroke Analysis" is early recognition of symptoms that can significantly carry valuable information for the prediction of stroke and promoting a healthy life. In this research work, with the aid of machine learning (ML), several models are developed and evaluated to design a robust framework for the long-term risk prediction of stroke occurrence.

1.1 Problem Statement

Annually, 15 million people worldwide suffer from stroke. Out of these, 5 million die and another 5 million are left permanently disabled, placing a burden on family and community. Stroke is uncommon in people under 40 years; when it does occur, the main cause is high blood pressure and smoking.

1.2 Purpose of Project

The main purpose of this project is to cure medicines by involving the doctors in it and to reduce the cost of various reports without affecting the one's health. Many machine learning models have been built to predict the risk of stroke or to automatically diagnose stroke, using predictors such as lifestyle factors or radiological imaging.

1.3 Overview

Stroke is one of the most serious diseases worldwide, directly or indirectly responsible for a significant number of deaths. Various data mining techniques are used in the healthcare industry to aid in the diagnosis and early detection of diseases. Current research considers several elements that lead to stroke. First, we examine the characteristics of those who suffer a stroke more often than others.The Dataset is from a freely available source and various classification algorithms are used to predict the onset of a stroke shortly. Using the Naïve Bays and Decision Tree, it was possible to achieve an accurate percent. Using various statistical techniques and principal component analysis, we identify the most important factors for stroke prediction. We conclude that age, heart disease, average glucose level, and hypertension are the most important factors for detecting stroke in patients.

The proposed system acts as a prediction support machine and will prove as an aid for the user with diagnosis. The algorithms used to predict the output have potential in obtaining a much better accuracy then the existing system. In the proposed system, the practical use of various collected data has turned out to be less time consuming.

1.4 Objective

The primary objective of the project is to create a comprehensive and efficient platform that provides a seamless experience to patients while doing lab report free. By achieving these objectives, the project aims to increase patients' satisfaction.

Advantages:
1. High performance and accuracy rate.
2. Data and information collected for prediction is easily available to the users.
3. Visualization of Data

1.5 Tools & Technology

Table 2. Tools and Technology

Tools and Technology	Version	Description
Visual Studio code	latest	Visual Studio Code is an integrated development environment made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git.
Python	3.11.2	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.
Jupyter Notebook	Latest	It is used to create & share documents with live code and equation, text & visualization.
Google Colab	Latest	Colab allows anybody to write and execute arbitrary python code through the browser, and is especially well suited to machine learning, data analysis and education.

Chapter 2. Project Scope

This system helps one to predict that there is any chance of them getting a brain stroke or not. This early detection can help them to prevent major suffering due to the late diagnosis.

- The decision tree model can be used for both classification and regression problems, and it is easy to interpret, understand, and visualize.
- Decision trees work better with lots of data compared to Naive Bayes.
- It handles both continuous and discrete data
- By taking these datasets and comparing with the patient's disease we will predict the accurate result of whether the patient has a Brain Stroke or not.
- The dataset for this study was obtained from the stroke trial database patient history, hospitalrecords, risk factors and symptoms are all included in.

Chapter 3. Model Requirements

3.1 Requirement of New System

Minimum Requirement of making this App:
1. Requires a 2.6 GHz or faster processor. Quad-core or better recommended Requires 4 GB of RAM or higher for load generation. Requires 10 GB of hard disk .
2. Minimum Requirement to run this App:google chrome: version 39.0.2171.99 4. Microsoft edge: version 79.0.309.11

3.2 Management requirements

1. Define the problem, the resources needed to solve it and possible limitations

2. Find key actors who have field knowledge of the problem at hand

3. Define the project scope

4. Define success metrics (both technical and business oriented)

5. Set soft/flexible deadlines

6. Give a global picture of how the development will be carried out (a general example that will fit most of the cases is provided further ahead)

7. Find internal champions that will promote your project

Chapter 4. Hardware & Software Requirements

4.1 Hardware Requirement

User-Side Hardware requirement

Table 3. Hardware Requirements

Device	Any computer device
Operating System	Windows
Hard Disk	500 GB

Apart from those we would require Python, Machine learning Libraries and flask support to run the application efficiently.

4.2 Non-Functional Requirements

Non-functional requirements are the requirements which are not directly concerned with the specific function delivered by the system. They specify the criteria that can be used to judge the operation of a system rather than specific behaviors. They may relate to emergent system properties such as reliability, response time and store occupancy. Non-functional requirements arise through the user needs, because of budget constraints, organizational policies, the need for interoperability with other software and hardware systems or because of external factors such as:

• Scalability
• Performance
• User Requirements
• Response time
• Maintainability
• Usability

Scalability
Analytics platform must be applicable to a machine or facility of any size. The solution must be able to add assets without a need for any incremental investment in hardware, software or dedicated labor hours.

Performance
The objective for an industrial analytics platform is to provide the production facility with accurate and timely data.

User Requirements
• There must be a user interface to configure the network.
• There must be an option for the user to select
• An option to view the performance parameters.

• The system should be user friendly, so that the client application is available at the system tray and the user has to just click to select any options.

Response Time
The time taken to transmit the inquiry, process it by the computer, and transmit the response back to the terminal

Chapter 5. Project Model

Here, a piece of brief information on the project Management chapter is described where Project planning and scheduling are explored.

5.1 Project Planning and Scheduling

Here a brief justification for the selection of the Process diagram model is described. Here in this application, we have selected the waterfall model as the Project development approach.

5.2 Project Development Approach and justification

Stroke is one of the most serious diseases worldwide, directly or indirectly responsible for a significant number of deaths. Various data mining techniques are used in the healthcare industry to aid in the diagnosis and early detection of diseases. Current research considers several elements that lead to stroke. First, we examine the characteristics of those who suffer a stroke more often than others. The dataset is from a freely available source and various classification algorithms are used to predict the onset of a stroke shortly. Using various statistical techniques and principal component analysis, we identify the most important factors for stroke prediction.We conclude that age, heart disease, average glucose level, and hypertension are the most important factors for detecting stroke in patients. Furthermore, to provide the highest accuracy rate and lowest miss rate compared to using all available input features and other benchmarking algorithms.
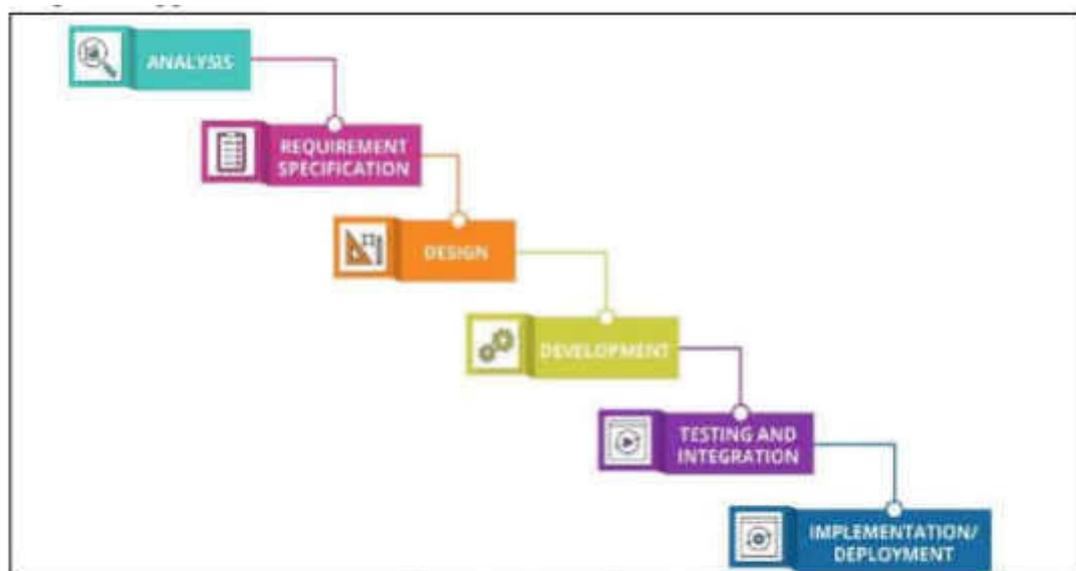
Figure 1. Waterfall model

Figure 2. SDLC Life Cycle

SDLC Process:

SDLC is a process followed for a software project, within a software organization. It consists of a detailed plan describing how to develop, maintain, replace and alter or enhance specific software. The life cycle defines a methodology for improving the quality of software and the overall development process.

The following figure is a graphical representation of the various stages of a typical SDLC.

- **Requirement Analysis:** This phase is concerned about the collection of requirements of the system. This process involves generating document and requirement review.
- **System Design:** Keeping the requirements in mind the system specifications are translated into a software representation. In this phase the designer emphasizes on: algorithm, data structure, software architecture etc

- **Coding**: In this phase programmer starts his coding in order to give a full sketch of the product.In other words, system specifications are only converted into machine readable compute code.
- **Implementation:** The implementation phase involves the actual coding or programming of the software. The output of this phase is typically the library, executables, user manuals and additional software documentation.
- **Testing:** In this phase all programs (models) are integrated and tested to ensure that the complete system meets the software requirements. The testing is concerned with verification and validation.
- **Maintenance:** The maintenance phase is the longest phase in which the software is updated to fulfill the changing customer need, adapt to accommodate change in the external environment, correct errors and oversights previously undetected in the testing phase, and enhance the efficiency of the software.

Chapter 6. System Design

6.1. Use Case Diagram

Use Case Diagrams are graphical Representations that may be decomposed into further levels of abstraction. Use case diagram graphically represents what happens if any actor interacts with a system.

The purpose of the Use Case Diagram is to capture the dynamic aspect of a system. It is used to define a piece of logical behavior without using the internal structure of the system.
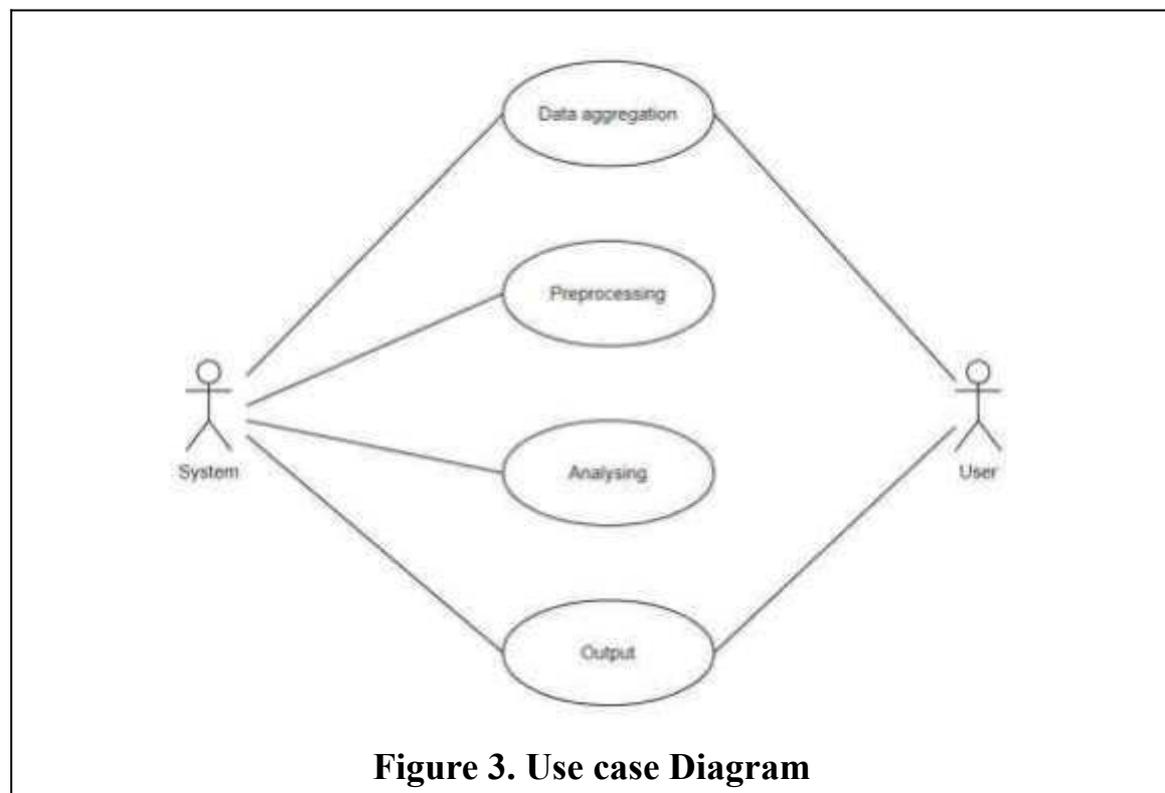
Figure 3. Use case Diagram

6.2. Activity Diagram

An activity diagram is used to model a large activity's sequential workflow by focusing on action sequences and respective action initiating conditions. The state of an activity relates to the performance of each workflow step. An activity diagram is represented by shapes that are connected by arrows
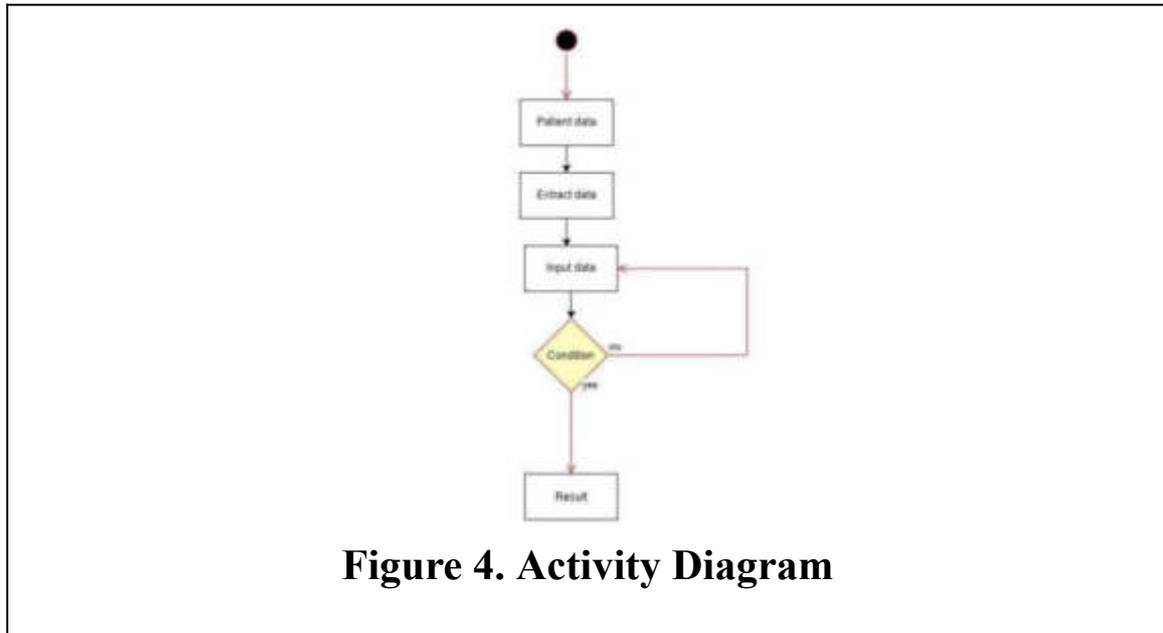
Figure 4. Activity Diagram

6.3. System Architecture

A system architecture is the conceptual model that defines the structure, behavior, and moreviews of a system.Detailed description of System Architecture shown in Fig. 5:

- **USER:** The person using our Web Application will be the user who wants to know whether they have a risk of having Brain or not.
- **Inputs through WebApp:** The user will be asked about some details regarding their gender, age, hypertension, heart diseases, marital status, work type, residence type, average glucose level, BMI and smoking status. All these details are necessary for the prediction of stroke possibility for that individual.
- **User defined inputs tested against ML Model:** Total of 5 Machine Learning Algorithms were trained so that the algorithm that yields best accuracy score will be considered as the Trained ML Model that will help to predict stroke possibility against new data from the user side. Machine Learning Algorithms such as Decision Tree, Support Vector Machine and Random Forest.
- **Model predicts the Outcome**: The possibility of the user having stroke will be determined with the help of the Trained ML Model and if the user has risk of having brain stroke, depending on the accuracy of the model, it will predict the output for it and the same goes for no stroke.

- **No Stroke Risk Diagnosed:** Through our Web Application, the user will get to know about the outcome of its input data. The outcome for "No Stroke" will be displayed as "No Stroke Risk Diagnosed".
- **Stroke Risk Diagnosed:** Through our Web Application, the user will get to know about the outcome of its input data. In the case for "Stroke" as an outcome, it will be displayed as "Stroke Risk Diagnosed.
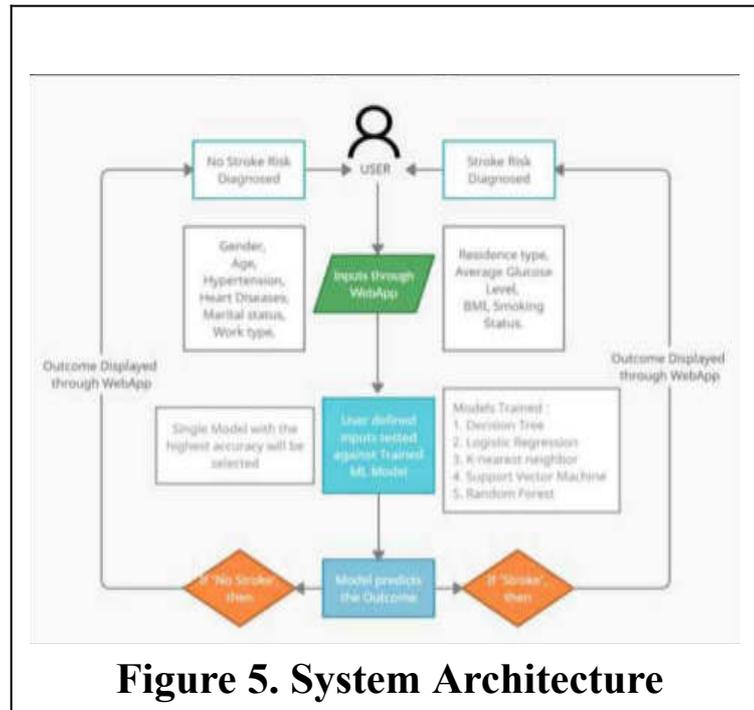
Figure 5. System Architecture

Chapter 7. Project Implementation

7.1. User Panel

• Home Page

7.2. Analysis

Correlation
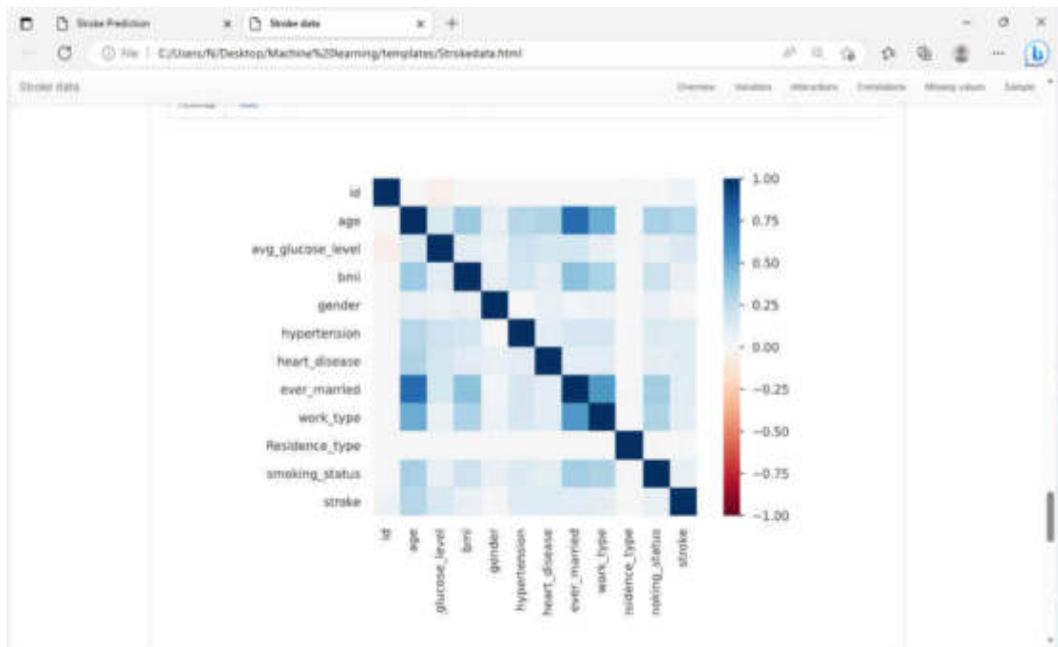
Missing value data Visualization

Chapter 8. Popular Algorithms Used

The most common disease identified in the medical field is stroke, which is on the rise year after year. Using the publicly accessible stroke prediction dataset, the study measured four commonly used machine learning methods for predicting brain stroke recurrence, which are as follows:

(i)Random forest

(ii)Decision tree

(iii) Support Vector classifier

(iv)Logistic regression

8.1. Decision tree:

Decision Tree is a Supervised learning technique that can be used for both classification and Regression problems, but mostly it is preferred for solving Classification problems. It is a tree-structured classifier, where internal nodes represent the features of a dataset, branches represent the decision rules and each leaf node represents the outcome.

Figure 6. Decision Tree
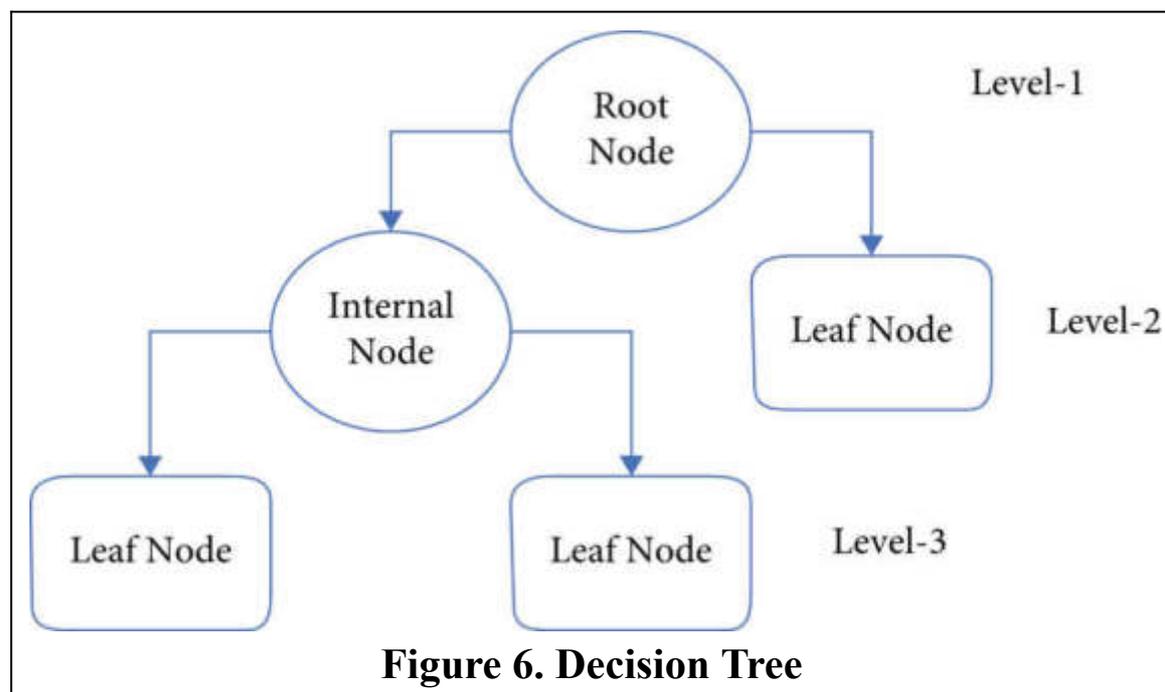
8.2. Random Forest:

Random forest is a supervised learning algorithm which is used for both classification as well as regression. But it is mainly used for classification problems. As we know that a forest is made up of trees and more trees means more robust forest. Similarly, a random forest algorithm creates decision trees on data samples and then gets the prediction from each of them and finally selects the best solution by means of voting. It is an ensemble method which is better than a single decision tree because it reduces the over-fitting by averaging the result.
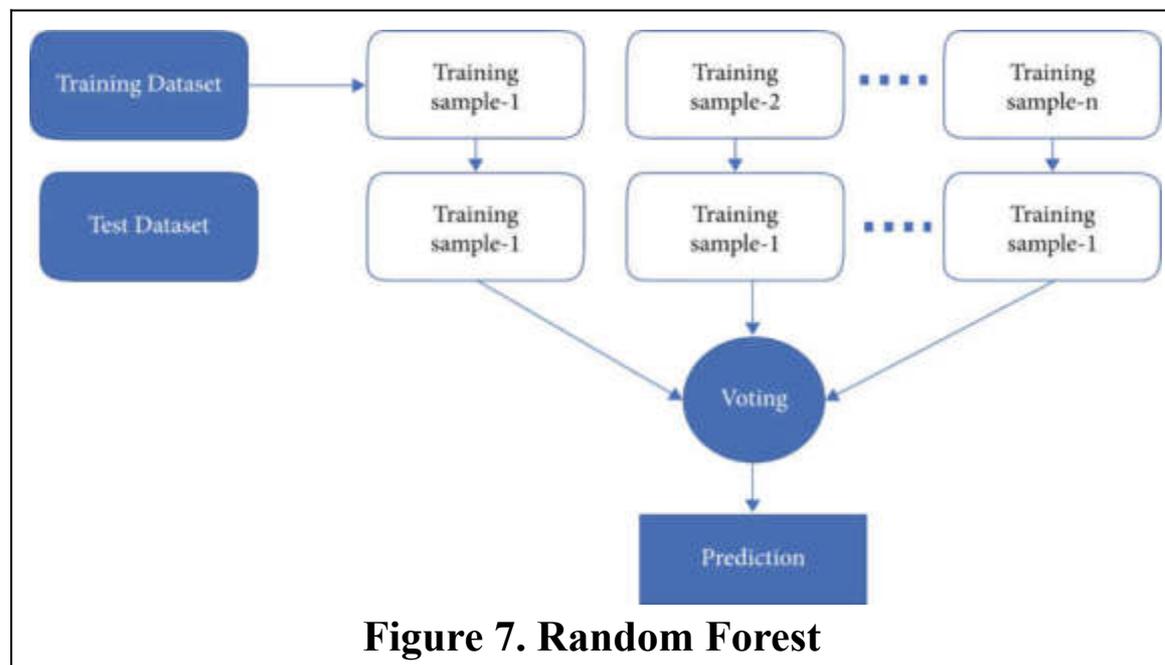
Figure 7. Random Forest

8.3. Logistic regression:

 Logistic regression is a Machine Learning classification algorithm that is used to predict the probability of a categorical dependent variable. In logistic regression, the dependent variable is a binary variable that contains data coded as 1 (yes, success, etc.) or 0 (no, failure, etc.). In other words, the logistic regression model predicts $P(Y=1)$ as a function of X.

Figure 8. Logistic Regression
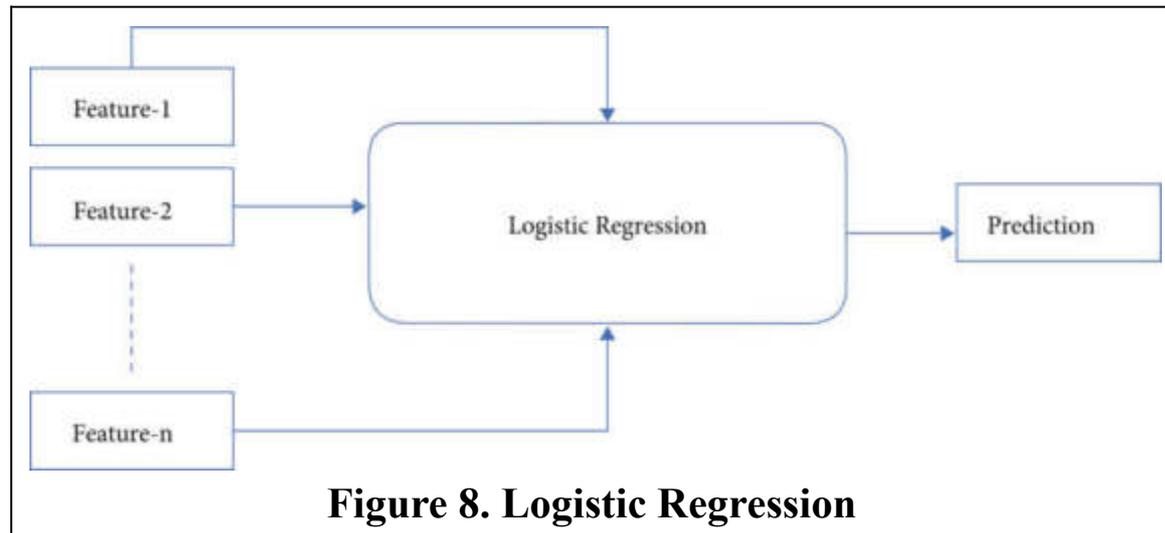
8.4. Support Vector Machine:

Support Vector Machine or SVM is one of the most popular Supervised Learning algorithms, which is used for Classification as well as Regression problems. However, primarily, it is used for Classification problems in Machine Learning. The goal of the SVM algorithm is to create the best line or decision boundary that can segregate n-dimensional space into classes so that we can easily put the new data point in the correct category in the future. This best decision boundary is called a hyperplane. SVM chooses the extreme points/vectors that help in creating the hyperplane. These extreme cases are called support vectors, and hence the algorithm is termed as Support Vector Machine.
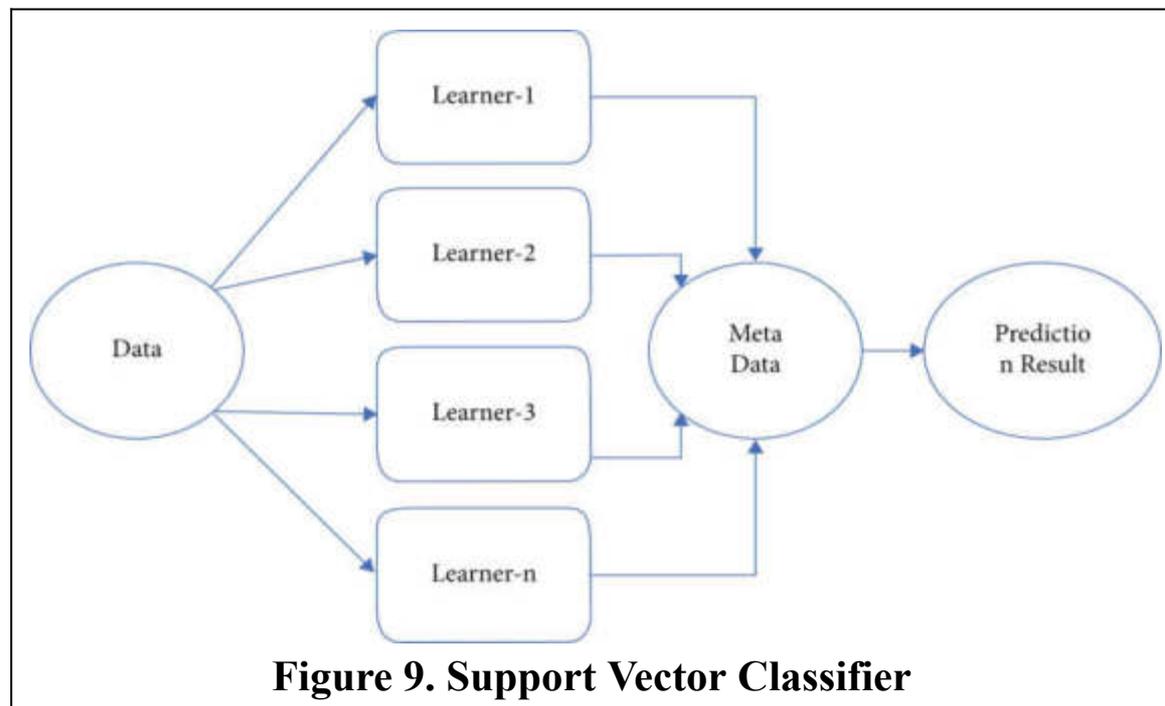
Figure 9. Support Vector Classifier

8.5. K-Nearest Neighbor(KNN):

K-Nearest Neighbour is one of the simplest Machine Learning algorithms based on Supervised Learning technique. The K-NN algorithm assumes the similarity between the new case/data and available cases and puts the new case into the category that is most similar to the available categories. K-NN algorithm stores all the available data and classifies a new data point based on the similarity. This means when new data appears then it can be easily classified into a well suited category by using K- NN algorithm. The K-NN algorithm can be used for Regression as well as for Classification but mostly it is used for the Classification problems. The KNN algorithm at the training phase just stores the dataset and when it gets new data, then it classifies that data into a category that is much similar to the new data.

Chapter 9. Project Testing

This chapter aims to provide a brief account of testing the software. There are two principal motives of testing the software: 1. To rectify the error in execution 2. To check the viability of software The testing ensures that the software is according to the required specification standards and performs the task meant for it. The testing is done by our team members that act as novice users and test the project with all possible ways to find the bugs and errors as well as check validation.

9.1. Testing Plan

Testing is carried out at the following three stages:
i. Design
ii. Implementation
iii. Coding

9.1.1. Design Testing

This Testing applies after the designing stage to verify product design. At this stage we test our project's all designing schema like various diagrams.

9.1.2. Implementation Testing

This testing is not proper structural testing but every time I check the program after writing some code of a particular function, the programmer checks their code by testing some edge case to check the reliability of code. This testing performs during implementation of the project.

9.2. Testing Strategy

A technique for programming testing coordinates programming experiment structure strategy into an all-around arranged arrangement of steps that outcome in the effective development of the product. The system gives the guide that depicts the means to be led as a piece of testing.

- We have tried our entire project utilizing bottom-up testing technique.
- Bottom-up testing includes incorporating and testing the modules to the lower levels in the chain of importance, and afterward stirring up progression of modules until the last module is tried.
- Bottom-up testing procedure demonstrates how genuine testing is to be finished with the entire project yet it doesn't demonstrate any insight concerning every module testing.
- For every module testing, we have chosen to test each lower-level module with white box testing system.
- When all modules are tried effectively then I will move to one stage up and proceed with white box testing technique.

When all modules will be tested successfully then I will integrate those modules and try to test the integrated system using black box testing strategy.

9.3. Testing Methods

9.3.1. Unit Testing

The unit testing is intended for testing the smallest unit of programming. There are two methodologies to be specific: bottom-up and top-down. In bottom-up methodology the last module is tried and after that moving towards the principal module while top-down methodology switches the activity. In present work we select the first.

9.3.2. Integration Testing

The integration testing is intended to test every one of the modules at the same time since it is conceivable that every one of the modules may work accurately when tried separately. However, they may not work by and large and may prompt unforeseen results.

9.3.3. Validation Testing

Validation can be defined in many ways but a simple definition is what a validation succeeds when software functions in a manner that can be reasonably accepted by the user.

9.3.4. Storage Testing

The database of the system has to be stored on the hard disk. So, the storage capacity of the hard disk should be enough to store all the data required for the efficient running of the system.

References

[1] https://www.kaggle.com/datasets/fedesoriano/stroke-prediction-dataset
[2] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9268898/
[3] https://flask.palletsprojects.com/en/2.3.x/
[4] https://www.hindawi.com/journals/jhe/2021/7633381
[5] https://skillsbuild.org/
[6] https://skillsbuild.org/
[7] https://skillsbuild.org/
[8] https://skillsbuild.org/

Appendix

Scanned Copies of Annexure-I
Scanned copy of Annexure-II
Other scanned supporting documents etc.

GUJARAT TECHNOLOGICAL UNIVERSITY

(Established under Gujarat Act No. 20 of 2007)

ગુજરાત ટેકનોલોજિકલ યુનિવર્સિટી

(ગુજરાત અધિનિયમ ક્રમાંક: ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

Annexure 2

Feedback Form by Industry expert

Student Name: Krisha Sheth

Date: 24th April 2023

Work Supervisor: Anjali Verma

Title: Associate Consultant

Company/Organization: CSRBOX Foundation

Enrollment No: 190390116045

Internship Address: 806-808, Shivalik Satyamev, Bopal, Ahmedabad, Gujarat-380058

Date of Internship: From 13th Feb 2023   To 7ᵗʰ 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: We believe that your internship was a valuable learning experience and we hope that you gained new skills and insights that will serve you well in your future career. We wish you all the best and are confident that you will achieve great things.

Signature of Industry person with name and Stamp:

Signature of the Faculty Mentor   Anjali Verma

INTERNSHIP AT NASCENT INFOTECHNOLOGIES

AN INTERNSHIP REPORT

Submitted by

Ayushi Rakeshkumar Soni

190390116046

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 NASCENT INFOTECHNOLOGIES PVT. LTD.** has been carried out by **Ayushi Rakeshkumar Soni** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering**, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushma Sainwar   Prof. Axay Kansara

Internal Guide   Head of Department

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NASCENT

HR/N-Talent/04/23

April 27, 2023

To whom it may concern

This is to certify that **Ayushi Soni**, a student of Gujarat Technological University has successfully completed her internship in the field of Geo solutions as **Trainee Software Engineer** from 23rd January, 2023 to 16th April, 2023. (Total number of weeks: 12) under the guidance of Mr. Santosh Gaikwad.

Her internship activities include:

- Gained practical experience with Python programming
- Developed practical skills in web frameworks such as Flask and Streamlit
- Prepared the presentations on various machine learning algorithms
- Applied PostgresML, an end-to-end machine learning system built on PostgreSQL in the project
- Learned about different machine learning algorithms
- Applied the various algorithms in the project on Air Quality Index(AQI)

Project titled "A Comparative Study of Various Machine Learning Algorithms for Prediction of Air Quality Index (AQI) of Indian Cities".

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 her every success in her life and career.

For **Nascent Info Technologies Pvt. Ltd.**

Mr MrugeshRaval

Head-Human Resource

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 (10:34:40)

This is to certify that, **Soni Ayushi Rakeshkumar** (Enrolment Number - 190390116046) working on project entitled with **Internship At Nascent Infotechnologies Pvt. LTD.** from **Information Technology** department of **S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA** had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student :   S o n i   A y u s h i   Rakeshkumar

Name of Guide :   Miss. Sushma Sainwar

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, 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 **Nascent Infotechnologies Pvt. LTD** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushma Sainwar & Mr. Santosh Gaikwad** and that no part of this report has been directly copied from any student's reports or taken from any other source, without providing due reference.

Name of the Student   Sign of Student

Ayushi Rakeshkumar Soni   _____

ACKNOWLEDGMENT

Abstract

Air pollution is a serious environmental issue that poses a threat to human health and the environment. This project presents a comparative study of two approaches to predicting air quality index (AQI): traditional machine learning algorithms and PostgreML, a machine learning extension for PostgreSQL. The project uses five years of air quality data for 26 cities in India and applies exploratory data analysis (EDA) to prepare the data. Eleven supervised learning algorithms are applied to the data, and the algorithm with the highest accuracy is selected to build a predictive model, which is saved as a pickle file. A web application is built using Flask and front-end technologies, which allows users to input a month and year and receive AQI predictions for all 26 cities. The application also visualizes a heatmap of AQI values for the selected month and year.

In the second approach, PostgreML is used to train machine learning models using the PostgreSQL database. Various algorithms are applied to the data, and a model is built using the best-performing algorithm. An API is built using Flask, which allows users to input a month and year and receive AQI predictions for a selected city. A web application is built using front-end and back-end languages, which allows users to select a city and view a location point that changes color based on the AQI bucket. The web application also uses Geoserver and Openlayers to visualize AQI values on a map.

The results of the project show that the traditional machine learning approach using XGBoosting has a better performance in predicting AQI than the PostgreML approach. The project highlights the potential of machine learning algorithms to predict AQI and provides insights into the strengths and weaknesses of traditional machine learning and PostgreML approaches.

Keywords: Air Quality Index, Air Quality Monitoring, Machine Learning, Regression, PostgresML, Algorithms

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List of Table

Abbreviations

AQ   Air Quality

AQI   Air Quality Index

NO   Nitric oxide

NO2   Nitrogen dioxide

NOx   Oxides of nitrogen (a mixture of NO and NO2)

NH3   Ammonia

CO   Carbon monoxide

SO2   Sulfur dioxide

O3   Ozone

IQR   Interquartile Ranges

PGML   PostgresML

Table of Contents

Chapter 1. OVERVIEW OF THE COMPANY

1.1 COMPANY PROFILE:

Nascent Infotechnologies Pvt. Ltd (NITPL) is one of the leading IT companies based out of Ahmedabad, Gujarat, India. NITPL also offers various GIS-based solutions and services and has developed its own product named "Layers" which is a web GIS-based suite of applications developed using open-source technologies. It is developed to meet the need of the market for a cost-effective, value-for-money GIS platform that is homegrown and that complies with various initiatives of the Government of India in the field of IT.

Layers product caters to multiple domains like Smart cities(Vadodara, Ahmedabad, Bhavnagar, Pimpri Chinchwad), Retail Industry, Campus Management, Oil and Gas industry, Mining Industry, etc., and has different variants for each domain.
As a creative tech partner, Nascent offers mapping solutions - one of the most advanced and meaningful information systems, Dashboards that empower the decision makers, innovative mobile applications for better and richer citizen engagements,Digital Road-maps, and Creative Social Media Marketing campaigns.

1.2 MISSION AND VISION OF THE COMPANY:

Nascent Infotechnologies Pvt. Ltd aims to create meaningful fresh digital experiences that inspire the decision-makers and users alike & which can have a positive impact on the world and people around us.

Technology has changed the way we consume information and make decisions in such a way that it has a direct impact on how we live, play and work. We intend to make these experiences beautiful and exciting so that they inspire us to do better and do more, more importantly, help advance the human race.
Design plays a very important role in how these solutions look, how they function, and finally how they feel.

Nascent Infotechnologies Pvt. Ltd is committed to delivering high-quality digital solutions that meet the highest industry standards. In line with our mission and vision, we are proud to announce that we have achieved **CMMI Level 3 certification**. This certification demonstrates our dedication to implementing best practices and continuous improvement in our processes and services. By adhering to CMMI standards, we ensure that our solutions are developed with a focus on quality, efficiency, and customer satisfaction. This achievement further solidifies our commitment to providing exceptional digital experiences that have a positive impact on our clients and the broader community.

Chapter 2. INTRODUCTION

The oxygen we breathe is essential for the human body cells to function, making air one of the most important elements on the planet Earth. Without air, humans cannot live for more than a few minutes. Air maintains the planet's surface temperature by circulating hot and cool air and is essential for the water cycle. The quality of the air we breathe determines not only our survival but also the quality of life we can lead. Poor air quality can trigger health changes and cause respiratory diseases such as tuberculosis, pneumonia, bronchitis, asthma, and lung cancer, resulting in approximately 7 million deaths annually worldwide. Polluted air can also cause global warming, leading to temperature hikes, rising sea levels, and the spread of infectious diseases.

The quality of air can be measured using the Air Quality Index (AQI), which ranges from 0 to 500. The higher the AQI, the greater the level of air pollution and the greater the health concerns. AQI is classified into six categories of health concerns, with each category given a color for easy interpretation: Green (0-50), Yellow (51-100), Orange (101-150), Red (151-200), Purple (201-300), and Maroon (300 and higher). Calculating AQI is crucial because it provides critical information about the state of the air and can help warn people about dangerous air quality.

Machine learning algorithms can be used to predict air quality. This field of science involves building models by training algorithms to understand patterns in data and make informed decisions. The supervised learning approach is commonly used in which each input data is mapped to output data. In this project, we have used supervised learning algorithms as we had access to labeled data and found that supervised algorithms provide greater accuracy than unsupervised algorithms. Our project aims to compare various supervised machine learning algorithms and select the most accurate algorithm for predicting AQI using the "Air Quality Index in India Cities (2015-2020)" dataset. We used the PM 2.5, PM 10, NO, NO2, NOx, NH3, CO, SO2, O3, Benzene, and Toluene attributes present in the dataset for computing AQI.

In addition to using machine learning algorithms, Geographic Information Systems (GIS) technology is also employed in our project to visualize predicted AQI values. GIS allows us to represent spatial data on maps and analyze how different factors affect air quality in different areas. With GIS, we can create heatmaps that display the distribution of AQI values across a city or region, making it easier to identify areas with high levels of air pollution. Furthermore, we developed a web application that uses GIS technology to display real-time AQI data and provide recommendations on how to mitigate air pollution in specific areas. Overall, the integration of machine learning and GIS technology enables us to better understand and address the complex issue of air pollution.

Previous research has compared machine learning algorithms for predicting AQI in different areas and found that neural network algorithms were superior to other machine learning algorithms. However, they lacked in determining hourly pollutant levels. Other studies have found that regression machine learning algorithms were efficient in determining AQI.

2.1 AIM:

The primary aim of this study is to compare various supervised machine learning algorithms and identify the most accurate algorithm for predicting the AQI. Additionally, we aim to perform the same in PostgresML: End-to-end Machine Learning(PGML) and traditional ML approaches. To aid in the comparison, we will visualize the results using a heatmap and a map.

2.2 OBJECTIVES:

The followings are the objectives set to achieve the aim:

• To review studies related to AQI.

• To determine the most usual supervised machine learning algorithms that were used to predict the AQI by performing a literature review.

• To build predictive machine learning models for forecasting AQI.

• To evaluate the performance and accuracy of created models and determine the most accurate supervised machine learning algorithm in the prediction of AQI.

2.3 OVERVIEW:

The research study is divided into chapters and a brief description of each chapter is given below: In chapter 3, the background of the study such as the information about machine learning's algorithms and GIS used are discussed. In chapter 4, an overview of the previous studies related to AQI is discussed. Chapter 5 discusses the dataset for data cleaning, selecting algorithms. In chapter 6, discussion of comparative study 1. Chapter 7, discussion of comparative study 2. Chapter 8, discuss and show implementation web application. Chapter 9, conclusion. Chapter 10, Future Scope.

2.4 WORKFLOW:
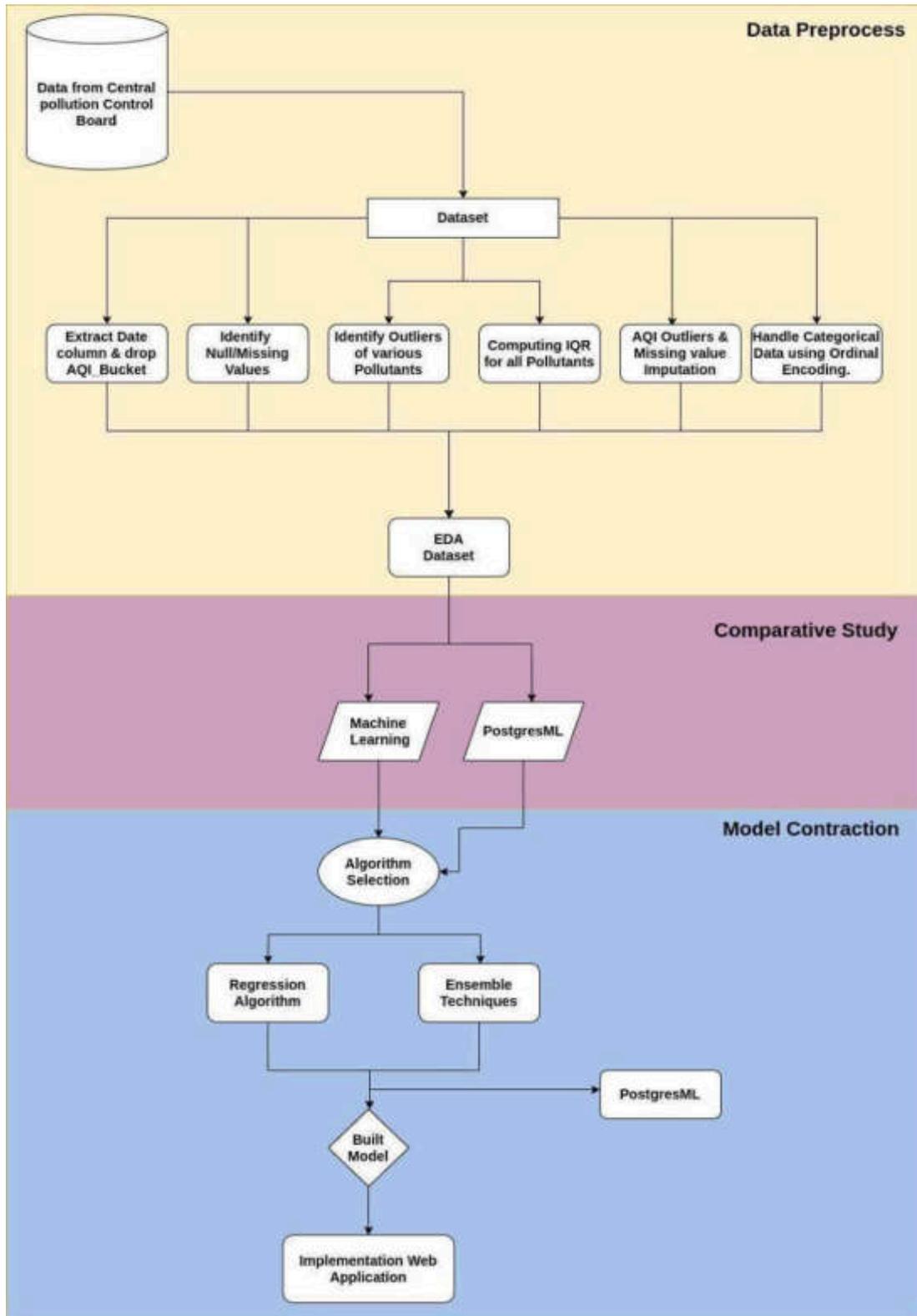
Fig:2.1 Data Flow diagram

Chapter 3. BACKGROUND

3.1 AQ AND AQI:

Worldwide, many cities continuously assess air quality using various monitoring techniques to record the concentrations of pollutants in the air. Air quality can be defined as the measurement of the quality of the air we breathe and the concentrations of the pollutants in the air that can cause various health issues. Air quality can be used for various purposes such as the communication of air quality with the public, planning strategies that can be
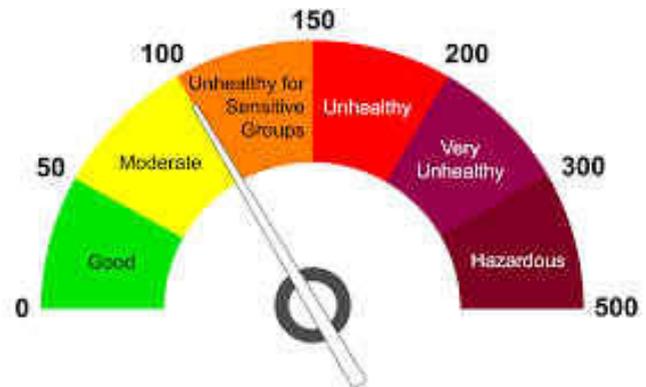
Fig: 3.1 Air Quality Index

used to reduce air pollution, and monitoring short-term and long-term trends.
Air quality can be measured using various machine learning algorithms. Many countries and their environmental agencies in the world use the AQI for the real-time spreading of information on air quality. Although the basic concepts of Air quality are similar, the practical implementations of each can differ. Applying AQIs to a common set of data can show large differences in the index values and concentration of pollutants.

3.2 MACHINE LEARNING:

Machine learning is a field of study where models are built by training various learning algorithms. Machine learning algorithms are trained to build models for identifying data patterns and making predictions. When trained, computer programs can make their own decisions and give outputs to the user. Machine learning is closely related to mathematical computations where algorithms perform various computations for predicting data. The efficiency of each algorithm is directly proportional to the amount of training data. Machine learning algorithms are basically categorized into supervised learning algorithms, unsupervised learning algorithms, and semi-supervised learning algorithms.

3.2.1 Supervised Learning Algorithm:

Supervised learning algorithms are those algorithms where for every input data there is an output data mapped. The input data (basically a vector) always has a desired output value (signal). Supervised learning algorithms analyze the patterns between the data and develop a mapping function that can map any input to an output for new examples. There are various supervised learning algorithms such as Support Vector Machine (SVM), Decision tree, K-means, Naive Bayes, Random forest, and Artificial neural networks (ANN).

3.2.2 Unsupervised Learning Algorithm:

Unsupervised machine learning algorithms are the learning algorithms where, like the supervised learning algorithms, there isn't any development of a mapping function to map an input data to an output data. The main notion of unsupervised algorithms is to build representations of input data that can be used to predict future output, take decisions, and efficiently communicate the input to other machines. Few examples for unsupervised learning algorithms are K-means clustering, Principal Component analysis, and Hierarchical clustering.

3.2.3 Semi-Supervised Learning Algorithm:

As the name suggests, semi supervised learning lies between supervised and unsupervised. Most of the semi-supervised learning algorithms are basically extensions of either supervised or unsupervised algorithms to include additional information of the other paradigms. In most of the tasks, there is a very small amount of labeled data because acquiring labels can be very difficult as the process requires human annotators, special devices, and slow experiments. Semi-supervised learning can be more effective than supervised learning because semi-supervised uses both labeled and unlabeled data for learning. In other words, the performance of semi-supervised learning is on par with that of supervised learning but with fewer labeled data.

3.2.4 Regression:

Regression is a supervised machine learning approach that is generally used to predict continuous values. Regression is majorly used for two purposes. First, it is used in forecasting and prediction of data, which are the applications of machine learning. Second, regression analysis is used to determine the relation between the dependent and independent variables in the data set. Linear regression, Ridge regression, and LASSO regression are a few examples for regression models.

3.3 GIS:

GIS technology, on the other hand, enables users to visualize, analyze, and interpret spatial data, providing a powerful tool for understanding complex geographical relationships. GIS technology is used in various industries, such as urban planning, environmental management, and agriculture, to analyze spatial data and optimize operations. With the use of GIS, organizations can analyze geographic information to develop a better understanding of their surroundings and make informed decisions. For example, in urban planning, GIS is used to analyze land use patterns, identify areas for development, and plan transportation routes. In environmental management, GIS analyzes data related to pollution, wildlife habitats, and other environmental factors to make informed decisions. In agriculture, GIS is used to analyze data related to soil moisture levels, crop yields, and weather patterns to optimize crop production.

3.4 TECHNOLOGIES AND TOOLS UTILIZED:

A brief description of used technologies and tools utilized along with version is represented below,

- Python (Version 3.10.4) - Python is an interpreted, high level and object oriented programming language. It is open source.

- Anaconda navigator (Version 2.1.1) - It is a graphical user interface (GUI) that allows users to launch applications easily and manage packages.

- Jupyter notebook (Version 4.8) - It is a web based interactive computing platform. It helps in developing, documenting, and executing code.

- PyCharm (Version 2023.1.1) - It is a popular integrated development environment (IDE) specifically designed for Python development.

- Pandas (Version 1.4.3) - It is a free open source python library. It is mainly used for data analysis. It helps to perform various data manipulation operations.

- Numpy (Version 1.23.0) - It is a python library which is used for scientific computing in python. It is used to perform wide mathematical operations on data.

- Matplotlib (Version 3.5.2) - It is a Python package used to create static, animated, and interactive visualizations.

- Seaborn (Version 0.11.2) - It is a python library which is used for data visualization. It is based on the matplotlib library. It helps to make statistical graphics using python.

- Scikit-learn (sklearn) (Version 1.1.1) - It is a python library which is used for machine learning. It is largely written in python. It consists of many machine learning algorithms. It is best suitable for predictive analysis.

- Pickle (Version 1.1.2) - It is a Python module used for object serialization and deserialization. It provides a convenient way to convert Python objects into a stream of bytes and vice versa. Pickle is commonly used for storing and retrieving complex data structures and objects in a binary format.

- Flask (Version 2.2.2) - It is a popular web framework in Python that allows developers to build web applications quickly and efficientlyWith its simplicity and flexibility.

- Folium (Version 0.14.0) - It is a Python library used for creating interactive and customizable maps directly in the Jupyter Notebook environment.

3.5 PERFORMANCE METRICS:

To analyze the performance of a machine learning model we need some metrics. These metrics are statistical criteria that can be used to measure and monitor the performance of a model. As our thesis deals with prediction, I have considered MAE, RMSE and R-square as the performance metrics.

Mean absolute error (MAE) - MAE is the arithmetic average of the difference between the ground truth and the predicted values. It can also be defined as a measure of errors between paired observations expressing the same phenomenon. It tells us how far the predictions differed from the actual result. Mathematical representation for MAE is given below.

$$\text{MAE} = 1/\Sigma \ N \ |y_j - y_j$$

      Where, y_j = Prediction
      y_j = True value
      N = Total number of data points

R squared (R2) - R square performance metric indicates how well predicted values match actual values. To compute the R squared value, we can use the r2_score function of sklearn.metrics.

$$\text{R2} = 1 - \text{sum squared regression(SSR) /total sum of squares(SST)}$$
$$\text{R2} = 1 - \Sigma \ (y_i - y_i)2 \ /\Sigma(y_i - y)2$$

Root mean square error (RMSE) - RMSE is the square root of the average of the squared difference between the target value and the value predicted by the model. It is the square root of mean square error (MSE). The implementation is very much similar to MSE.

$$\text{RMSE} = \sqrt{1/N \ \Sigma(y_j - y_j \ )2}$$

      Where, y_j = True value
      y_j = True value
      N = Total number of data points

The machine learning models are validated by comparing the performance metrics. The lower the MAE, RMSE and higher the r-squared, the machine learning model performs better.

Chapter 4. KNOWLEDGE OF LIBRARIES

4.1 PANDAS:

The Pandas library is widely used in machine learning tasks due to its powerful data manipulation and analysis capabilities, which are crucial for preparing and preprocessing data before feeding it into machine learning models. Pandas allows users to load data from various sources, explore its structure, handle missing values, outliers, and duplicates, as well as transform data formats. It supports feature engineering by enabling the creation of new features, applying mathematical operations, and extracting information from dates and text. With functions for data transformation, such as reshaping, grouping, and aggregating, Pandas helps prepare data in a suitable format for training machine learning models. It integrates seamlessly with visualization libraries like Matplotlib and Seaborn, facilitating the exploration of data relationships and patterns. Additionally, Pandas easily integrates with popular machine learning libraries such as Scikit-learn and TensorFlow, as Pandas DataFrames can be directly used as inputs for training models. By leveraging Pandas' data manipulation and preprocessing capabilities, machine learning practitioners can effectively clean, transform, and prepare data, ultimately building accurate and robust machine learning models.

4.2 NUMPY:

The NumPy library is an essential tool in the Python ecosystem for numerical computing. It provides a powerful and efficient array object, along with a wide range of mathematical functions, enabling users to perform various numerical operations and manipulate large datasets efficiently. With its multidimensional array operations, NumPy allows for fast and vectorized computations, making it ideal for tasks like data preprocessing, matrix operations, and simulations. Additionally, NumPy offers an extensive collection of mathematical functions that operate on arrays, making it a valuable tool for numerical computations. Its comprehensive suite of linear algebra functions is crucial in fields such as machine learning, scientific computing, and data analysis. Moreover, NumPy includes a random module for generating random numbers, which is useful for simulations and statistical testing. NumPy seamlessly integrates with other libraries in the scientific Python ecosystem, facilitating efficient data handling, computations, analysis, and visualization. One of NumPy's significant advantages is its performance optimization, as its array operations are implemented in highly optimized python code, enabling fast execution even with large datasets and computationally intensive tasks.

4.3 MATPLOTLIB:

Matplotlib provides a wide range of functions and tools for generating high-quality graphs, charts, histograms, scatter plots, and more. Matplotlib's versatility allows users to create visual representations of data in various formats and styles, making it suitable for both exploratory data analysis and presentation purposes.

Matplotlib can be used effectively in an AQI project for visualizing and analyzing air pollution data. Here are some ways in which Matplotlib can be utilized in an AQI project:

I. Time Series Plots - Matplotlib's line plots are ideal for displaying time series data of air quality measurements. AQI data collected over time can be visualized using line plots, with time on the x-axis and AQI values on the y-axis.

II. Bar Plots - Bar plots in Matplotlib can be used to compare AQI values across different regions, cities, or pollutant categories. By representing AQI values as bars, it becomes easier to identify areas or pollutants with high or low air pollution levels. This can help in understanding the spatial distribution of air quality and identifying regions that require targeted interventions.

III. Box Plots - Box plots are useful for visualizing the distribution of AQI values for different pollutants or time periods. They provide information about the median, quartiles, and outliers, allowing for a comprehensive understanding of the variability in air quality data. Box plots can help in identifying the most influential pollutants or periods of time with extreme air pollution levels.

IV. Heatmaps - Matplotlib can generate heatmaps to display the AQI values across a geographic area. By using color gradients, heatmaps provide a visual representation of air pollution intensity, making it easy to identify regions with higher or lower AQI values. Heatmaps can help in assessing spatial patterns, identifying pollution hotspots, and understanding the impact of geographical factors on air quality.

V. Geographic Plots - Matplotlib can be used in conjunction with geographic information systems (GIS) libraries to plot AQI values on maps. This allows for the visualization of air pollution levels in specific areas, helping to identify localized pollution sources, monitor trends, and assess the effectiveness of pollution control measures.

VI. Interactive Visualizations - Matplotlib can be combined with interactive visualization libraries like Plotly or Bokeh to create dynamic and interactive plots. These visualizations can provide additional features such as hover tooltips, zooming, panning, and filtering, allowing users to explore and interact with AQI data in a more engaging and intuitive manner.

4.4 SEABORN:

Seaborn is a popular data visualization library in Python that enhances the capabilities of Matplotlib. It provides a higher-level interface and aesthetic enhancements for creating visually appealing and informative statistical graphics. Seaborn simplifies the process of generating complex visualizations by offering various plot types, color palettes, and customization options. It excels in statistical visualization, integration with Pandas, categorical and grouped plots, regression and correlation analysis, time series visualization, and multi-plot grids. With its capabilities, Seaborn enables users to explore and analyze data, identify patterns, and communicate insights effectively in data analysis, exploratory data visualization, and statistical modeling tasks.

4.5 SCIKIT-LEARN:

Scikit-learn is a widely used machine learning library in Python that offers a comprehensive set of tools for various machine learning tasks. It provides a range of algorithms for classification, regression, clustering, and dimensionality reduction, along with preprocessing techniques and feature extraction methods. Scikit-learn supports model evaluation and validation through metrics and techniques like cross-validation and grid search. It enables the creation of machine learning pipelines for streamlined workflows and integrates well with other libraries. With scalability, performance optimizations, and a supportive community, Scikit-learn is a versatile and powerful choice for implementing machine learning algorithms in Python.

4.6 FOLIUM:

The Folium library is a Python library used for visualizing geospatial data and creating interactive maps. It is built on top of the popular mapping library, Leaflet.js, and provides an easy-to-use interface for creating maps with various overlays, markers, and visualizations. With Folium, users can quickly generate maps, add different layers such as points, lines, polygons, and heatmaps, and customize the appearance and interactivity of the maps. It also supports the integration of external data sources, allowing users to overlay data onto maps and create dynamic visualizations. Folium is a versatile tool for visualizing geographic data, making it useful for a wide range of applications, including data exploration, spatial analysis, and interactive data storytelling.

Chapter 5. LITERATURE REVIEW

Sr.	Title	Observation
1.	Machine Learning - Based Prediction of Air Quality.	In this research, machine learning algorithms such as Linear, Lasso, Regression, SVM, and Random Forest were employed to predict the AQI. R-square, RMSE, and MAE were the performance metrics considered to evaluate the performance of the model [2].
2.	AQI and Air Pollutant Concentration Prediction based on Machine Learning Algorithms.	In this research, the regression models were built to forecast the AQI. In regression models, they used SVR and random forest regression algorithms. They considered R-squared and RMSE for performance evaluation [3].
3.	Urban Air Quality Prediction Using Regression Analysis.	Based on pollution and meteorological data in New Delhi, India, this paper explored how successful several available prediction models are in predicting AQI values. They performed regression analysis on the data, and the results revealed which meteorological parameters had the most impact on AQI levels and how useful predictive models are for air quality forecasting [4].
4.	Air pollution prediction using LSTM deep learning and metaheuristics algorithms.	In this research, the long short-term memory (LSTM) deep learning algorithm is the model modified by optimization algorithms that shows more accurate results with less experience and more speed than machine learning models and LSTM models [5].

Table : 5.1 Literature Review

Chapter 6. DATASET

I have collected a dataset from the Central Pollution Control Board (CPCB) official website (https://cpcb.nic.in/), which is the Indian government's official portal. The dataset contains air quality data and AQI values for various cities in India. It comprises 29531 rows and 16 columns. The dataset contains variables such as particulate matter 2.5, particulate matter 10, nitric oxide, nitric dioxide, nitric x-oxide, ammonia, carbon monoxide, and sulfur dioxide. Below is a sample of the "Air Quality Data in India Cities (2015 - 2020)" dataset.

df.head()

	City	Date	PM2.5	PM10	NO	NO2	NOx	NH3	CO	SO2	O3	Benzene	Toluene	Xylene	AQI	AQI_Bucket
0	Ahmedabad	2015-01-01	NaN	NaN	0.92	18.22	17.15	NaN	0.92	27.64	133.36	0.00	0.02	0.00	NaN	NaN
1	Ahmedabad	2015-01-02	NaN	NaN	0.97	15.69	16.46	NaN	0.97	24.55	34.06	3.68	5.50	3.77	NaN	NaN
2	Ahmedabad	2015-01-03	NaN	NaN	17.40	19.30	29.70	NaN	17.40	29.07	30.70	6.80	16.40	2.25	NaN	NaN
3	Ahmedabad	2015-01-04	NaN	NaN	1.70	18.48	17.97	NaN	1.70	18.59	36.08	4.43	10.14	1.00	NaN	NaN
4	Ahmedabad	2015-01-05	NaN	NaN	22.10	21.42	37.76	NaN	22.10	39.33	39.31	7.01	18.89	2.78	NaN	NaN

Fig : 6.1 First five columns of dataset

df.tail()

	City	Date	PM2.5	PM10	NO	NO2	NOx	NH3	CO	SO2	O3	Benzene	Toluene	Xylene	AQI	AQI_Bucket
29526	Visakhapatnam	2020-06-27	15.02	50.94	7.68	25.06	19.54	12.47	0.47	8.55	23.30	2.24	12.07	0.73	41.0	Good
29527	Visakhapatnam	2020-06-28	24.38	74.09	3.42	26.06	16.53	11.99	0.52	12.72	30.14	0.74	2.21	0.38	70.0	Satisfactory
29528	Visakhapatnam	2020-06-29	22.91	65.73	3.45	29.53	18.33	10.71	0.48	8.42	30.96	0.01	0.01	0.00	68.0	Satisfactory
29529	Visakhapatnam	2020-06-30	16.64	49.97	4.05	29.26	18.80	10.03	0.52	9.84	28.30	0.00	0.00	0.00	54.0	Satisfactory
29530	Visakhapatnam	2020-07-01	15.00	66.00	0.40	26.85	14.05	5.20	0.59	2.10	17.05	NaN	NaN	NaN	50.0	Good

Fig : 6.2 Last five columns of dataset

The dataset underwent several steps, including extracting the date column and dropping the AQI_Bucket column. Null and missing values were visualized, as well as outliers of various pollutants. The interquartile range (IQR) was computed for all pollutants, and outliers and missing values were imputed for the AQI. Categorical data was handled using ordinal encoding. Finally, a correlation matrix heatmap was created to visualize the relationships between the columns.

6.1 EXPLORATORY DATA ANALYSIS:

6.1.1 Extract day, month, and year into separate columns from the "Date" column and drop the "AQI_Bucket" column.

	City	PM2.5	PM10	NO	NO2	NOx	NH3	CO	SO2	O3	Benzene	Toluene	Xylene	AQI	date	month	year
0	Ahmedabad	NaN	NaN	0.92	18.22	17.15	NaN	0.92	27.64	133.36	0.00	0.02	0.00	NaN	1	1	2015
1	Ahmedabad	NaN	NaN	0.97	15.69	16.46	NaN	0.97	24.55	34.06	3.68	5.50	3.77	NaN	2	1	2015
2	Ahmedabad	NaN	NaN	17.40	19.30	29.70	NaN	17.40	29.07	30.70	6.80	16.40	2.25	NaN	3	1	2015
3	Ahmedabad	NaN	NaN	1.70	18.48	17.97	NaN	1.70	18.59	36.08	4.43	10.14	1.00	NaN	4	1	2015
4	Ahmedabad	NaN	NaN	22.10	21.42	37.76	NaN	22.10	39.33	39.31	7.01	18.89	2.78	NaN	5	1	2015

Fig : 6.3 Extract Date column and Drop AQI_Bucket

6.1.2 Visualize Null / Missing Values.
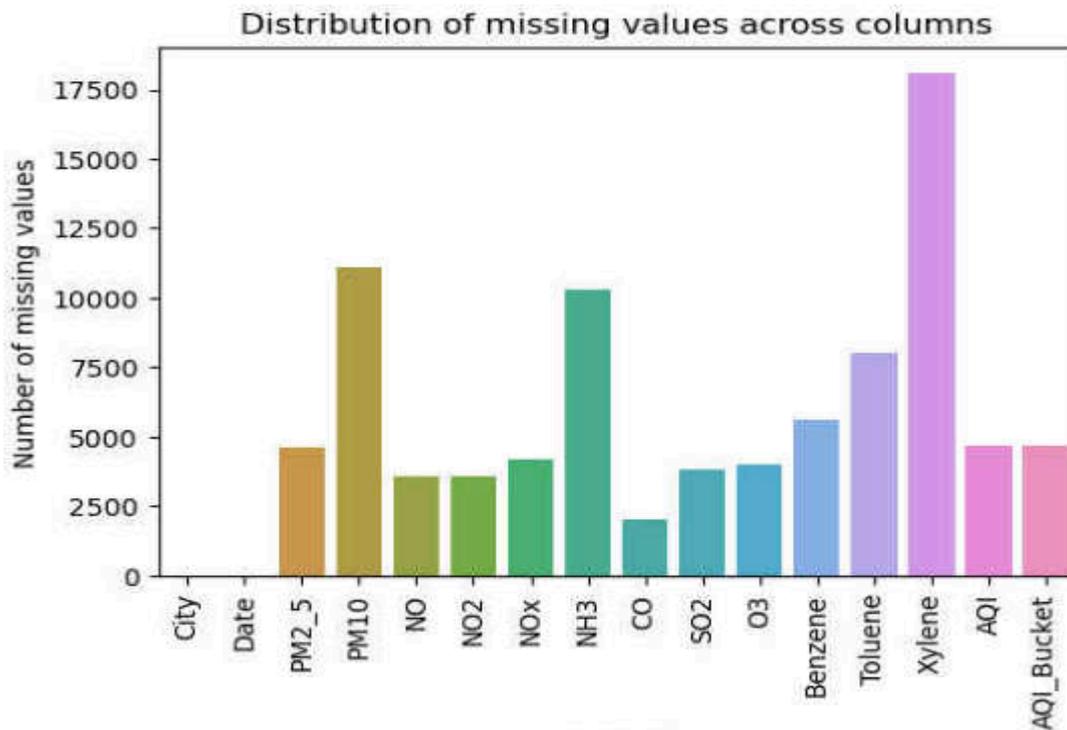
Fig : 6.4 Bar Chart

6.1.3 Visualize Outliers of various Pollutants.

A distribution plot is a graphical representation of the frequency distribution of a dataset. It shows the spread of data and how frequently it occurs. A box plot is a graphical representation of the median, quartiles, and outliers of a dataset. It shows the distribution of data and identifies any outliers present in the data. Outliers are data points that lie outside the expected range of values and can significantly affect the overall distribution of data. Both distribution and box plots are useful tools in visualizing data and identifying outliers, which can be further investigated to understand their cause and potential impact on the analysis.

i) PM2.5
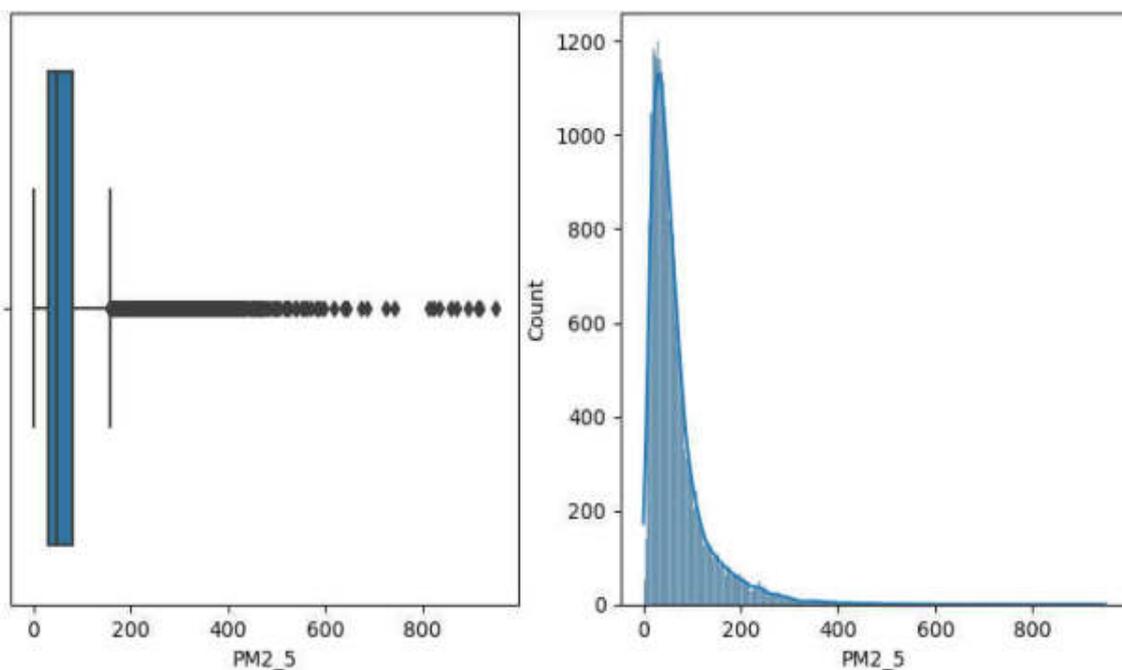
Fig : 6.5 Distribution plot and box plot of PM2.5 pollutant

The distribution and box plot of PM2.5 pollutant show that the data is positively skewed, with a few outliers present in the upper range of values.

ii) PM10
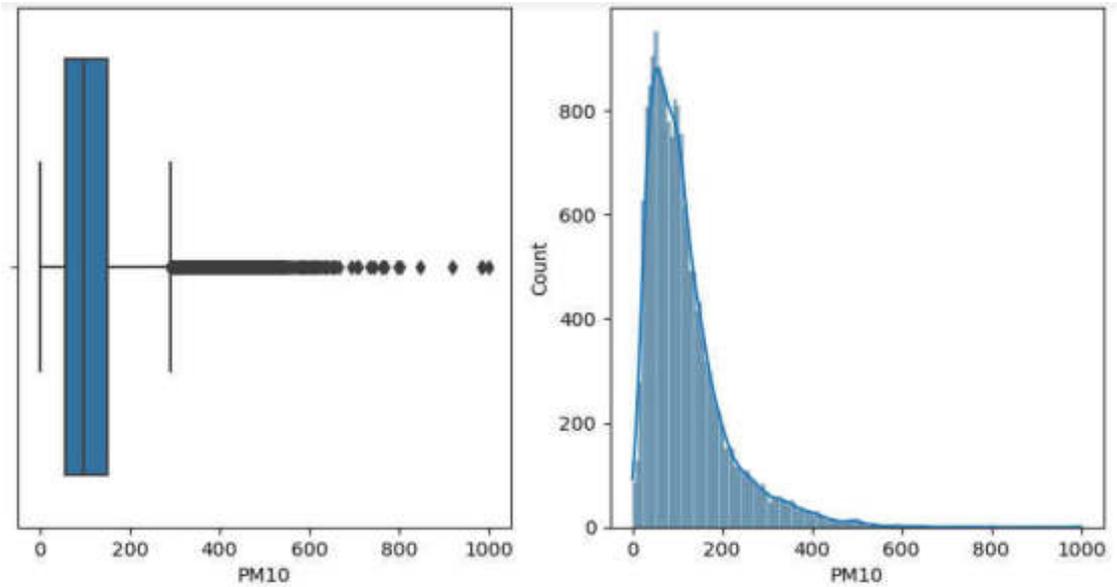
Fig : 6.6 Distribution plot and box plot of PM10 pollutant

The distribution and box plot of PM10 pollutant show that the data is positively skewed, with a few outliers present in the upper range of values.

iv) NO2
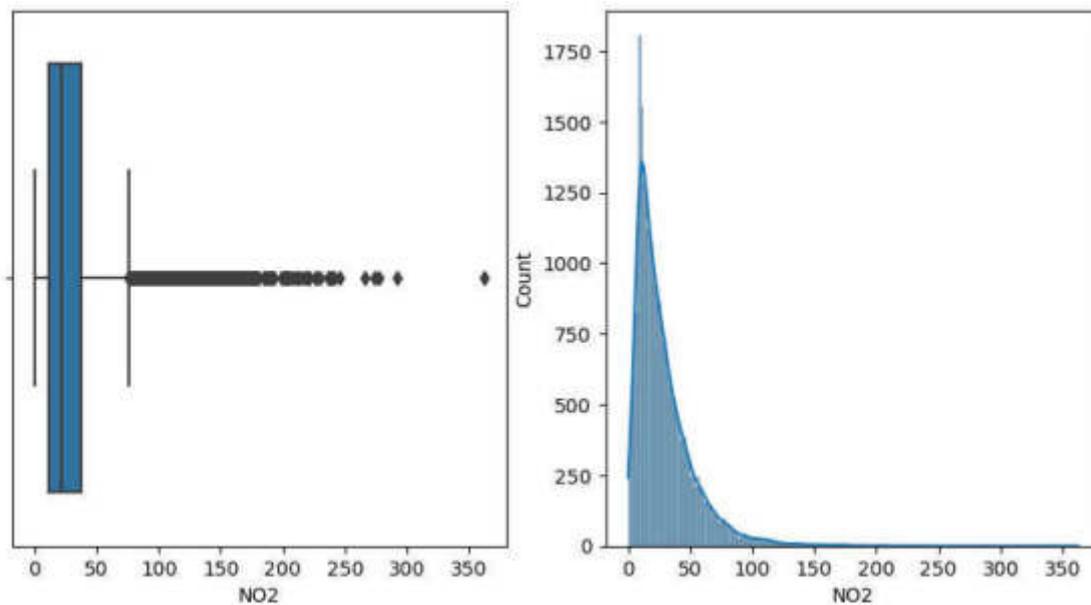
Fig:6.7 Distribution plot and box plot of NO2 pollutant

The distribution and box plot of NO2 pollutant show that the data is positively skewed, with a few outliers present in the upper range of values.

v) NOx
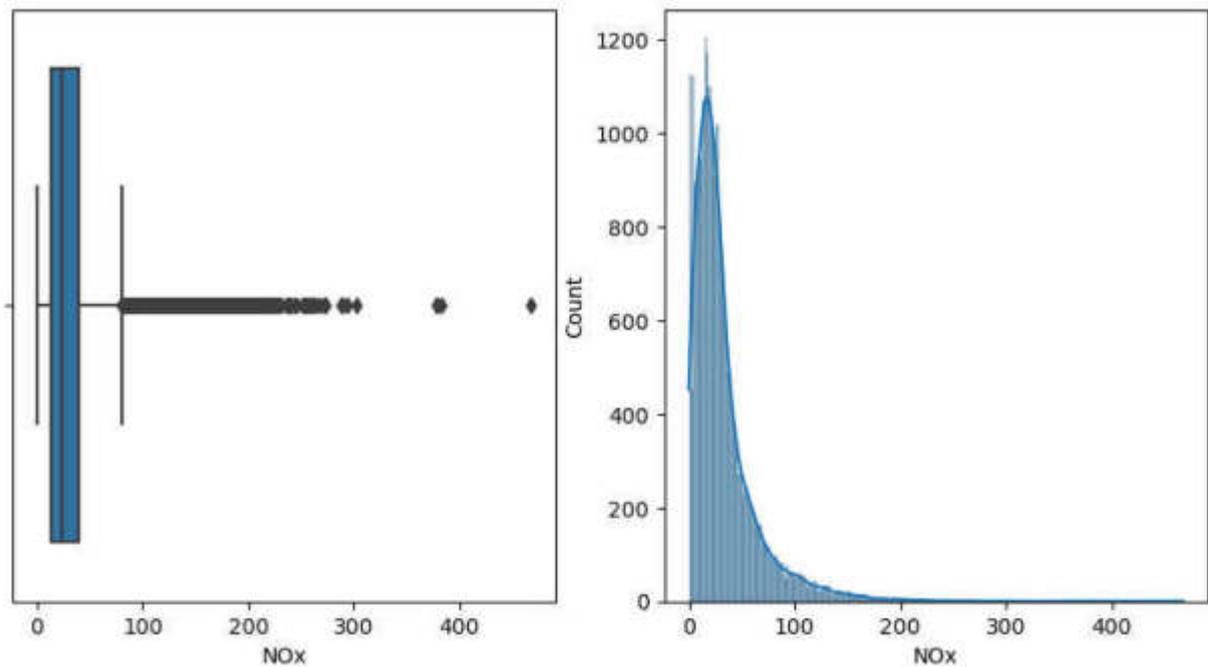
Fig : 6.8 Distribution plot and box plot of NOx pollutant

The distribution and box plot of NOx pollutant show that the data is positively skewed, with a few outliers present in the upper range of values.

vi) NH3
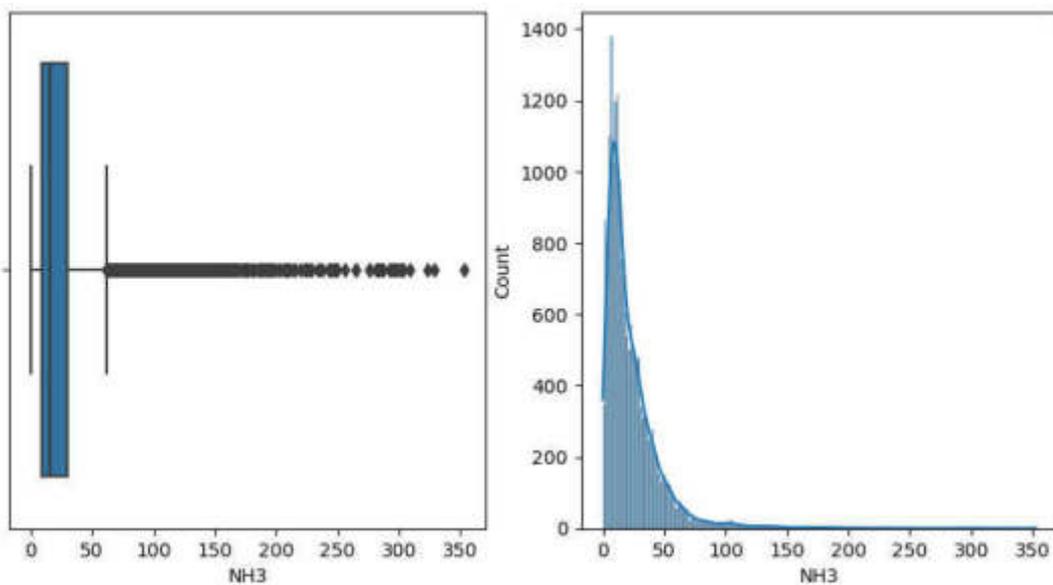
Fig : 6.9 Distribution plot and box plot of NH3 pollutant

The distribution and box plot of NH3 pollutant show that the data is positively skewed, with a few outliers present in the upper range of values.

viii) SO2
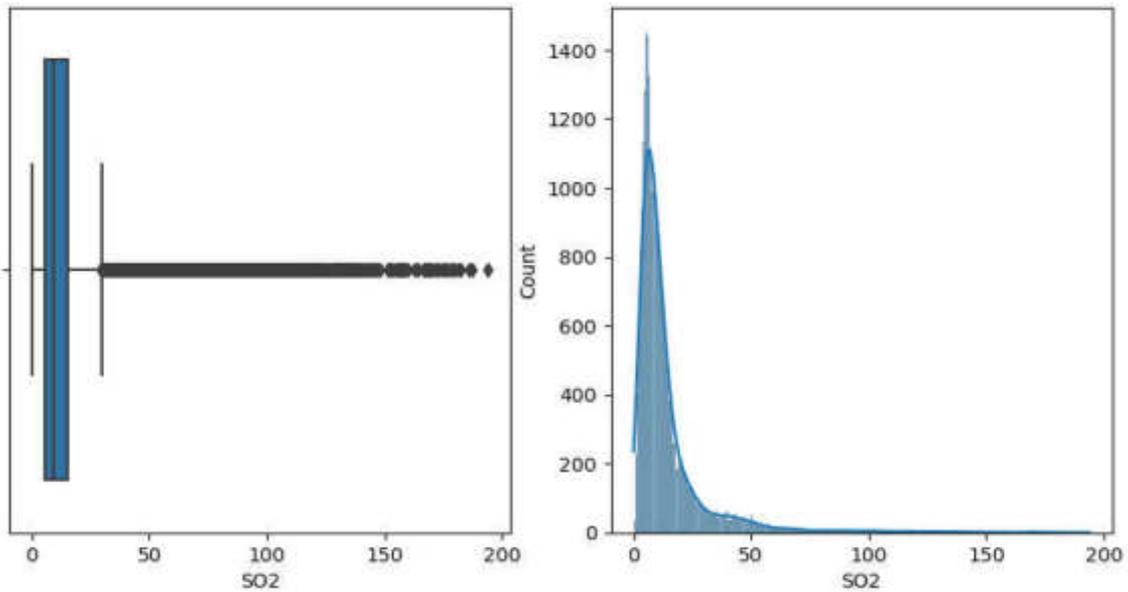
Fig : 6.10 Distribution plot and box plot of SO2 pollutant

The distribution and box plot of SO2 pollutant show that the data is positively skewed, with a few outliers present in the upper range of values.

ix) O3
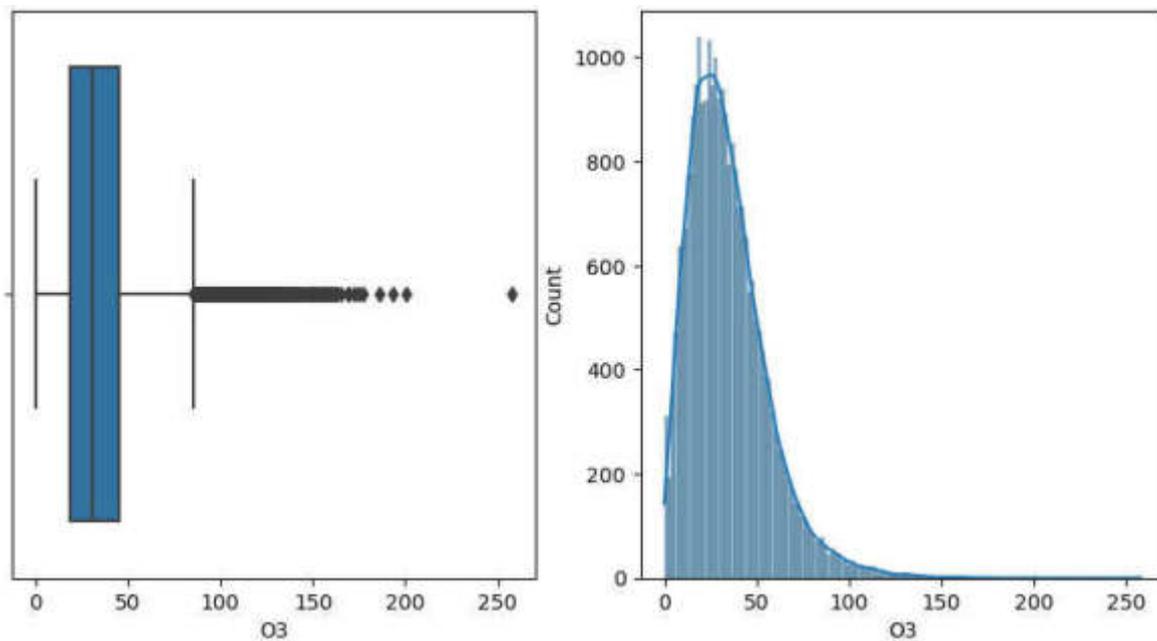
Fig : 6.11 Distribution plot and box plot of O3 pollutant

The distribution and box plot of O3 pollutant show that the data is positively skewed, with a few outliers present in the upper range of values.

6.1.4 Computing Interquartile Ranges (IQR) for All Pollutants.

Create a FUNCTION To Replace OutliersValue

```python
def replace_outliers(df, features):

    for feat in features:
        IQR = df[feat].quantile(0.75) - df[feat].quantile(0.25)
        lower_bridge = df[feat].quantile(0.25) - (IQR * 3)
        upper_bridge = df[feat].quantile(0.75) + (IQR * 3)
        df.loc[df[feat] >= upper_bridge, feat] = upper_bridge

    return df
```

Fig : 6.13 IQR for all Pollutants

In these two lines of code, the replace_outliers function takes the data array as an input along with an optional multiplier parameter. It calculates the first quartile (Q1), third quartile (Q3), and the interquartile range (IQR) using the np.percentile function. Then, it replaces any values in the data array that fall outside the lower and upper bounds (defined by Q1 - multiplier * IQR and Q3 + multiplier * IQR, respectively) with np.nan.

6.1.5 AQI Outliers and Missing Values Imputation.

	City	PM2.5	PM10	NO	NO2	NOx	NH3	CO	SO2	O3	Benzene	Toluene	AQI	date	month	year
0	Ahmedabad	48.57	95.68	0.92	18.22	17.15	15.85	0.92	27.64	108.70	0.00	0.02	NaN	1	1	2015
1	Ahmedabad	48.57	95.68	0.97	15.69	16.46	15.85	0.97	24.55	34.06	3.68	5.50	NaN	2	1	2015
2	Ahmedabad	48.57	95.68	17.40	19.30	29.70	15.85	3.90	29.07	30.70	6.80	16.40	NaN	3	1	2015
3	Ahmedabad	48.57	95.68	1.70	18.48	17.97	15.85	1.70	18.59	36.08	4.43	10.14	NaN	4	1	2015
4	Ahmedabad	48.57	95.68	22.10	21.42	37.76	15.85	3.90	36.97	39.31	7.01	18.89	NaN	5	1	2015
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29526	Visakhapatnam	15.02	50.94	7.68	25.06	19.54	12.47	0.47	8.55	23.30	2.24	12.07	41.0	27	6	2020
29527	Visakhapatnam	24.38	74.09	3.42	26.06	16.53	11.99	0.52	12.72	30.14	0.74	2.21	70.0	28	6	2020
29528	Visakhapatnam	22.91	65.73	3.45	29.53	18.33	10.71	0.48	8.42	30.96	0.01	0.01	68.0	29	6	2020
29529	Visakhapatnam	16.64	49.97	4.05	29.26	18.80	10.03	0.52	9.84	28.30	0.00	0.00	54.0	30	6	2020
29530	Visakhapatnam	15.00	66.00	0.40	26.85	14.05	5.20	0.59	2.10	17.05	1.07	2.97	50.0	1	7	2020

Fig : 6.14 Outliers & Missing values Imputation

6.1.6 Handle Categorical Data using Ordinal Encoding.

```
df_new['City_encoded'] = encoder.fit_transform(df_new[['City']])+1
df_new
```

	City	PM2.5	PM10	NO	NO2	NOx	NH3	CO	SO2	O3	Benzene	Toluene	AQI	date	month	year	City_encoded
0	Ahmedabad	48.57	95.68	0.92	18.22	17.15	15.85	0.92	27.64	108.70	0.00	0.02	118.0	1	1	2015	1
1	Ahmedabad	48.57	95.68	0.97	15.69	16.46	15.85	0.97	24.55	34.06	3.68	5.50	118.0	2	1	2015	1
2	Ahmedabad	48.57	95.68	17.40	19.30	29.70	15.85	3.90	29.07	30.70	6.80	16.40	118.0	3	1	2015	1
3	Ahmedabad	48.57	95.68	1.70	18.48	17.97	15.85	1.70	18.59	36.08	4.43	10.14	118.0	4	1	2015	1
4	Ahmedabad	48.57	95.68	22.10	21.42	37.76	15.85	3.90	36.97	39.31	7.01	18.89	118.0	5	1	2015	1
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29526	Visakhapatnam	15.02	50.94	7.68	25.06	19.54	12.47	0.47	8.55	23.30	2.24	12.07	41.0	27	6	2020	26
29527	Visakhapatnam	24.38	74.09	3.42	26.06	16.53	11.99	0.52	12.72	30.14	0.74	2.21	70.0	28	6	2020	26
29528	Visakhapatnam	22.91	65.73	3.45	29.53	18.33	10.71	0.48	8.42	30.96	0.01	0.01	68.0	29	6	2020	26
29529	Visakhapatnam	16.64	49.97	4.05	29.26	18.80	10.03	0.52	9.84	28.30	0.00	0.00	54.0	30	6	2020	26
29530	Visakhapatnam	15.00	66.00	0.40	26.85	14.05	5.20	0.59	2.10	17.05	1.07	2.97	50.0	1	7	2020	26

Fig : 6.15 Categorical Data

Handle Categorical Data using Ordinal Encoding in this section I write can the city column is category data so encoding with ordinal encoding to separate cities to

6.1.7 Correlation Matrix Heatmap of Columns.
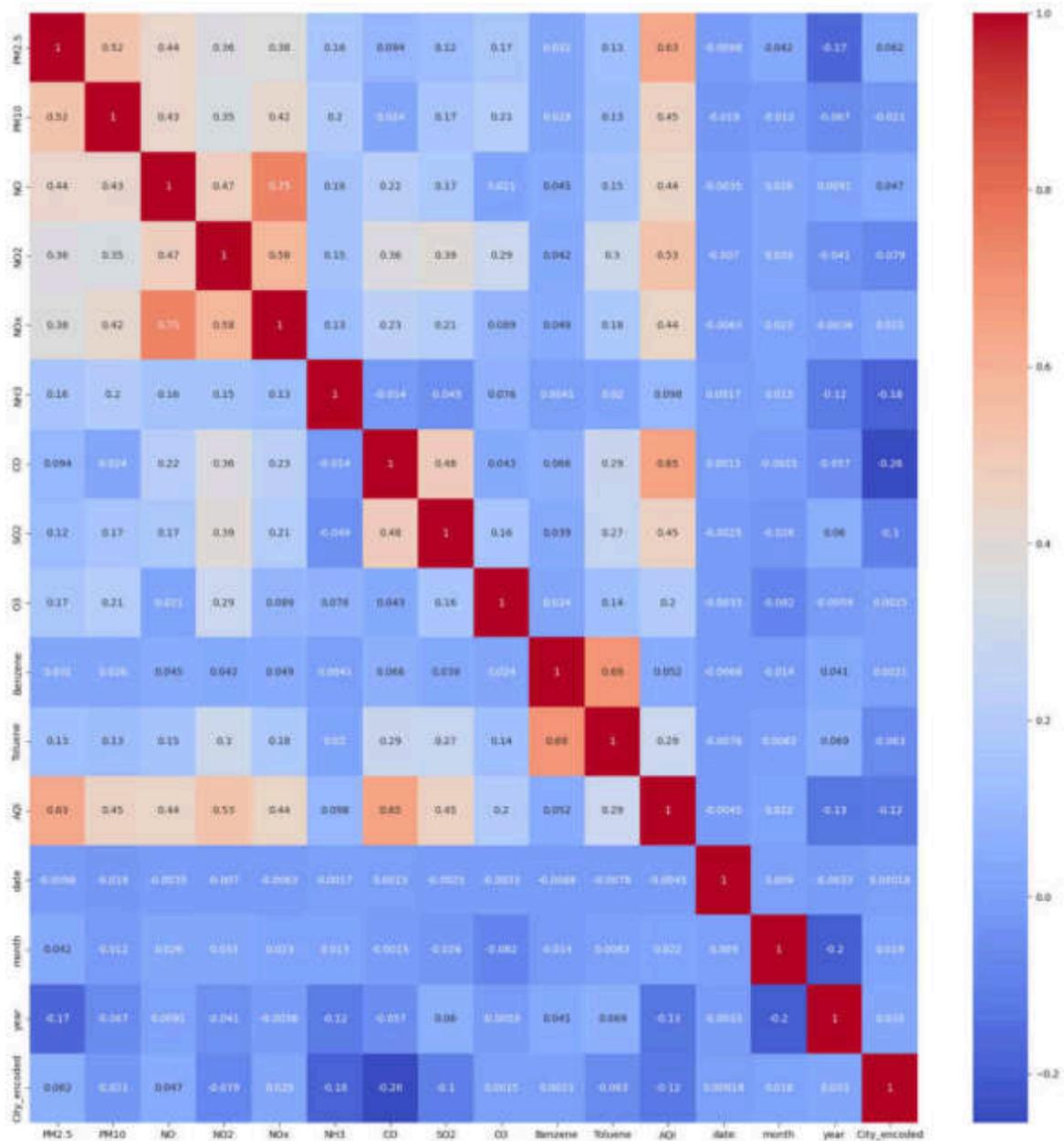
Fig : 6.16 Correlation Matrix

● The correlation matrix generated in this section highlights the strong correlation between AQI and pollutants such as PM2.5, PM10, NO, CO, and O3. These pollutants are observed to have a significant impact on the AQI.

Chapter 7. COMPARATIVE STUDY 1: MODEL SELECTION AND TRAINING USING MACHINE LEARNING

7.1 ALGORITHM SELECTION :

7.1.1 Regression Algorithm:

i) Linear Regression - The data is preprocessed and trained with a linear regression algorithm to predict the AQI.Linear regression is used to analyze the relationship between a dependent variable (also known as the target variable) and one or more independent variables (also known as predictor variables). It helps in understanding how changes in the independent variables affect the dependent variable.

MAE	RMSE	R-square
29.9022	54.4631	0.8073

Table : 7.1 Performance metrics of Regression

ii) Lasso Regression - Lasso regression is used to perform variable selection and regularization in linear regression models. It helps to identify the most relevant features or predictors while shrinking the coefficients of less important or irrelevant features towards zero, also known as L1 regularization, is a variant of linear regression that adds a penalty term to the loss function to encourage sparse and feature selection. It is used for both variable selection and regularization, making it especially useful in situations where there are many potential predictors.

MAE	RMSE	R-square
29.9086	54.4637	0.8073

Table : 7.2 Performance metrics of Lasso

iii) Ridge Regression - Ridge regression is used to reduce the impact of multicollinearity and overfitting in linear regression models. It adds a regularization term to the loss function, which helps in controlling the complexity of the model and stabilizing the estimates of the coefficients. It adds an L2 penalty term to the loss function, which is the sum of the squared values of the coefficients multiplied by a regularization parameter (lambda or alpha). The L2 penalty discourages large coefficients and encourages the model to distribute

the impact of predictors more evenly.

MAE	RMSE	R-square
29.9086	54.4637	0.8073

Table : 7.3 Performance metrics of Ridge

iv) ElasticNet - ElasticNet is a regularization technique that combines both L1 (Lasso) and L2 (Ridge) regularization penalties in linear regression, allowing for effective feature selection and handling correlated predictors. It aims to overcome the limitations of Lasso and Ridge regression by providing a flexible approach for feature selection and controlling the model complexity. ElasticNet is used for variable selection, regularization, and dealing with multicollinearity in linear regression models.

MAE	RMSE	R-square
29.9702	54.4648	0.8073

Table : 7.4 Performance metrics of ElasticNet

v) K-Nearest Neighbour - K-Nearest Neighbour used for classification and regression tasks. It is a non-parametric method that makes predictions based on the k nearest data points in the feature space.It is based on the principle that similar data points tend to belong to the same class or have similar output values. It classifies or predicts the target variable of a new data point by considering the labels or values of its k nearest neighbors.

MAE	RMSE	R-square
22.3620	48.6877	0.8460

Table : 7.5 Performance metrics of KNN

vi) Decision Tree - A Decision Tree is a supervised machine learning algorithm used for both classification and regression tasks. It creates a tree-like model of decisions and their possible consequences based on feature attributes. It is constructed using a hierarchical structure of nodes, where each node represents a decision based on a feature attribute. The tree starts with a root node and branches out into child nodes based on different attribute values. Decision nodes evaluate a feature attribute and make a decision based on its value. Each decision node represents a splitting point in the data, separating it into different branches.Leaf nodes represent the final outcomes or predictions. They are the endpoints of the decision process and provide the predicted class label or value for a given input.

MAE	RMSE	R-square
27.8958	59.4832	0.7701

Table : 7.6 Performance metrics of Decision Tree

7.1.2 Ensembles Techniques
- **Bagging and Boosting**

i) XGBoost - XGBoost (Extreme Gradient Boosting) is a powerful machine learning algorithm that belongs to the gradient boosting family. It is known for its exceptional performance and is widely used in various machine learning competitions and real-world applications.It is an advanced implementation of gradient boosting, which is an ensemble learning technique that combines multiple weak learners (typically decision trees) to create a strong predictive model. It sequentially trains new models to correct the errors made by previous models, resulting in improved predictions.

MAE	RMSE	R-square
20.6652	41.8571	0.8861

Table : 7.7 Performance metrics of XGBoost

ii) AdaBoost - AdaBoost (Adaptive Boosting) is a machine learning algorithm that belongs to the ensemble learning family. It is a boosting algorithm that combines multiple weak learners to create a strong predictive model. It is a sequential algorithm that trains a series of weak learners (often decision trees) in an iterative manner. Each weak learner is trained on a modified version of the original training data, where the emphasis is placed on the instances that were misclassified by the previous learners.

MAE	RMSE	R-square
146.7496	160.2119	-0.6673

Table:7.8 Performance metrics of Adaboost

iii) CatBoost - CatBoost is a high-performance gradient boosting framework that is designed to handle categorical features effectively. It is a machine learning algorithm that belongs to the ensemble learning family, similar to AdaBoost and XGBoost. It is based on the gradient boosting framework, which combines multiple weak learners (decision trees) to create a powerful predictive model. It uses gradient-based optimization techniques to minimize the loss function and improve prediction accuracy.

MAE	RMSE	R-square
20.1288	41.2884	0.8892

Table : 7.9 Performance metrics of CatBoost

iv) Random Forest - Random Forest is a popular machine learning algorithm that belongs to the ensemble learning family. It combines multiple decision trees to create a robust and accurate predictive model. It is an ensemble learning method that combines the predictions of multiple decision trees to make the final prediction. Each decision tree is built independently on a randomly sampled subset of the training data. It uses decision trees as its base learners. Decision trees are binary tree-like structures that make predictions by following a series of if-else conditions based on the input features.

MAE	RMSE	R-square
21.2258	42.2984	0.8994

Table : 7.10 Performance metrics of Random Forest

```python
models = {
    "Linear Regression": LinearRegression(),
    "Lasso": Lasso(),
    "Ridge": Ridge(),
    "ElasticNet" : ElasticNet()
    "K-Neighbors Regressor": KNeighborsRegressor(),
    "Decision Tree": DecisionTreeRegressor(),
    "Random Forest Regressor": RandomForestRegressor(),
    "XGBRegressor": XGBRegressor(),
    "AdaBoost Regressor": AdaBoostRegressor()
    "CatBoost Regressor": CatBoostRegressor()
}
model_list = []
r2_list =[]

for i in range(len(list(models))):
    model = list(models.values())[i]
    model.fit(X_train, y_train) # Train model

    # Make predictions
    y_train_pred = model.predict(X_train)
    y_test_pred = model.predict(X_test)

    # Evaluate Train and Test dataset
    model_train_mae , model_train_rmse, model_train_r2 = evaluate_model(y_train, y_train_pred)

    model_test_mae , model_test_rmse, model_test_r2 = evaluate_model(y_test, y_test_pred)
```

Fig : 7.1 Function of Models

7.2 EVALUATION METRICS:

	Models	R2_SCORE
0	Linear Regression	0.807318
1	Lasso regression	0.807314
2	Ridge Regression	0.807318
3	ElasticNet	0.807306
4	K-Nearest Neighbour	0.846017
5	XGBoost	0.886191
6	AdaBoostRegressor	-0.667345
7	CatBoostRegressor	0.889263
8	Decision Tree	0.770161
9	Random Forest	0.884384

Fig : 7.2 Models of R2_Score

Evaluated the performance of 10 algorithms on our dataset and measured their r2-score. The results showed that XGBoost had the highest accuracy of 88%, followed by CatBoostRegressor with 88% r2-score. Decision Tree and AdaboostRegressor had the lowest r2-score of 77% and -66%, respectively. We have included a bar chart visualization of the evaluation results for all 10 algorithms (see Figure below).
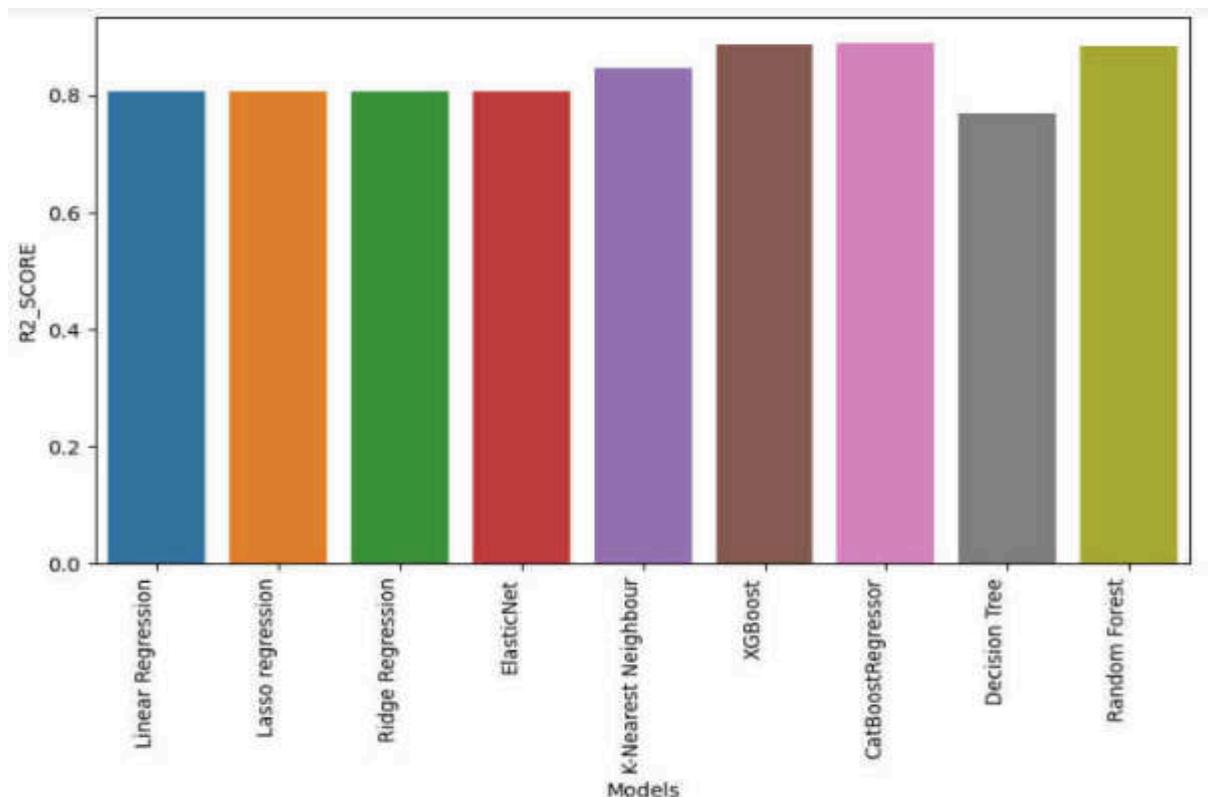
Fig : 7.3 Bar chart of R2_Score

Chapter 8. COMPARATIVE STUDY 2: MODEL SELECTION AND TRAINING USING POSTGRESML

8.1 INTRODUCTION TO POSTGRESML:

PostgresML is an open-source extension of the popular PostgreSQL database that brings the power of machine learning to relational databases. It enables users to train, evaluate, and deploy machine learning models using SQL queries, which is a unique feature not found in most other machine learning platforms. With PostgresML, you can leverage the rich data stored in your database and use it to create powerful predictive models without having to export the data to another tool for analysis. This can save significant time and effort, and also ensure data privacy and security.

PostgresML supports a variety of machine learning algorithms, including regression, classification, clustering, and time-series forecasting. These algorithms can be used for a wide range of use cases, such as fraud detection, customer churn prediction, demand forecasting, and more. PostgresML also provides features for hyperparameter tuning and model selection, which are essential for achieving optimal model performance. Additionally, it supports model explainability, which enables users to understand the factors that contribute to the model's predictions and make informed decisions based on them.

Overall, PostgresML is a powerful tool for integrating machine learning into your database workflow and making data-driven decisions. Its capabilities for model training and deployment using SQL queries, along with its support for a variety of machine learning algorithms and features, make it a compelling choice for organizations looking to leverage their data for predictive analytics.

8.2 IMPLEMENTATION OF VARIOUS ALGORITHMS IN POSTGRESML:

PostgresML is a powerful tool for machine learning in PostgreSQL. The algorithms covered in PostgresML include Gradient Boosting, Scikit Ensembles, Support Vector Machines, and Linear Models. With PostgresML, it is easy to apply these algorithms to datasets within the familiar SQL environment. In addition, PostgresML provides various functions such as pgml.train and pgml.predict, making it easy to train and predict models directly within PostgreSQL. Users can simply write a query to train a model using the pgml.train function and use it for predictions. This seamless integration of machine learning capabilities into the SQL environment makes it a valuable tool for data scientists and developers.
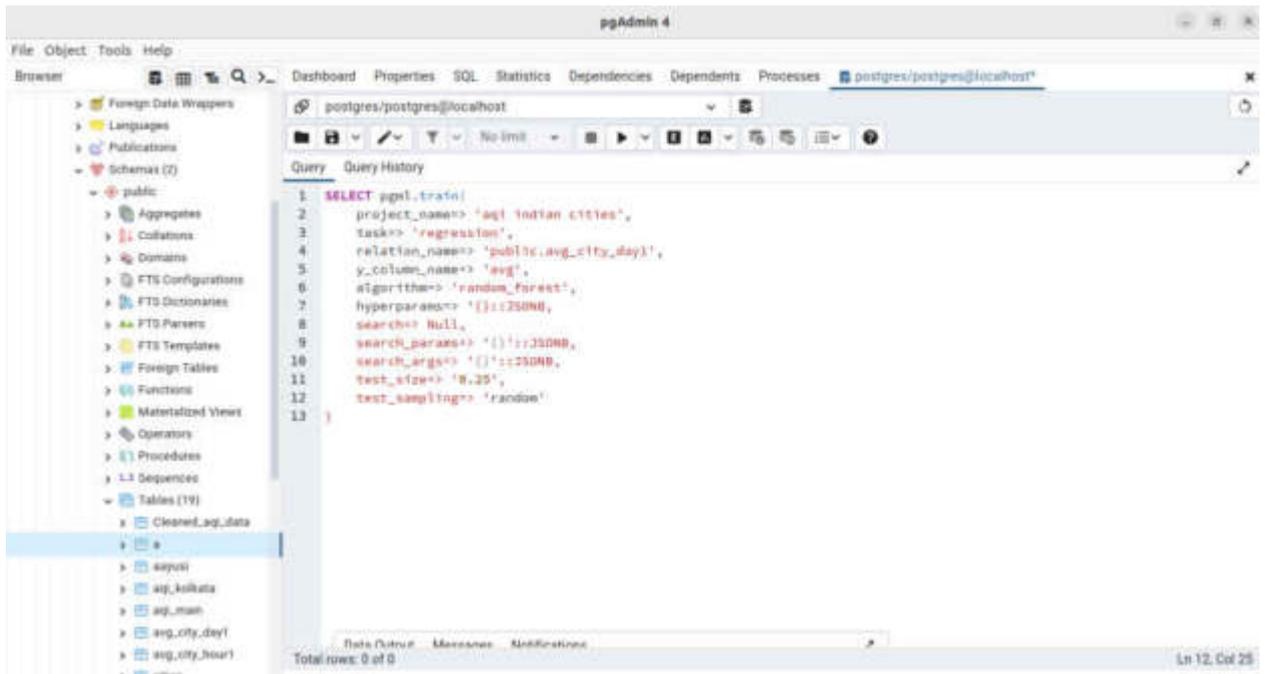
Fig : 8.1 Postgres
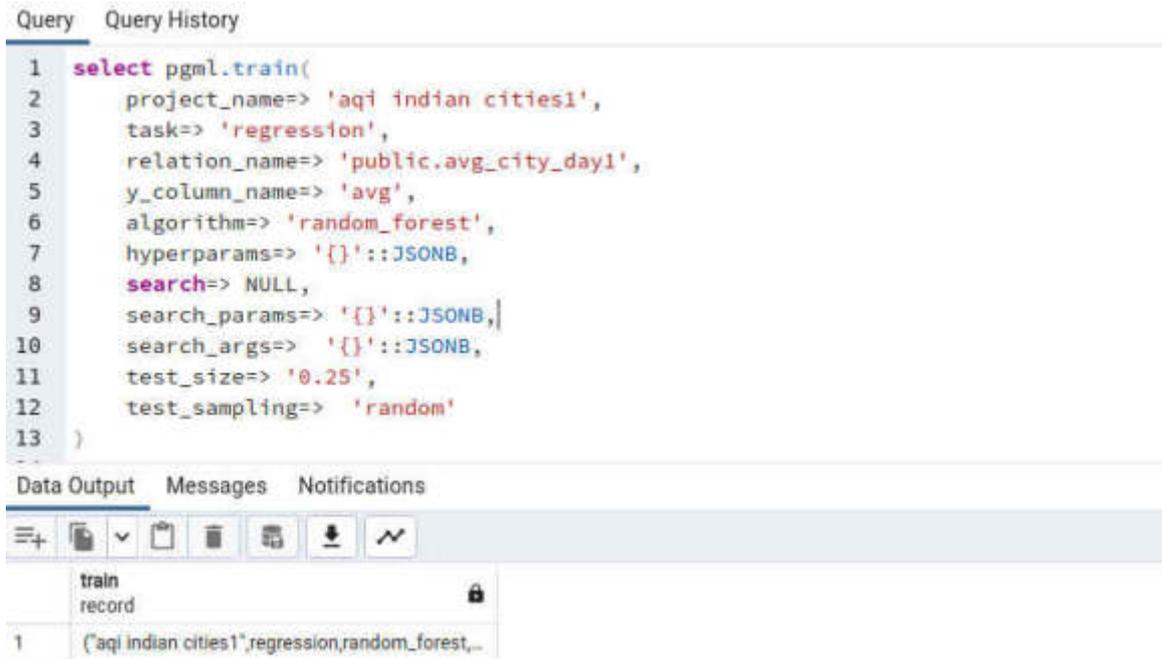
Fig : 8.2 PGML Query

After training the model using the code above, the next step is to use the trained model for making predictions. This can be done using the pgml.predict function in PostgresML. The pgml.predict function takes as input the trained model, as well as the data on which predictions are to be made. Once the predictions have been made, they can be stored in a table or used for further analysis.

city integer	aql_month integer	aql_yr integer	algo_random_forest double precision	algo_svm double precision
25	3	2018	136.7958984375	106.45738220214844
12	11	2017	84.60784912109375	106.45292663574219
13	3	2017	238.26791381835938	106.45394897460938
14	3	2017	104.87676239013672	106.4542465209961
4	12	2017	211.2661895751953	106.45049285888672

algo_lasso double precision	algo_gradient_boosting double precision	algo_linear double precision
118.47492218017578	153.80332946777344	153.8369140625
145.3836212158203	140.1623077392578	145.5
181.42727661132812	181.97499084472656	139.3740234375
99.69815063476562	96.20331573486328	140.953125
170.40792846679688	162.7720489501953	133.8251953125

Fig : 8.3 Output

With PostgresML, I can train models using various algorithms such as Gradient Boosting, Scikit Ensembles, Support Vector Machines, Linear Models, and more in PostgresML. Once the model is trained, it can be used for making predictions using the pgml.predict function, which takes the trained model and the data for which predictions are to be made as inputs.

Chapter 9. IMPLEMENTATION WEB APPLICATION

9.1 COMPARATIVE STUDY 1:

The web application was developed using Flask, a widely used Python web framework, and a combination of front-end including HTML, and CSS. It enables users to predict the AQI for 26 Indian cities based on their chosen month and year. Machine learning models, trained on historical AQI data, are utilized by the application to generate forecasts for the selected time period and city. The predicted AQI values are then presented on a heatmap that provides an easy-to-understand representation of the air quality across the cities. The heatmap presented by the application is generated using the Folium library, which is a Python package used for visualizing geospatial data. Folium allows for the creation of interactive maps that can be customized with various markers, icons, and colors. In this case, the heatmap is used to display the predicted AQI values. Overall, the combination of Flask, front-end technologies, and machine learning models, along with the Folium library, make for a powerful and user-friendly web application for predicting and visualizing air quality in India.

❖ **Requirements Packages:**
  python == 3.8.0
  Flask == 2.2.2
  joblib == 1.1.0
  folium == 0.14.0
  streamlit-folium == 0.11.1
  pandas == 1.4.3
  numpy == 1.23.0
  pip == 22.1.2
  sklearn == 0.0
  scipy == 1.8.1
  scikit-learn == 1.1.1
  basemap == 1.3.6
  markdown == 3.4.1
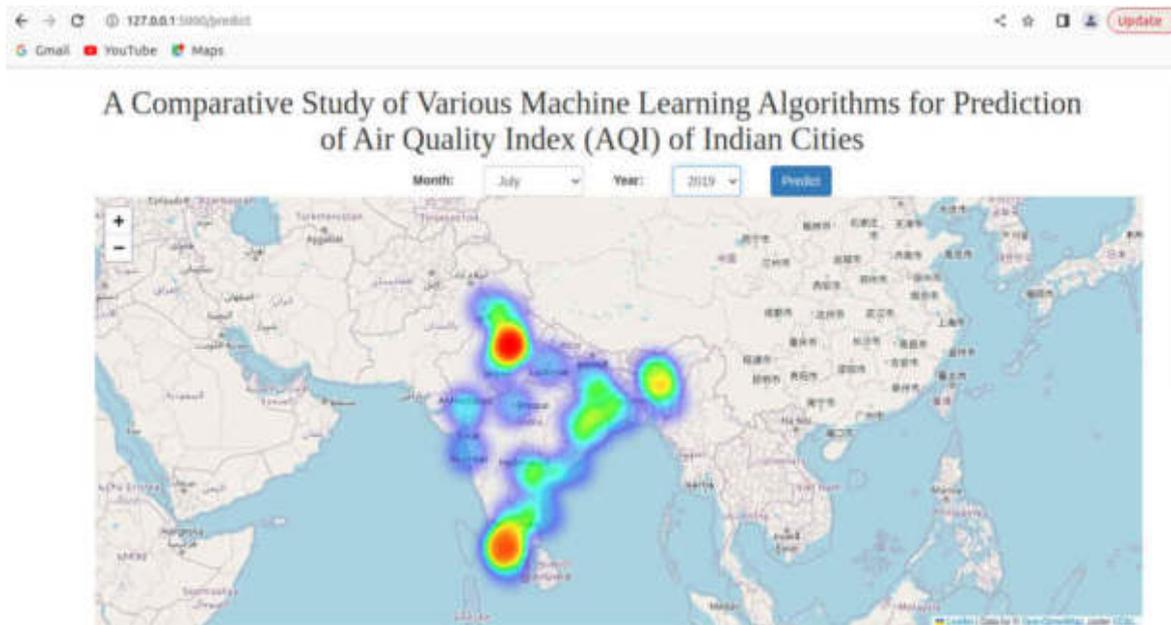
Fig : 9.1 Heatmap of AQI

9.2 COMPARATIVE STUDY 1:

The second web application also uses the Flask framework and the Folium library to visualize the base map and display the predicted AQI values for the selected month and year, with the values displayed on an appropriate city basis. When a user hovers over a city, the AQI value for that city is displayed along with an action-marker icon indicating the AQI bucket. The AQI values range from 0 to 500, with higher values indicating poorer air quality. To provide a clear understanding of the air quality levels in each city, the AQI values are categorized into five buckets:

- Good (AQI 0-50)
- Moderate (AQI 51-100)
- Unhealthy (AQI 101-200)
- Very Unhealthy (AQI 201-300)
- Hazardous (AQI 301-500)

To make the information easily accessible to users, the AQI values for each city are displayed with a color scheme that corresponds to the AQI bucket. The color scheme ranges from green (for good AQ), yellow(for moderate AQ), orange(for unhealthy), red(for very unhealthy), and purple(for hazardous AQ). By using this visual representation, users can quickly identify the air quality levels in different cities and make informed decisions based on the AQI values for their location of interest.[6]
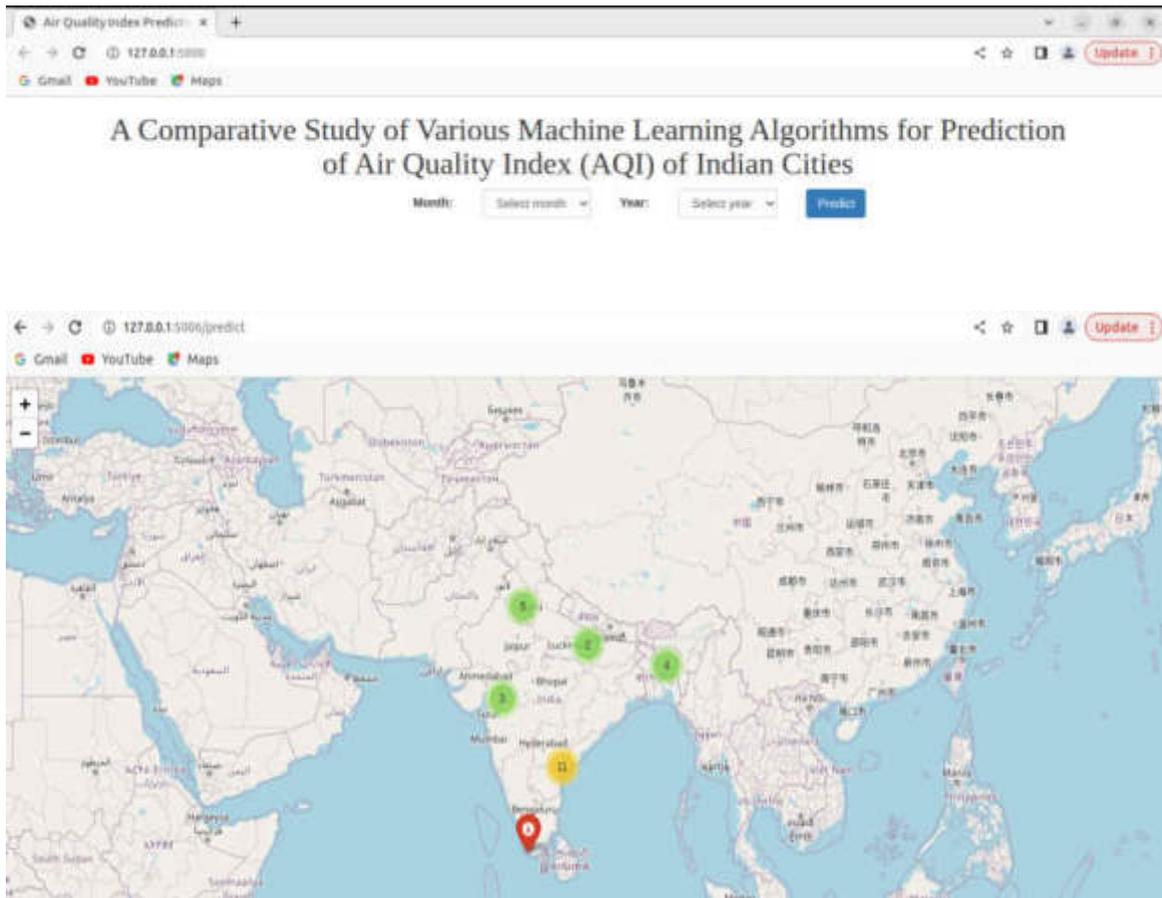
Fig : 9.2 Layout of Web Application
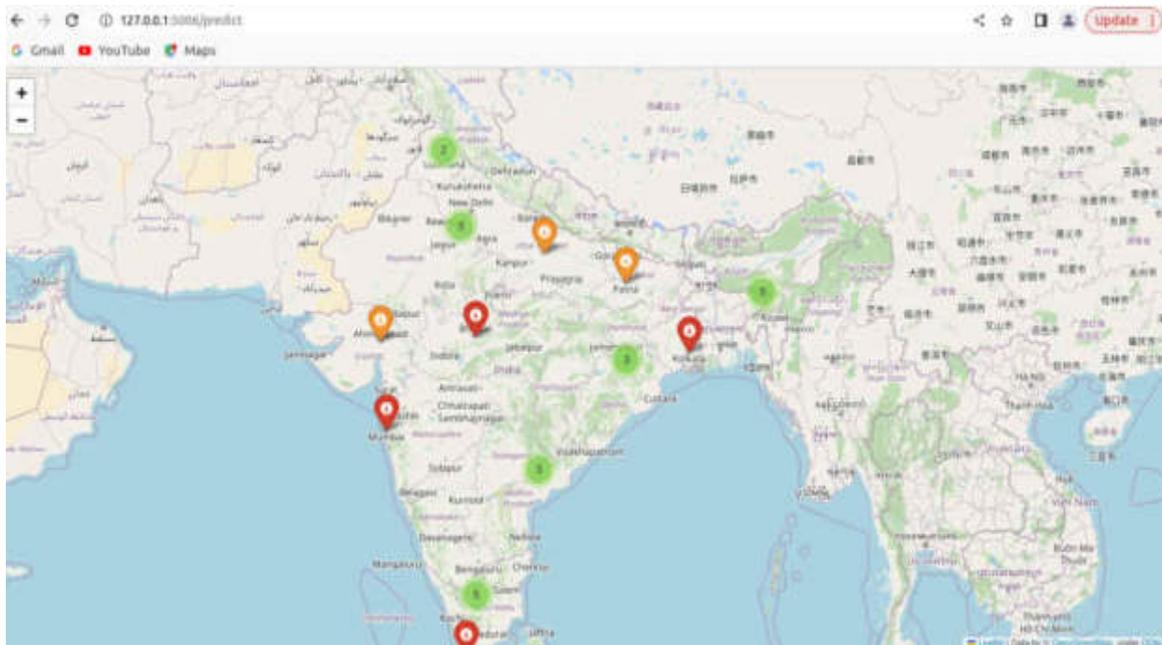
Fig : 9.3 Pop of AQI Values

9.3 COMPARATIVE STUDY 2:

The second comparative study made a web application using front-end technologies, GeoServer, and an API. Users can select a month and year, and then click on a city point. When a user clicks on a city location, the location point changes based on the AQI bucket. However, in this application, when a user clicks on a city, the location point for that city is changed based on the AQI bucket. GeoServer, an open-source server for sharing geospatial data, was used to store and manage the location data for the 26 cities. After obtaining the location data, I used PostgreSQL, a powerful open-source database management system, to join the database and predict the AQI based on the PGML-trained model. PGML is an extension for PostgreSQL that allows for the development and deployment of machine learning models within PostgreSQL. The trained model was used to predict the AQI levels for each city based on historical data. By utilizing these technologies, the web application provides an interactive and user-friendly way for users to explore the AQI levels in different cities. The predicted AQI values are displayed for each city with a color scheme that corresponds to the AQI bucket, ranging from green (for good AQ), yellow (for moderate AQ), orange (for unhealthy), red (for very unhealthy), to purple (for hazardous AQ).
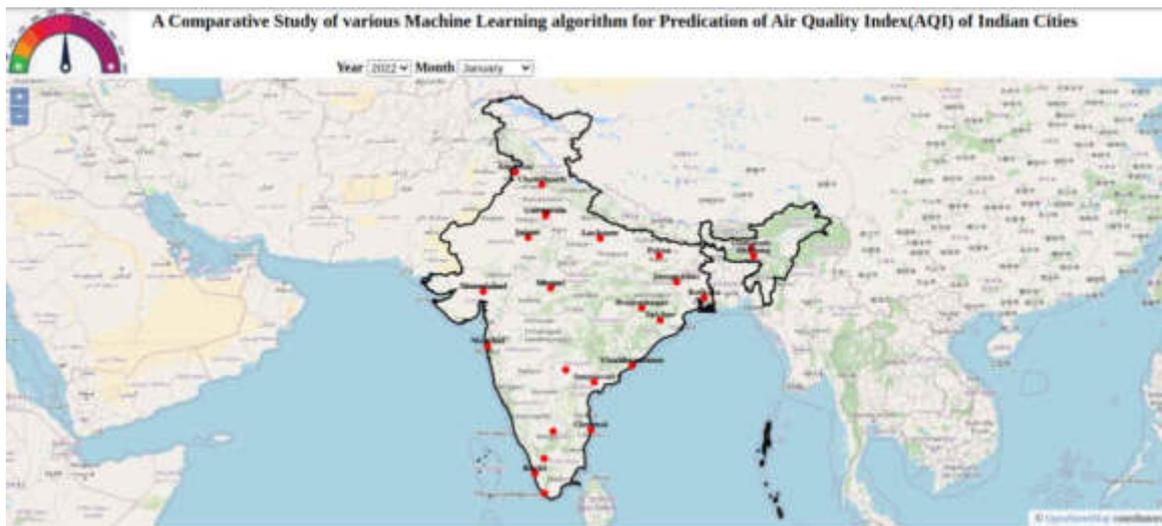
Fig : 9.4 Layout of Web Application

Fig : 9.5 Output_1

Fig : 9.6 Output_2

In this study, I utilized OpenLayers to add the location data of 26 Indian cities to the GeoServer. OpenLayers is a powerful JavaScript library that can display interactive maps and geospatial data in web browsers. Using OpenLayers allowed us to display the location data in a clear and visually appealing way for the user. By creating a web map, users were able to easily navigate the different cities and visualize the AQI levels on a map. The GeoServer provided a reliable and efficient way to store and manage the location data for the 26 cities. This allowed us to easily retrieve the necessary information for the web application without having to deal with complex data management issues. Overall, the combination of OpenLayers and GeoServer made it possible to create an engaging and interactive web application for exploring AQI levels in different cities.
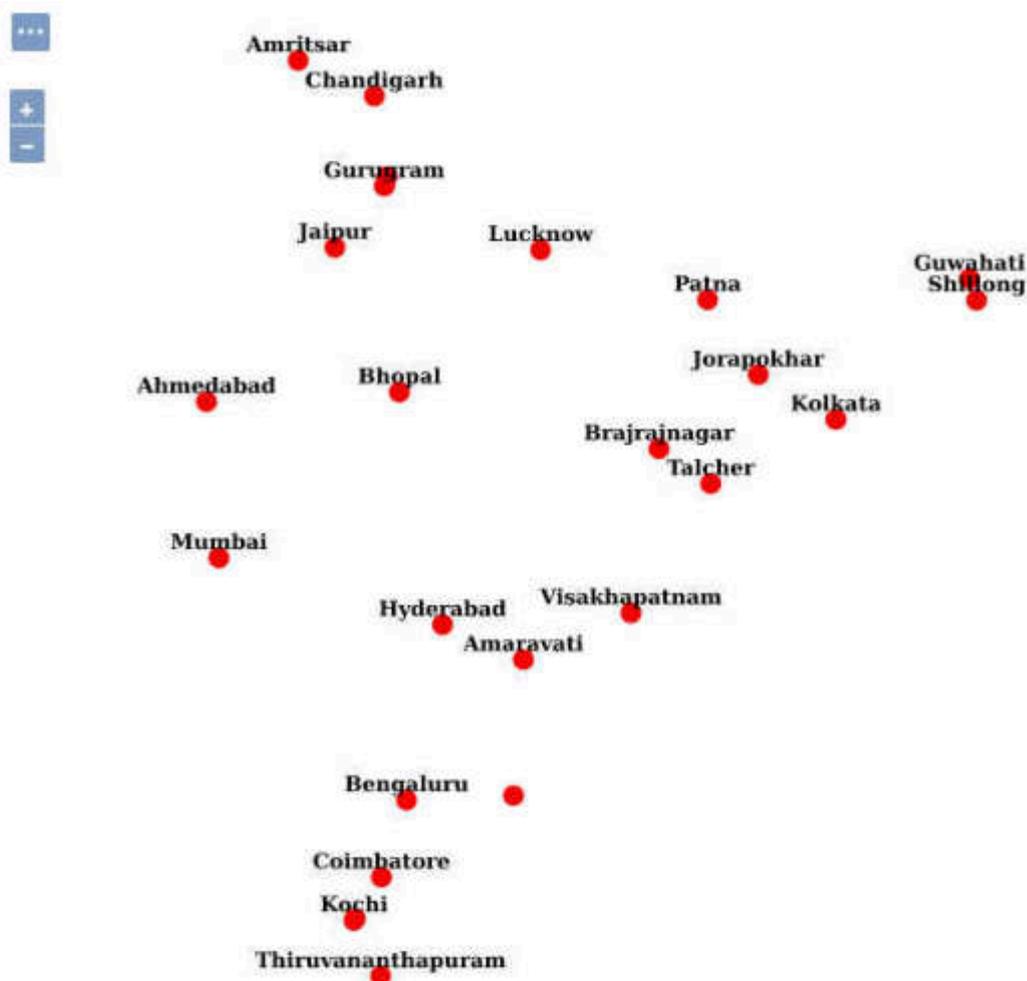
Fig : 9.7 Cities Openlayer

Chapter 10. CONCLUSION

In this project, we conducted a comparative study between traditional machine learning and PGML for predicting AQI in 26 Indian cities. In the first study, we applied exploratory data analysis on a five-year dataset and trained 11 supervised learning algorithms. The algorithm with the highest accuracy was selected to build a model that predicts AQI. We then created a web application using Flask and front-end technologies, where users can select a month and year and see the predicted AQI values for all 26 cities on a heatmap.

In the second study, we used PostgreSQL and PGML to store and manage location data for the 26 cities and predict AQI based on various meteorological factors. GeoServer was used to visualize the location data on a map in the web application. Users can select a month and year and click on a city location point to see the AQI value and its corresponding AQI bucket color.

Overall, both studies provided useful insights into predicting AQI in Indian cities. The traditional machine learning approach required training and evaluating multiple models but resulted in an accurate prediction of AQI. The PGML approach provided a more efficient way of predicting AQI and integrating it into a web application.

Chapter 11. FUTURE SCOPE

While the project achieved its goals of predicting AQI in 26 Indian cities using traditional machine learning and PostgresML, there are still many opportunities for further research and development. Here are some potential areas for future work:

1. Alerts for high AQI levels: In addition to predicting AQI levels, providing alerts to users when AQI levels are high could help individuals take action to protect their health. Future work could explore the integration of alert systems into the web application, such as sending notifications to users' mobile devices when AQI levels reach a certain threshold.

2. Integration with smart cities: Smart city initiatives are becoming more prevalent in India and around the world. Integrating AQI prediction and monitoring systems into smart city infrastructure could help city planners make more informed decisions about urban development and improve the overall health and well-being of city residents.

3. Evaluation of alternative machine learning techniques: While this project focused on traditional machine learning and PostgresML, there are many other machine learning techniques that could be applied to AQI prediction. Future work could evaluate the performance of other techniques, such as deep learning, and compare them to the traditional and PGML approaches used in this project.

Overall, the future scope of this project is vast, and there are many opportunities for further research and development to improve AQI prediction and monitoring systems in India and around the world.

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INTERNSHIP AT WEBS OPTIMIZATION SOFTWARE SOLUTION

AN INTERNSHIP REPORT

Submitted by

Thakkar Jay Nileshbhai

190390116048

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology

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 Webs Optimization Software Solution** has been carried out by **Thakkar Jay Nileshbhai** under my guidance in partial fulfillment for the degree of Bachelor of Engineering in Information Technology, 8th Semester of Gujarat Technological University, Ahmedabad during the academic year 2022-23.

Sign   Sign

Prof. Sushama Sainwer   Prof. Akshay Kansara

Internal Guide   Head of Department

Company Certificate

WEBSOPTIMIZATION

Date: 02/05/2023

TO WHOM IT MAY CONCERN

This is to certify that **Thakkar Jay Nileshbhai**, a student of **S. P. B. Patel Engineering College, Mehsana** has successfully completed his internship in the field of **PHP Developer** from **01/02/2023** to **30/04/2023** (Total number of Weeks: **12**) under the guidance of **Abhishek Panchal**.

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 Webs Optimization Software Solution

Received

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<u>DECLARATION</u>

We hereby declare that the Internship / Project report submitted along with the Internship entitled **Internship at Webs Optimization Software Solution** submitted in partial fulfillment for the degree of Bachelor of Engineering in **Information Technology** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwer & Abhishek Panchal (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. **Thakkar Jay Nileshbhai**
_____

Acknowledgement

While conducting the Major Project on Event Ticket Booking System, innumerable people have given me various suggestions and opinions. I have tried to incorporate all those suggestions which are really relevant in preparing my final report. I think it is essential to thank all those who have contributed and helped me throughout the duration of the project.

I pay my immense gratitude to **Prof. Sushama Sainwer, Faculty of "Saffrony Institute Of Technology"** for his continuous and deliberate discussion on the topic and indeterminable burden taken by him in helping us throughout conducting the project.

I would like to extend heartiest thanks to **Mr. Abhishek Panchal, Tech Leader at Webs Optimization Software Solution** for supporting me during the internship period. He guided me all the time and motivated me within his busy schedule. I would also like to thank our senior colleagues and trainers at Webs Optimization Software Solution who helped me time to time.

Finally, I am thankful to all the people who willingly responded to the questionnaire and their contribution has been invaluable. This project would not have been completed without their participation.

I am pleased to state that the whole report is just the presentation of the facts that have been found during the project work through different sources and its each sentence is an exact representation of the information obtained and the analysis there for. We hope that we have manifested our sincere attempts to represent all the information and other things to the best of our ability.

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Abstract

This report describes how ticket booking is done in any organisation, their problem statements on existing online ticket booking systems in order to acquaint with the available body of knowledge in our area of interest. The report gives a detailed study of the types of digital payment systems used as mode of payment.

Today more and more people are relying on information technology to perform their operations more efficiently. Computers are put to more use as tools of commerce, governance and education and they can no longer be looked at as luxury items. It is in the process of establishing information technology department in an effort to computerize its operations and service delivery to the public.

It is better at this time for all the organisers to come up with an online system that can make booking of tickets easy as part of improving operations and service delivery. The system study found that the existing system (manual) was very slow, prone to errors and hard to quickly generate integrated reports for fast decision-making. This project has developed an online system alternative for tickets booking. Users can book tickets online which makes the processes easier and fast.

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Chapter 1. Introduction

1.1 Company Profile

Webs Optimization Software Solution is a trusted offshore Web and Mobile Development Company in Ahmedabad, India. We offer extensive and integrated IT services that includes UI/UX design, Web development, Mobile development and Enterprise Resource solutions. Webs Optimization was co - founded by two like - minded professionals in 2013. Within a time span of just 10 years, we have successfully delivered over 430+ Web Development projects, 102+ Mobile applications to 85+ Clients all over the globe. With our proven performance history, we have delivered excellence across 40+ industries worldwide.

Webs Optimization Software Solution offers wide range of Web and Mobile development skill set with an efficient in-house team of professionals.

Webs Optimization has a sizable team with highly qualified professionals. Our stellar and Goal-Oriented developers implement their knowledge and experience to develop a successful and winning product. With high Technical Expertise we provide right solution to any of your robust requirements.

1.2 Problem Statement

"Event ticket booking system" refers to a system that is able to process tickets for all the events. All the organisers have been losing many customers due to a poor booking system for the events.

The organisers have to look for the agents and pay cash in specific areas around the city to purchase the tickets before any event which results in long queues and time wastage.

Making an event ticket booking system for an organisation and a user, to reduce the time and efforts of an organisation and a user, by implementing a website in which the organisation can create and manage the event whereas the user can book the tickets for the event.

It will improve efficiency, accuracy and also enhance customer experience by automating many of the manual tasks involved in ticket sales. This system can help to reduce the potential for human error and increase the efficiency of ticket sales processes.

1.3 Purpose of Project

The purpose of an event ticket booking project is to create a system that allows customers to browse, search for, and purchase tickets for various events, such as seminar, workshop, concerts, sports games, theatre shows, and more. The main objective of the project is to provide a convenient and user-friendly platform for customers to access information about events and book their tickets online.

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1.4 Overview

An event ticket booking system is a software application designed to facilitate the purchase and management of tickets for events such as concerts, sports games, theatre shows, and other entertainment events. The system typically provides an online platform where users can browse upcoming events, select their preferred seats or sections, and make secure payments using various payment options.

The system is typically operated by event organisers or ticketing companies, who use it to manage ticket inventory, pricing, and promotions, as well as to collect customer data. The system may also include features such as mobile ticketing, and seat mapping to enhance the user experience and streamline the check-in process at the event

The primary benefits of an event ticket booking system include convenience and accessibility for customers, increased efficiency and accuracy for event organisers, and improved data collection and analysis for marketing and planning purposes. The system can also help to prevent ticket fraud and scalping by implementing security measures such as digital ticket delivery and verification.

Overall, an event ticket booking system is a valuable tool for both event organisers and customers, offering a streamlined and secure way to manage and purchase event tickets.

1.5 Objective

The primary objective of the event ticket booking project is to create a comprehensive and efficient platform that provides a seamless experience to customers while booking tickets for events. By achieving these objectives, the project aims to increase customer satisfaction, revenue, and growth opportunities for the business.

1. Centralised database: To create a centralised database of events with complete information about the event, such as date, time, location, pricing, and seat availability.
2. User-friendly interface: To create an easy-to-use interface that allows customers to search, filter, and browse events based on their preferences.
3. Secure payment gateway: To ensure that the payment gateway is secure, reliable, and supports various payment methods, providing a safe and hassle-free transaction experience.
4. Real-time updates: To provide real-time updates to customers regarding any changes in the event schedule, availability of tickets, and other relevant information.

1.6 Tools & Technology

Tools and Technology	Version	Description
Visual Studio code	latest	Visual Studio Code is an integrated development environment made by Microsoft for Windows, Linux and macOS. Features include support for debugging, syntax highlighting, intelligent code completion, snippets, code refactoring, and embedded Git.

Tools and Technology	Version	Description
Xampp server	8.1.2	XAMPP is an abbreviation for cross-platform, Apache, MySQL, PHP and Perl, and it allows you to build WordPress site offline, on a local web server on your computer.
Chrome web browser	latest	Google chrome is a fast, secure, open-source browser, with a huge amount of developer options.
HTML	html5	Hyper Text Markup Language (HTML) is the basic scripting language used by web browsers to render pages on the world wide web.
CSS		CSS is used for designing web pages and making them more interactive.
PHP	8.1.2	PHP (Hypertext Pre-processor) is a widely- used open-source general- purpose scripting language that is especially suited for web development and can be embedded into HTML.

Table 1.6.1. Tools & Technology

Chapter 2. Project Scope

- This system allows event organisers to create and manage ticket sales for events, including ticket pricing, availability and payment processing.

- The user can easily explore different categories of the event, date, timeline and venue and then book the ticket for the event.

- The super admin can easily track the records of all the organisers, the users, all the events, ticket booking etc.

- Organisers can include the following events for booking tickets through our website.

  - Musical Events
  - Seminars and Conferences
  - Recreational and Cultural Events
  - Movies and Plays Sports Events

Chapter 3. Feasibility Study

3.1 Study of Existing System

This existing system is not providing secure registration and profile management of all the users properly. This system is not providing on-line help. This system doesn't provide tracking of user's activities and their progress. This manual system gives us very less security for saving data and some data may be lost due to mismanagement. This system is not providing event management through the internet. This system is not providing proper events information. The System is giving manual information through the event management executer.

3.2 Technical Feasibility

This involves questions such as whether the technology needed for the system exists, how difficult it will be to build, and whether the firm has enough experience using that technology. The assessment is based on outline design of system requirements in terms of input, processes, output, fields, programs and procedures. This can be qualified in terms of volume of data, trends, frequency of updating in order to give an introduction to the technical system. The application is the fact that it has been developed on windows XP platform and a high configuration of 1GB RAM on Intel Pentium Dual core processor. This is technically feasible. The technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the needs of the proposed system.

3.3 Economical Feasibility

Establishing the cost-effectiveness of the proposed system i.e., if the benefits do not outweigh the costs, then it is not worth going ahead. In the fast-paced world today there is a great need for online social networking facilities. Thus, the benefits of this project in the current scenario make it economically feasible. The purpose of the economic feasibility assessment is to determine the positive economic benefits to the organization that the proposed system will provide. It includes quantification and identification of all the benefits expected. This assessment typically involves a cost/benefits analysis.

3.4 Behavioural Feasibility

The behavioural feasibility of an event ticket booking system refers to whether users would be willing to adopt and use the system in their day-to-day activities. Here are some factors that can impact the behavioural feasibility of such a system:

1. User Interface: The user interface of the ticket booking system should be intuitive, easy to navigate, and visually appealing. Users should be able to quickly find the events they are interested in, select the seats they want, and complete the booking process without any hassles.

2. Payment System: The payment system should be secure and reliable, with multiple payment options such as credit/debit cards, net banking, and digital wallets. The system should also provide users with instant payment confirmation and receipts.

3. Ticket Delivery: The system should offer users multiple options for ticket delivery such as e-tickets, mobile tickets, or physical tickets, based on their preferences. The delivery should be prompt and reliable.

4. Customer Support: The system should provide reliable customer support to users, through multiple channels such as email, phone, and chat. Support should be available 24x7 to resolve any issues that users may face.

5. Marketing and Promotion: The system should offer users attractive discounts and promotions to encourage them to use the platform for ticket bookings. The system should also provide personalized recommendations and notifications for events that match the user's preferences.

Overall, the system should provide a hassle-free and seamless experience to users, which would encourage them to use it regularly for event ticket bookings. The system should also constantly evolve and incorporate feedback from users to improve its features and functionalities.

3.5 Operational Feasibility

Operational feasibility of an event ticket booking system refers to whether the system can be effectively integrated and implemented within an organization's existing processes and infrastructure. Here are some factors that can impact the operational feasibility of such a system:

1. Technical Infrastructure: The system should be compatible with the organization's existing technical infrastructure, including servers, databases, and networks. The system should also be able to handle high traffic volumes during peak periods without any downtime.

2. Integration with Existing Systems: The ticket booking system should be seamlessly integrated with existing systems like accounting, inventory management, and customer relationship management (CRM) to avoid any duplication of efforts and data discrepancies.

3. Training and Support: The system should provide adequate training to the staff responsible for using the system to ensure smooth adoption and usage. There should also be a support team available to resolve any issues that may arise during the usage of the system.

4. Regulatory Compliance: The system should comply with all applicable laws and regulations related to data privacy, online payments, and consumer protection.

5. Scalability: The system should be scalable to accommodate increasing demand during peak periods, such as ticket sales for popular events.

Overall, the system should be effectively integrated within the organization's existing processes and infrastructure, and should not require significant changes to be made to the organization's operations. The system should also be scalable and adaptable to the organization's changing requirements.

3.6 Requirement of New System

Minimum Requirement of making this App:

1. Requires a 2.6 GHz or faster processor. Quad-core or better recommended. Requires 4 GB of RAM or higher for load generation. Requires 10 GB of hard disk space.

2. Minimum Requirement to run this App:
   i. Google chrome: version 39.0.2171.99
   ii. Microsoft edge: version 79.0.309.11
   iii. Apple safari: version 537.85.17

3.7 Features of the New System

Here are some of the top five new features for event ticket booking systems that have the potential to skyrocket your event sales.

1. Different Reservation Options
2. Flexible Pricing Options
3. Works on all devices, Responsive and User-Friendly
4. Easy and Secure Payment Gateway
5. Sharing and Check-in Options

Chapter 4. Hardware & Software Requirements

4.1 Hardware Requirement

Admin-side Hardware requirement

Memory	Minimum 8GB RAM
Operating System	Windows
Hard Disk	500GB

Table 4.1.1. Admin-side hardware requirement

User-side Hardware requirement

Device	Any computer device / Mobile device
Memory	Minimum 2GB RAM
Storage	Minimum 16GB

Table 4.1.2. User-side hardware requirement

4.2 Software Requirement

Admin-side Software requirements

Operating System	Windows 8 and above
Programming Language	HTML, CSS, PHP, JavaScript
IDE	Visual Studio Code
Database	MySQL

Table 4.2.1. Admin-side software requirement

User-side Software requirements

Operating System	Windows 8 and above
Browser	Chrome latest version

Table 4.2.2. User-side software requirement

Chapter 5. Project Model

Here, a piece of brief information on the project Management chapter is described where Project planning and scheduling are explored.

5.1 Project Planning and Scheduling

Here a brief justification for the selection of the Process diagram model is described. Here in this application, we have selected the waterfall model as the Project development approach.

5.2 Project Development Approach and justification

The above given shows the waterfall sequential model from one phase to the next in a cascading method. It means the following phase should not start until the previous phase has finished. For instance, one first completes systems planning, which are set in stone. When the requirements are fully completed, one proceeds to problem analysis. Next, after the problem analyses are fully completed, it goes to system design. When the design is fully completed, a system implementation of that design is made by coders. During the final life-cycle phase, the software is put into use. Errors and omissions are discovered. Therefore, the waterfall model maintains that one should move to a phase only when its proceeding phase is completed and perfected. And this model is works best for small projects like travel and guide application. So, we have chosen Waterfall model for Project development approach.
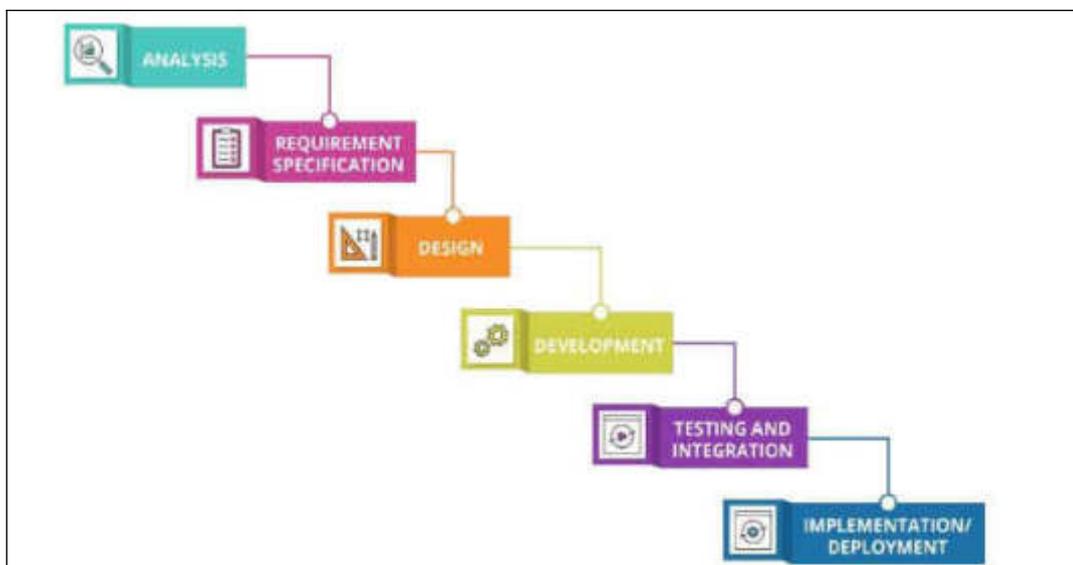
Figure 5.2.1. Waterfall model
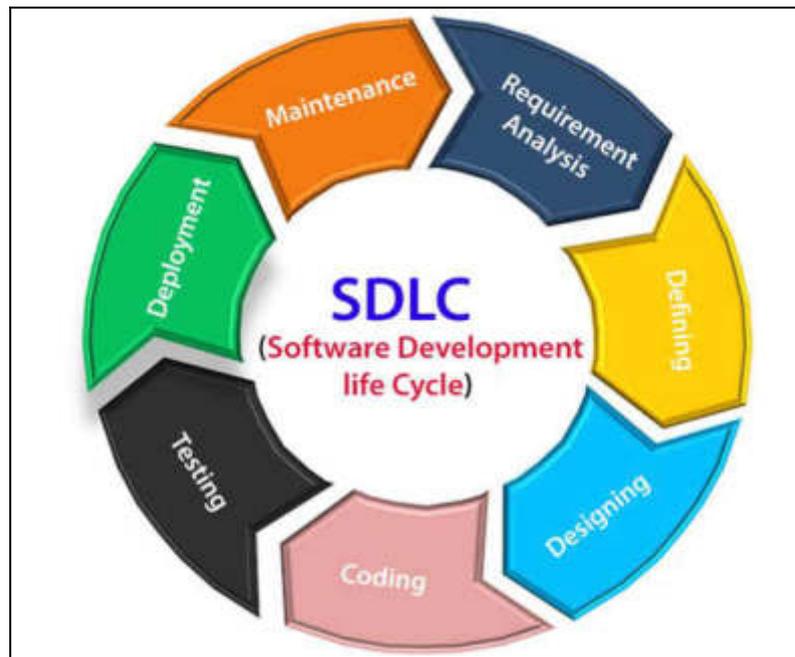
Figure 5.2.2. SDLC Life Cycle

Chapter 6. System Design

6.1. Use Case Diagram

Use Case Diagrams are graphical Representations that may be decomposed into further levels of abstraction. Use case diagram graphically represents what happens if any actor interacts with a system.

The purpose of the Use Case Diagram is to capture the dynamic aspect of a system. It is used to define a piece of logical behavior without using the internal structure of the system.
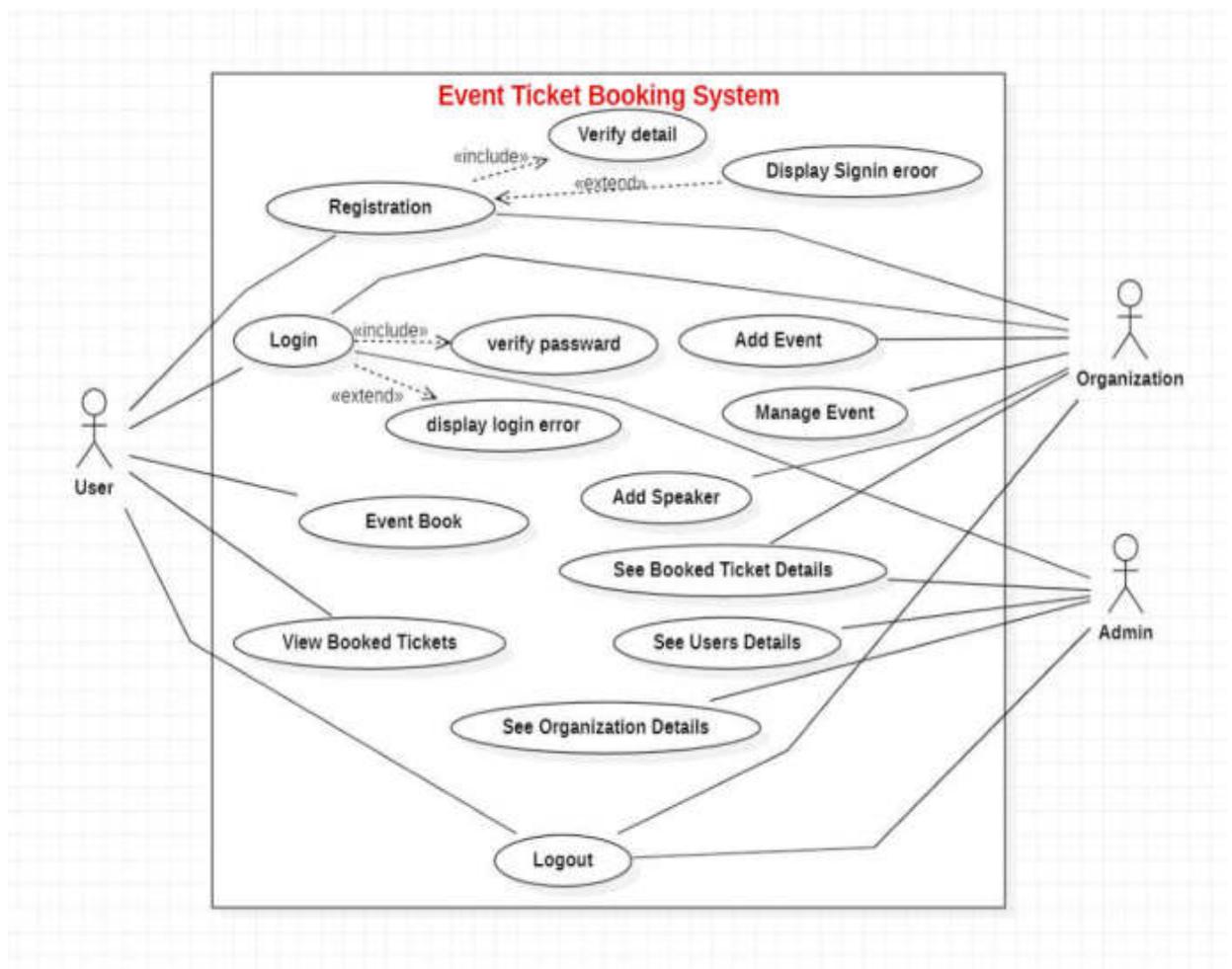
Figure 6.1.1. Use Case Diagram

6.2. Class Diagram

A class Diagram is a type of static structure diagram that describes the structure diagram of a system by showing the system's classes, their attributes, operations or methods, and the relationships among objects.
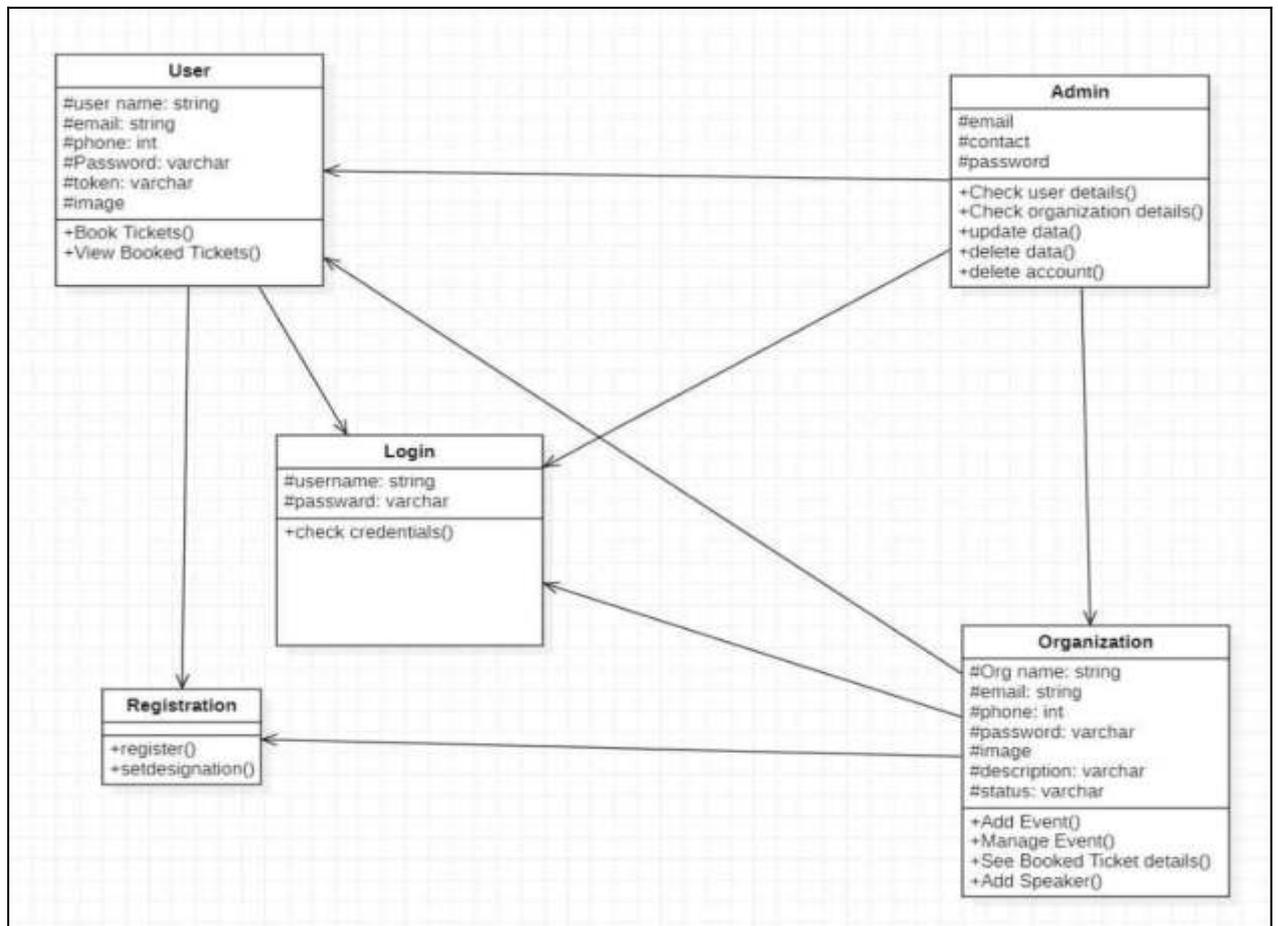
Figure 6.2.1. Class Diagram

6.3. Activity Diagram

An activity Diagram is a kind of behaviour diagram. It describes the sequencing and conditions of action. These are normally employed in business process modelling. It is carried out during the initial stages of the requirement analysis and specification. They are very useful to understand the complexity of processing activities involving many components.

- Before login and register activity.
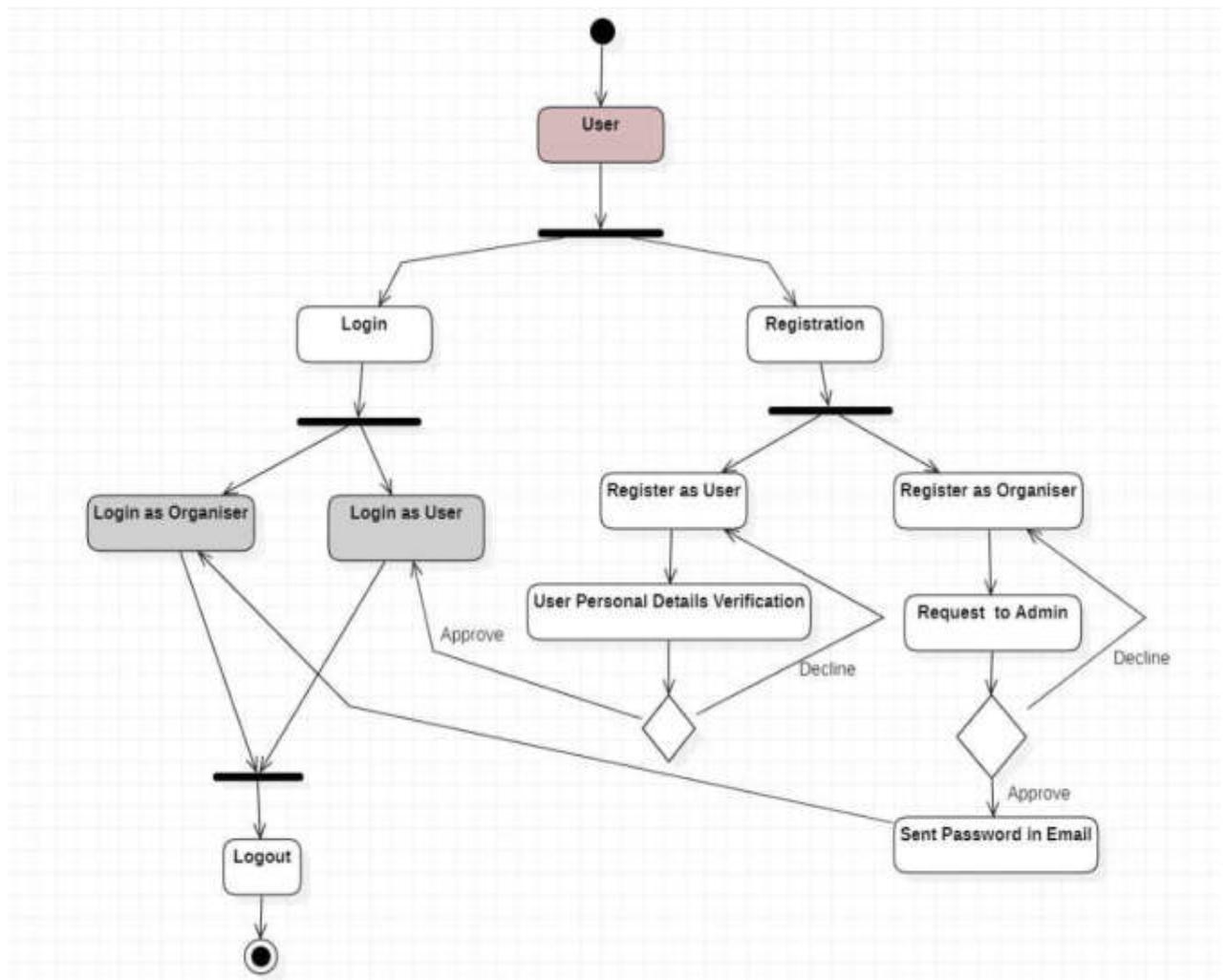
Figure 6.3.1. Activity Diagram 1

- After login and register activity.
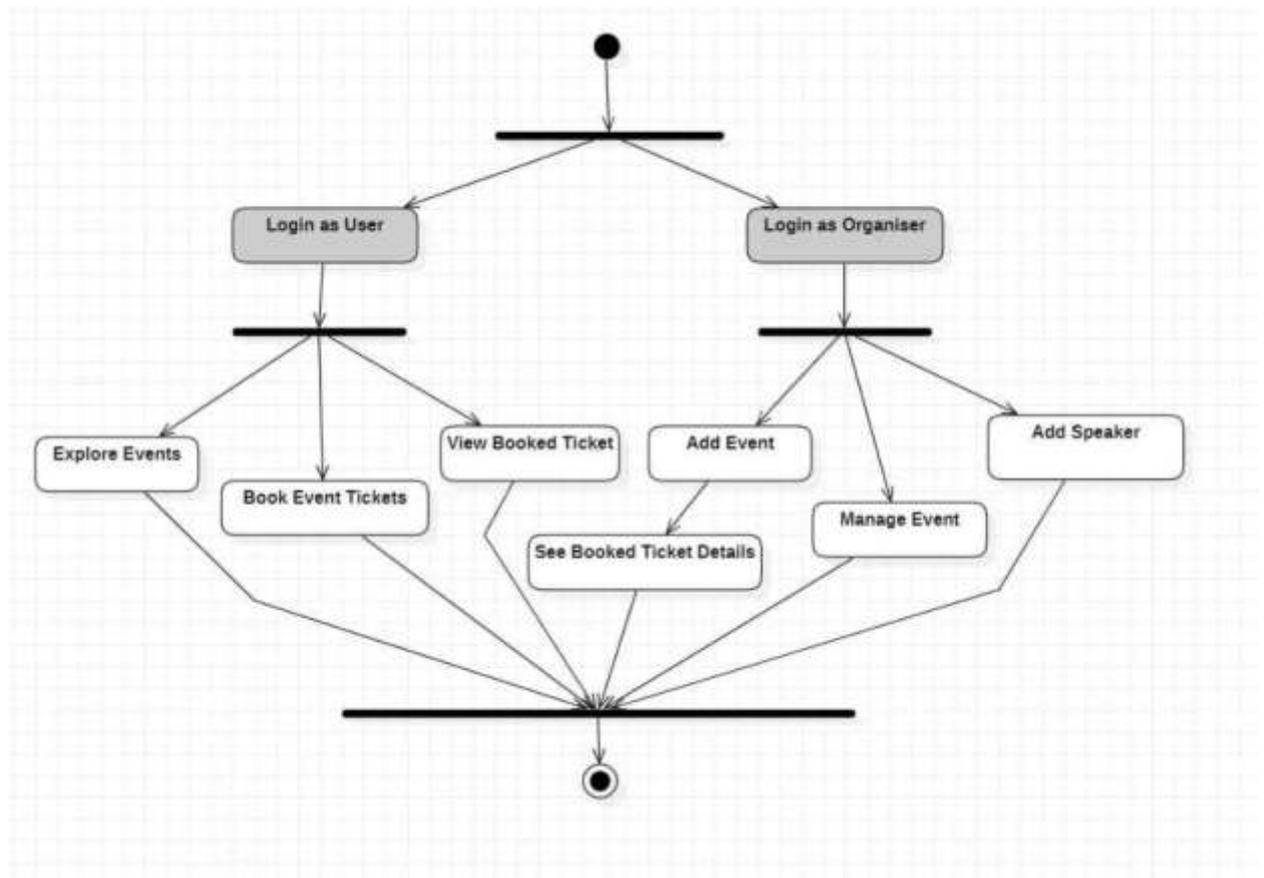
Figure 6.3.2. Activity Diagram 2

- Admin Activity
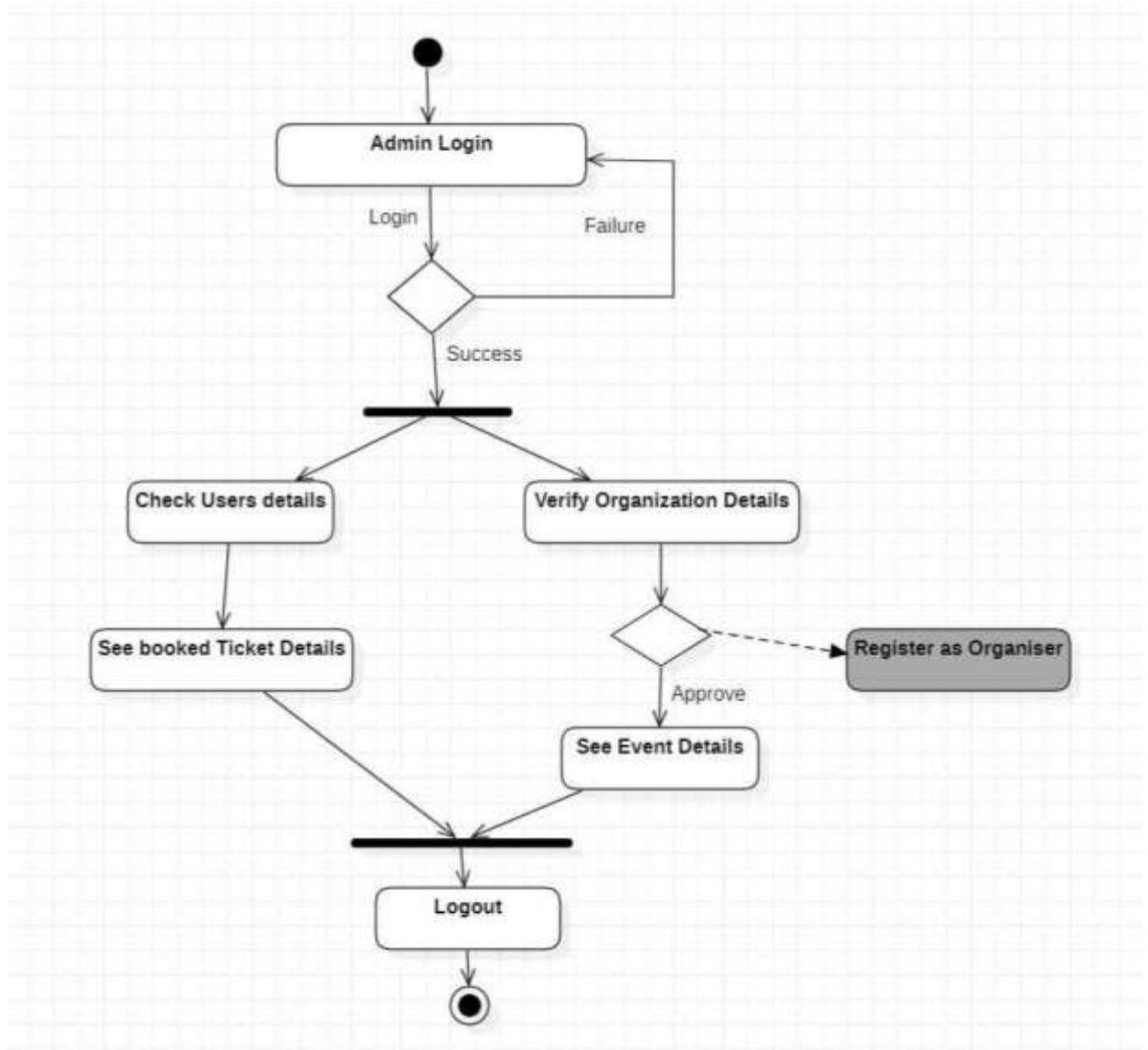
Figure 6.3.3. Activity Diagram 3

6.4 Sequence Diagram

- Sequence diagram for user and admin.
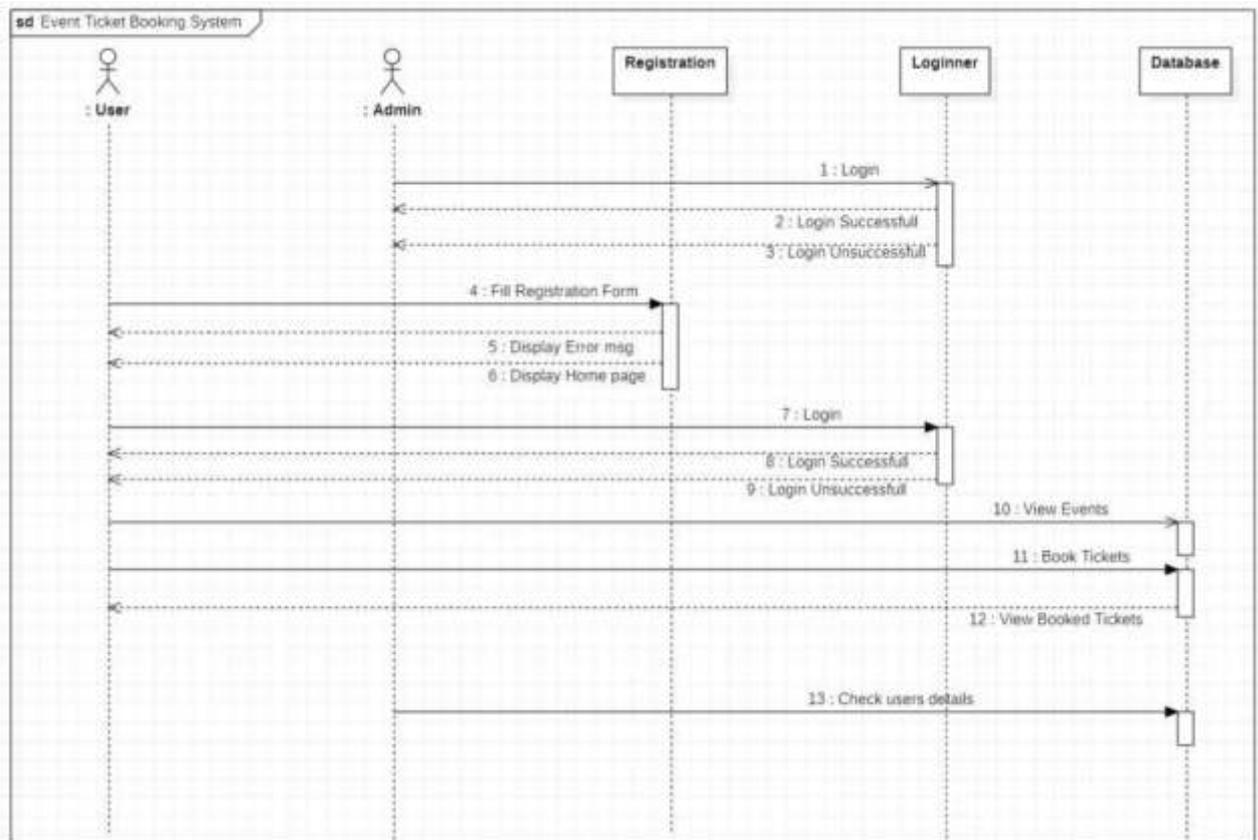
Figure 6.4.1. Sequence Diagram User

- Sequence diagram for organiser and admin.
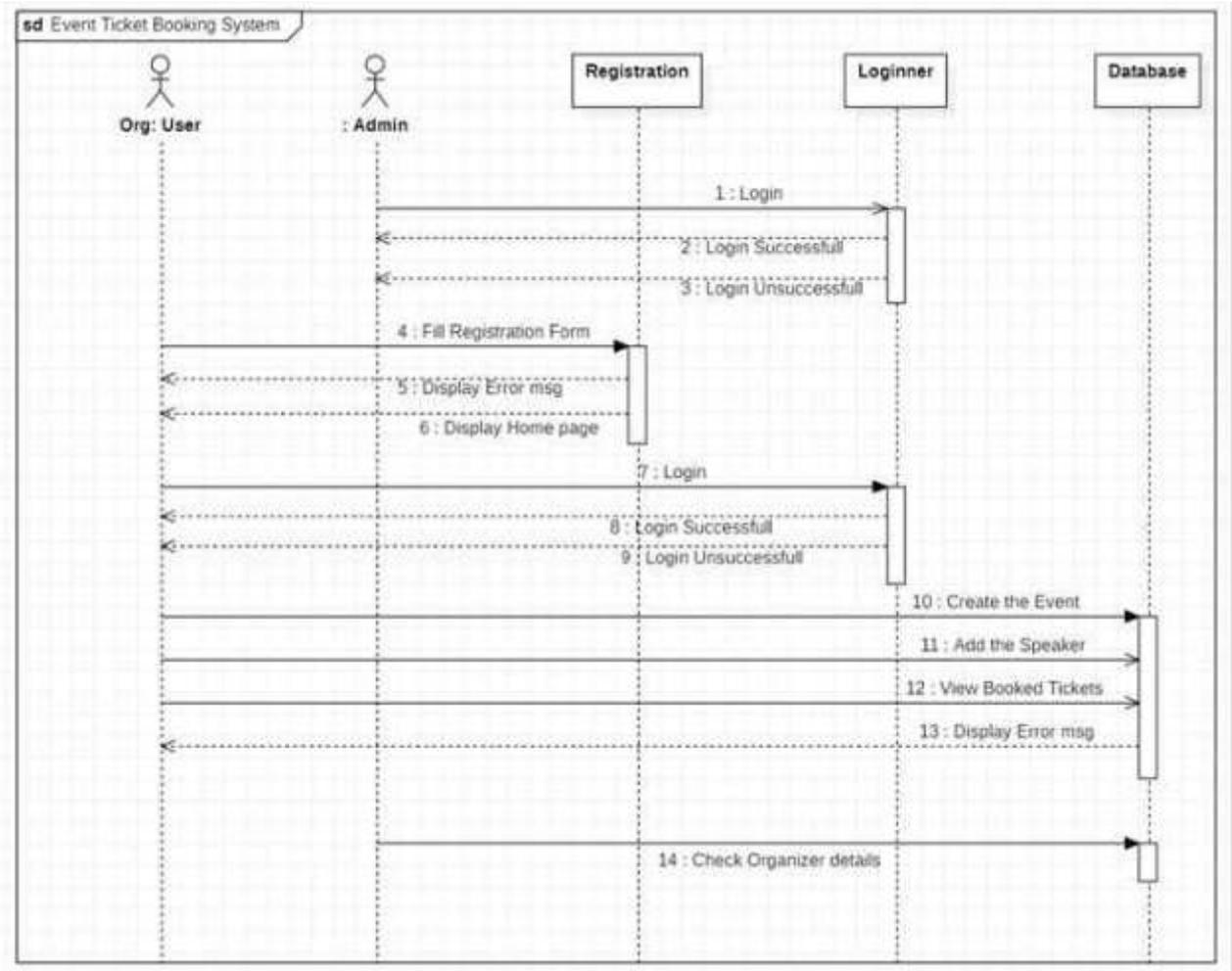
Figure 6.4.2. Sequence Diagram Organiser

Chapter 7. Data Dictionary

7.1 User Panel:

1. Table: user

Inputs	Datatype	Valid Range
user_id	Number	10
user_name	Character	3 - 20
user_email	Character & Number	10 - 30
user_phone	Number	10
password	Character & Number	8 - 15
token	Character & Number	30

Table 7.1.1. User table data dictionary

1. Table: ticket

Inputs	Datatype	Valid Range
ticket_id	Number	10
event_id	Number	10
user_id	Number	10
org_id	Number	10
admin_id	Number	10
paymentno	Number	30
Quantity	Number	10
price	Number	10
total_price	Number	10

Table 7.1.2. Ticket table data dictionary

7.2 Organiser Panel:

1. Table: organiser

Inputs	Datatype	Valid Range
org_id	Number	10
org_name	Character	3 - 20
org_phone	Number	10
org_email	Character & Number	10 - 30
password	Character & Number	8 - 15
description	Character & Number	3 - 50
status	Character	15

Table 7.2.1. Organiser table data dictionary

1. Table: event

Inputs	Datatype	Valid Range
event_id	Number	10
event_name	Character	3 - 20
description	Number	3 - 50
event_category	Character	30
start _time	Number	25
end_time	Number	25
price	Number	10
admin_id	Number	10
org_id	Number	10
image	-	-
speaker	Character	10
address	Character & Number	10 - 100

total_ticket	Number	10
available_ticket	Number	10
status	Character	15

Table 7.2.2. Event table data dictionary

1. Table: speaker

Inputs	Datatype	Valid Range
speaker_id	Number	10
speaker_name	Character	3 - 20
description	Number	3 - 50
image	-	-
org_id	Number	10
admin_id	Number	10

Table 7.2.3. Speaker table data dictionary

7.3 Admin Panel:

1. Table: admin

Inputs	Datatype	Valid Range
admin_id	Number	10
admin_name	Character	3 - 20
admin_email	Character & Number	10 - 30
password	Character & Number	30

Table 7.3.1. Admin table data dictionary

1. Table: category

Inputs	Datatype	Valid Range
category_id	Number	10
category_name	Character	3 - 20
total_event	Number	10

image	-	-

Table 7.3.2. Category table data dictionary

1. Table: payment

Inputs	Datatype	Valid Range
payment_id	Number	10
payment_number	Number	30
user_id	Number	10
event_id	Number	10
payment_amount	Number	10
payment_method	Character	15
txn_id	Character & Number	10 - 50
date	Timestamp	50

Table 7.3.3. Payment table data dictionary

Chapter 8. Project Implementation

8.1. User Panel

- Home Page
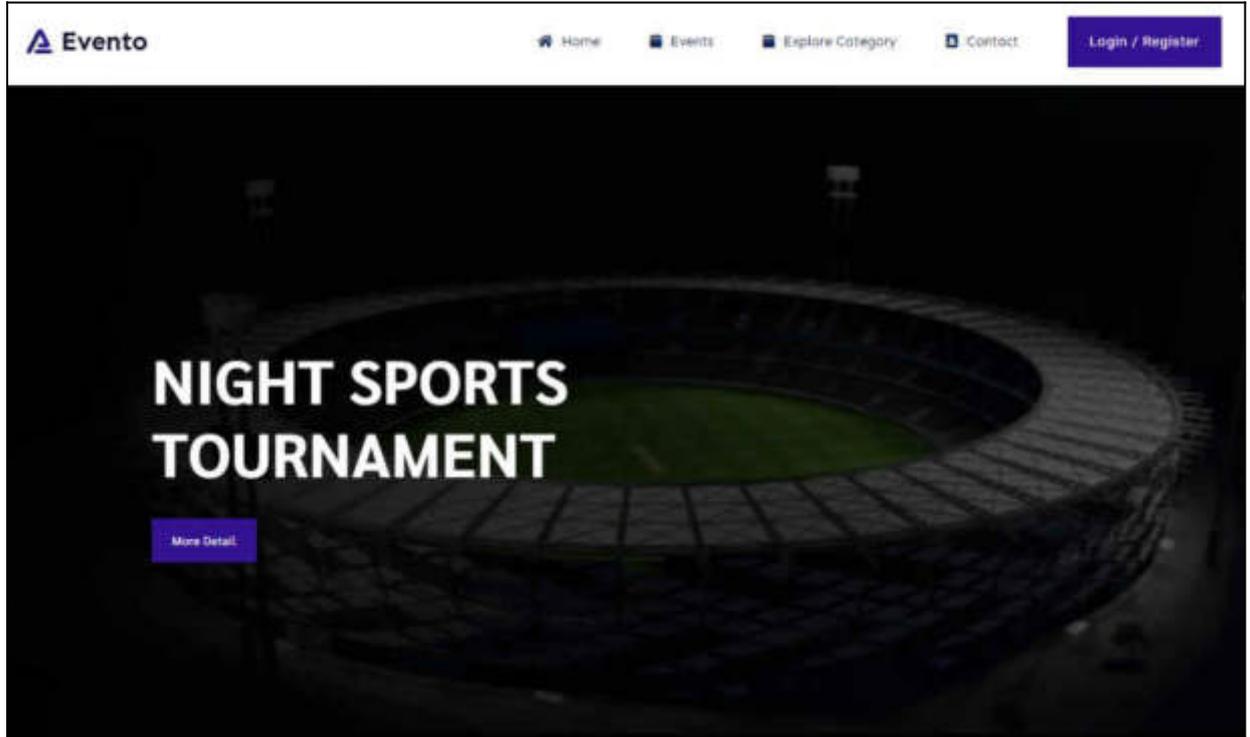
Figure 8.1.1. Homepage

- Latest Events
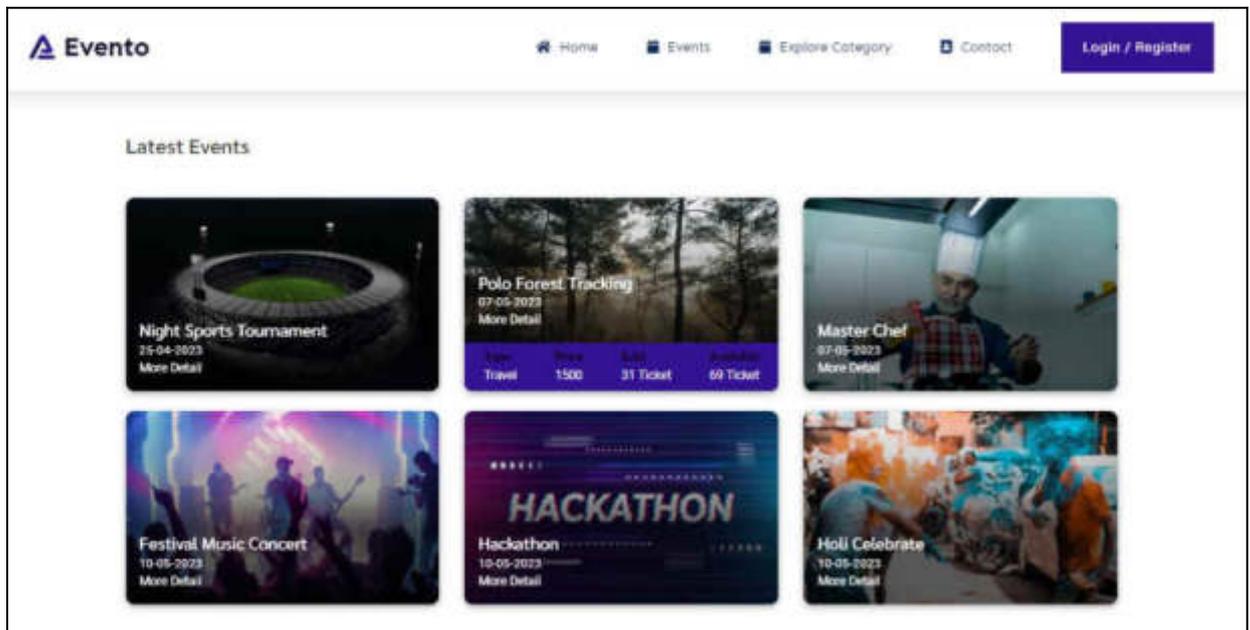
Figure 8.1.2. Latest events

- Explore events category
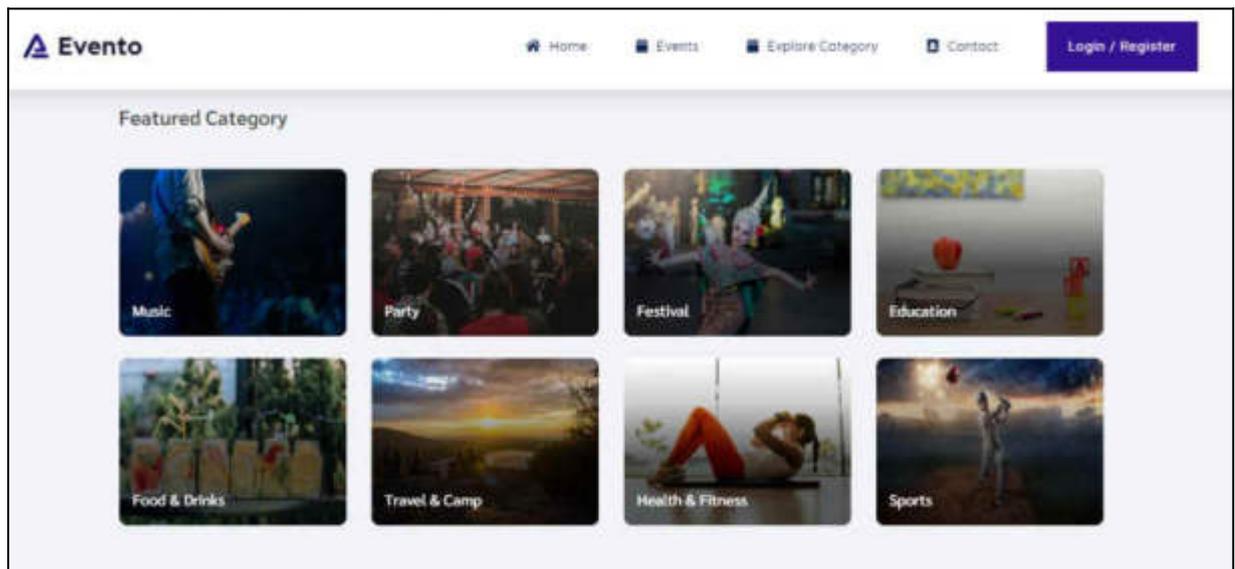
Figure 8.1.3. Explore event category

- User Register Page   User Login Page

Figure 8.1.4. User Register Page
Figure 8.1.5. User Login Page

- Event page

  Figure 8.1.6. Event page

- Event detail page

  Figure 8.1.7. Event details

- Event speaker detail
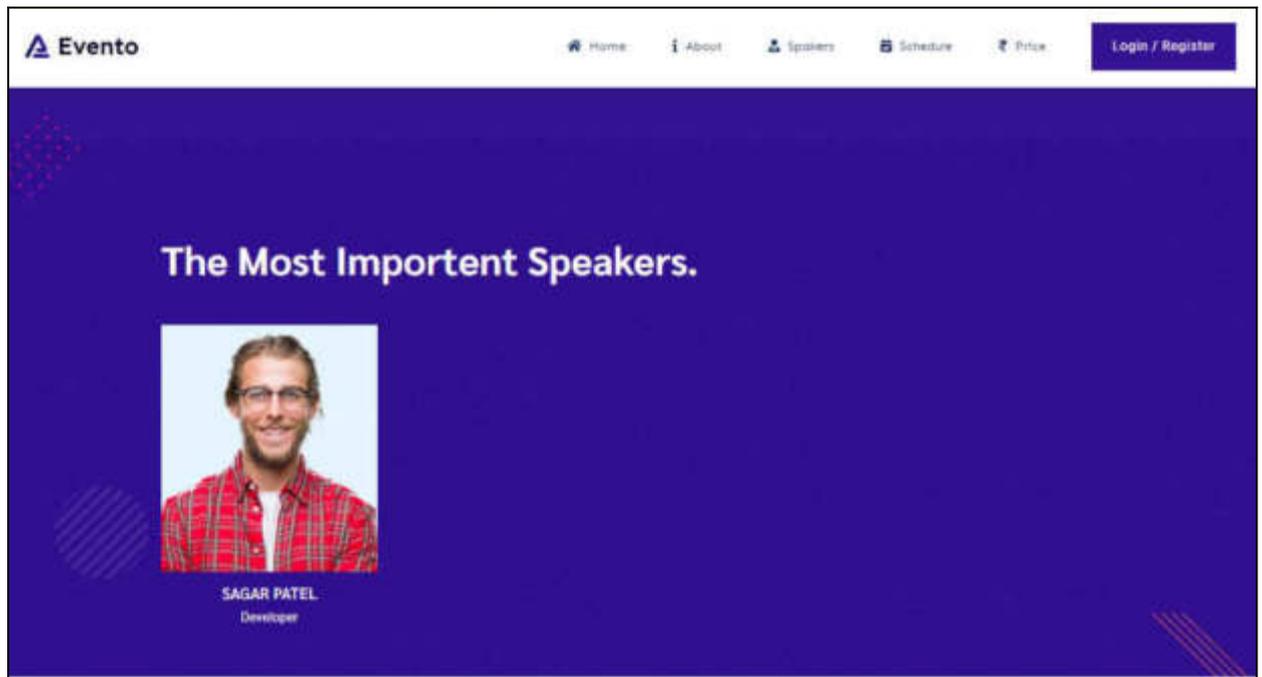
Figure 8.1.8. Event speaker

- Event schedule
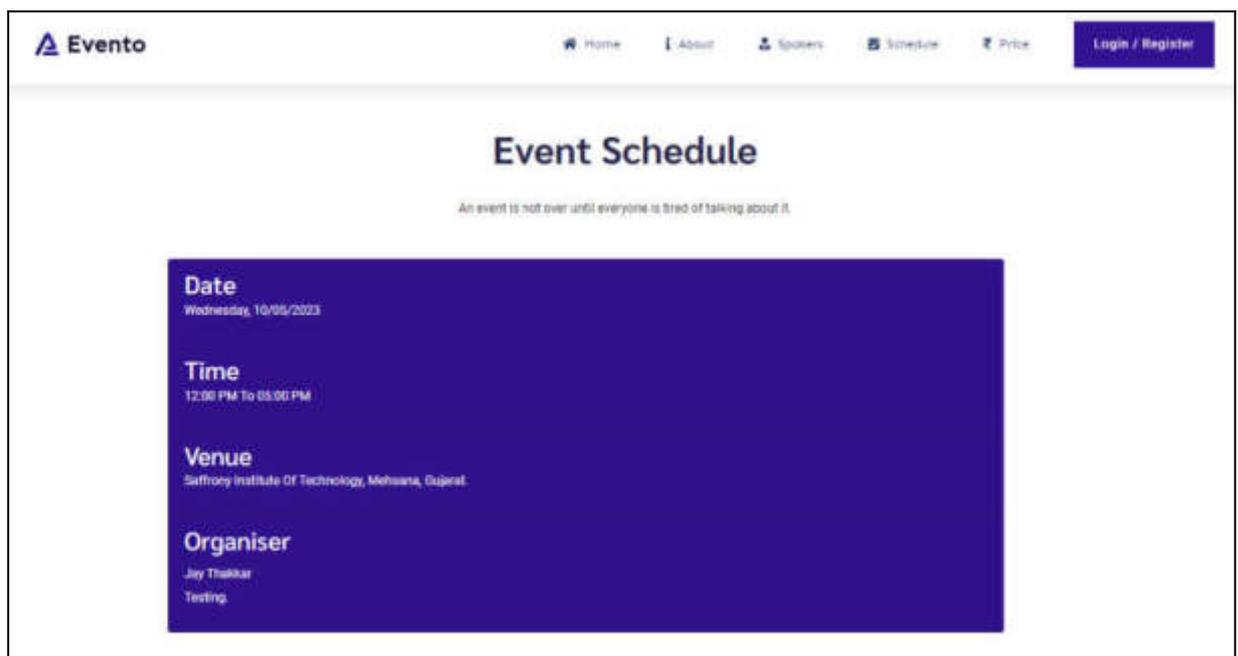
Figure 8.1.9. Event schedule

- Event ticket booking
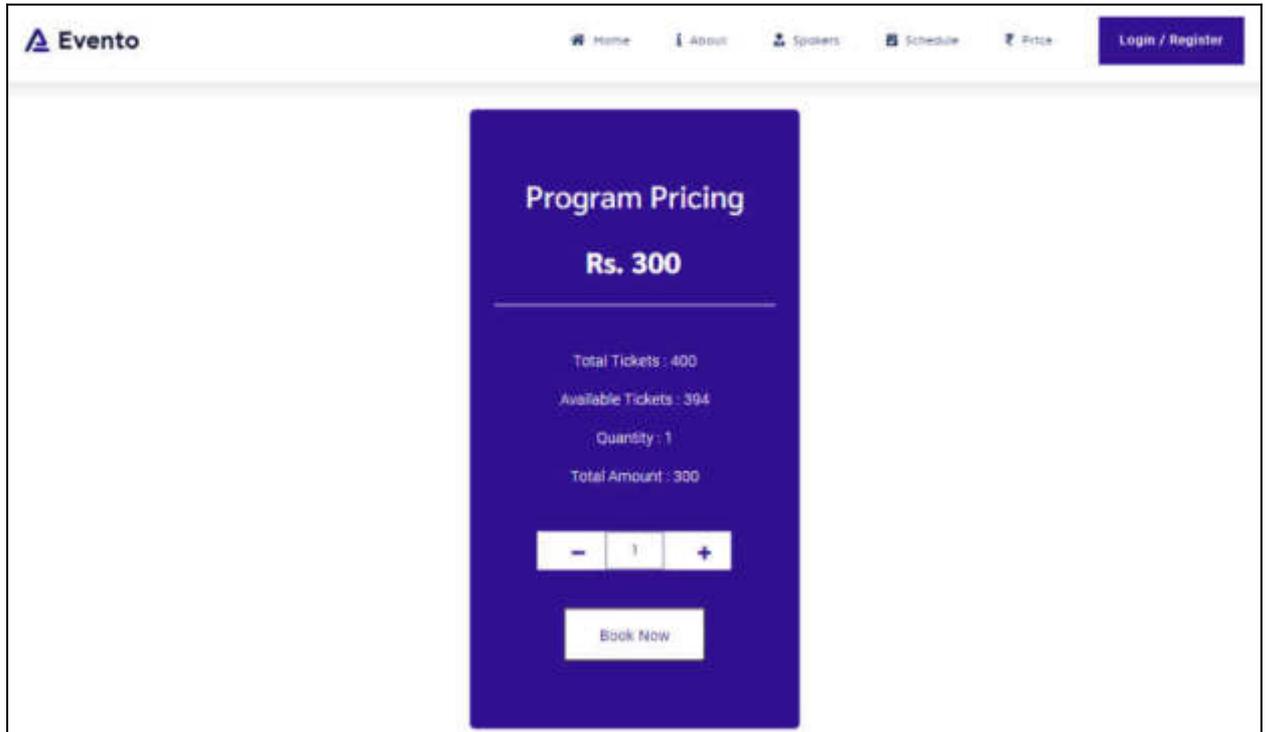
Figure 8.1.10. Event booking

- Event ticket booking confirmation
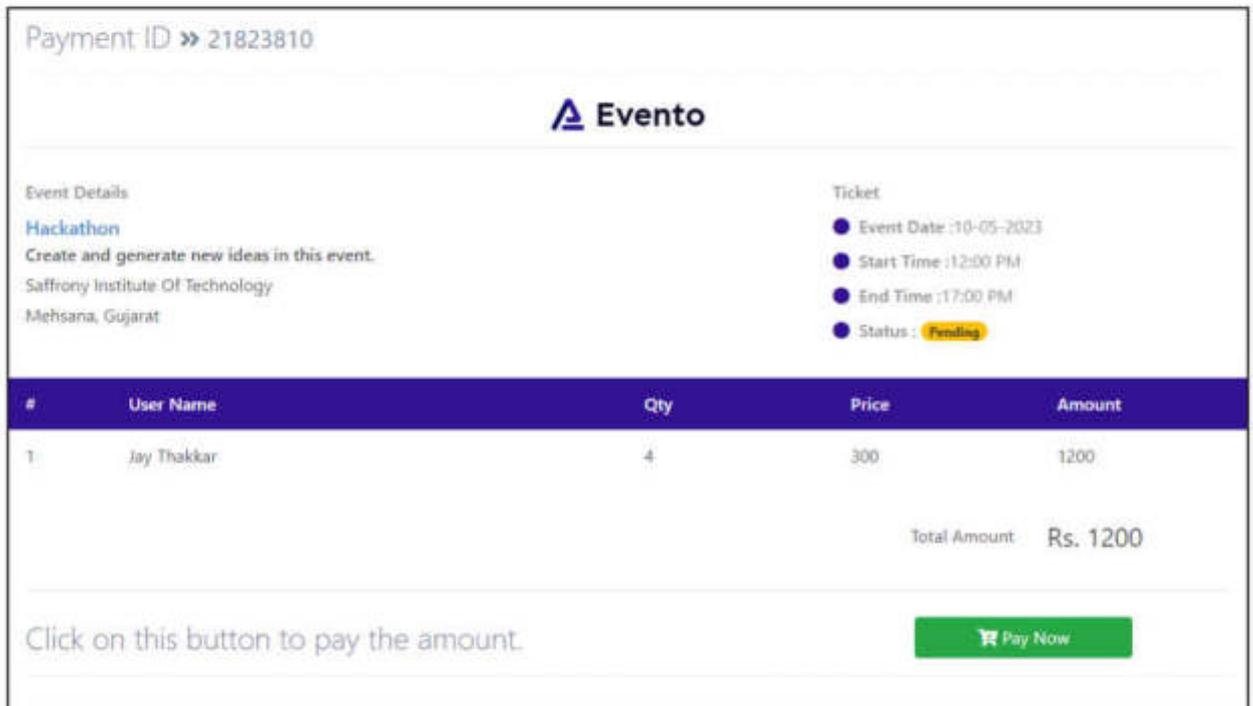
Figure 8.1.11. Event ticket booking confirmation

- Event ticket booking page
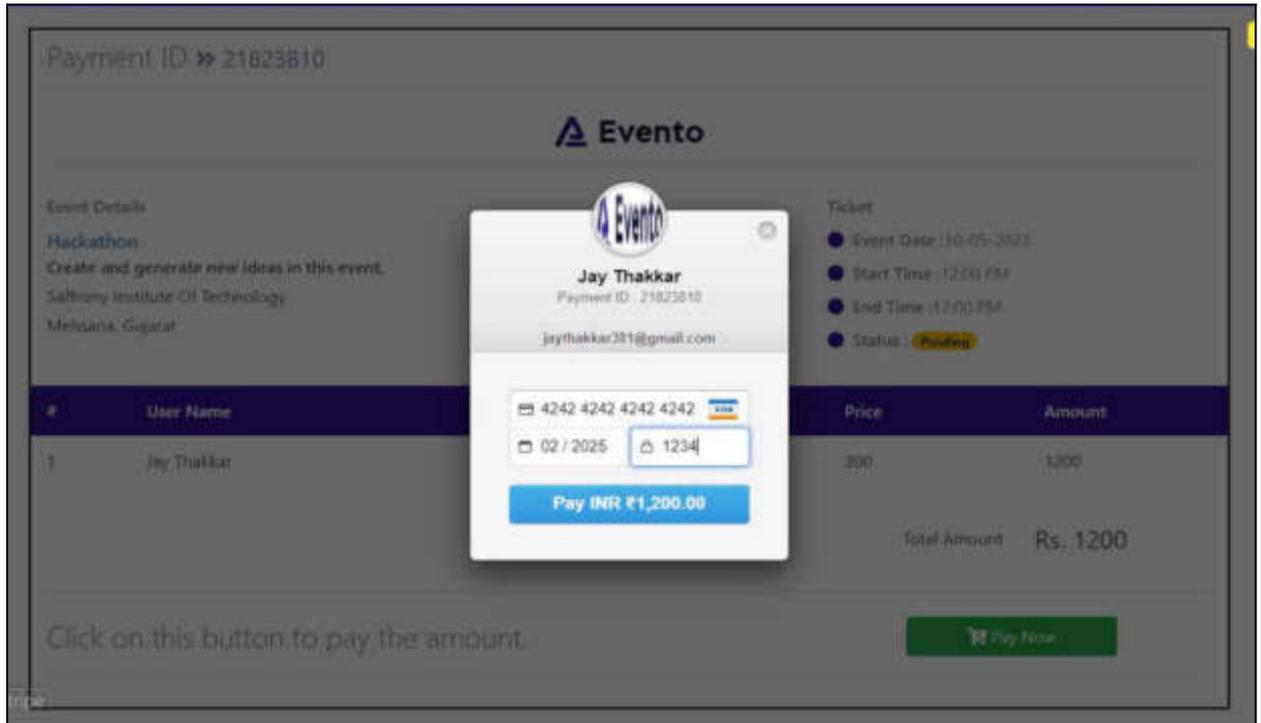
Figure 8.1.12. Event ticket booking

- Event ticket booking success
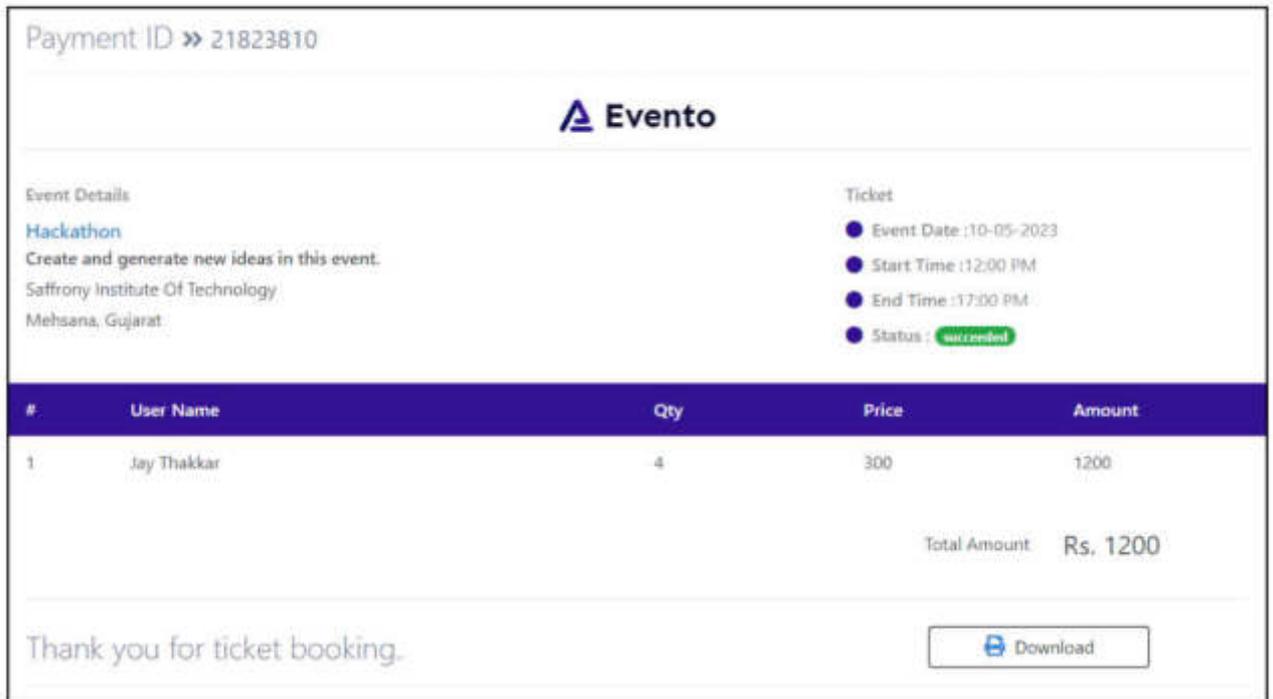
Figure 8.1.13. Event ticket booking success

- All previous ticket booking
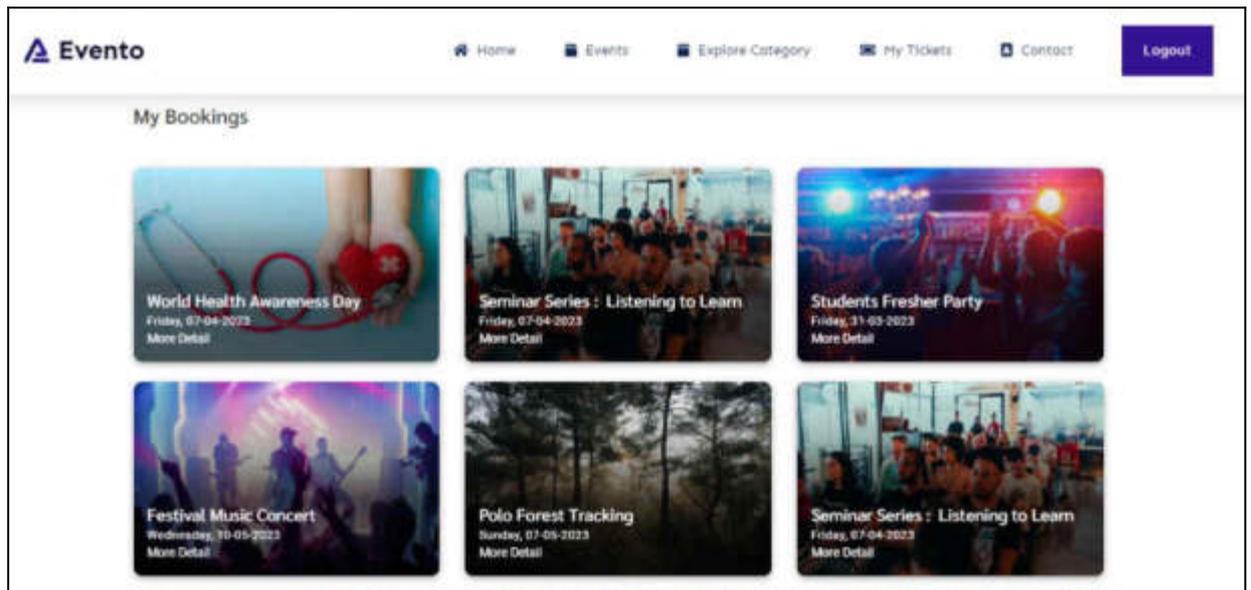
Figure 8.1.14. All previous ticket booking

8.2. Organiser Panel

- Organiser register
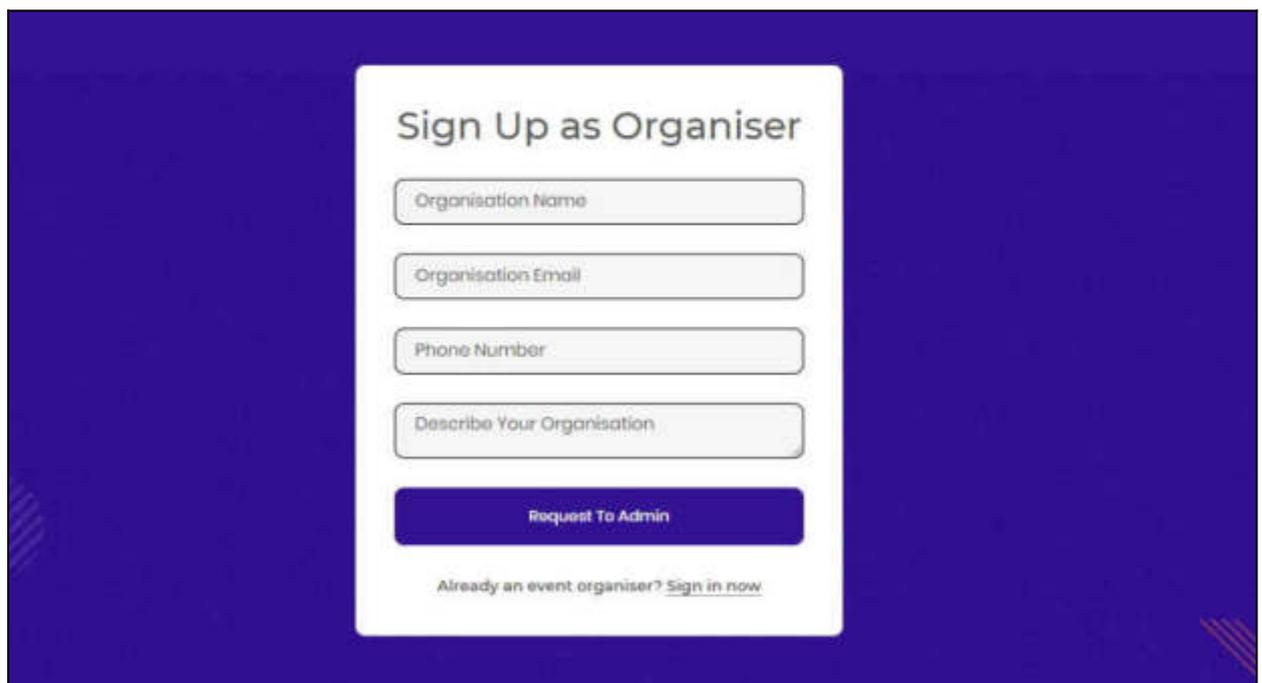
Figure 8.2.1. Organiser register

- Organiser receive password via email after admin approval.
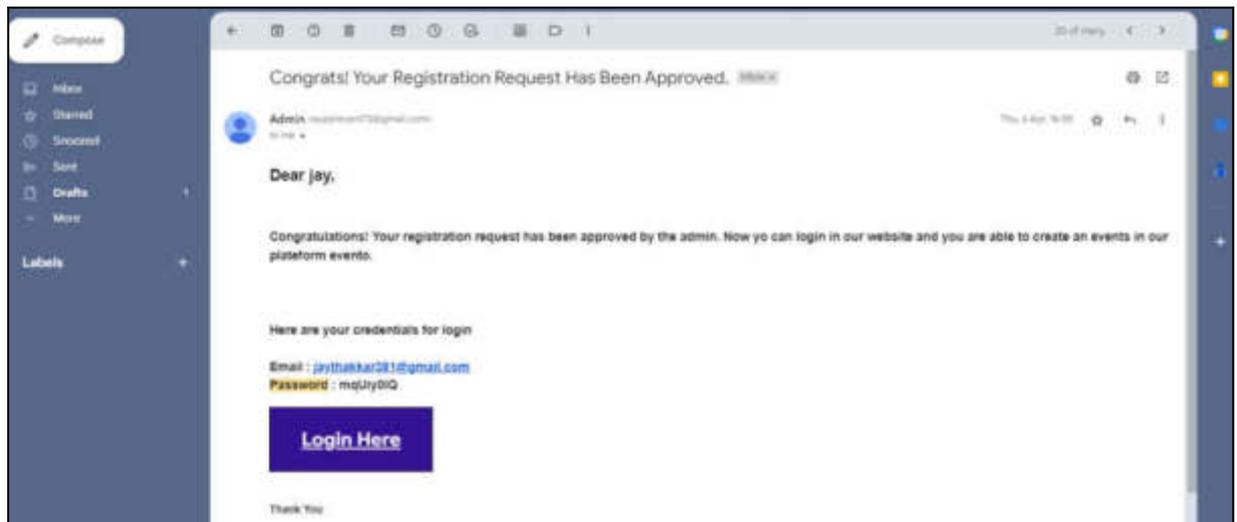
Figure 8.2.2. Receive password via email

- Organiser forgot password.
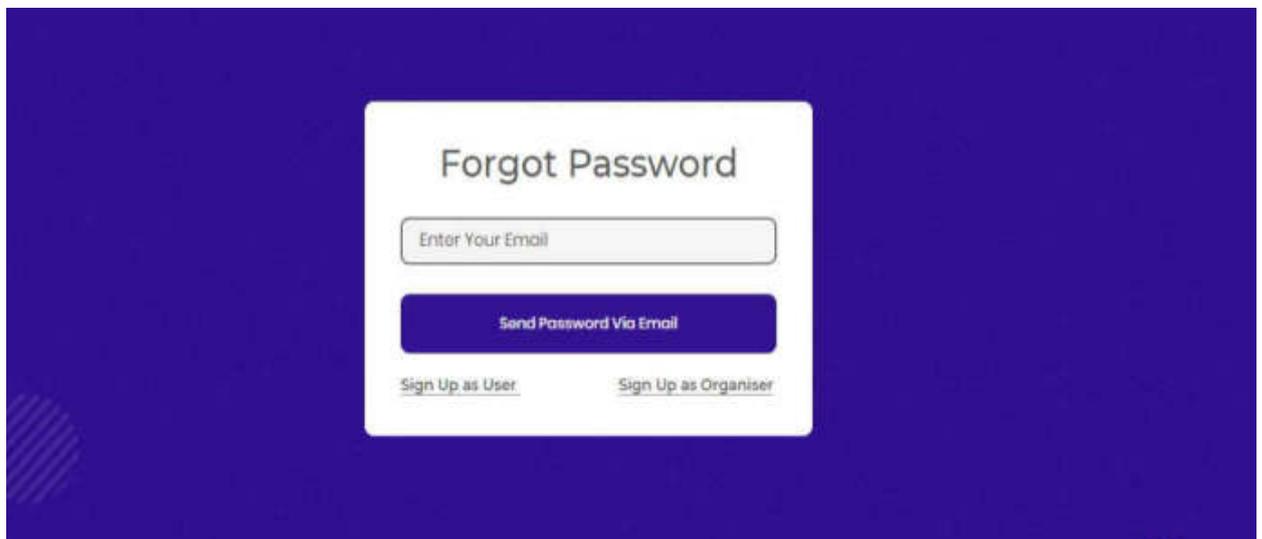
Figure 8.2.3. Organiser Forgot Password

- Organiser dashboard.
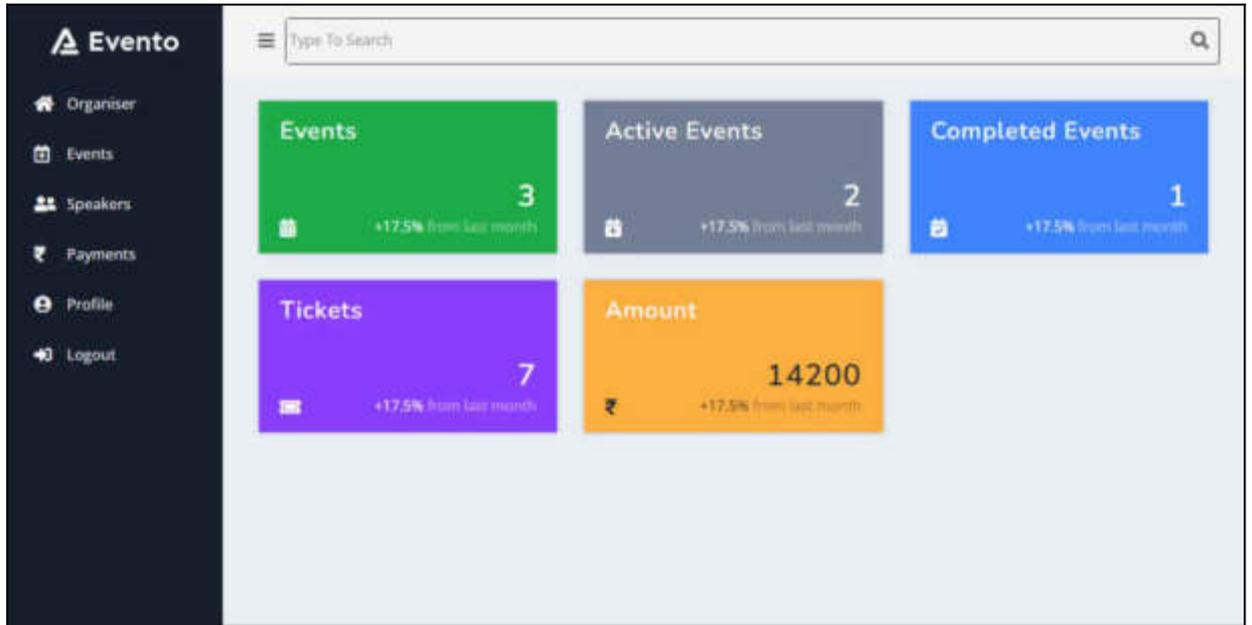
Figure 8.2.4. Organiser dashboard

- Organiser event list.
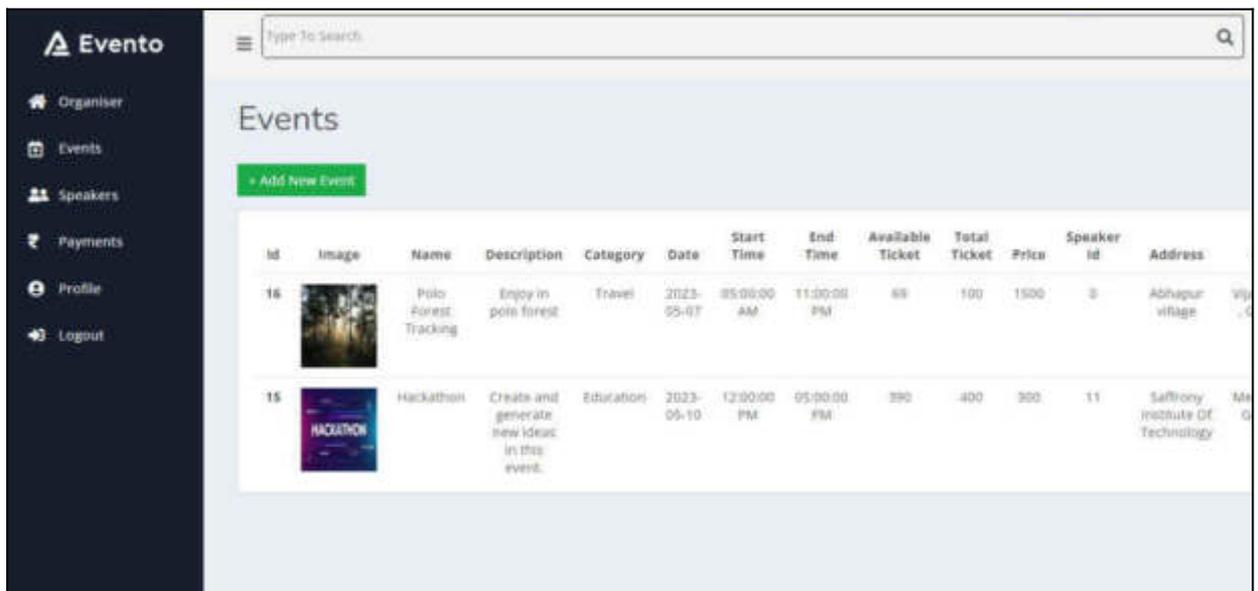
Figure 8.2.5. Organiser event list

- Organiser add new event.

Figure 8.2.6. Organiser create new event 1

Figure 8.2.7. Organiser create new event 2

- Organiser speaker list.
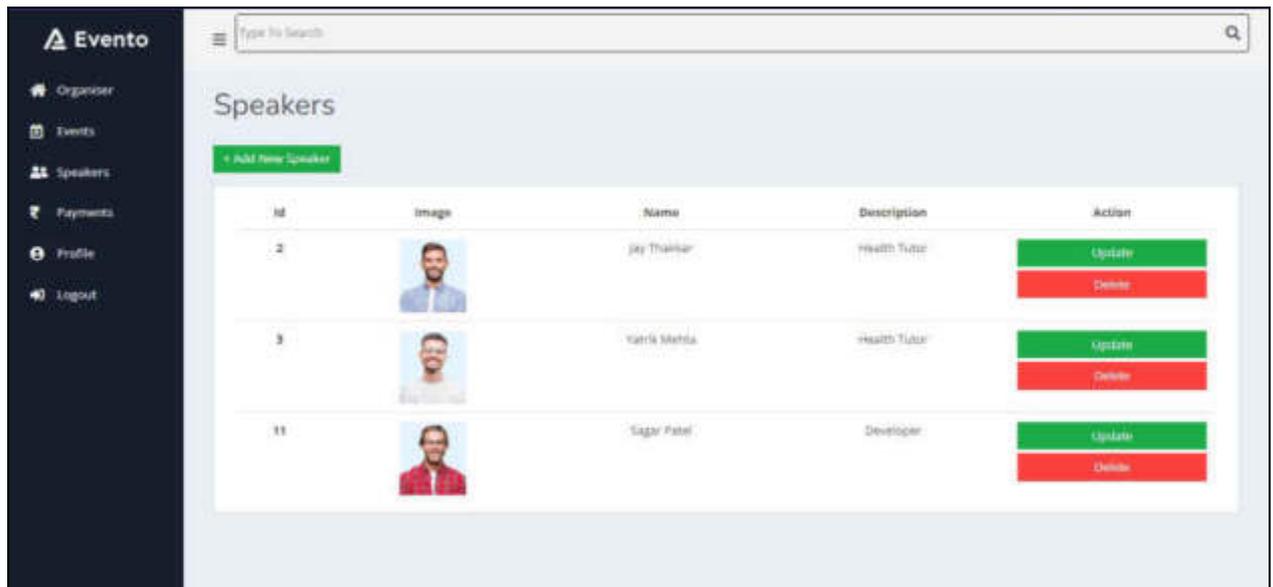
Figure 8.2.8. Organiser speaker list

- Organiser add new speaker.
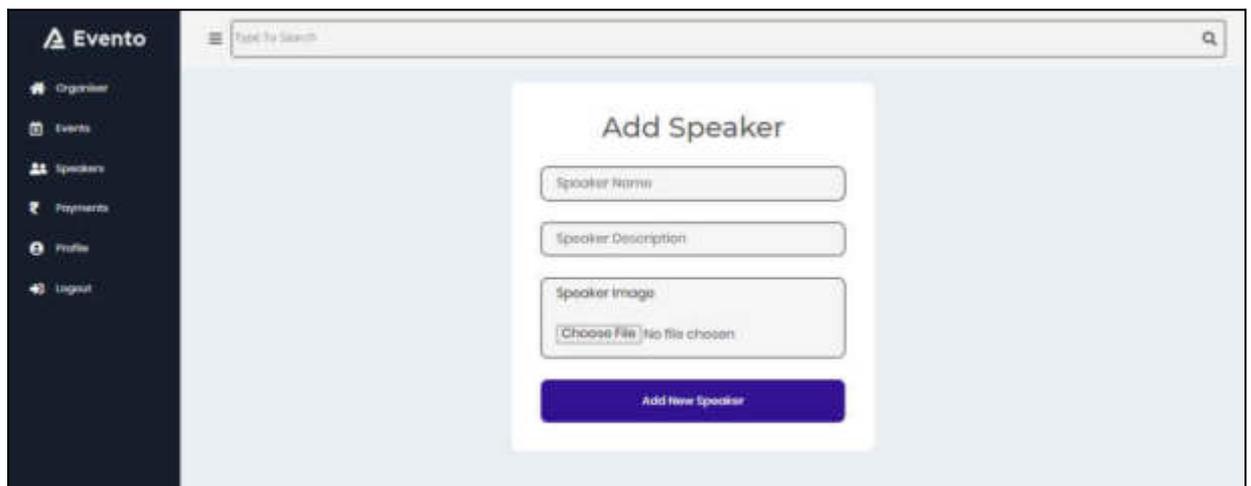
Figure 8.2.9. Organiser add new speaker

- Organiser user ticket booking details.

Figure 8.2.10. Organiser payment details

- Organiser profile.

Figure 8.2.11. Organiser profile

8.3. Admin Panel

- Admin login.
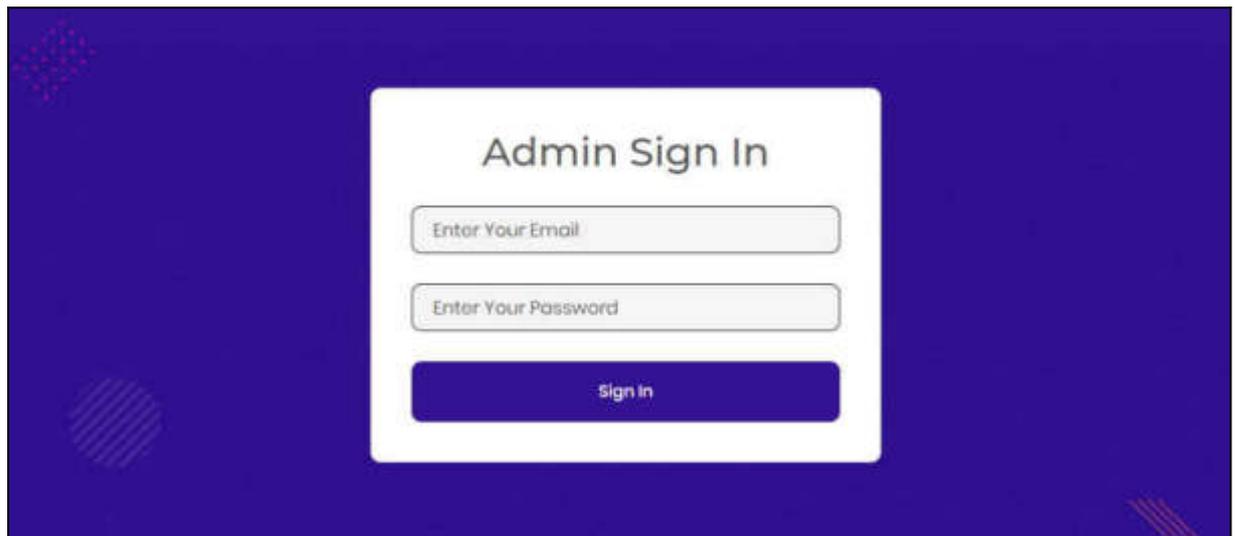
Figure 8.3.1. Admin login

- Admin dashboard.
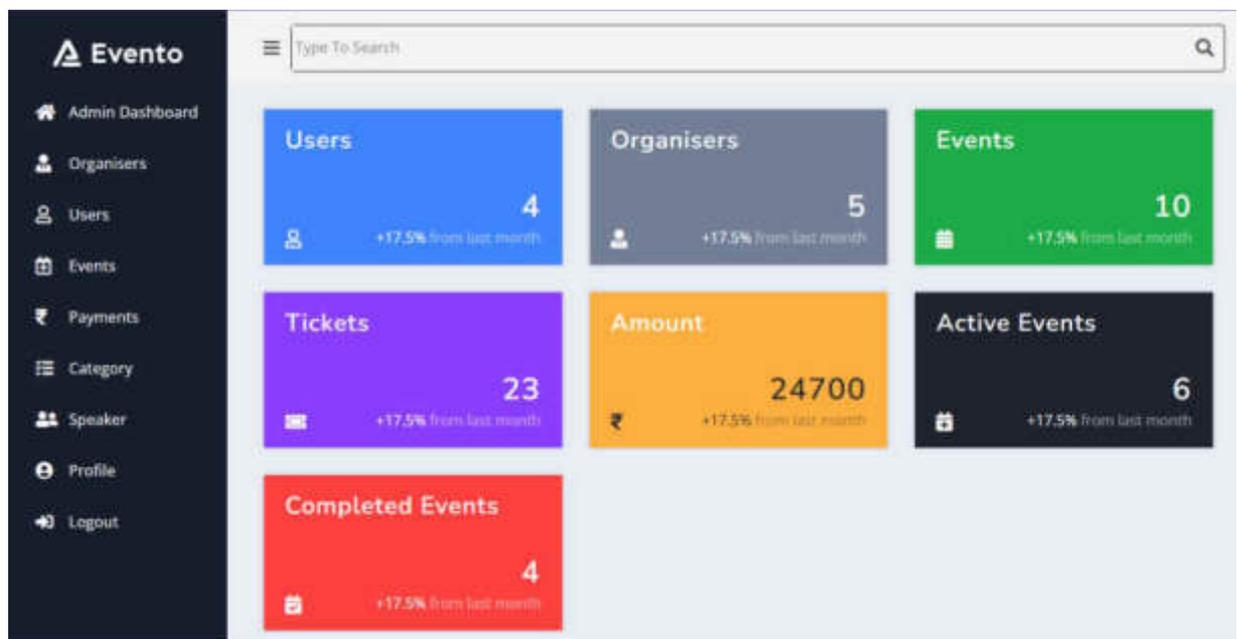
Figure 8.3.2. Admin dashboard

- Admin allow or reject organiser.
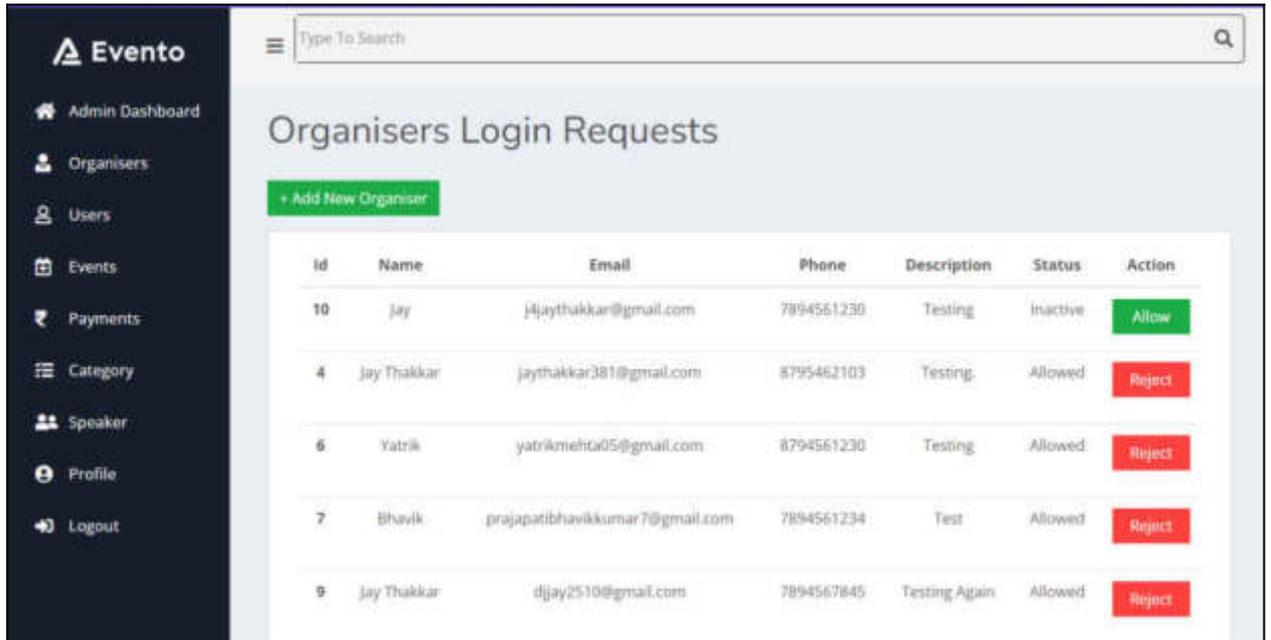
Figure 8.3.3. Admin allow or reject organiser

- Admin add organiser.
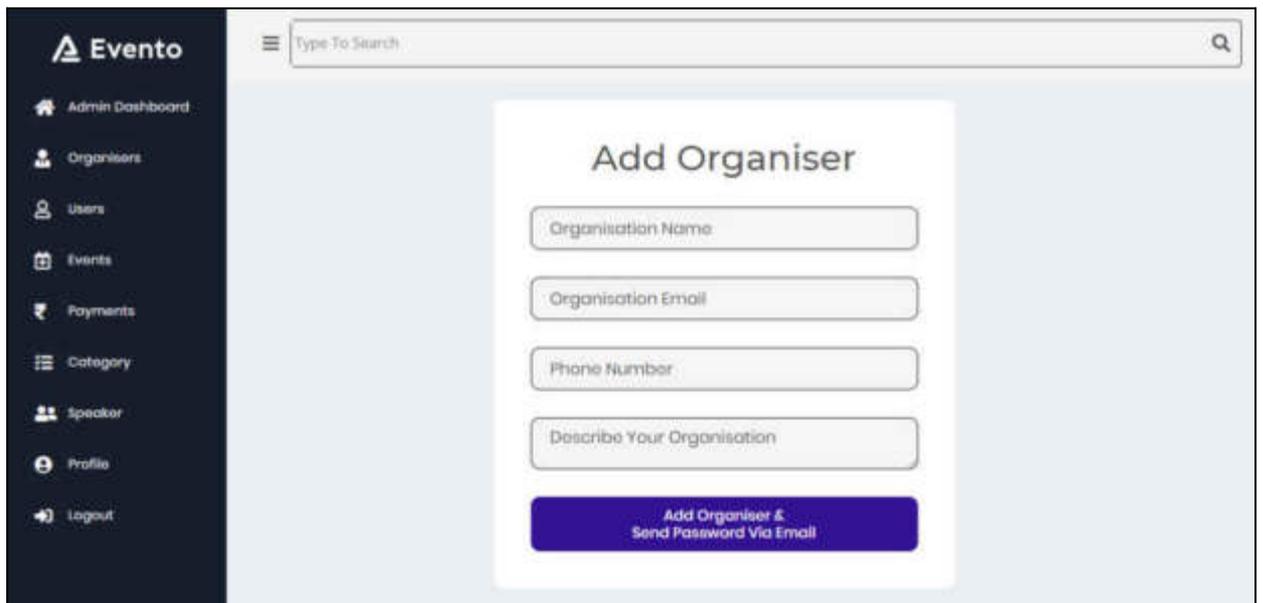
Figure 8.3.4. Admin add organiser

- Admin see all the registered user details.
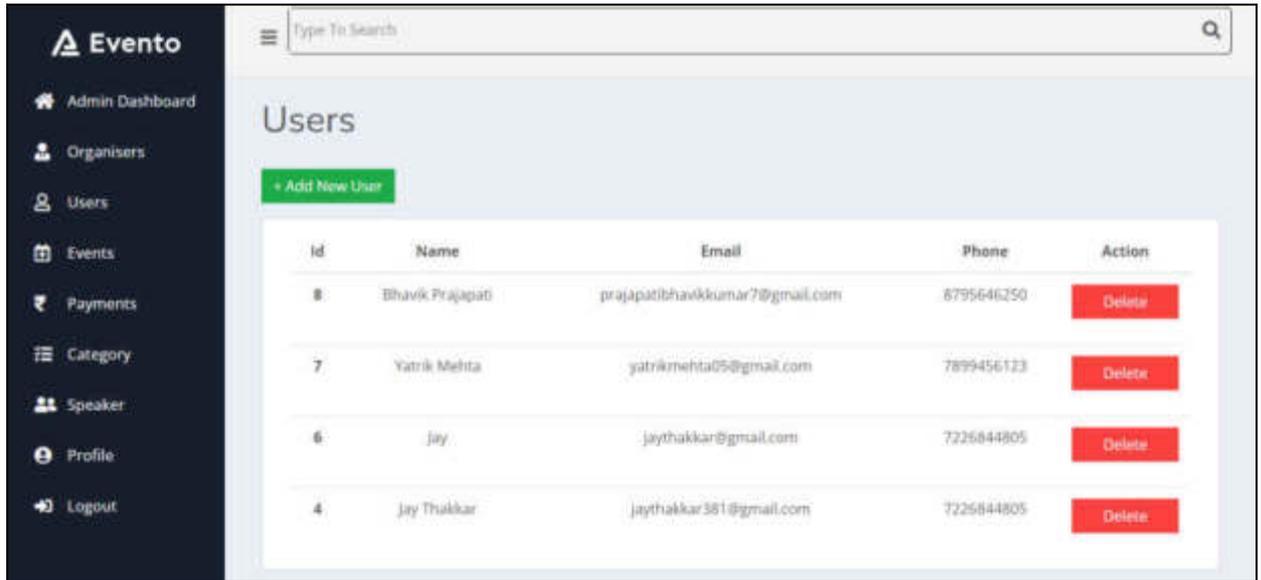
Figure 8.3.5. All user details

- Event list created by admin.
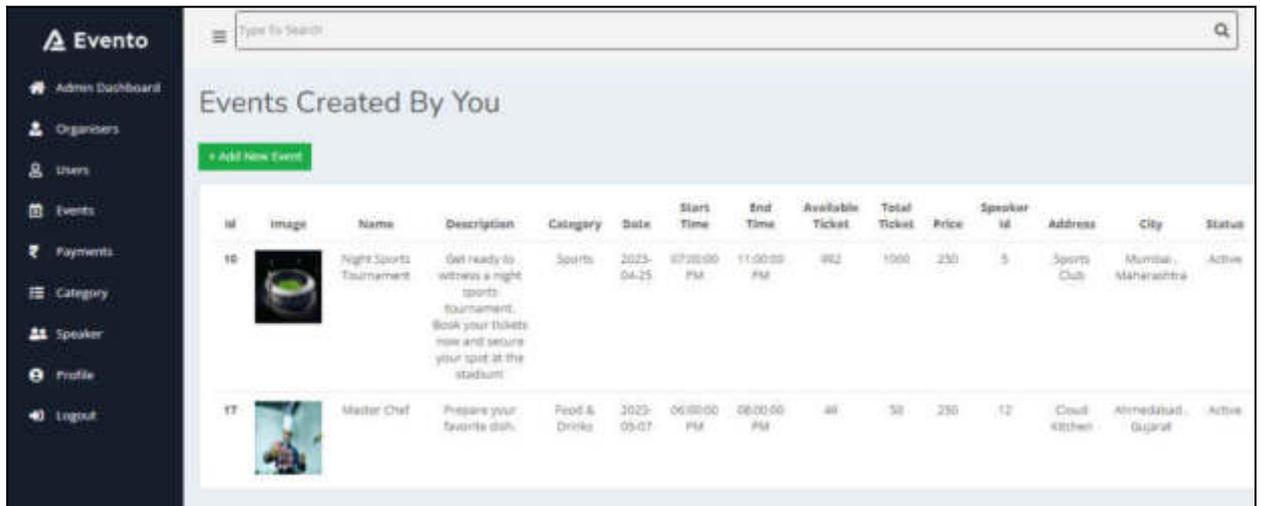
Figure 8.3.6. Events list created by admin

- Event list created by all organisers.

Figure 8.3.7. Events list created by all organisers

- Admin add category.

Figure 8.3.8. Add category

- Speaker list added by Admin.
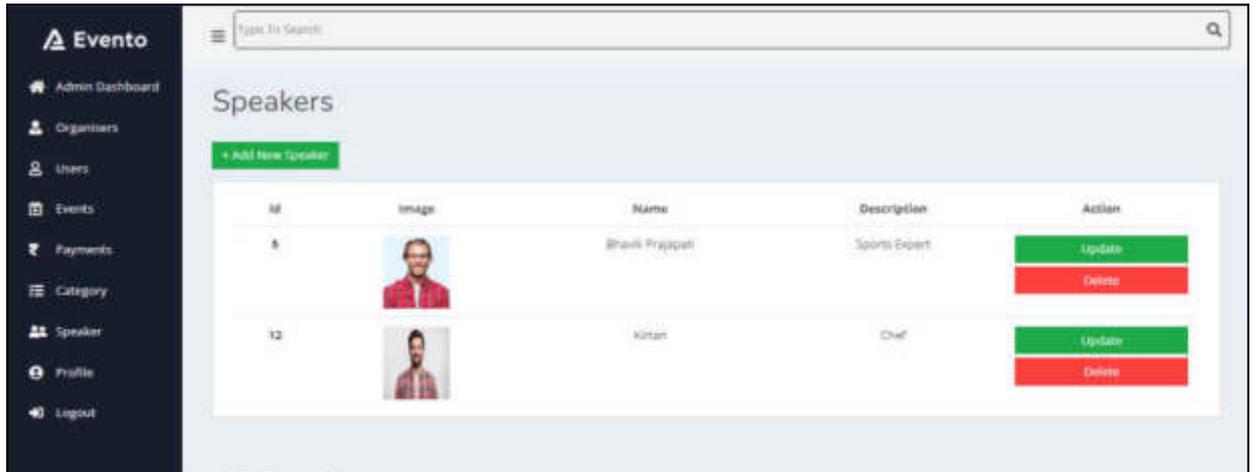
Figure 8.3.9. Speaker list added by admin

- Speaker list added by all organisers.
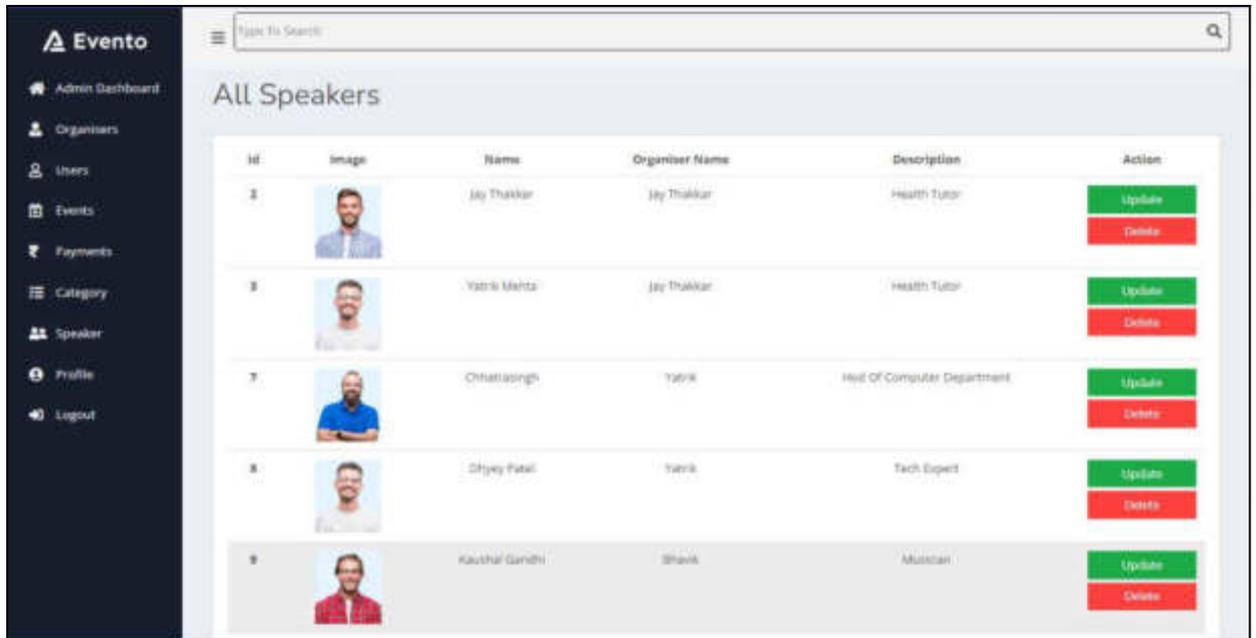
Figure 8.3.10. Speaker list added by all organisers

- Admin all payment details.

Figure 8.3.11. All Payment details

- Admin profile.

Figure 8.3.12. Admin profile

- Stripe payment gateway.
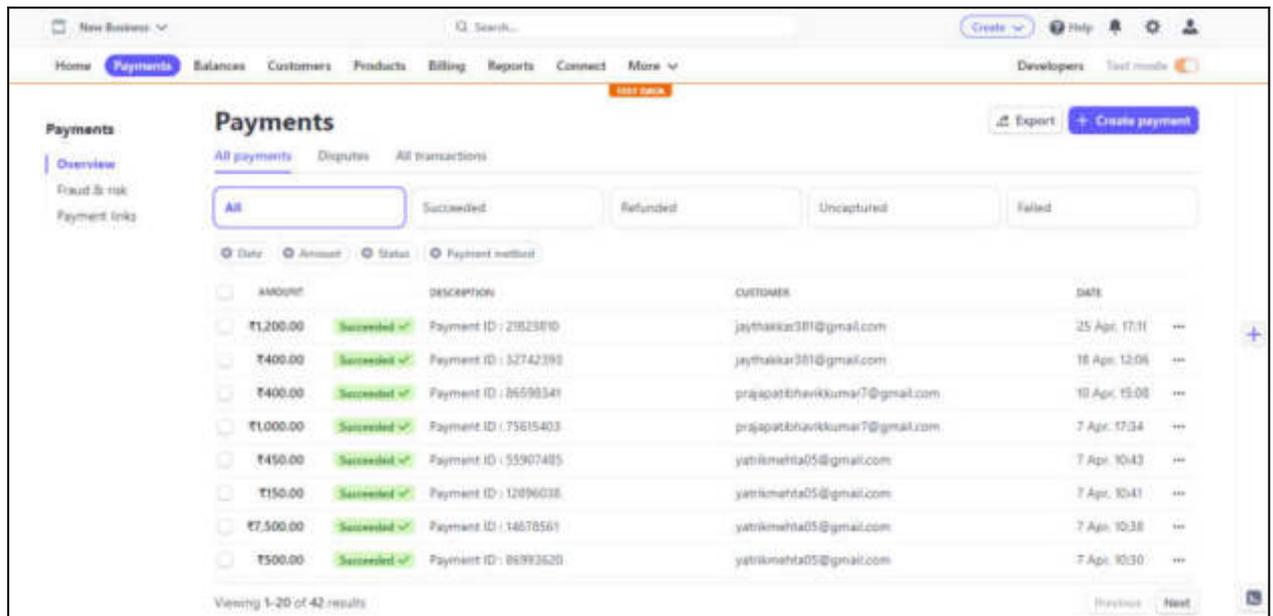
Figure 8.3.13. Stripe payment gateway

Chapter 9. Project Testing

This chapter aims to provide a brief account of testing the software. There are two principal motives of testing the software:
1. To rectify the error in execution
2. To check the viability of software

The testing ensures that the software is according to the required specification standards and performs the task meant for it. The testing is done by our team members that act as novice users and test the project with all possible way to find the bugs and error as well as check validation.

9.1. Testing Plan

Testing is carried out at the following three stages:

i. Design

ii. Implementation

iii. Coding

9.1.1. Design Testing

This Testing apply after designing stage to verify product design. At this stage we test our project's all designing schema like class diagram, E-R diagram, sequence diagram etc.

9.1.2. Implementation Testing

This testing is not a proper structural testing but every time check the program after writing some code of particular function, programmer check their code by testing some edge case to check reliability of code. This testing performs during implementation of project.

9.1.3. Coding Testing

Coding testing is last stage of testing, Here We tested our project's end to end customer Satisfaction. In this testing we use black box and white box testing techniques to check technical and practical View of project.

9.2. Testing Strategy

A technique for programming testing coordinates programming experiment structure strategy into an all-around arranged arrangement of steps that outcome in the effective development of the product. The system gives the guide that depicts the means to be led as a piece of testing.

- We have tried our entire project utilizing bottom-up testing technique.
- Bottom-up testing includes incorporating and testing the modules to the lower levels in the chain of importance, and afterward stirring up progression of modules until the last module is tried.
- Bottom-up testing procedure demonstrates how genuine testing is to be finished with the entire project yet it doesn't demonstrate any insight concerning every module testing.
- For every module testing, we have chosen to test each lower-level module with white box testing system.
- When all modules are tried effectively then I will move to one stage up and proceed with white box testing technique.

When all modules will be tested successfully then I will integrate those modules and try to test the integrated system using black box testing strategy.

9.3. Testing Methods

9.3.1. Unit Testing

The unit testing is intended for testing the littlest unit of programming. There are two methodologies to be specific: bottom-up and top-down.
In bottom-up methodology the last module is tried and after that moving towards the principal module while top-down methodology switches the activity. In present work we select the first.

9.3.2. Integration Testing

The integration testing is intended to test every one of the modules at the same time since it is conceivable that every one of the modules may work accurately when tried separately. However, they may not work by and large and may prompt unforeseen results.

9.3.3. Validation Testing

Validation can be defined in many ways but a simple definition is what a validation succeeds when software functions in a manner that can be reasonably accepted by the user.

9.3.4. Storage Testing

The database of the system has to be stored on the hard disk. So, the storage capacity of the hard disk should be enough to store all the data required for the efficient running of the system.

Chapter 10. Conclusion

This software will provide safe, and secure environment for those records of event ticket booking as it is will be only accessed by authorized users, Admin and registered Organizer, so overall, this event ticket booking software will facilitate online event ticket booking by the user and the event creation by the Organizer. Development of online event ticket booking has been proposed in the presented work.

The application "Event Ticket Booking System" was effectively designed and is tested for accuracy and quality. During this project we have achieved all the aims and this project meets the needs of the association. The developed will be used in searching, retrieving and generating information for the related requests. Project will certainly decrease the human effort and make the task of user, organizer and administrator effortless. It is resourceful to use and easy to work on it. Thus, keeping in mind the advantages and applications of the system.

Chapter 11. References

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6. https://www.php.net/
7. https://jquery.com/
8. https://www.w3schools.com/php/
9. https://www.w3schools.com/js/
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INTERNSHIP AT YUDIZ SOLUTIONS LTD.

AN INTERNSHIP REPORT

Submitted by

Parth Jagdishbhai Thakkar

190390116049

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Information Technology 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 YUDIZ SOLUTIONS LTD.** has been carried out by **Parth Jagdishbhai Thakkar** 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. Sushama Sainwar   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 : 11 May 2023 (10:27:06)

This is to certify that, *Thakkar Parthkumar Jagdishbhai* (Enrolment Number - 190390116049) working on project entitled with *E-Commerce Platform* from *Information Technology* department of *S. P. B. PATEL ENGINEERING COLLEGE, MEHSANA* had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student :   Thakkar Parthkumar Jagdishbhai

Name of Guide :   Miss. Sushma Sainwar

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

yudiz
Solutions Limited

Date: 28th April, 2023

To whom so ever It May Concern

This is to certify that **Mr. Parth Thakkar** a student of **Saffrony Institute Of Technology** is working as a Trainee/Intern with our Company for the duration of six months starting from 1st February, 2023 to till date, as a **Python Development Trainee** and working on a project **"JWstore"**.

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, 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 **Information Technology Engineering** to Gujarat Technological University, Ahmedabad, is a bonafide record of original project work carried out by me under the supervision of **Prof. Sushama Sainwar** & **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

1.   **Parth Jagdishbhai Thakkar**   _____

<u>ACKNOWLEDGMENT</u>

First I would like to thank **Mrs. Kinjal Shah,** HR, Head of Yudiz Solutions Ltd., Ahmedabad for giving me the opportunity to do an internship within the organization.

I wish to express our sincere gratitude to our External guide **Mr. Ayaz Saiyed** for continuously guiding me at the company and answering all my doubts with patience. I would also like to thank my Internal Guide **Prof. Sushma Sainwar** for helping us through our internship by giving us the necessary suggestions and advices along with their valuable coordination in completing this internship.

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

Thus, In conclusion to the above said, once again thank the staff members of **Yudiz Solutions Ltd.** for their valuable support in completion of the project.

<div align="right">

With Sincere Regards
Parth Thakkar

</div>

Abstract

JW.store is an e-commerce platform for building online stores. Create attractive customer links with all the features that provide modern, rich shopping experience. The JW store manager has an additional right that includes all of the guest and user rights. The manager can add products, edit product information and add/remove product. An administrator can add a user, edit user information, and can delete a user. An administrator can send an order to a user based on the order placed by sending a confirmation email.

Another great advantage of JW.store is that it is available both as a standard online store and as a PWA program. PWA means that our customers can download our store from any device and browse it offline or when they do not have internet access. On this website the user has two functions such as a registered user and a guest (visitor). Use a management dashboard that allows you to easily manage products, people, and operations. Saleor has solutions for small, medium, and business-class retailers and combines both visual and digital.

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CHAPTER 1. OVERVIEW OF THE COMPANY

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, we have consistently delivered the competitive edge in the form of robust, foresighted, 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.

With our agile, collaborative approach, we have provided tailored domain specific IT solutions that have successfully resolved different business issues. Our deep expertise in mobile app development, game development, Blockchain, AR/ VR, and web development has helped us retain numerous clients for years.

1.2 SCOPE OF WORK:

Yudiz Solutions Ltd., a software development company located in India, their scope of work includes:

1) Custom Software Development: Yudiz offers custom software development services to meet the unique needs of their clients, from ideation to deployment and maintenance.

1) Mobile Application Development: Yudiz specializes in developing mobile applications for both Android and iOS platforms, catering to a diverse range of industries.

2) Web Application Development: Yudiz offers web application development services to build scalable, secure, and user-friendly web applications using the latest technologies.

3) Game Development: Yudiz has a dedicated team of game developers who create engaging and entertaining games for various platforms.

4) Blockchain Development: Yudiz offers blockchain development services, including smart contract development, decentralized application development, and more.

5) Augmented Reality and Virtual Reality: Yudiz offers AR/VR development services to create immersive experiences for various industries, including gaming, education, and healthcare.

6) UI/UX Design: Yudiz has a team of experienced designers who create intuitive and visually appealing interfaces for web and mobile applications.

Overall, Yudiz Solutions provides a wide range of software development and technology services to clients across various industries, from startups to enterprise-level businesses.

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 PROGRAMMING AND PYTHON BASICS

2.1 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.

2.2 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

2.3 OPERAORS:

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.

Types of Python Operators:
- Arithmetic Operators
- Comparison (Relational) Operators
- Assignment Operators
- Logical Operators
- Bitwise Operators
- Membership Operators
- Identity Operators

2.4 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.

Table 2.4.1 Loop type & description

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. |

2.5 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.

Built-in String Methods:

Table 2.5.1 String methods with description

Sr.No.	Methods with Description
1	capitalize() Capitalizes first letter of string
2	center(width, fillchar) Returns a space-padded string with the original string centered to a total of width columns.
3	count(str, beg= 0,end=len(string)) Counts how many times str occurs in string or in a substring of string if starting index beg and ending index end are given.
4	decode(encoding='UTF-8',errors='strict') Decodes the string using the codec registered for encoding. encoding defaults to the default string encoding.
5	encode(encoding='UTF-8',errors='strict') Returns encoded string version of string; on error, default is to raise a ValueError unless errors is given with 'ignore' or 'replace'.
6	endswith(suffix, beg=0, end=len(string))

		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.
7	expandtabs(tabsize=8) Expands tabs in string to multiple spaces; defaults to 8 spaces per tab if tabsize not provided.	

2.6 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.

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.

Function Arguments
- Required arguments
- Keyword arguments
- Default arguments

CHAPTER 3. LEARNING DJANGO

3.1 UNDERSTANDING THE 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.

3.2 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.

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.

3.3 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.

3.4 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.

3.5 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.

3.6 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.

3.7 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.

3.8 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.

3.9 HANDLING FORMS:

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.

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.

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.

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.

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.

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.

3.10 IMPLEMENTING AUTHENTICATION:

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.

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.

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.

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.

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.

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.

3.11 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.

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.

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.

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.

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.

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 4. PROJECT WORK

4.1 WHAT IS MY PROJECT?

- My project base in store management.
- Our website provide customer to watch products and register user can by products.
- Our website selling jewellery's.
- We provide both functionalities online pay and COD.
- If client like product to their cart list (only register user can add to cart)
- Admin send conform order email

4.2 OUR GOAL:

Our goal is to reach customer if customer is anywhere. Business can globally expand it profitable for both shop owner and customer owner expand his business and client have so much verities for buy

4.3 AIM OF PROJECT:

- User can buy jewellery online user dos not have to go **physically** to store
- Also, in online so many varieties are available so clients have so much options available for buy
- User can online pay and can COD also
- User get Home delivery (if possible and if in range)
- Admin can easily manage stock
- To provide bater online shopping experience to user

4.4 ROLES:

- Admin
- Registered client
- Non-Registered client

4.5 FUNCTIONALITY

- User can login
- Registered user can buy product
- User can search and sort products
- Registered user can add product in carts
- Client can pay by both method COD and online pay
- Admin can add category manage category
- Admin can add new product and manage that product
- Admin can approve or reject order
- Admin send email to client that his order is conform or not
- Client can print a bill
- Admin can manage users
- Admin can manage inventory
- Admin can give a discount on particulate product for some time periods

4.6 FLOWCHART
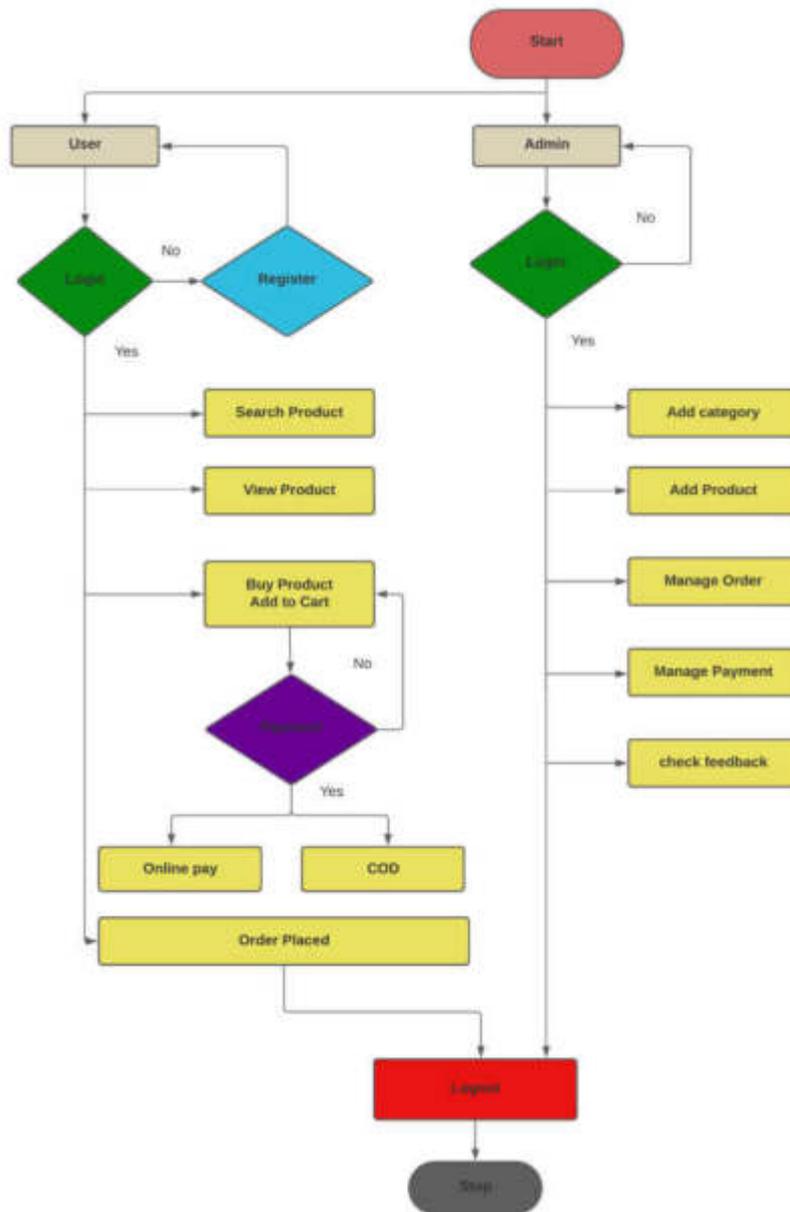
Fig 4.6.1 Flowchart

4.7 CLASS DIAGRAM:
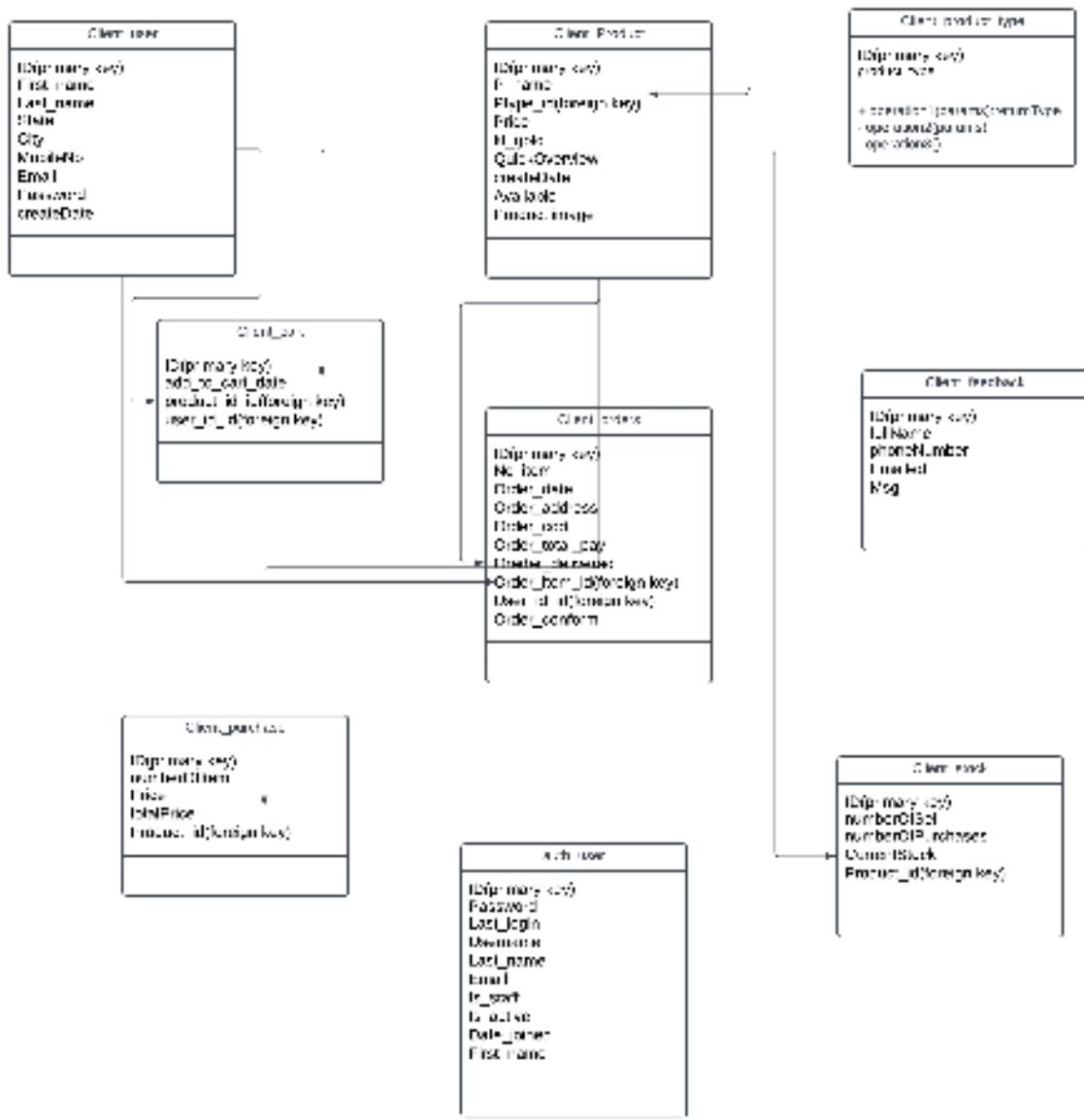
Fig 4.7.1 Class diagram

4.8 LIMITATIONS OF PROJECT:

- Limitations of our project is user required internet.
- Admin have to manage stock manually.
- There is no physical shop so user can't reach the shop.
- Admin also need internet.
- There is no feature that client can return a product. User need to contact admin for that.
- Admin have manually conformed order and delivered to client.
- Client can not track that where the product went.
- There is no feature that show that when the product will deliver.

4.9 TESTING:

Testing Plan

- A test plan is a detailed document which describes software testing areas and activities. It outlines the test strategy, objectives, test schedule, required resources (human resources, software, and hardware), test estimation and test deliverables.
- Making a test plan is the most crucial task of the test management process. According to IEEE 829, follow the following seven steps to prepare a test plan.
- First, analyze product structure and architecture.
- Now design the test strategy.
- Define all the test objectives.
- Define the testing area.
- Define all the useable resources.
- Schedule all activities in an appropriate manner.
- Determine all the Test Deliverables.

Test strategy

- Mostly thare is two type of strategy is used is
  - Black box
  - White box
- ❖ Black box testing

o The Black Box Test is a test that only considers the external behavior of the system; the internal workings of the software is not taken into account. The White Box Test is a method used to test a software taking into consideration its internal functioning. It is carried out by testers.

❖ White box testing

o White-box testing is the detailed investigation of internal logic and structure of the code. White-box testing is also called glass testing or open-box testing. In order to perform white-box testing on an application, a tester needs to know the internal workings of the code.

- In our project we use black box testing

4.10 CONCLUSION OF PROJECT:

- This project allows to buy and sell product online so seller can reach more and more clients.

- And client can order product by placing anywhere so client dos not need to go physically to that shop.

- Sometimes shop owner dos not have products available because of that some sellers lose there clients but in our website the product pictures are available so client can see and select product it like.

- And this website directly so that the product is stock available or not and when owner conform the order that item automatically reduce from stock table so owner have more easy to manage stock

- Also admin can see which product how much sell done and how much purchase and that products current stock.

- And also if client like any product and now client dos not won't to buy right now then client can add product in cart so later on client can buy product.

4.11 SCREENSHOTS OF PROJECT:

Fig 4.11.1 Admin login
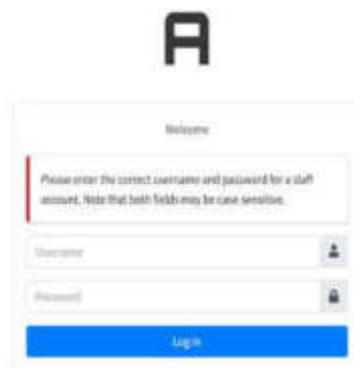
Fig 4.11.2 Admin validate login
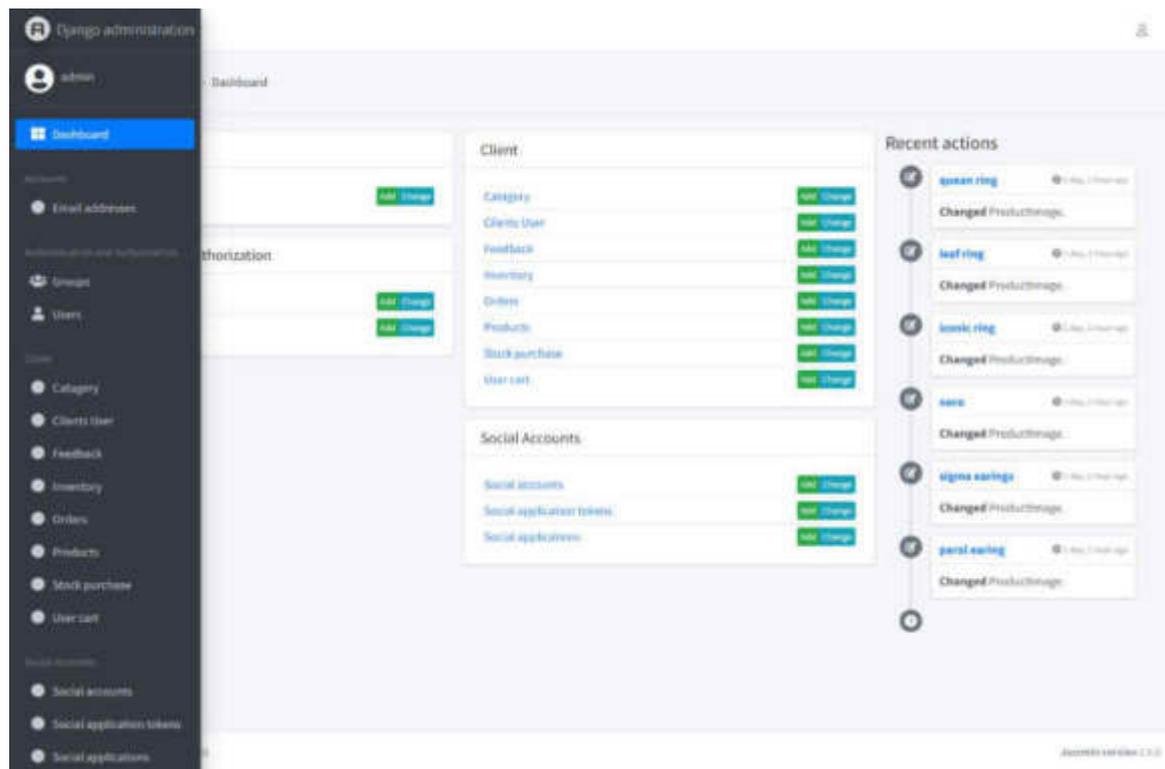
Fig 4.11.3 Admin dashboard
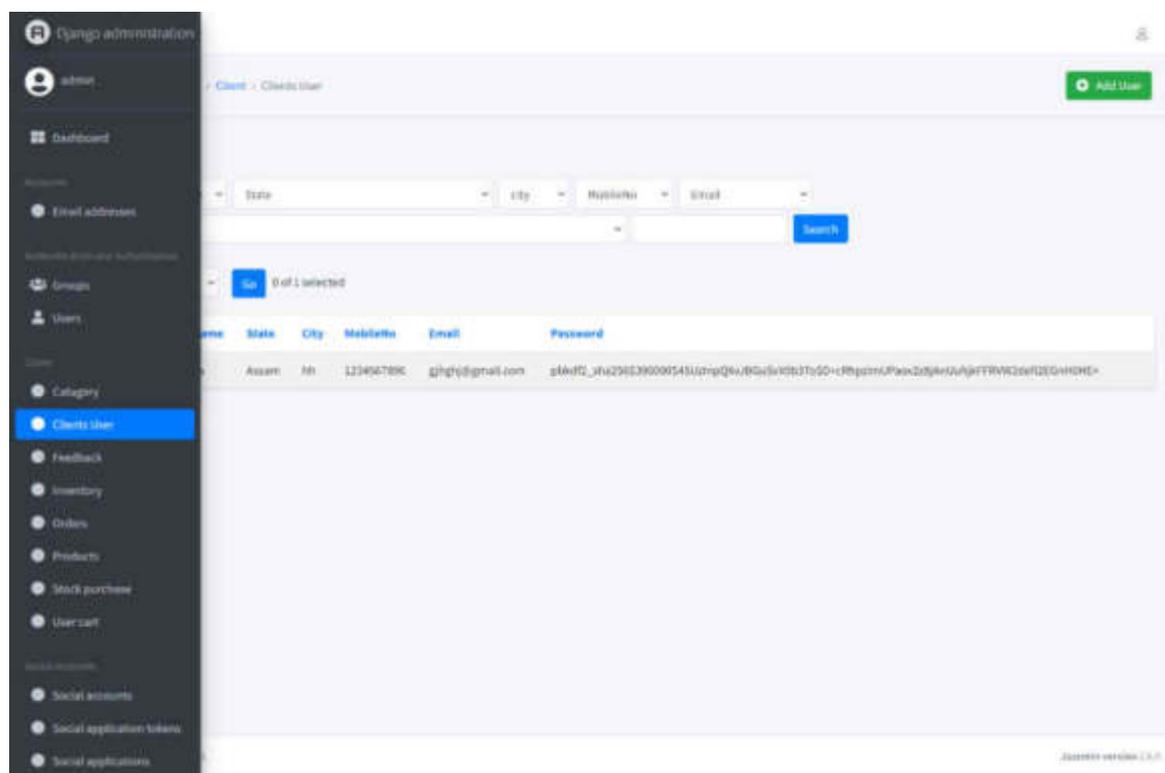
Fig 4.11.4 Admin client user
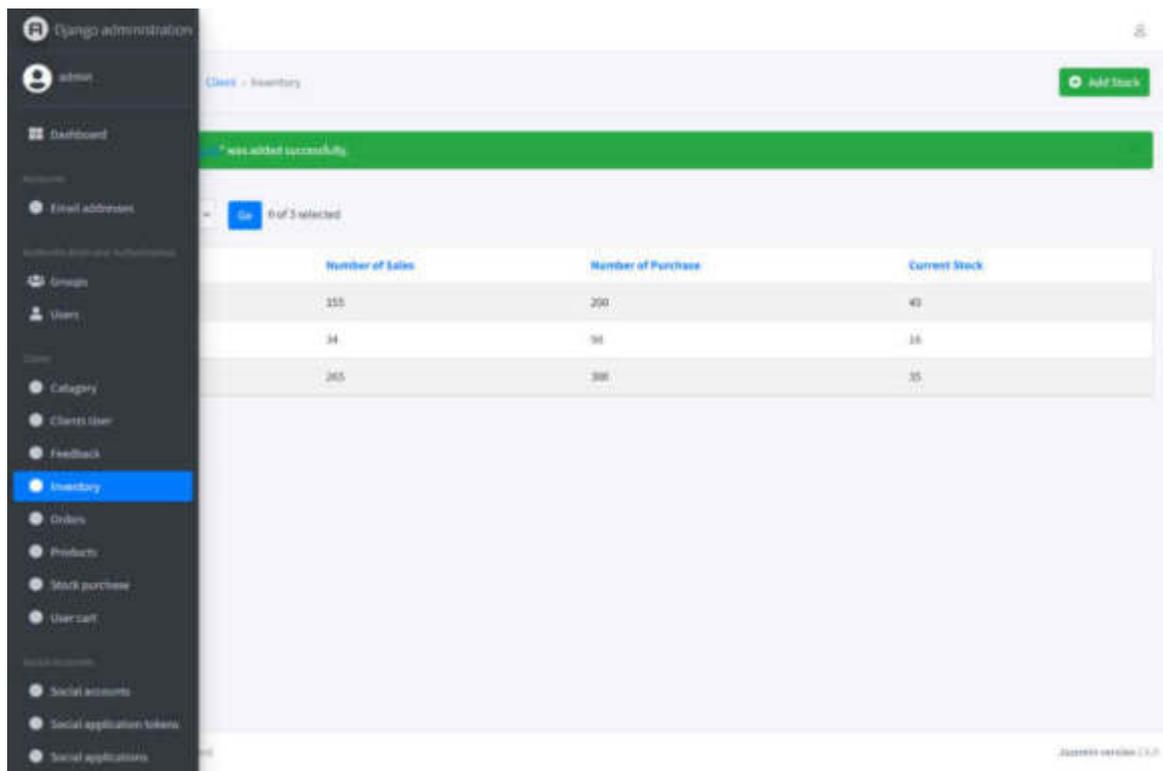
Fig 4.11.5 Admin inventory
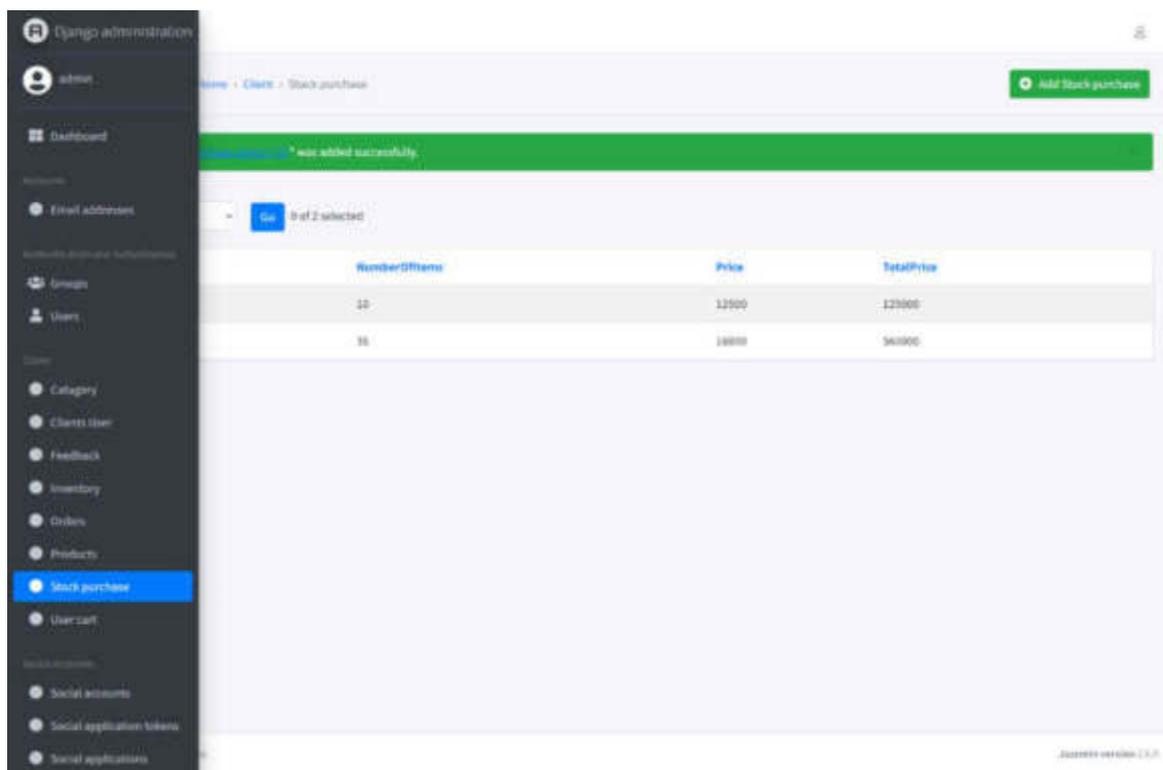
Fig 4.11.6 Admin stock purchase
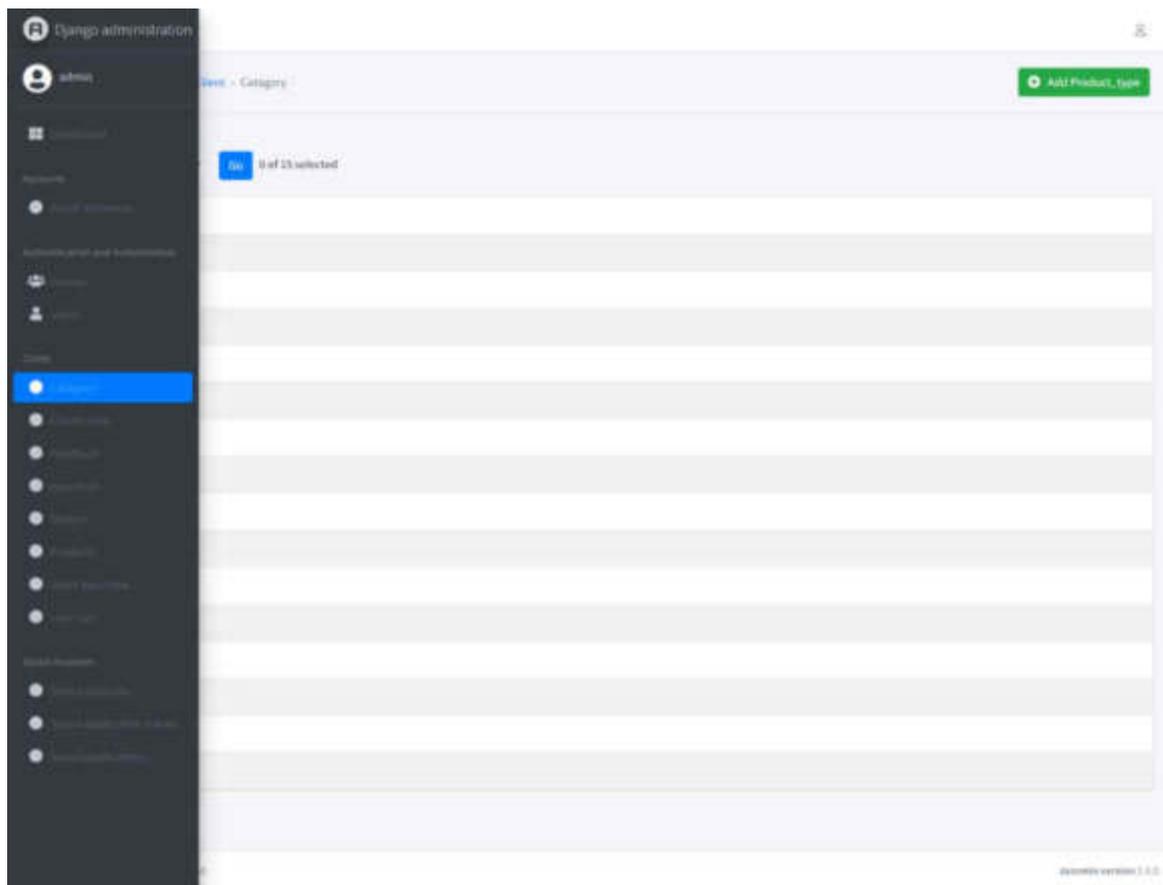
Fig 4.11.7 Admin category
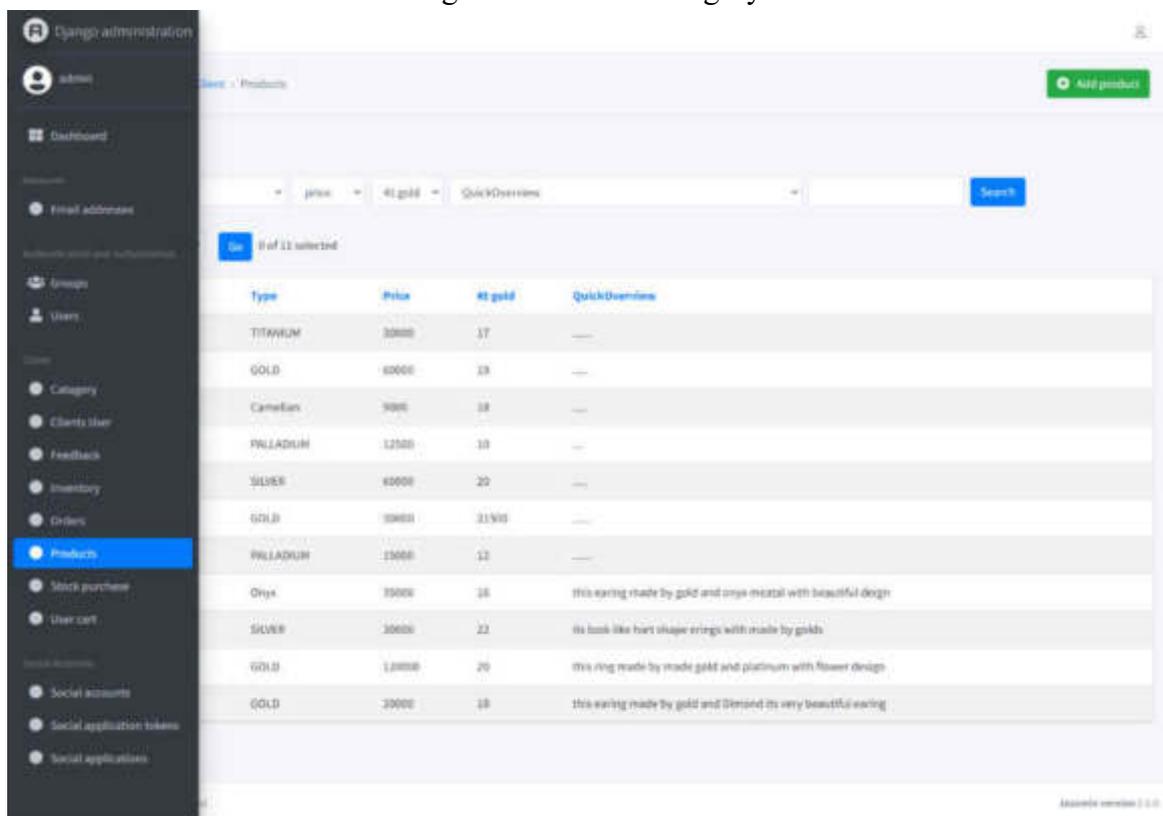
Fig 4.11.8 Admin products
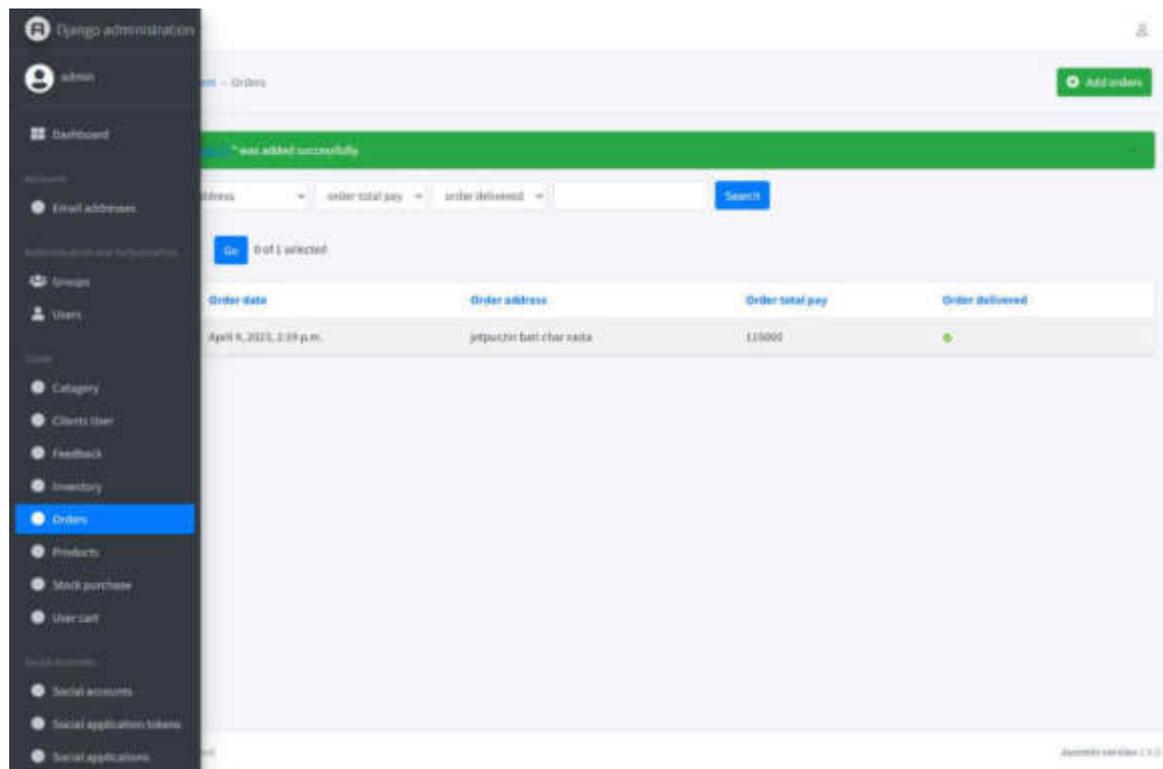
Fig 4.11.9 Admin orders
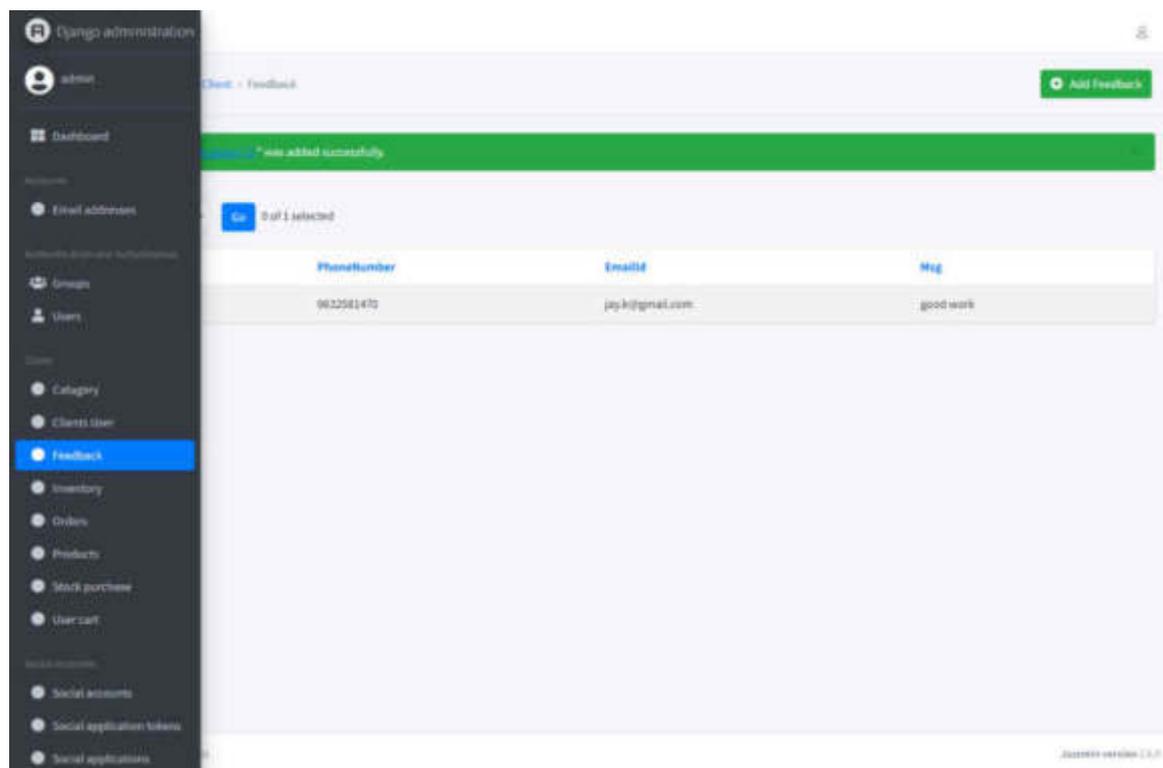
Fig 4.11.10 Admin feedback
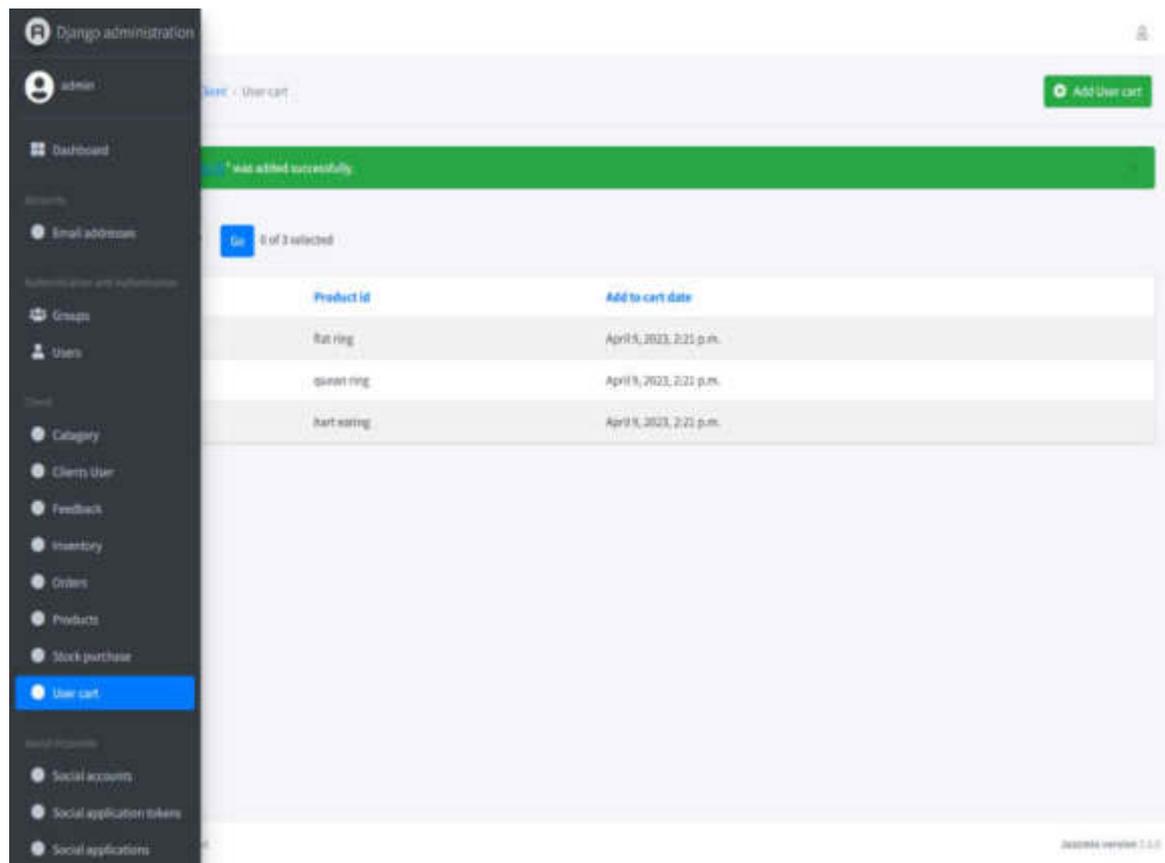
Fig 4.11.11 Admin user cart
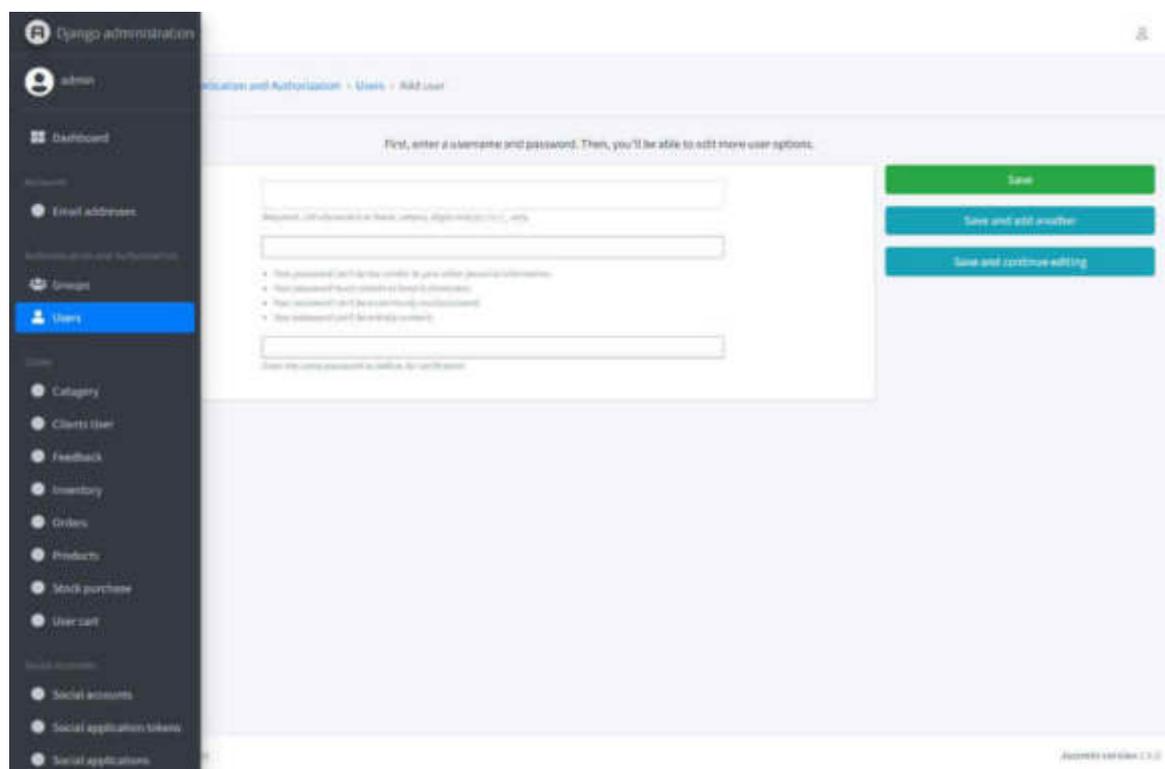
Fig 4.11.12 Admin user
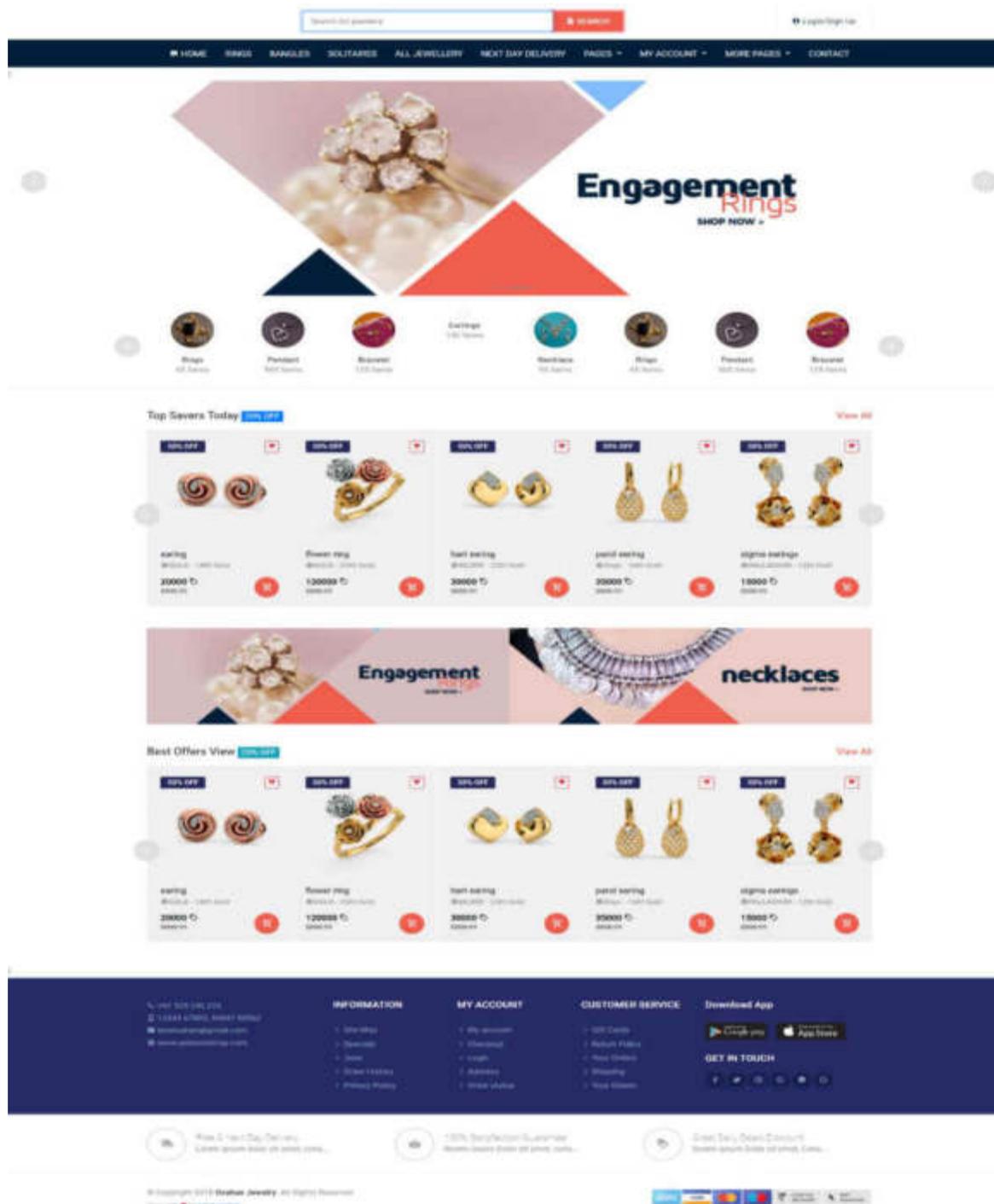
Fig 4.11.13 Home page
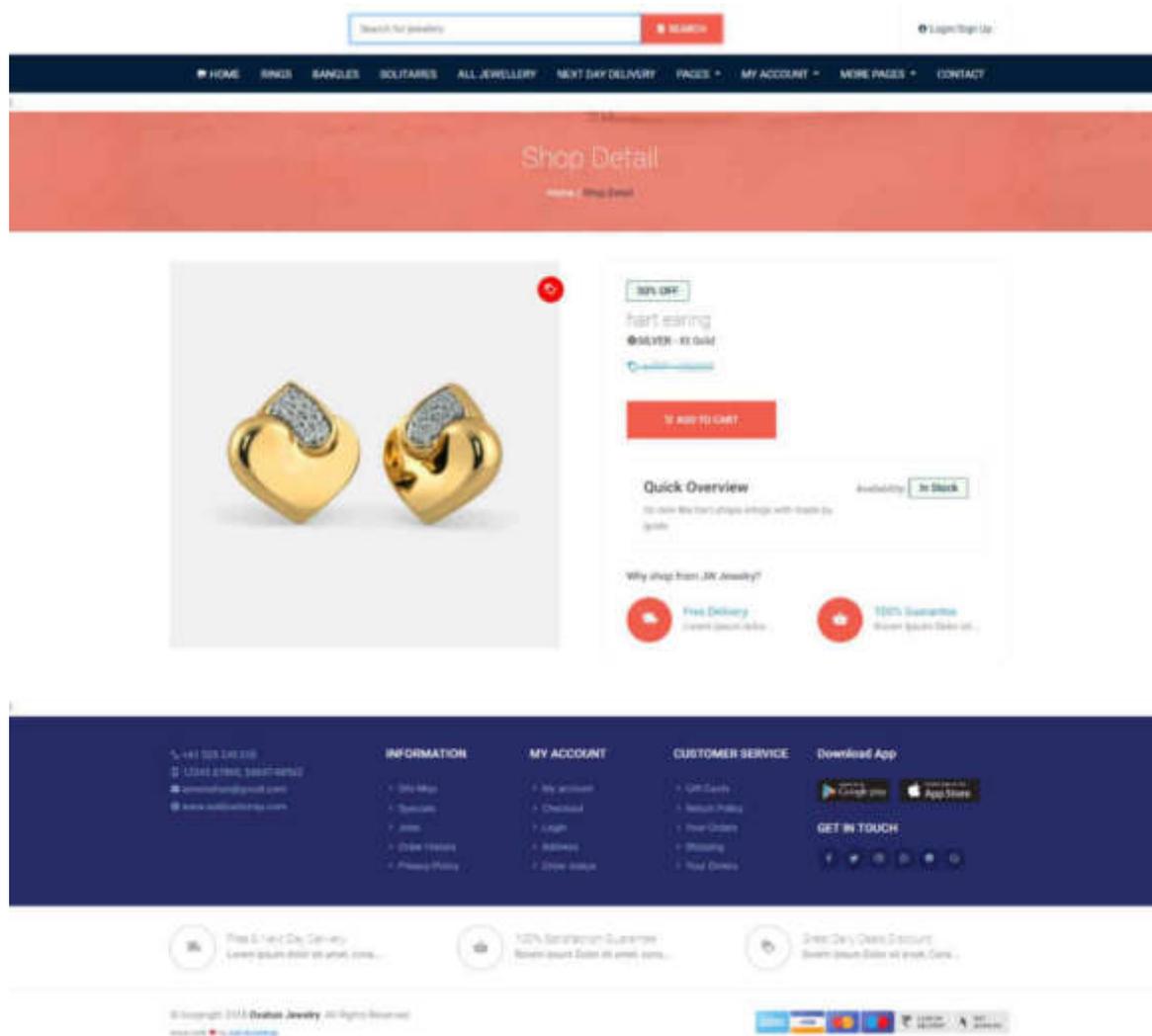
Fig 4.11.14 Single product
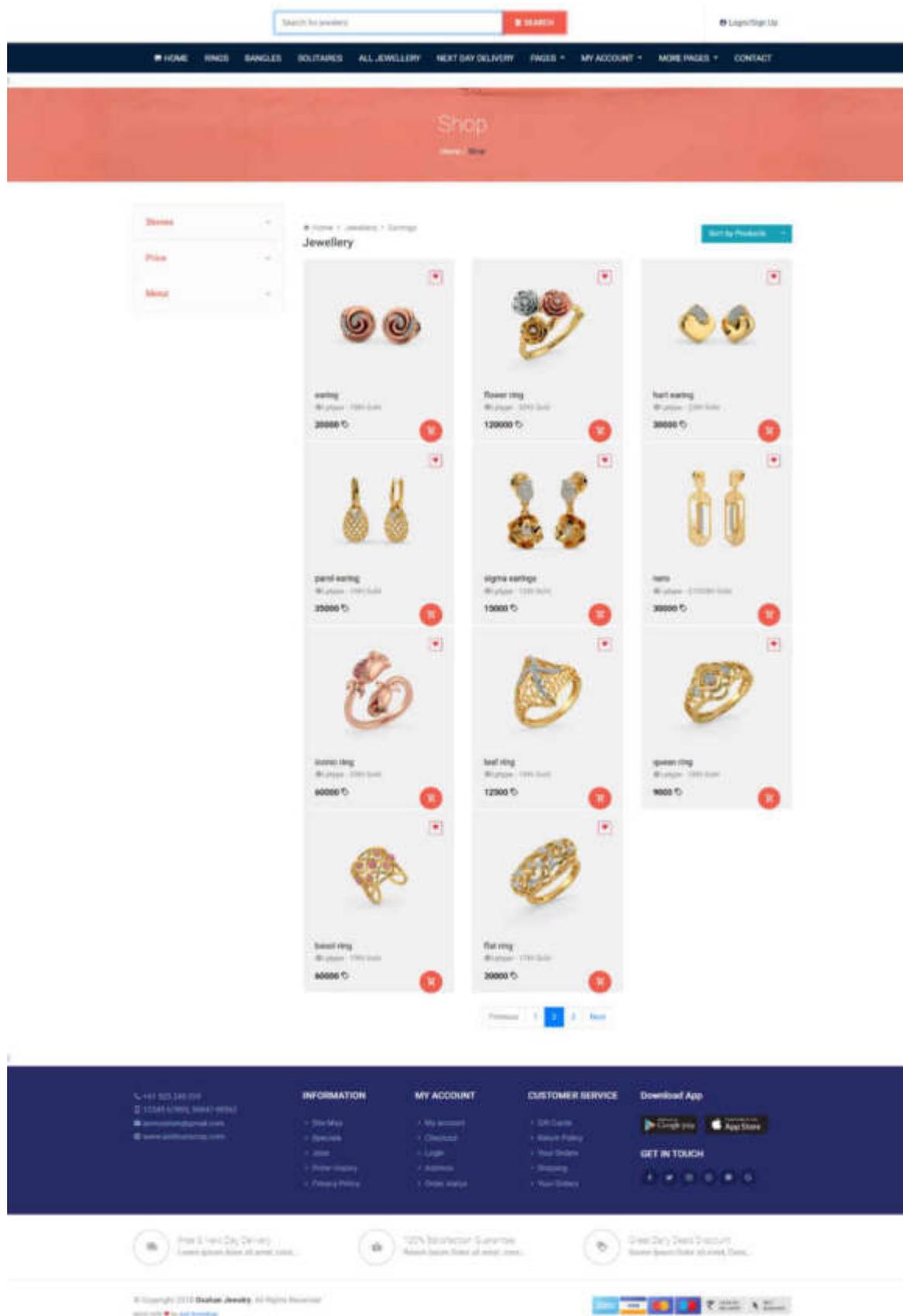
Fig 4.11.15 Single all products
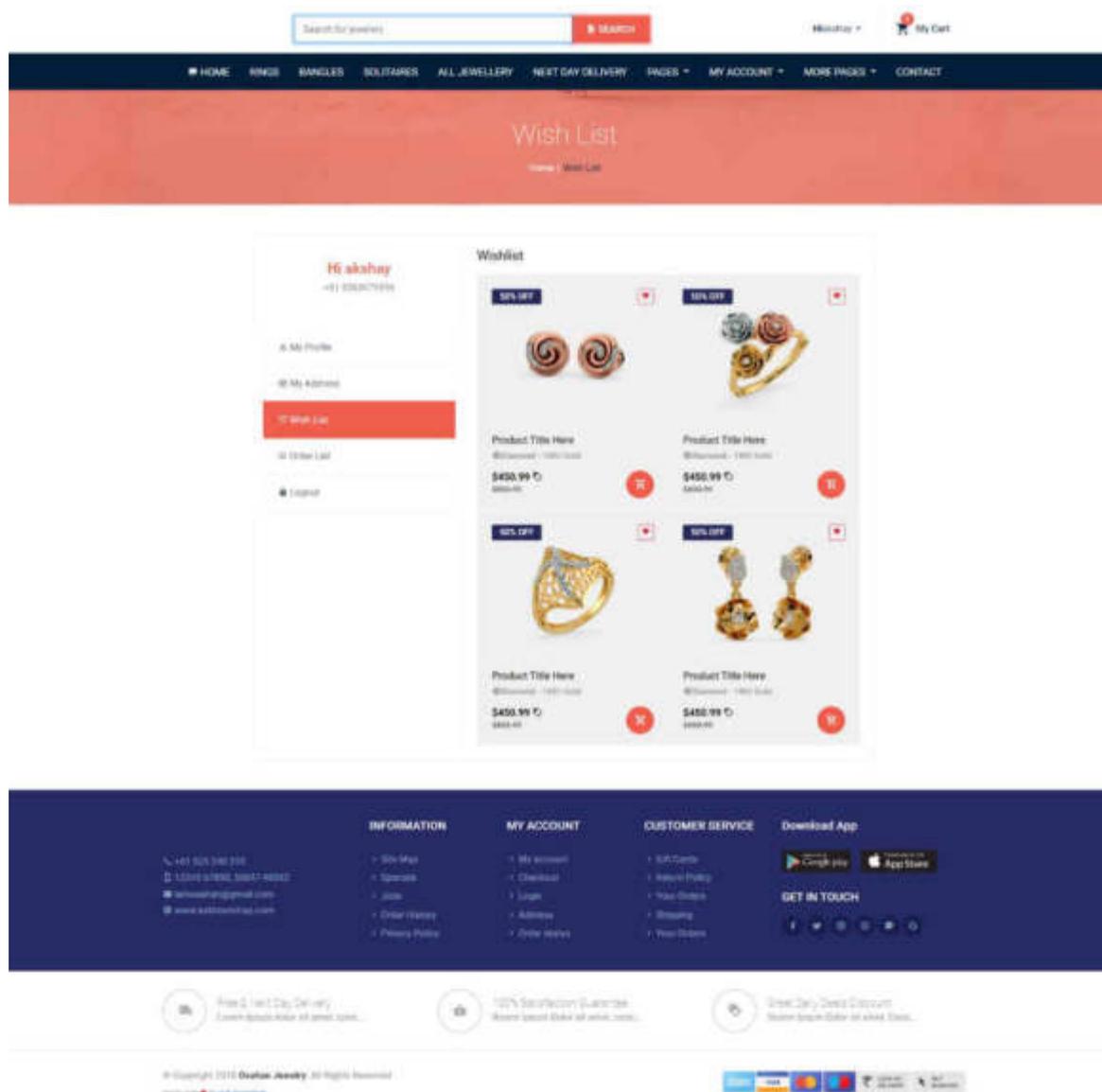
Fig 4.11.16 Wish list

APPENDIX

TOOLS USED

Software

- IDE: Visual studio code
- Browser: Google chrome, Morzila
- Database: PostgresQL, workbench
- API: Postman

Tools and technologies

- Front end: Python, EJS (Embedded Javascript), Html, Css, Bootstrap CDN, Jinja Templates
- Back-end: Django
- Database: PostgresQL

REFERENCES

https://www.w3schools.com/python/

https://www.javatpoint.com/python-tutorial

https://www.djangoproject.com/start/

https://docs.python.org/3/tutorial/

https://www.tutorialspoint.com/index.htm

https://www.programiz.com/python-programming

INTERNSHIP REPORT

Submitted by

Kashyap Trivedi

190390116050

Information & Technology

Summer Internship at

Sparks to Ideas

during

20-06-2022 to 08-07-2022

S.P.B Patel Engineering College

Saffrony Institute of Technology, Mehsana
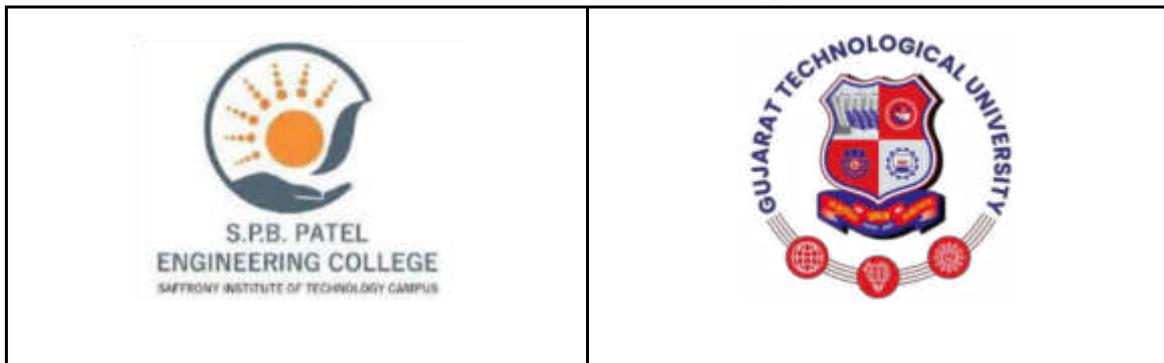
Gujarat Technological University, Ahmedabad

July 2022

INTERNSHIP CERTIFICATE

INTERNSHIP COMPLETION CERTIFICATE

This is to certify that **Mr. Trivedi Kashyap Rajesh Kumar.** has successfully completed our **Python Internship** Program in **Sparks To Ideas** session Starting from 20th June 2022 to 8th July 2022. He completed his Internship in Python Technology. We wish him all the best wishes for his bright future.

Sincerely,

Ashish Meghani
Sparks To Ideas

Managing Director

Sparks To Ideas

Address: - 406 Akshat Tower near Pakwan hotel opposite Rajpath club SG highway Ahmadabad.
E-Mail:- info@sparkstoideas.com   Website: - www.sparkstoideas.com

---

PMMS CERTIFICATE

ACKNOWLEDGEMENT

First of all I would like to thank **Mr. Ashish Meghani**, Head of **Sparks To Ideas**, Ahmedabad for giving me the opportunity to do an internship within the organization.

I would also like to thank Bansari Patel who worked with patience and openness. They created an enjoyable working environment.

I would also like to thank our Head of Department(HOD) **Prof. Akshay kansara** & internal guide **Prof. Ankita Choudhary**, College internship coordinator Department of CE/IT for their support and advice to get and complete the internship.

ABSTRACT

Python is a general purpose, dynamic, high-level, and interpreted programming language. It was developed by **Guido van Rossum** in 1991 at CWI in the Netherlands.

It supports Object Oriented programming (OOP) concept. It's simple and easy to learn and understand. It supports multiple programming Patterns. It makes the development and debugging fast because there is no compilation step included in Python development.

Learning python is easy and it is used now a days a lot in following
- Data Science
- Data Mining
- Desktop Applications
- Console-based Applications
- Mobile Applications
- Software Development
- Artificial Intelligence
- Web Applications
- Machine learning

Table of Contents

Chapter-1 About the Company

1.1 Introduction

Sparks To Ideas provides digital transformation and IT services from ideation to execution,serving Globally 500+ clients to outperform the competition.Whether you need to run your business more efficiently or accelerate revenue growth, Sparks To Ideas can get you there.

Details:

Website: www.sparkstoideas.com

Phone no.: +91 8511777879

              +91 9510203204

Email: info@sparkstoideas.com

Address: 406, Akshat Complex, Sarkhej - Gandhinagar Highway, near pakwan hotel, opp. Rajpath Rangoli Road, Ahmedabad, Gujarat 380054

Chapter-2
Fundamentals for Basic Python

2.1 Software Requirements

For python there are many IDE's to run the python code.
IDE's like VScode, Sublime text, Pycharm, Atom, etc. are used.

2.2 Creating file and code writing

➔ Click on 'New File' and save it using the ".py" extension.

➔ Now, we will see how to print anything in python.
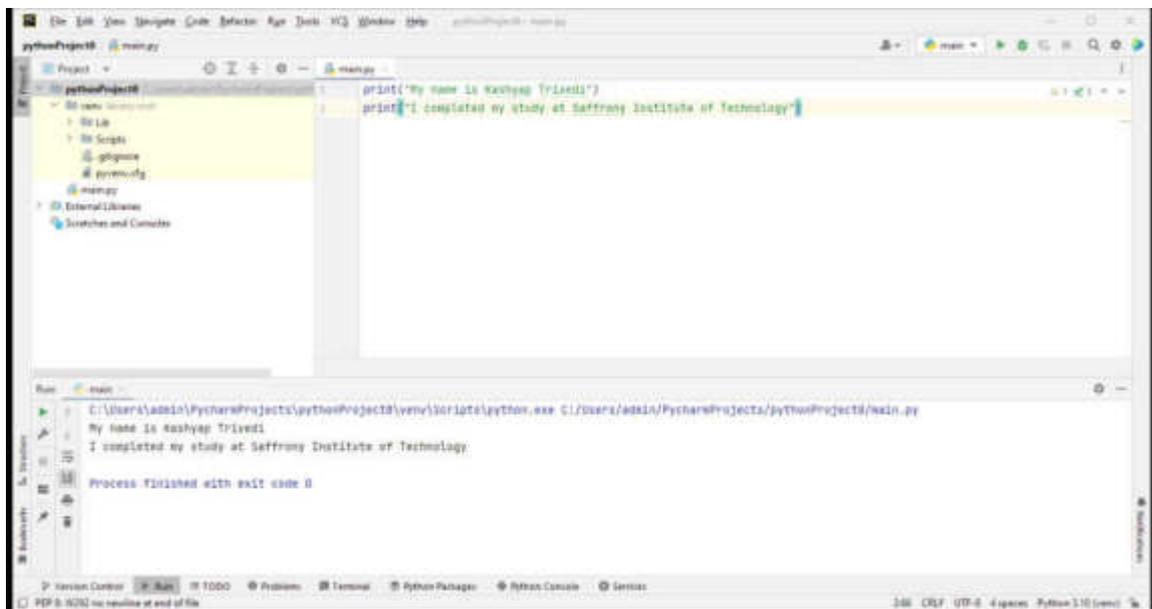
2.3 Taking Input from the User

➡ Python provides the input() function to take input from the user.
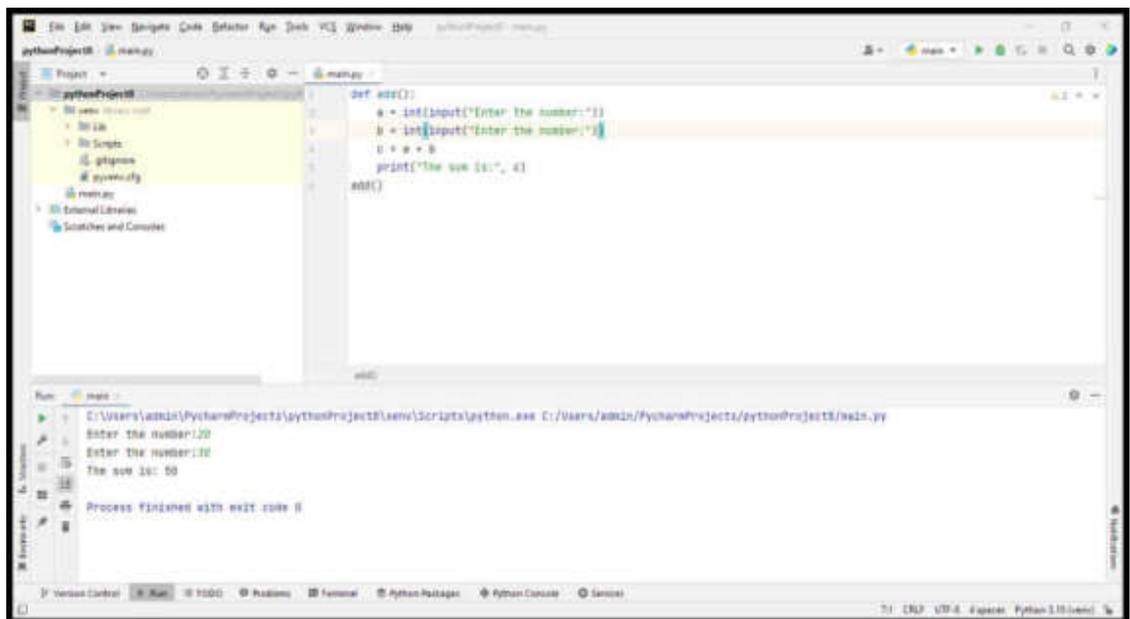
2.4 Python Data-Types & Variables

➜ There is no need to write data-type if we define the variable. It automatically recognize the data-type

➜ int(), float(), str() are explicit type conversions. This type of conversion is also called typecasting because the user casts (changes) the data type of the objects. Typecasting can be done by assigning the required data type function to the expression.
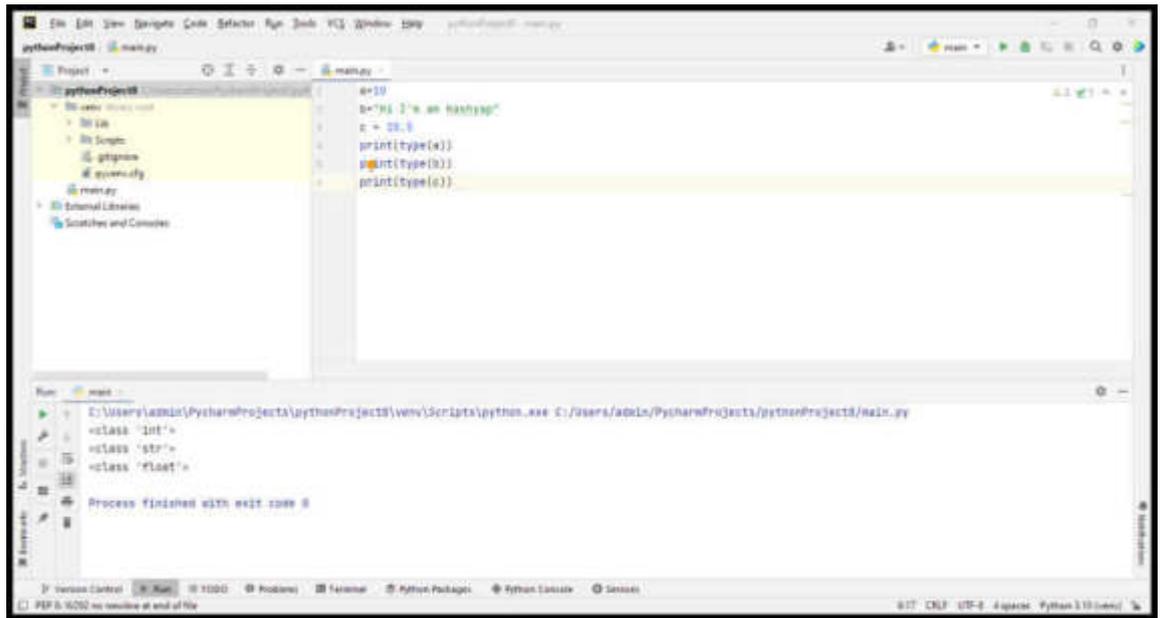
2.5 Python Keywords

● True/False:
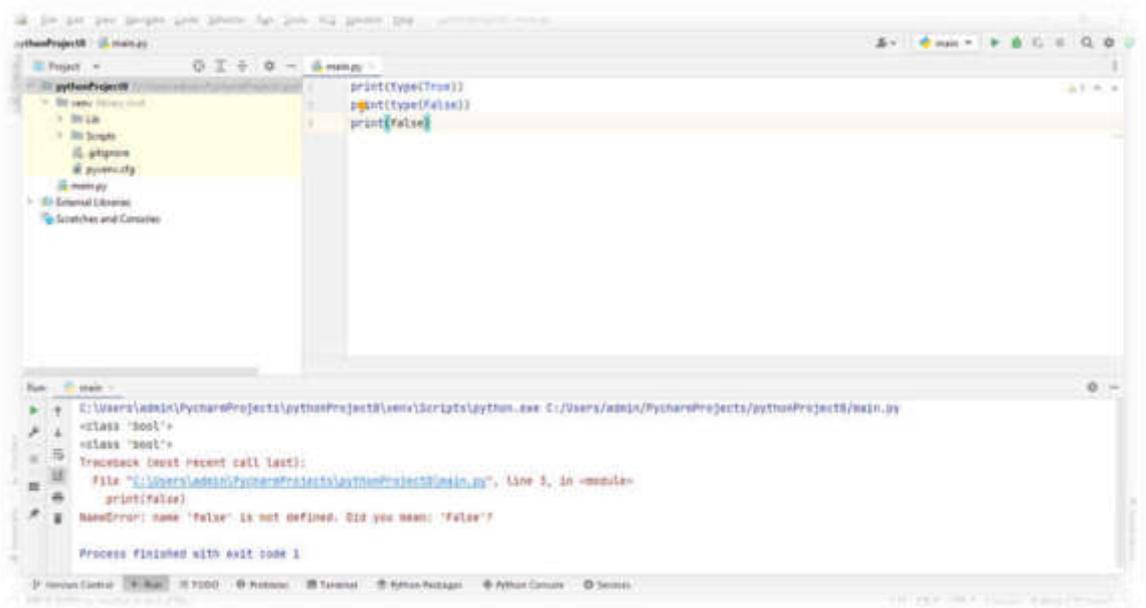
Chapter 3 Project

3.1 Speed Typing Test

➔ In this Python project idea, we are going to build an exciting project through which you can **check** and even **improve** your typing speed. For a graphical user interface, we are going to use the **pygame** library which is used for working with graphics. We will draw the images and text to be displayed on the screen.

➔ It is a basic level project for beginners to learn and prepare a project.

➔ It is a 1 player game.

3.2 Code:

```python
import pygame
from pygame.locals import import *
import sys
import time
import random
class Game:

    def __init__(self):
        self.w=750
        self.h=300
        self.reset=True
        self.active = False
        self.input_text=''
        self.word = ''
        self.time_start = 0
        self.total_time = 0
        self.accuracy = '0%'
        self.results = 'Time:0 Accuracy:0 % Wpm:0 '
        self.wpm = 0
        self.end = False
        self.HEAD_C = (255,115,102)
        self.TEXT_C = (148,240,240)
        self.RESULT_C = (255,70,70)

        pygame.init()
```

```python
        self.open_img = pygame.image.load('Type-speed-open.png')
        self.open_img = pygame.transform.scale(self.open_img, (self.w,self.h))

        self.bg = pygame.image.load('background.jpg')
        self.bg = pygame.transform.scale(self.bg, (500,750))

        self.screen = pygame.display.set_mode((self.w,self.h))
        pygame.display.set_caption('Type Speed test')

    def draw_text(self, screen, msg, y, fsize, color):
        font = pygame.font.Font(None, fsize)
        text = font.render(msg, 1, color)
        text_rect = text.get_rect(center=(self.w / 2, y))
        screen.blit(text, text_rect)
        pygame.display.update()

        def get_sentences(self):
            f = open('sentences.txt').read()
            sentences = f.split('\n')
            sentence = random.choice(sentences)
            return sentence

        def show_results(self, screen):
            if (not self.end):
```

```python
            if (x >= 110 and x <= 510 and y >= 390 and self.end):
                self.reset_game()
                c, r = pygame.mouse.get_pos()


        elif event.type == pygame.KEYDOWN:
            if self.active and not self.end:
                if event.key == pygame.K_RETURN:
                    print(self.input_text)
                    self.show_results(self.screen)
                    print(self.results)
                    self.draw_text(self.screen, self.results, 350, 20, self.RESULT_C)
                    self.end = True

                elif event.key == pygame.K_BACKSPACE:
                    self.input_text = self.input_text[:-1]
                else:
                    try:
                        self.input_text += event.unicode
                    except:
                        pass

    pygame.display.update()

    clock.tick(30)
```

```python
    def reset_game(self):
        self.screen.blit(self.open_img, (0, 0))

        pygame.display.update()
        time.sleep(1)

        self.reset = False
        self.end = False

        self.input_text = ''
        self.word = ''
        self.time_start = 0
        self.total_time = 0
        self.wpm = 0

        # get random sentence
        self.word = self.get_sentence()
        if (not self.word): self.reset_game()
        # drawing heading
        self.screen.fill((0, 0, 0))
        self.screen.blit(self.bg, (0, 0))
        msg = "Typing Speed Test"
        self.draw_text(self.screen, msg, 80, 80, self.HEAD_C)
        # draw the rectangle for input box
        pygame.draw.rect(self.screen, (255, 142, 25), (50, 250, 650, 50), 2)
```

```
        self.time_start = 0
        self.total_time = 0
        self.wpm = 0

        # Get random sentence
        self.word = self.get_sentence()
        if (not self.word): self.reset_game()
        # Drawing heading
        self.screen.fill((0, 0, 0))
        self.screen.blit(self.bg, (0, 0))
        msg = "Typing Speed Test"
        self.draw_text(self.screen, msg, 50, 80, self.HEAD_C)
        # draw the rectangle for input box
        pygame.draw.rect(self.screen, (255, 192, 15), (50, 250, 650, 50), 2)

        # draw the sentence string
        self.draw_text(self.screen, self.word, 200, 20, self.TEXT_C)

        pygame.display.update()

    Game().run()
```

Output:

Chapter 4 Overall Experience

As an intern in python at Sparks To Ideas, During the internship the overall experience of the internship was amazing. Now I am able to understand the different tasks and responsibilities in the internship. I got the knowledge of Python Programming language. I have completed my internship with a lot of information and knowledge. This internship gives me industrial level experience.

APPENDIX

Joining Letter:

To

The HOD,

Saffrony Institute of Technology,

Mehsana.

Subject :- Python Internship

We are pleased to confirm you that **Mr. Trivedi Kashyap.** has been appointed for **Python internship** Program in **Sparks To Ideas** Session starts from 20th June 2022. We are confident he will be able to make a significant contribution to the success of our company and we look forward to work with him.

Sincerely,

Ashish Meghani
Sparks To Ideas

Managing Director

Sparks To Ideas

INTERNSHIP AT INFOLABZ IT SERVICES PVT. LTD

AN INTERNSHIP REPORT

Submitted by

Patel Varshilkumar Dilipbhai

200390116025

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

In

Mechanical 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** has been carried out by **Varshilkumar Dilipbhai Patel** 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 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: 200390116025

Semester: 7th, Information Technology

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 Patel Varshilkumar Dilipbhai.

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 Patel Varshilkumar Dilipbhai 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
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Ahmedabad, Gujarat 380009

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 **Information & Technology** 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

1.   **Patel Varshilkumar Dilipbhai**   _____

ACKNOWLEDGMENT

I wish to express my sincere gratitude to our External guide Mr. Chetan nagrecha for continuously guiding me at the company and answering all my doubts with patience. I would also like to thank Infolabz Developers for helping me through my internship by giving me the necessary suggestions and advice 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 forth internship.

Also, I appreciate the guidance given by the developer at Infolabz Mr.Chetan nagrecha as well as the panels especially for the internship that has advised me and gave guidance at every moment of the internship. Thus, in conclusion to the above said, I once again thank the staff members of Infolabz It Services Pvt. Ltd. for their valuable support in completion of the project.

Thank you all.

Varshil Patel
(200390116025)

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, 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.

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 andhard 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.

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	• Page Routing in Django	
WEEK 2	04 AUGUST 2023	
	• Implementation of Static folder (CSS, JS & IMAGES) in Djnago	
	• Bootstrap	
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	• Project : Real time news website using inshorts API	
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Week-1

- Day-1(27/07/2023)

  o Django Environment setyp :

1) Install DJANGO -pip install django

2) To check django is properly installed or not -django-admin
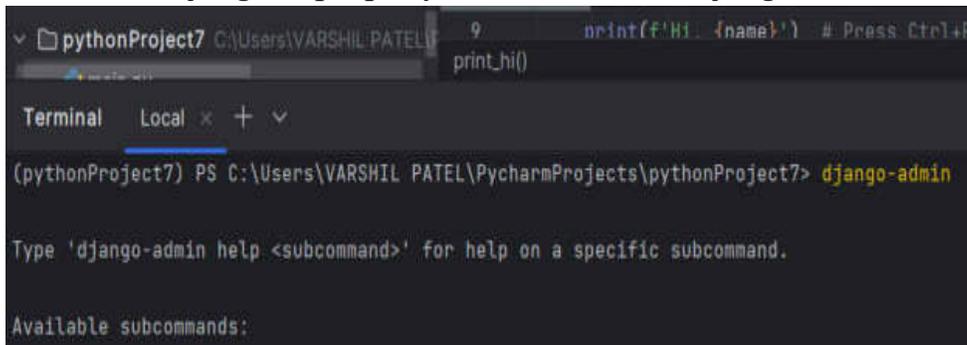
  o Django project creation

  Create a project -django-admin startproject (projectname) .
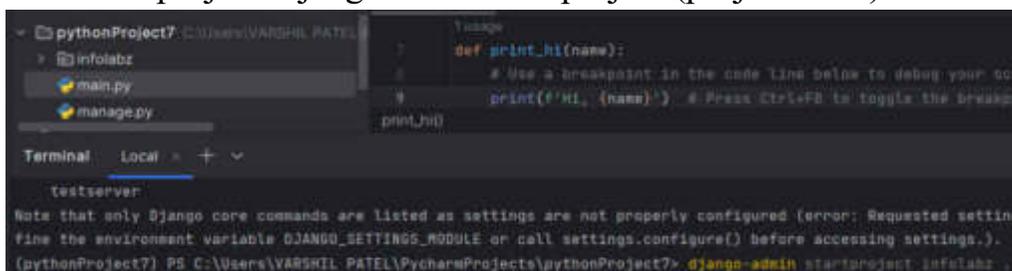
o Django super user

python manage.py createsuperuser

- Day-2(28/07/2023)

  o Superuser permissions

o SQLite Database Browser
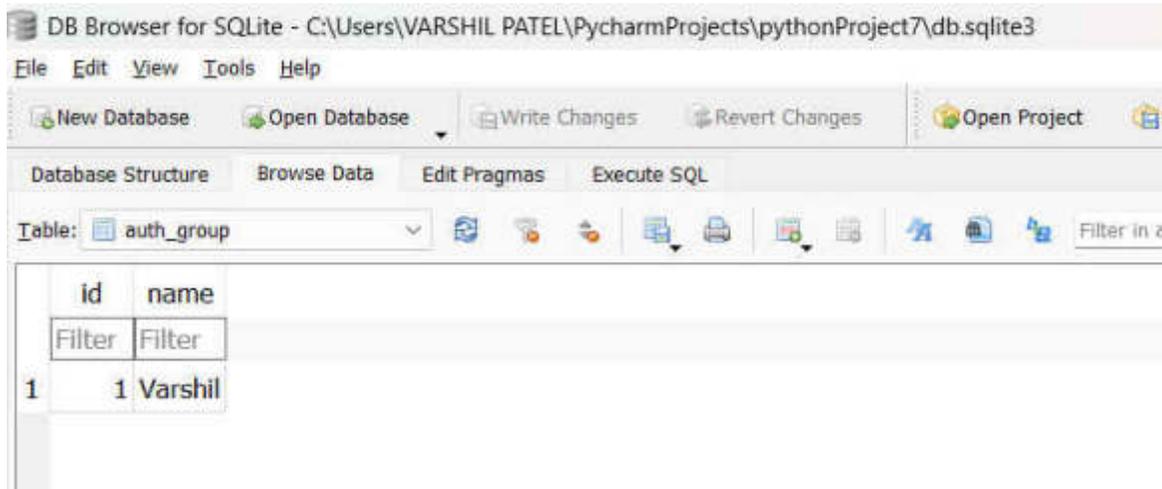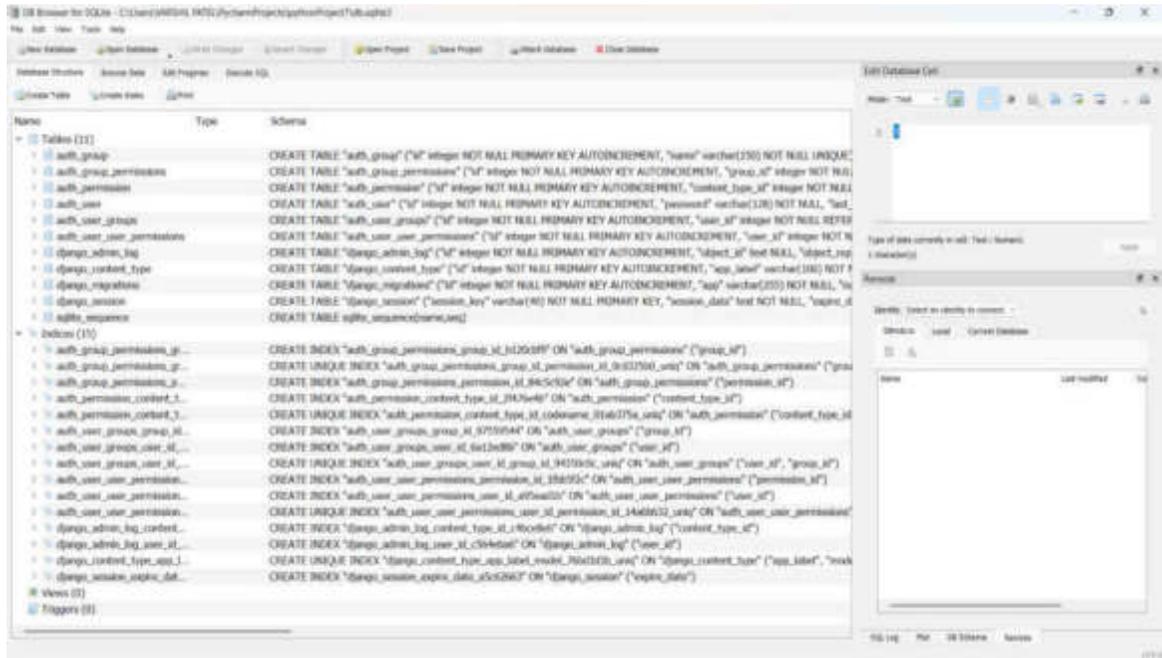
o First Model : Database Table : Insert Update & Delete
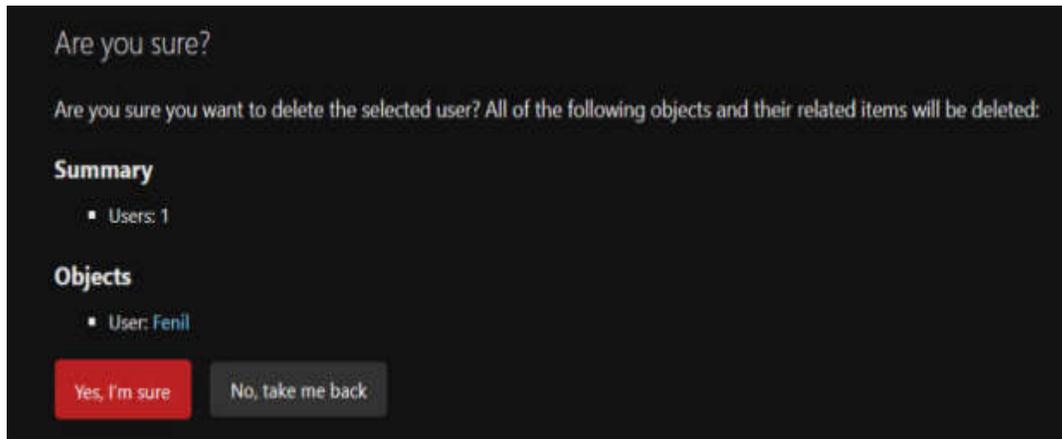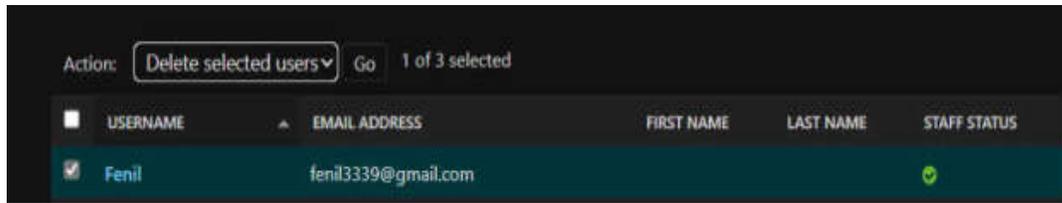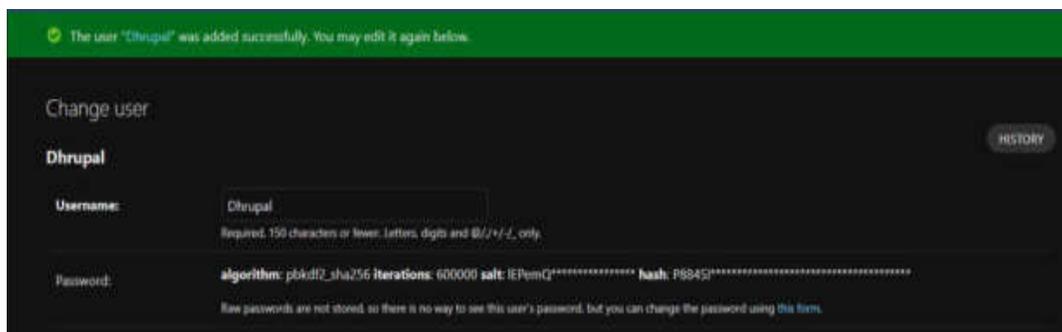
- Day-3(31/072023)

  - Multiple Database Tables with different Fields

```
o    class category(models.Model):
        name = models.CharField(max_length=50)
        description = models.TextField()
```



```
class product(models.Model):
        name = models.CharField(max_length=50)
        pcategory = models.ForeignKey(category, on_delete=models.CASCADE)
        price = models.IntegerField()
        quantity = models.IntegerField()
```

- Day-4(01/08/2023)

  o Foreign Key Concept

- Day-5(02/08/2023)

     o Assignment project task
     o Admin Panel Project : Backend Bank Customer DB development
     o

Models.py

```python
from django.db import models


# Create your models here.
class role(models.Model):
    Id = models.AutoField(primary_key=True)
    UserTypeName = models.CharField(max_length=30)

    def __str__(self):
        return self.UserTypeName


STATUS_CHOICE = [
    ('0', 'Active'),
    ('1', 'Inactive')
]


class user_detail(models.Model):
    UserName = models.CharField(max_length=30)
    UserPassword = models.CharField(max_length=20)
    UserEmail = models.EmailField()
    UserPhone = models.IntegerField(max_length=10)
    UserType = models.ForeignKey(role, on_delete=models.CASCADE)
    UserStatus = models.CharField(choices=STATUS_CHOICE, max_length=20)

    def __str__(self):
        return self.UserName


MONTH_CHOICES = [
    ('1', 'Jan'),
    ('2', 'Feb'),
    ('3', 'Mar'),
    ('4', 'Apr'),
    ('5', 'May'),
    ('6', 'Jun'),
    ('7', 'Jul'),
    ('8', 'Aug'),
    ('9', 'Sept'),
    ('10', 'Oct'),
    ('11', 'Nov'),
    ('12', 'Dec')
]
YEAR_CHOICES = [
```

```python
        ('1', '2022'),
        ('2', '2023'),
        ('3', '2024'),
        ('4', '2025'),
        ('5', '2026'),
        ('6', '2027'),
        ('7', '2028'),
        ('8', '2029'),
        ('9', '2030'),
    ]


    class bank_Detail(models.Model):
        UserId = models.ForeignKey(user_detail, on_delete=models.CASCADE)
        BankName = models.CharField(max_length=50)
        cardNo = models.IntegerField()
        EndMonth = models.CharField(choices=MONTH_CHOICES, max_length=20)
        EndYear = models.CharField(choices=YEAR_CHOICES, max_length=20)


    class country(models.Model):
        CountryName = models.CharField(max_length=50)

        def __str__(self):
            return self.CountryName


    class state(models.Model):
        CountryId = models.ForeignKey(country, on_delete=models.CASCADE)
        StateName = models.CharField(max_length=30)

        def __str__(self):
            return self.StateName


    class city(models.Model):
        StateId = models.ForeignKey(state, on_delete=models.CASCADE)
        CityName = models.CharField(max_length=30)

        def __str__(self):
            return self.CityName


    class user_address(models.Model):
        UserId = models.ForeignKey(user_detail, on_delete=models.CASCADE)
        BuildingName = models.CharField(max_length=25)
        StreetName = models.CharField(max_length=15)
        CityName = models.ForeignKey(city, on_delete=models.CASCADE)
        Pincode = models.IntegerField()
```

admin.py

```python
from django.contrib import admin
from newapp.models import role
from newapp.models import user_detail
from newapp.models import bank_Detail
from newapp.models import country
from newapp.models import state
from newapp.models import city
from newapp.models import user_address

# Register your models here.


class showrole(admin.ModelAdmin):
    list_display = ['UserTypeName']


admin.site.register(role, showrole)


class showuser_detail(admin.ModelAdmin):
    list_display = ['UserName', 'UserPassword', 'UserEmail', 'UserPhone', 'UserType', 'UserStatus']


admin.site.register(user_detail, showuser_detail)


class showbank_Detail(admin.ModelAdmin):
    list_display = ['UserId', 'BankName', 'cardNo', 'EndMonth', 'EndYear']


admin.site.register(bank_Detail, showbank_Detail)


class showcountry(admin.ModelAdmin):
    list_display = ['CountryName']


admin.site.register(country, showcountry)


class showstate(admin.ModelAdmin):
    list_display = ['CountryId', 'StateName']


admin.site.register(state, showstate)


class showcity(admin.ModelAdmin):
    list_display = ['StateId', 'CityName']


admin.site.register(city, showcity)
```

```
class showuser_address(admin.ModelAdmin):
    list_display = ['UserId', 'BuildingName', 'StreetName', 'CityName', 'Pincode']


admin.site.register(user_address, showuser_address)
```

output:

Add country

CountryName: INDIA

SAVE   Save and add another   Save and continue editing

Add state

CountryId: INDIA

StateName: Gujarat

SAVE   Save and add another   Save and continue editing

Add city

StateId: Gujarat

CityName: Surat

SAVE   Save and add another   Save and continue editing

Week-2

- ## Day-1(03/03/2023)
    - Loading HTML Page in Django
    - Page Routing in Django

View.py

```python
from django.shortcuts import render

# Create your views here.

def index(request):
    return render(request, 'index.html')


def about(request):
    return render(request, 'about.html')


def services(request):
    return render(request, 'services.html')


def portfolio(request):
    return render(request, 'portfolio.html')


def contact(request):
    return render(request, 'contact.html')
```

newapp\urls.py

```python
from django.urls import path
from . import views

urlpatterns = [
    path('', views.index, name="indexfile"),
    path('aboutus', views.about, name="aboutusfile"),
    path('services', views.services, name="servicesfile"),
    path('portfolio', views.portfolio, name="portfoliofile"),
    path('contactus', views.contact, name="contactusfile")

]
```

infolabz/urls.py

```python
from django.contrib import admin
from django.urls import path, include

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', include('newapp.urls'))
]
```

`<> index.html`   `<> about.html`   `<> portfolio.html`   `<> contact.html`   `<> services.html` ×

index.html

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Title</title>
</head>
<body>
    <h1> Hello </h1>
</body>
</html>
```

127.0.0.1:8000

Import favorites | Login | Infosys Spri...
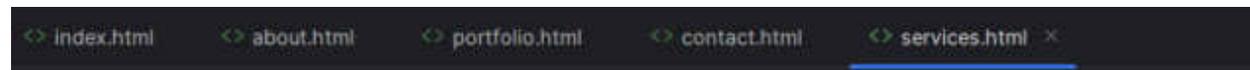
Hello
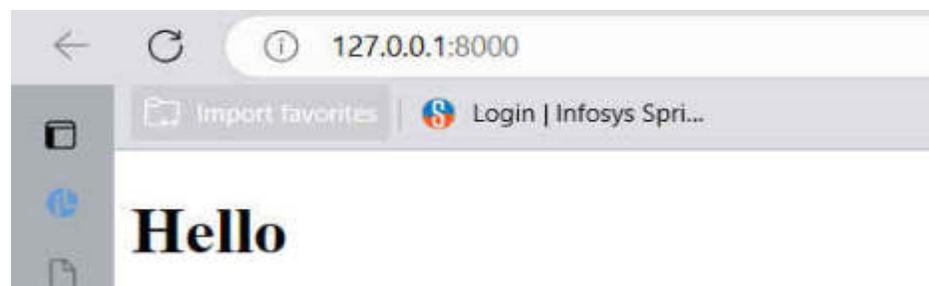
about.html

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Title</title>

</head>
<body>
    <h1> About us page </h1>
    <a href="{% url 'indexfile' %}"> Go to Home Page</a>
    <table border="2"  class="table table-dark">
        <tr>
            <th> Header 1 </th>
            <th> Header 2 </th>
            <th> Header 3 </th>
            <th> Header 4 </th>
            <th> Header 5 </th>
        </tr>
        <tr>
            <td> data1 </td>
            <td> data2 </td>
            <td> data3 </td>
            <td> data4 </td>
            <td> data5 </td>
        </tr>
         <tr>
```

```
        <td> data1.1 </td>
        <td> data2.1 </td>
        <td> data3.1 </td>
        <td> data4.1 </td>
        <td> data5.1 </td>
     </tr>
      <tr>
        <td> data1.2 </td>
        <td> data2.2 </td>
        <td> data3.2 </td>
        <td> data4.2 </td>
        <td> data5.2 </td>
     </tr>
   </table>
</body>
</html>
```

About us page

Go to Home Page

Header 1	Header 2	Header 3	Header 4	Header 5
data1	data2	data3	data4	data5
data1.1	data2.1	data3.1	data4.1	data5.1
data1.2	data2.2	data3.2	data4.2	data5.2

Portfolio.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Title</title>
</head>
<body>
    <h1> Portfolio Page</h1>
    <a href="{% url 'indexfile' %}"> Go to Home Page</a>
</body>
</html>
```

127.0.0.1:8000/portfolio

Import favorites   Login | Infosys Spri...

Portfolio Page

Go to Home Page

Contact.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Title</title>
</head>
<body>
    <h1> Contact Us page </h1>
    <a href="{% url 'indexfile' %}"> Go to Home Page</a>
</body>
</html>
```


Services.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Title</title>
</head>
<body>
    <h1> Services Page </h1>
    <a href="{% url 'indexfile' %}"> Go to Home Page</a>
</body>
</html>
```

- Day-2(04/08/2023)
  - Implementation of Static folder (CSS, JS & IMAGES) in Djnago
  - Bootstrap

Static folder
- Css
  style.css

```
h1{
color:red;
}
```

- Images
  varshil.JPG

- js
  demo.js

```
function viewmsg(){
    alert("IMAGE CLICKED");
}
```

index.html
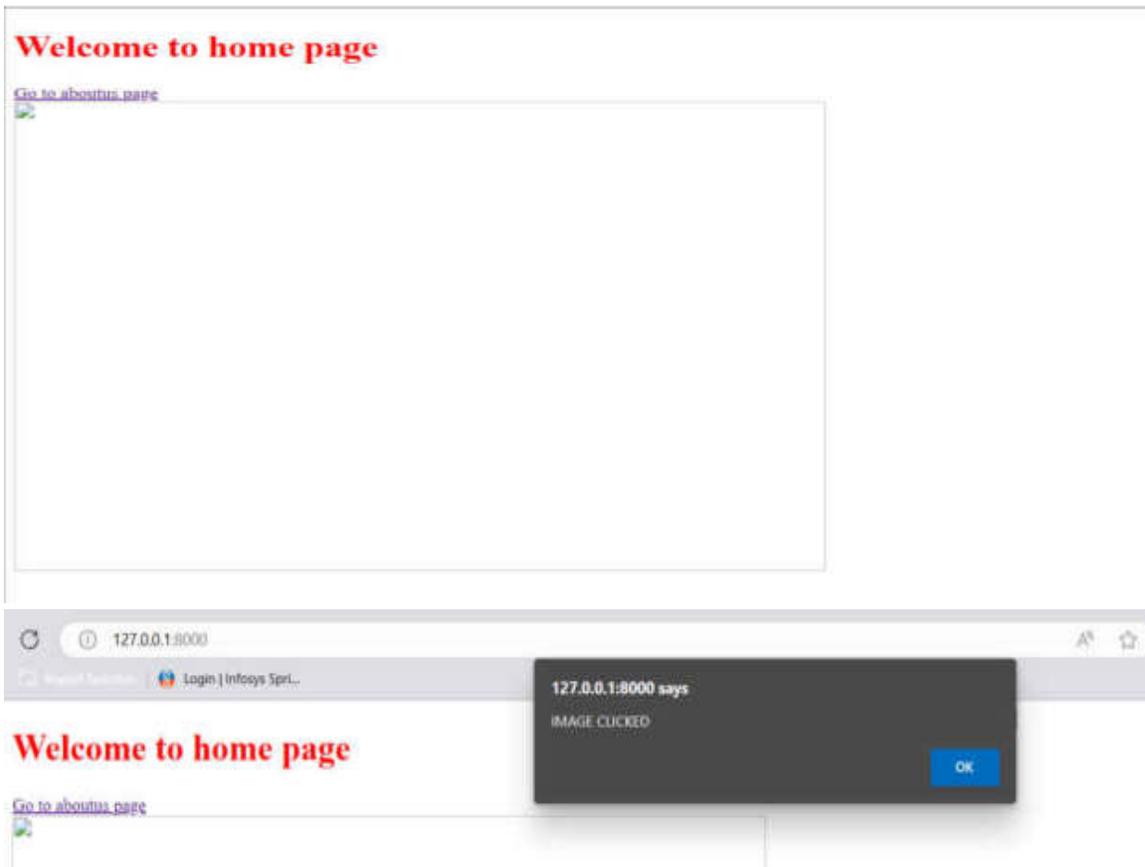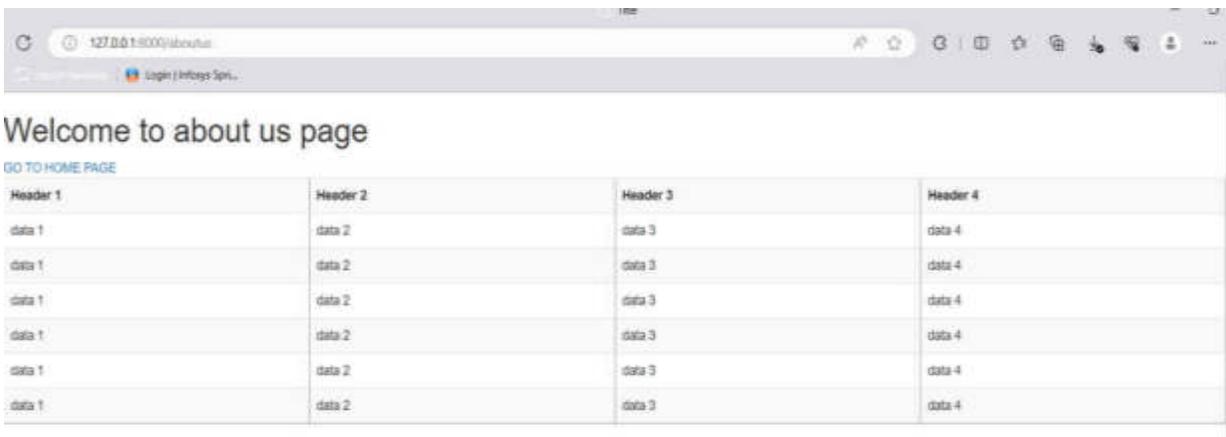
Welcome to home page

Go to aboutus page

C   ⓘ 127.0.0.1:8000   A⁺ ☆

🔵 Login | Infosys Spri...

Welcome to home page

Go to aboutus page

> **127.0.0.1:8000 says**
>
> IMAGE CLICKED
>
> OK

About.html

C   ⓘ 127.0.0.1:8000/aboutus   A⁺ ☆   C | ⊡ ☆ ⬚ ⬚ ⬚ ⬚ ⋯

🔵 Login | Infosys Spri...

Welcome to about us page

GO TO HOME PAGE

Header 1	Header 2	Header 3	Header 4
data 1	data 2	data 3	data 4
data 1	data 2	data 3	data 4
data 1	data 2	data 3	data 4
data 1	data 2	data 3	data 4
data 1	data 2	data 3	data 4
data 1	data 2	data 3	data 4

➢ Bootstrap

```html
<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/3.6.4/jquery.min.js"></script>

<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
```

➢ new\urls.py

```python
from django.urls import path
from . import views

urlpatterns = [
    path('', views.index, name="indexfile"),
    path('aboutus', views.about, name="aboutusfile")
]
```

➢ infolabz\urls.py

```python
from django.contrib import admin
from django.urls import path,include

urlpatterns = [
    path('admin/', admin.site.urls),
    path('', include('new.urls'))
]
```

➢ views.py

```python
from django.shortcuts import render


# Create your views here.
def index(request):
    return render(request, 'index.html')


def about(request):
    return render(request, 'about.html')
```

- Day-3(07/08/2023)
  - o Dictionary
  - o Concept of APIs
  - o Requests Package
  - o API : Covid, Bitcoin, ISRO etc

dictionary.py

```python
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\VARSHIL PATEL\venv\Scripts\python.exe" "C:\Users\VARSHIL PATEL\Downloads\pythonProject162\pythonProject162\dictionary.py"
300
250
6 Aug 2023
dict_keys(['Ahmedabad', 'Surat', 'Rajkot'])

Process finished with exit code 0
```

➢ Django provides a powerful framework for building APIs through various tools and libraries. The most commonly used package for building APIs in Django is Django REST framework (DRF). DRF provides a set of utilities and classes that simplify the process of creating RESTful APIs.

   🍁 Basic Terminologies :
1) Serializers: Serializers in DRF allow you to convert complex data types, such as Django models, into native Python data types, which can then be rendered into JSON or other content types. They also provide

deserialization, allowing parsed data to be converted back into complex types, after first validating the incoming data. Serializers play a vital role in handling the translation between the database and the API.

2) Views: In DRF, views are classes that define the logic for handling different HTTP methods (GET, POST, PUT, DELETE, etc.) on different endpoints. These views work similarly to regular Django views but are tailored for API interactions. DRF provides a variety of built-in view classes that simplify tasks such as retrieving, creating, updating, and deleting data.

3) URL Routing: Just like in regular Django projects, you use URL routing to map URLs to specific views. DRF provides its own set of URL routing mechanisms that allow you to define the API endpoints and associate them with corresponding view classes.

4) Authentication and Permissions: DRF provides authentication and permission classes that allow you to control access to your API endpoints. You can implement various authentication methods such as token-based authentication, session authentication, or OAuth, and define permission levels like read-only, read-write, or custom permissions.

5) Pagination: APIs often deal with large datasets, so DRF includes pagination classes that help manage the amount of data returned by an API endpoint. This prevents overwhelming the client with too much data at once.

6) ViewSets and Routers: DRF includes the concept of ViewSets, which combines the logic for multiple HTTP methods related to a single resource into a single class. Routers help in automatically generating the URL patterns for these ViewSets, reducing the need for manual URL configuration.

7) Authentication: DRF supports various authentication mechanisms out of the box, including token-based authentication, session authentication, and

basic authentication. This ensures that only authorized users can access your API endpoints.

8) Serialization of Data: DRF allows you to define serializers that handle the conversion between complex data types (such as Django models) and native Python data types (like dictionaries) that can be easily converted to JSON or other formats.

Requests Package:
 1) Install Requests:
    ➢ pip install requests

 2) Import Requests:
    ➢ import requests

 3) Sending HTTP Requests:
    ➢ import requests
       url = "https://api.example.com/data"
       response = requests.get(url)
       print(response.status_code)
       print(response.text)

 API : Covid, Bitcoin, ISRO etc:

    ➢ 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"]))

> ➢ bitcoin.py

```python
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())
```

- Day-4(08/08/2023)

  o API Integration in Webpages using Django Framework

➢ The culmination of our arsenal of skills and resources is the Django framework-based integration of APIs into websites. We learn to manage the retrieval of data from APIs and smoothly render it within our HTML templates under the guidance of the web development principles. Through its views and template tags, the Django framework streamlines this connection and makes it easier for users to see dynamic content. We enter the world of practical implementation armed with knowledge of API endpoints, request techniques, and response types. We see the evolution of static websites into dynamic portals that react to real-time events, engage visitors with real-time data, and unleash the possibility for limitless innovation as we integrate APIs with our webpages.

- Day-5([09/08/2023]&[10/08/2023])
  - Assignment project task
  - Project : Real time news website using inshorts API
  - Project and Conlusion

1) Start new project as a news :
   django-admin startproject news .

2) Start new app categories
   django-admin startapp categories

3) News/settings.py
   ```
   'categories.apps.CategoriesConfig'
   ```

4) Categories/urls.py
   ```python
   from django.urls import path
   from . import views

   urlpatterns = [
       path('', views.index, name="headlines")
   ]
   ```

5) news/urls.py
   ```python
   from django.contrib import admin
   from django.urls import path, include

   urlpatterns = [
       path('admin/', admin.site.urls),
       path('', include('categories.urls'))
   ]
   ```

6) views.py
   ```python
   from django.shortcuts import render
   import requests
   ```

```python
# Create your views here.
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, 'index.html', records)
```

7) templates/index.html

```html
<!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-
1BmE4kWBq78iYhFldvKuhfTAU6auU8tT94WrHftjDbrCEXSU1oBoqyl2Qv
Z6jIW3" crossorigin="anonymous">
    <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/js/bootstrap.bundle.min.j
s" integrity="sha384-
ka7Sk0Gln4gmd2MlQnikT1wXgYsOg+OMhuP+IlRH9sENBO0LRn5q+8nbT
ov4+1p" crossorigin="anonymous"></script>
    <meta charset="UTF-8">
    <title>Title</title>
  </head>
<body>

<!-- <div class="container">-->
<div class="row">
  <div calss="container">
  <div class="card-group" >
    {% for value in sportsdata.data.articles %}
    <div class="col-md-4">
      <div class="card" style="margin: 2rem; height: 45rem">
        <img src="{{ value.imageUrl }}" class="card-img-top" alt="Image"
style="height:25rem">
        <div class="card-body">
          <h5 class="card-title">{{ value.title }}</h5>
```

```
        <p class="card-text">{{ value.content }} </p>
      </div>
    </div>
  </div>
  {% endfor %}
</div>
    </div>
</div>
<!-- </div>-->
</body>
</html>
```

Output :