CONSTRUCTION COMPANY MANAGEMENT SYSTEM

A PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF THE DEGREE

MASTER OF COMPUTER APPLICATIONS (MCA)

OF

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

BY

JALEENA MARIA THOMAS
Reg No: 22PMC128

MARIAN COLLEGE
KUTTIKKANAM
(AUTONOMOUS)

MAKING COMPLETE

Marian College Kuttikanam Autonomous

Peermade, Kerala – 685 531

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Under the guidance of

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CERTIFICATE

This is to certify that the project work entitled

CONSTRUCTION COMPANY MANAGEMENT SYSTEM

is a bonafide record of work done by

JALEENA MARIA THOMAS

Reg. No. 22PMC128

In partial fulfillment of the requirements for the award of Degree of

MASTER OF COMPUTER APPLICATIONS [MCA]

During the academic year 2022-2024

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Examiner

Examiner

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JALEENA MARIA THOMAS

ABSTRACT OF CONSTRUCTION COMPANY MANAGEMENT SYSTEM

The Construction Company Management System (CCMS) is a comprehensive and advanced software solution that addresses the complex challenges faced by construction companies. With a primary focus on efficient rental equipment management, the CCMS offers a suite of powerful features, including profile management, user registration and login, building plan search, user requirement viewing, building plan status updates, building requirement addition, equipment rental management, and customer support. These integrated functionalities enable construction companies to streamline their operations, optimize resource allocation, improve project planning, and enhance collaboration among stakeholders. By leveraging the CCMS, construction companies can effectively track and manage rental equipment, ensuring timely availability, reducing costs, and minimizing project delays. The system's user-friendly interface and robust capabilities empower construction companies to achieve operational excellence, maximize productivity, and successfully execute their construction projects.

TABLE OF CONTENTS

Chapter			Page No
1	Introduction		1
	1.1	Problem Statements	2
	1.2	Proposed System	2
	1.3	Features of the Proposed System	3
2	Functional Requirements		4
3	Non-Functional Requirements		7
4	Features and Highlights		9
5	Technical Aspects		13
6	Challenges		18
7	Future Enhancement		19
8	Conclusion		21
9	References		23
Annexure A	Screen Shots		25

1. INTRODUCTION

1.1 Problem Statements

Construction companies face challenges in managing their operations and rental equipment effectively. Manual processes, fragmented communication, and limited visibility into project requirements and equipment availability result in project delays and inefficiencies. There is a need for a software solution that integrates rental equipment management, project planning, and communication functionalities to streamline operations, optimize resource allocation, and enhance collaboration. The goal of this project is to develop the Construction Company Management System (CCMS) to address these challenges and provide construction companies with a user-friendly platform to improve rental equipment management and project execution.

1.2 Proposed System

The proposed project is the development of a user-friendly Construction Company Management System (CCMS) that aims to revolutionize construction company operations. This comprehensive software solution will integrate functionalities such as profile management, user registration and login, building plan search, user requirement viewing, building plan status updates, building requirement addition, equipment rental management, and customer support. By providing a centralized platform, the CCMS will enable construction companies to streamline their processes, optimize resource allocation, improve project planning, and enhance collaboration among stakeholders. With its intuitive interface and robust capabilities, the proposed project aims to empower construction companies with a powerful tool that enhances efficiency and drives successful project execution.

1.3 Features of the Project

1. The construction company management system is simple, user-friendly, and can be easily integratedwith the existing system.
2. Highly Secure, Scalable & Reliable**.**
3. Provides high level of security with different level of authentication
4. Time for appoints and booking will be reduced.

2. FUNCTIONAL REQUIREMENTS

FUNCTIONAL REQUIREMENTS

Car rental system is divided into two modules:

1. User Module
2. Architect Module
3. Admin Module

1.Profile management

Allows users to create and manage their profiles, including personal information and contact details.

2.User registration and login:

Enables new users to register for an account and existing users to securely log in to the system.

3.Building plan search

Provides users with the ability to search and access building plans based on specific criteria such as location, project type, or specifications.

4.Ability to view user requirements

Allows users to view and analyze the requirements and specifications provided by clients or project stakeholders.

5.Add building requirements

Enables users to add and document building requirements, specifications, and change throughout the project lifecycle.

6.Equipment rental management

Provides a platform for managing equipment rentals, including cataloging available equipment, tracking availability, and facilitating rental agreements and returns.

7.Customer support:

Offers a dedicated customer support system to address inquiries, provide assistance, and resolve issues raised by users or clients.

3. NON-FUNCTIONAL REQUIREMENTS

NON-FUNCTIONAL REQUIREMENTS

Reliability

The reliability of the overall project depends on the reliability of the separate components. The main pillar of reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes, Also the system will be functioning inside a container. Thus, the overall stability of the system depends on the stability of container and its underlying operating system.

Availability

The system should be available at all times, meaning the user can access it using a web browser, only restricted by the down time of the server on which the system runs. A customer friendly system which is accessible for people around the world should work 24 hours. In case of a hardware failure or database corruption, a replacement page will be shown. Also, in case of a hardware failure or database corruption, backup of the database should be retrieved from the server and saved by the Organizer. Then the services will be restarted. It means 24 X 7 availability.

Maintainability

A commercial database is used for maintaining the database and the application server takes care of the site. In case of a failure, a re-initialization of the project will be done. Also, the software design is being done with modularity in mind so that maintainability can be done efficiently.

Supportability

The code and supporting modules of the system will be well-documented and easy to understand. Online documentation can in help system requirements.

4. FEATURES AND HIGHLIGHTS

4.1 Features

1.Building plan search: Users can search for building plans based on specific criteria such as location, project type, or specifications. This feature streamlines the process of finding and accessing relevant building plans, saving time and effort in project planning and referencing.

2.Ability to view user requirements: The system allows users to view and analyse user requirements and specifications provided by clients or project stakeholders. This ensures that all parties involved have a clear understanding of the project's scope and objectives.

3.Status update for building plans: Real-time status updates on building plans provide a clear overview of project progress, milestones achieved, and any changes or updates made. This feature enables effective project tracking and decision-making, ensuring projects stay on schedule.

4.Add building requirements: Users can add and document building requirements, specifications, and changes throughout the project lifecycle. This feature helps in maintaining accurate and up-to-date project documentation, facilitating effective communication and reducing misunderstandings.

5.Equipment rental management: The project includes a comprehensive system for managing equipment rentals. Users can catalog available equipment, track their availability, schedule rentals, and manage the return process. This feature streamlines equipment utilization, reduces downtime, and optimizes resource allocation.

6.Customer support: The system provides a dedicated customer support module, allowing users to submit inquiries, seek assistance, and resolve issues related to the construction projects or the system itself. Timely and efficient customer support ensures a smooth user experience and enhances client satisfaction.

These features and highlights of the project combine to create a comprehensive Construction Company Management System that improves project planning, streamlines communication, enhances resource management, and delivers efficient customer support. The system empowers construction companies to optimize their operations, improve project outcomes, and maintain high levels of client satisfaction

.

5.TECHNICAL ASPECTS

Architecture of Project

1.Presentation Layer

Templates: HTML templates are used to define the structure and layout of the user interface. Django's template engine allows you to dynamically populate the templates with data.

2.Application Layer

Controllers: In Django, controllers are implemented as views, which handle the request/response flow and control the overall behavior of the application.

3.Business Logic Layer

Models: Django's models define the data structure and business logic of the application. Models represent entities like users, bookings, flights, hotels, etc. They handle database operations, such as querying, inserting, updating, and deleting data. Models can also include methods to perform complex business logic.

4.Jazmin

Django Jazmin is a customizable and modern admin interface for Django applications. It provides an alternative user interface for the Django admin site with a more visually appealing design and additional features. Jazmin aims to enhance the user experience and improve the productivity of developers working with Django.

By installing and configuring django-jazzmin in your Django project, you can customize the admin interface by changing themes, layouts, icons, and other visual elements. It offers features such as responsive design, drag-and-drop sorting, inline editing, and support for various third-party Django packages. To use Django Jazzmin, you typically need to install it using a package manager like pip, add it to your Django project's settings, and configure it according to your preferences.

Here's a basic example of how to install Django Jazzmin using pip:

pip install django-jazzmin

Once installed, you would need to add 'jazzmin' to the INSTALLED_APPS list in your Django project's settings.py file:

INSTALLED_APPS = [

…

'jazzmin',

…

]

Afterwards you can customize Django Jazzmin by modifying the settings in your Django project's settings.py file.

1.Data Access Layer

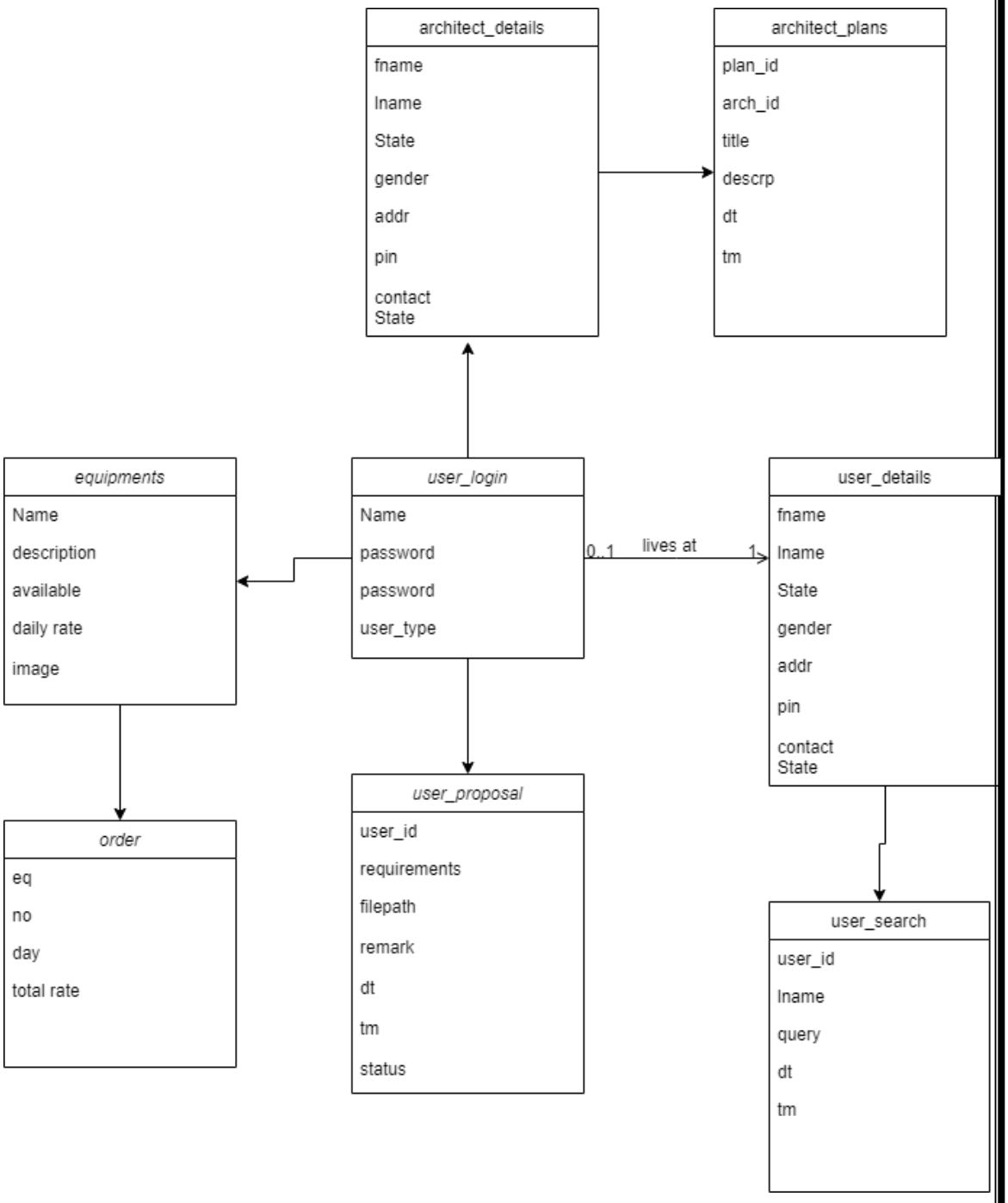
Database: Django integrates with various databases, allowing you to define and manage the application's data schema. You can use Django's Object-Relational Mapping(ORM) to interact with the database and perform CRUD operations.

2.Database Models

Django's models serve as both business logic entities and database models. They define the structure of the database tables and provide an abstraction layer for interacting with the database .

Database

Class Diagram



6.CHALLENGES

1. User Experience and Design

Designing an intuitive and user-friendly interface for users and administrators is crucial. Ensuring a smooth user experience, from search and booking to manage details and submitting expenses, can be challenging, particularly dealing with complex workflows and large data sets.

2. Real-time Availability and Pricing

Fetching real-time availability and pricing information for construction services from external providers can be challenging. Dealing with rate limits, handling concurrency, and caching strategies are considerations for ensuring timely and accurate information.

3. User Authentication and Authorization

Construction management system typically requires user registration, login, and role-based access control. Implementing secure authentication and authorization mechanisms can be complex, especially when dealing with user roles and permissions.

4. Validation Mechanisms

Implementing validation mechanisms helps ensure that user input is accurate and consistent. You need to validate user data at various stages, such as during registration, booking, or updating information. Validation can include for checking validation in email, phone number, password, pin number etc.

5. Database Management

Designing an efficient database schema and managing the database operations can be complex. You need to carefully plan the structure of your database, define relationships between entities handle data integrity, and optimize queries for performance.

7.FUTURE ENHANCEMENTS

1. Financial Management:

Integrate financial management functionalities such as invoicing, expense tracking, and profit analysis. This enhancement would help the company better manage its finances and improve overall profitability.

2. Social Media Integration

The social media sites are one of the most popular means of sharing experiences for users; Facebook, Twitter, Instagram are literally global marketing platforms. Taking advantage of this, you can integrate your website with these social networking sites, which lets the users post their opinions here.

3. Financial Management:

Integrate financial management functionalities such as invoicing, expense tracking, and profit analysis. This enhancement would help the company better manage its finances and improve overall profitability.

4. Labor Management Dashboard

Create a dedicated labor management dashboard where project managers can view and manage labor-related information such as availability, assigned tasks, progress, and performance. This enhancement would provide a centralized hub for effective labor management.

8.CONCLUSION

CONCLUSION

In conclusion, the Construction Company Management System (CCMS) project provides a comprehensive software solution for construction companies to efficiently manage their operations and rental equipment. By integrating features such as profile management, user registration, building plan search, requirement viewing, equipment rental management, and customer support, the CCMS enhances collaboration, optimizes resource allocation, and improves project planning. With its user-friendly interface and systematic methodology, the CCMS offers a practical solution to streamline construction company processes and drive operational excellence.

GitHub repository of the project:

https://github.com/jelumaria/dreambuilders.git

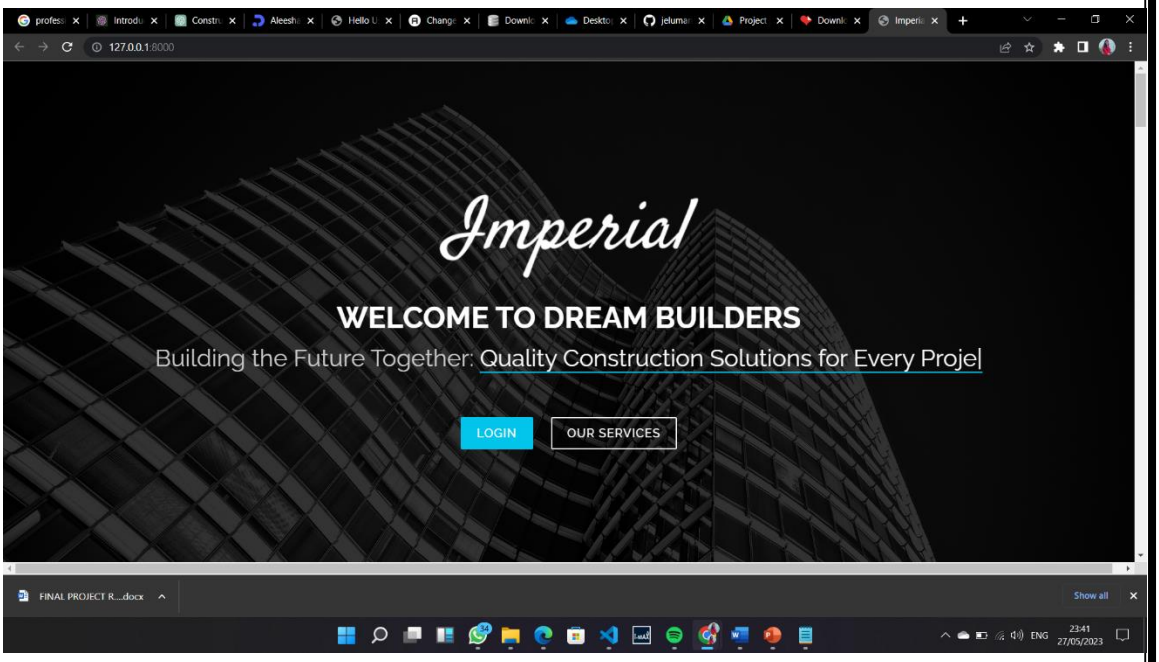
9.REFERENCES

- https://youtube.com/playlist?list=PL-51WBLyFTg2vW-_6XBoUpE7vpmoR3ztO
- https://docs.djangoproject.com/en/4.1/intro/tutorial01/
- getbootstrap.com
- https://docs.djangoproject.com/en/4.2/topics/http/file-uploads/

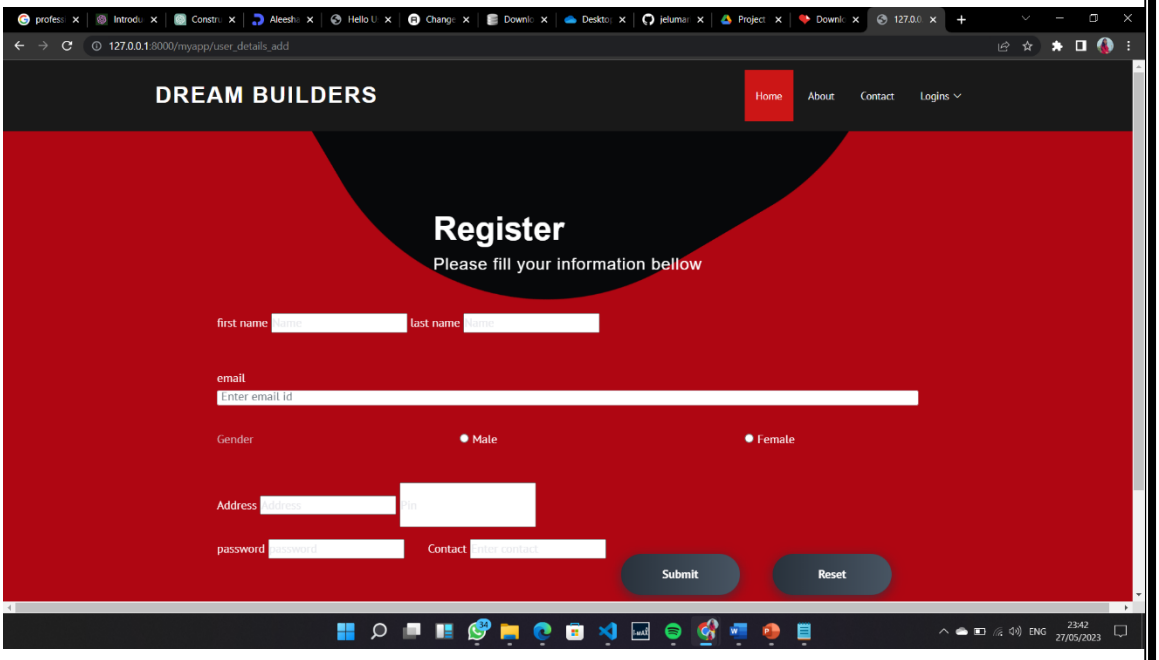
ANNEXURE

A. SCREENSHOTS

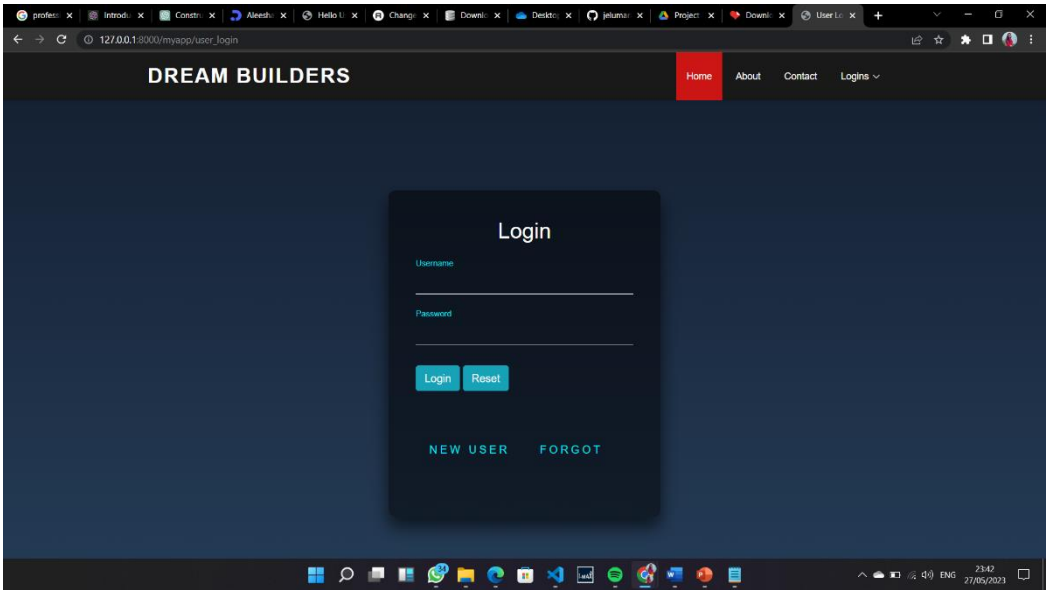
1. Home Page



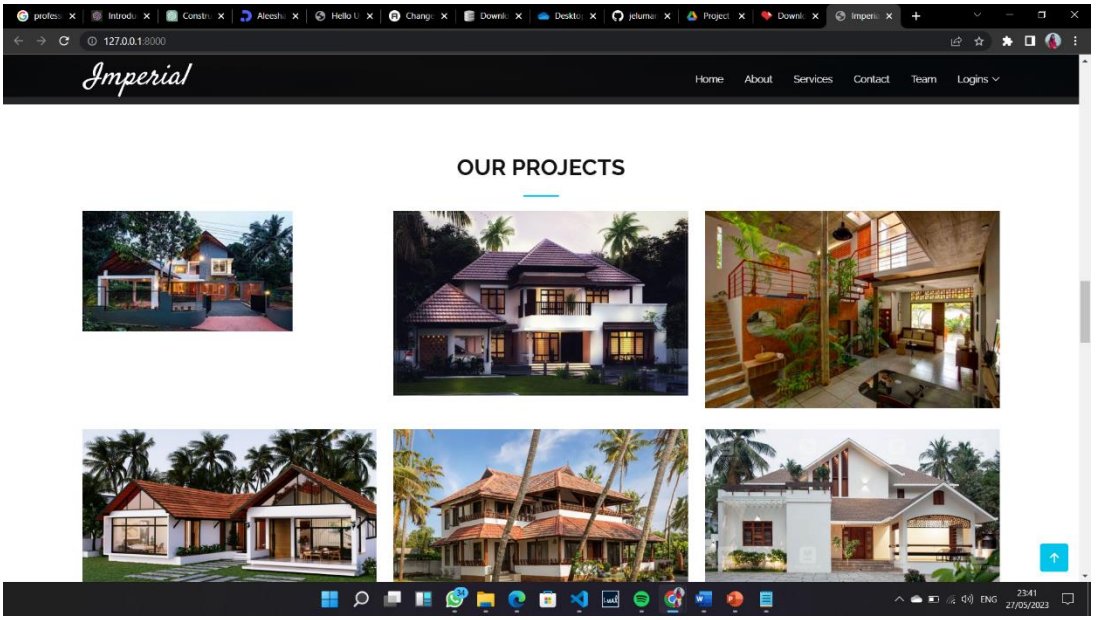
2. User Registration



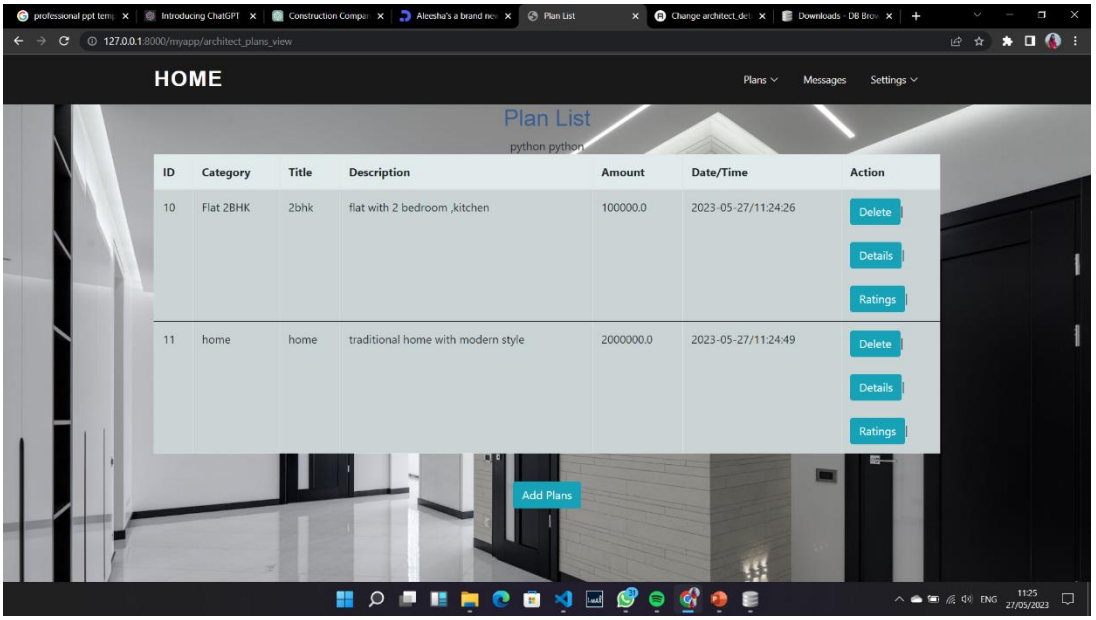
3.User login



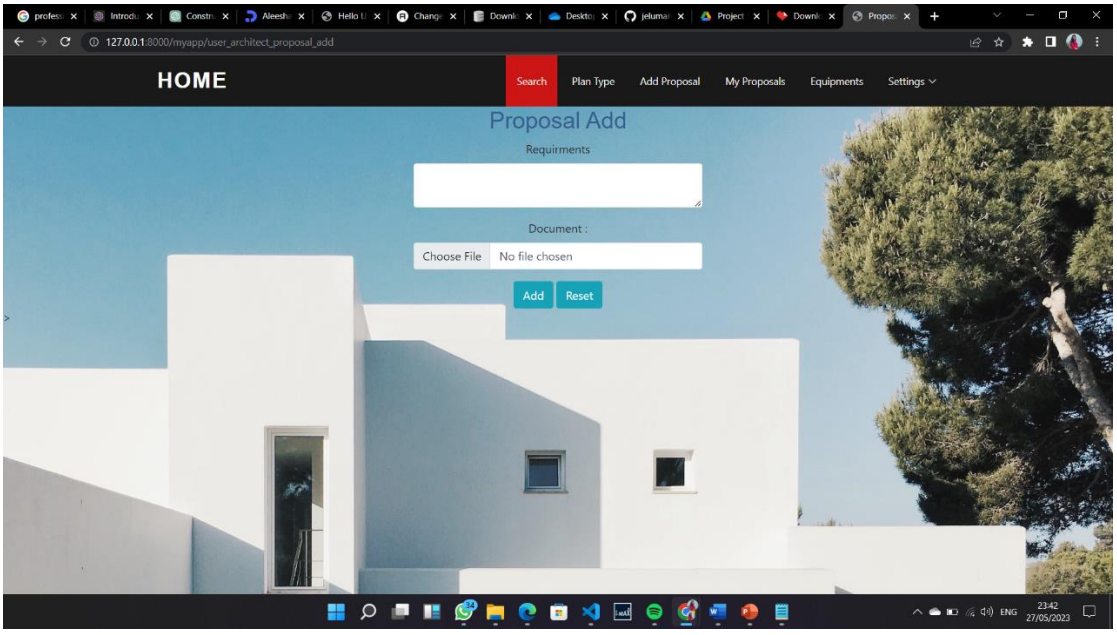
4.Projects list page



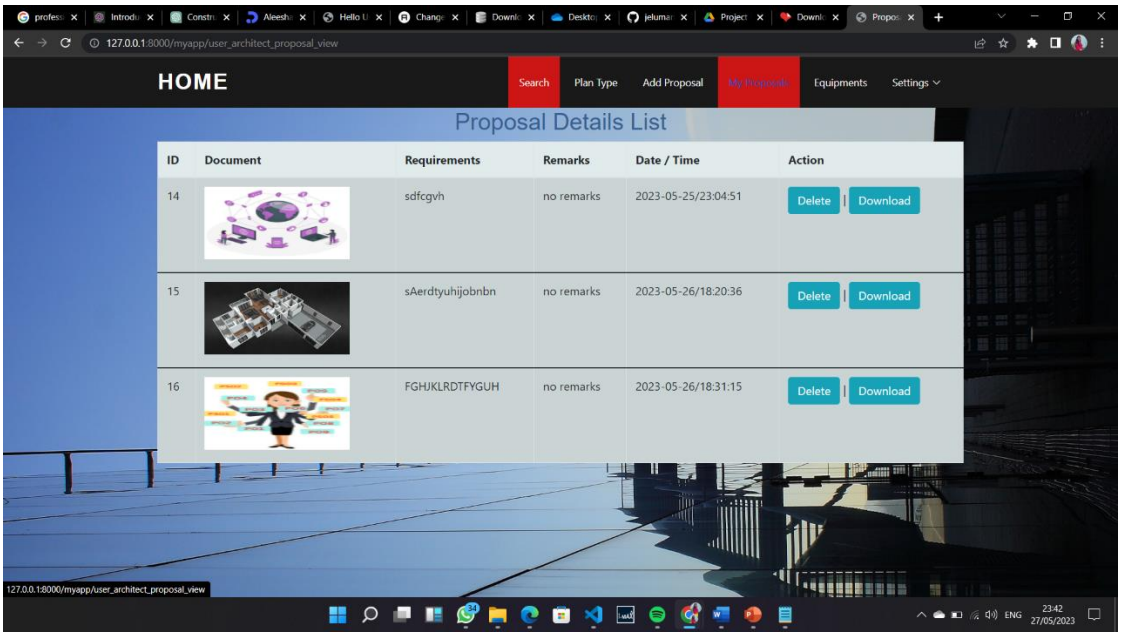
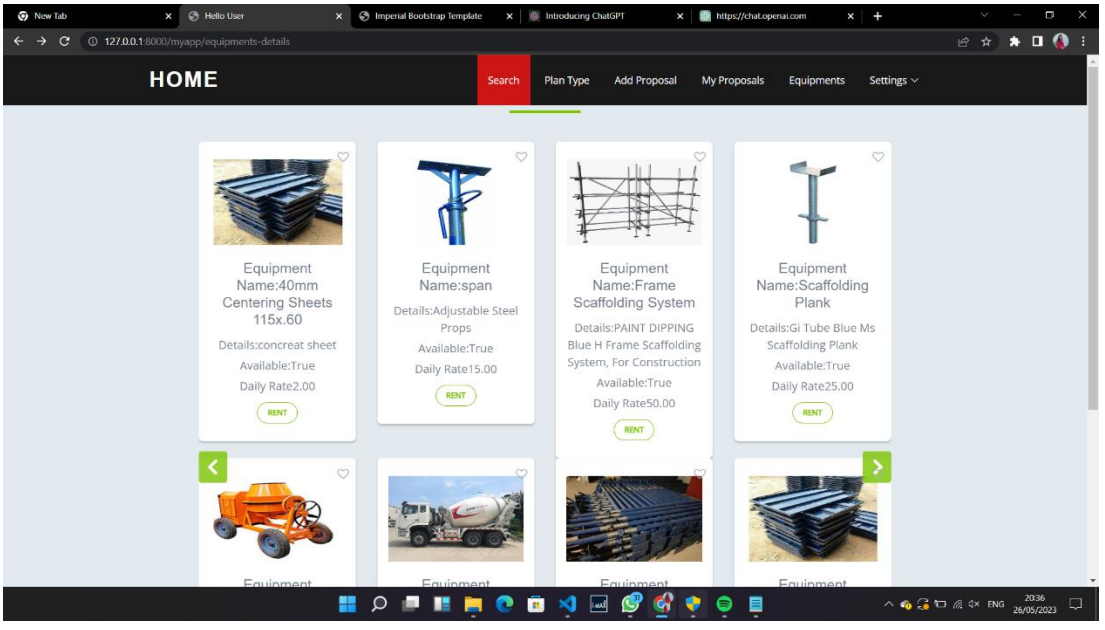
5.plan detail page



6.Add requirements page



. 7.Proposal view page



8.Equipments details page