

# **Project Management System**

**Higher Diploma in Software Engineering 23.1F**

**Second-Year Final Project Documentation**



**National Institute of Business Management  
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**Title of the Project** : Project Management System

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National Institute of Business Management

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**The project is submitted in partial fulfillment of the requirement of the Higher Diploma in Software Engineering of National Institute of Business Management.**

## **DECLARATION**

“I certify that this project does not incorporate without acknowledgment, any material previously submitted for a Higher Diploma in any institution and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text. I also hereby give consent for my project report, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations.”

## **PREAMBLE**

### **Abstract**

In the ever-evolving landscape of the construction industry, our Project Management System emerges as a groundbreaking solution, poised to revolutionize traditional practices and propel efficiency to new heights. Focused on mitigating the multifaceted challenges faced by construction companies, such as project delays, communication gaps, complex scheduling, and resource inefficiencies, our system serves as a comprehensive platform designed to transform project management processes.

The core strength of our system lies in its ability to break down ambitious project goals into manageable milestones, fostering improved planning and resource allocation. A web application, integral to our system, empowers clients with real-time project progress tracking, promoting transparency and accountability throughout the project lifecycle. Key features encompass streamlined material and worker management, precise task allocation, resource optimization, and a relentless commitment to cost efficiency.

As a result, our Project Management System emerges not just as a tool but as a catalyst for change in the construction industry, promising smoother operations, enhanced project outcomes, and ultimately, a renewed sense of profitability and reputation for construction companies embracing this transformative solution.

## **List of Keywords**

- Client
- Resource Manager (RM)
- Project Manager (PM)
- Senior Project Manager (SPM)
- General Manager (GM)

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## **List of Acronyms and Abbreviations**

UI – User Interface

UML – Unified Modelling Language

ER – Entity Relationship

PK – Primary Key

FK – Foreign Key

UI - User Interface

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Our sincere thanks go to NIBM for providing the essential resources and support that facilitated the completion of this project.

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Thank you.

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## **Chapter 1: Introduction**

### **1.1 Introduction of the Application**

Our Project Management System offers a transformative solution for the construction industry, aiming to enhance efficiency and reduce costs significantly. Construction companies face a myriad of challenges, including project delays, inadequate communication, scheduling and planning complexities, inefficient workforce, and material management, haphazard document handling, and stakeholder engagement difficulties. These issues often result in decreased profitability and tarnished reputations.

Our system addresses these challenges head-on by providing a comprehensive platform that streamlines project management processes. Key features include breaking down large project goals into smaller, more manageable milestones and facilitating better planning and resource allocation. Additionally, our system includes a web application that allows clients to track project progress in real time, promoting transparency and accountability. With an emphasis on efficient material and worker management, effective task allocation, resource optimization, and cost efficiency, our Project Management System is poised to revolutionize the construction industry, ensuring smoother operations and improved project outcomes.

## **1.2 Problem Definition**

The construction industry is plagued by various challenges that impede productivity and profitability. Project delays, inadequate communication, scheduling and planning difficulties, inefficient workforce and material management, haphazard document management, lack of task progress tracking, and stakeholder engagement issues are just some of the key issues faced by construction companies. These challenges often lead to lowered profit margins, material shortages, and damage to the reputation of construction firms.

### **1.3 Project Objectives**

Our Project Management System aims to revolutionize the way construction companies operate by addressing these challenges and achieving the following objectives:

- Enhance project efficiency and reduce delays
- Improve communication among team members and stakeholders
- Streamline scheduling and planning processes
- Optimize workforce and material management
- Ensure organized document management
- Facilitate task progress tracking and accountability
- Simplify stakeholder engagement processes

## **1.4 Proposed Solution**

To tackle these challenges, we propose the development of a web-based Project Management System that offers a range of innovative features. One key feature is the ability to break down larger project goals into smaller, more manageable monthly goals. This approach allows for better planning and resource allocation, ultimately leading to improved project outcomes.

The important aspect of our solution is the development of a web application that allows clients to monitor project progress in real time. This transparency not only enhances stakeholder engagement but also promotes trust and accountability within the construction project.

Additionally, our system will include features such as efficient material and worker management, effective task allocation, resource optimization, cost efficiency, and a user-friendly interface. These features are designed to streamline construction project management and help construction companies achieve their goals more effectively.

## **1.5 Chapter Summary**

In summary, our Project Management System aims to revolutionize the construction industry by providing efficient material and worker management, effective task allocation, resource optimization, cost efficiency, and a user-friendly interface. By addressing key challenges in the construction field, our system will help construction companies improve productivity, reduce costs, and enhance their overall performance through our web.

## **Chapter 2: Methodology**

### **2.1 Introduction**

The methodology for our project, a Project Management System for construction companies, is rooted in an Agile approach, offering flexibility and iterative development. This methodology allows us to continuously refine the software based on feedback and evolving requirements. By breaking down the development process into smaller, manageable iterations, we can focus on delivering working product increments, ensuring ongoing progress and adaptability to changes.

Our data collection methods include meetings, online interviews, and focus groups. These methods enable us to gather comprehensive insights into the needs and preferences of the target audience, as well as to assess the capabilities and limitations of our project team. Meetings with supply chain managers provide valuable insights, while online interviews and focus groups with stakeholders and marketing experts offer diverse perspectives essential for designing an effective solution.

Overall, our methodology emphasizes collaboration, flexibility, and responsiveness, ensuring that our Project Management System meets the specific needs of the construction industry and delivers tangible benefits to our clients.

### **2.2 Data Collection Method(s)**

Data collection for the project involves a variety of methods to gather comprehensive insights into the needs and preferences of the target audience, as well as to assess the capabilities and limitations of the project team. When considering our project we used,

- 1. Meetings:** Regular team meetings are conducted for progress updates and issue resolution. These meetings provide a platform for team members to discuss project developments, challenges, and potential solutions, fostering collaboration and effective communication.

**2. Online Interviews:** Online interviews are used to gather feedback from stakeholders remotely. This method allows for flexibility in scheduling and enables the team to reach a wider audience. Interviews focus on understanding the specific requirements and challenges faced by construction professionals, helping to tailor the project management system to their needs.

**3. Focus Groups:** Focus groups are utilized to engage construction professionals in collaborative discussions. These sessions provide an opportunity for participants to share their experiences, opinions, and suggestions regarding the project management system. Focus groups help in identifying key features and functionalities that should be incorporated into the system to enhance its effectiveness and usability.

**4. On-site Observations:** Direct observations at construction sites allow us to understand workflow dynamics, identify inefficiencies, and observe communication patterns. This method provides valuable real-time insights into the challenges faced by construction teams and helps in designing solutions that fit seamlessly into their workflow.

**5. Surveys:** Conducting surveys among construction professionals, including project managers, engineers, and workers, can provide quantitative data on their preferences, pain points, and expectations from a project management system. Surveys can be structured to gather specific feedback on issues such as communication, scheduling, and document management, helping us prioritize features and functionalities.

**6. Document Analysis:** Analyzing existing construction documents, such as project plans, schedules, and communication logs, can reveal gaps and inefficiencies in current practices. By understanding how information is currently managed and communicated, we can design a system that improves document organization and accessibility, leading to better project coordination.

## 2.3 Software Process Model

For our Project Management System in the construction industry, we will adopt an Agile approach, specifically the Scrum framework, to ensure efficient and timely delivery within our 1–2-month timeline.

Scrum is well-suited for projects with evolving requirements and tight deadlines, allowing for iterative development and frequent feedback loops. The Scrum framework consists of short development cycles called sprints, typically lasting 1–4 weeks, during which a potentially shippable product increment is created.

In the context of our project, we will organize our development process into sprints, with each sprint focusing on delivering a set of prioritized features. We will start with a planning phase to define the goals and scope of the sprint, followed by a development phase where the team works on implementing the features. The sprint concludes with a review and retrospective to gather feedback and improve our process for the next sprint.

By using the Scrum framework, we aim to deliver a functional and valuable Project Management System incrementally, ensuring that we address the most critical needs of our stakeholders first while maintaining flexibility to adapt to changes.

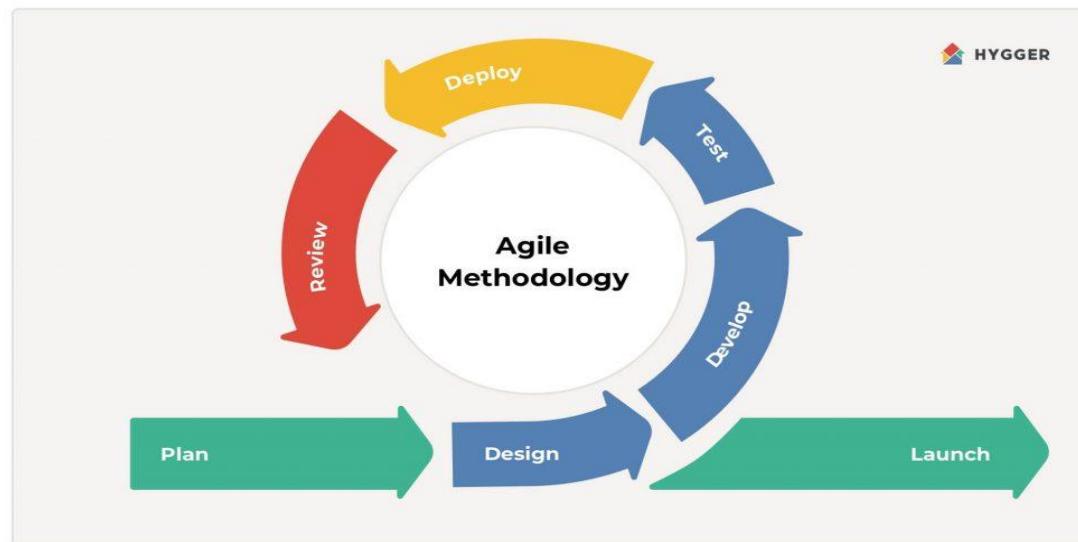


Figure 1: Software process model-waterfall model

## 2.4 Software Development Tools

- **SQL SERVER –**



*Figure 2: MySQL*

MySQL is a widely used open-source relational database management system (RDBMS). It is based on the Structured Query Language (SQL) and is often used in combination with PHP to create dynamic websites and web applications. MySQL is known for its reliability, stability, and ease of use. It can handle large amounts of data and can be used on a variety of platforms, including Windows, macOS, and Linux. Figure 5 My SQL 15 supports a wide range of storage engines, including the default InnoDB and MyISAM, as well as memory storage engines and transactional storage engines. MySQL is also highly configurable, allowing users to adjust settings to optimize performance for specific workloads. It also provides a range of security features, such as user account management and secure connections, to help protect data and prevent unauthorized access. It's not the only RDBMS, there are several others like PostgreSQL, Oracle, MS SQL Server, and SQLite. However, MySQL is considered as the most popular and widely used among them.

- **FIGMA** –



*Figure 3: Figma*

Figma is a cloud-based vector graphics editor and prototyping tool. It allows multiple users to collaborate on the same design in real time, making it a popular choice for UI/UX design and web development teams.

With Figma, users can create wireframes, prototypes, and high-fidelity designs for websites, mobile apps, and other digital products. It offers a wide range of design tools, including vector networks, Boolean operations, and vector networks.

One of its unique features is that it allows multiple users to work on the same file simultaneously, making it easy for designers to collaborate and get feedback on their work. It also makes it easy for developers to access design assets and to ensure that designs are implemented correctly. Figma also has a plugin system, that allows developers to add extra functionality to their tools.

It has a free and a paid version, but many of the collaboration and team-oriented features are only available on the paid version, called Figma organization.

- XAMPP SERVER –



*Figure 4: Xampp Server*

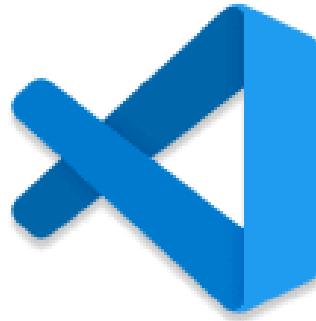
XAMPP, an acronym for Cross-Platform (X), Apache (A), MariaDB (M), PHP (P), and Perl (P), is a robust and open-source server solution tailored for Windows, Linux, and macOS environments. Developed to streamline web development and local server management, XAMPP provides a comprehensive toolkit for developers.

Equipped with essential features such as a built-in Apache server, MariaDB for database management, PHP for server-side scripting, and Perl for general-purpose programming, XAMPP offers a versatile platform for a wide range of development needs.

Integrating seamlessly with source control, XAMPP facilitates efficient debugging through its integrated terminal, ensuring a smooth development process. Its user-friendly interface and integrated Git support contribute to a seamless experience for developers working on diverse projects.

Furthermore, XAMPP's extensibility is a key strength, allowing users to enhance its capabilities by installing extensions. These extensions cover a spectrum of functionalities, ranging from additional language support to diverse themes and debugging tools, tailoring XAMPP to meet specific development requirements.

- **VISUAL STUDIO CODE –**



*Figure 5: Visual Studio Code*

Visual Studio Code (often abbreviated as VS Code) is a free and open-source code editor developed by Microsoft for Windows, Linux, and macOS.

It includes support for debugging, source control, and integrated terminal, as well as support for a variety of programming languages and development environments and includes built-in Git support.

It is also highly extensible, allowing users to install extensions to add additional functionality, such as support for additional languages, themes, and debugging tools.

Visual Studio Code is commonly used for web development, data science, and other types of software development.

## 2.5 Testing Strategies

Our testing strategies for the Project Management System in the construction industry will focus on ensuring the software meets high standards of functionality, usability, and reliability.

1. **End-to-End Testing:** This involves testing the entire system from start to finish to ensure all components work together seamlessly. It will help identify any integration issues between different modules of our project management system.
2. **Usability Testing:** Evaluate the user-friendliness and accessibility of our system, particularly focusing on construction professionals who may not be familiar with digital project management tools. This will help ensure that our system is intuitive and easy to use, increasing user adoption.
3. **Performance Testing:** Evaluate the performance of our system under different scenarios, such as varying numbers of users or high data loads. This will help identify any bottlenecks or performance issues that need to be addressed.
4. **Security Testing:** Given the sensitive nature of construction project data, it's crucial to test the security measures of our system to protect against unauthorized access, data breaches, and other security threats.
5. **Regression Testing:** As you make updates or changes to your system, it's important to perform regression testing to ensure that new changes do not adversely affect existing functionality.
6. **Compatibility Testing:** Ensure that our system is compatible with different devices, operating systems, and browsers commonly used in the construction industry, including mobile devices used on construction sites.
7. **User Acceptance Testing (UAT):** Involve end-users, such as construction professionals and stakeholders, in the testing process to gather feedback and ensure that our system meets their needs and expectations.

## **2.6 Implementation Plan**

1. **Communication and Training:** Conduct workshops and provide comprehensive documentation to train users on the new system. Ensure that the training is tailored to the needs and preferences of construction professionals, focusing on practical usage scenarios.
2. **Evaluation and Feedback:** Regularly assess project progress and gather feedback from users and stakeholders. Use this feedback to make necessary adjustments and improvements to the system.
3. **Regular Meetings:** Schedule regular updates and feedback sessions with the project team and stakeholders to keep everyone informed about the project's progress and address any issues or concerns that arise.
4. **User Acceptance Testing (UAT):** Involve end-users in the testing process to ensure that the system meets their needs and expectations. Use their feedback to make final adjustments before full deployment.
5. **Rollout Plan:** Develop a phased rollout plan to gradually introduce the system to different teams or departments within the construction company. This approach can help mitigate risks and ensure a smoother transition.
6. **Support and Maintenance:** Establish a support system to address any issues or questions that users may have after the system is deployed. Regular maintenance and updates will also be necessary to keep the system running smoothly.
7. **Feedback Loop:** Implement a feedback loop to continuously gather input from users and stakeholders even after the system is deployed. This will help identify areas for improvement and ensure that the system remains aligned with the needs of the construction industry.

## **2.7 Chapter Summary**

The methodology chapter of our project outlines the approach we will take to develop and implement our project management system for the construction industry. We will adopt an Agile methodology, emphasizing iterative development and flexibility to adapt to changing requirements. This approach allows us to break down the project into manageable tasks, prioritize them based on importance and deliver incremental value to our users.

Our development approach will include prototyping for quick feedback and adjustments, ensuring that the final product meets the needs of construction professionals. We will utilize the Scrum framework for regular sprints, which will enable us to deliver working software at the end of each iteration. This iterative process will allow us to continuously improve the system based on feedback from users and stakeholders, ensuring that it remains aligned with the needs of the construction industry.

## **Chapter 3: Analysis**

### **3.1 Introduction**

The analysis chapter of our project provides an in-depth examination of the construction industry's challenges and the specific needs of our target audience. It begins by outlining the problems faced in the construction field, such as project delays, communication issues, and workforce management inefficiencies. These challenges directly impact the profitability and reputation of construction firms, highlighting the critical need for our project management system.

The chapter then presents the solutions offered by our system, including breaking down larger goals into smaller, more manageable tasks and the development of a web application for real-time project progress tracking. These solutions aim to address the root causes of the industry's problems and provide tangible benefits such as improved efficiency, cost savings, and enhanced stakeholder engagement.

Additionally, the chapter discusses the promotional marketing strategies needed to raise awareness about our system and its advantages. It emphasizes the importance of understanding the target audience's preferences, such as tailored solutions, mobile accessibility, and integration capabilities, to ensure the system meets their needs effectively.

Overall, the analysis chapter sets the stage for the rest of the project, providing a comprehensive overview of the construction industry's challenges and how our project management system aims to address them.

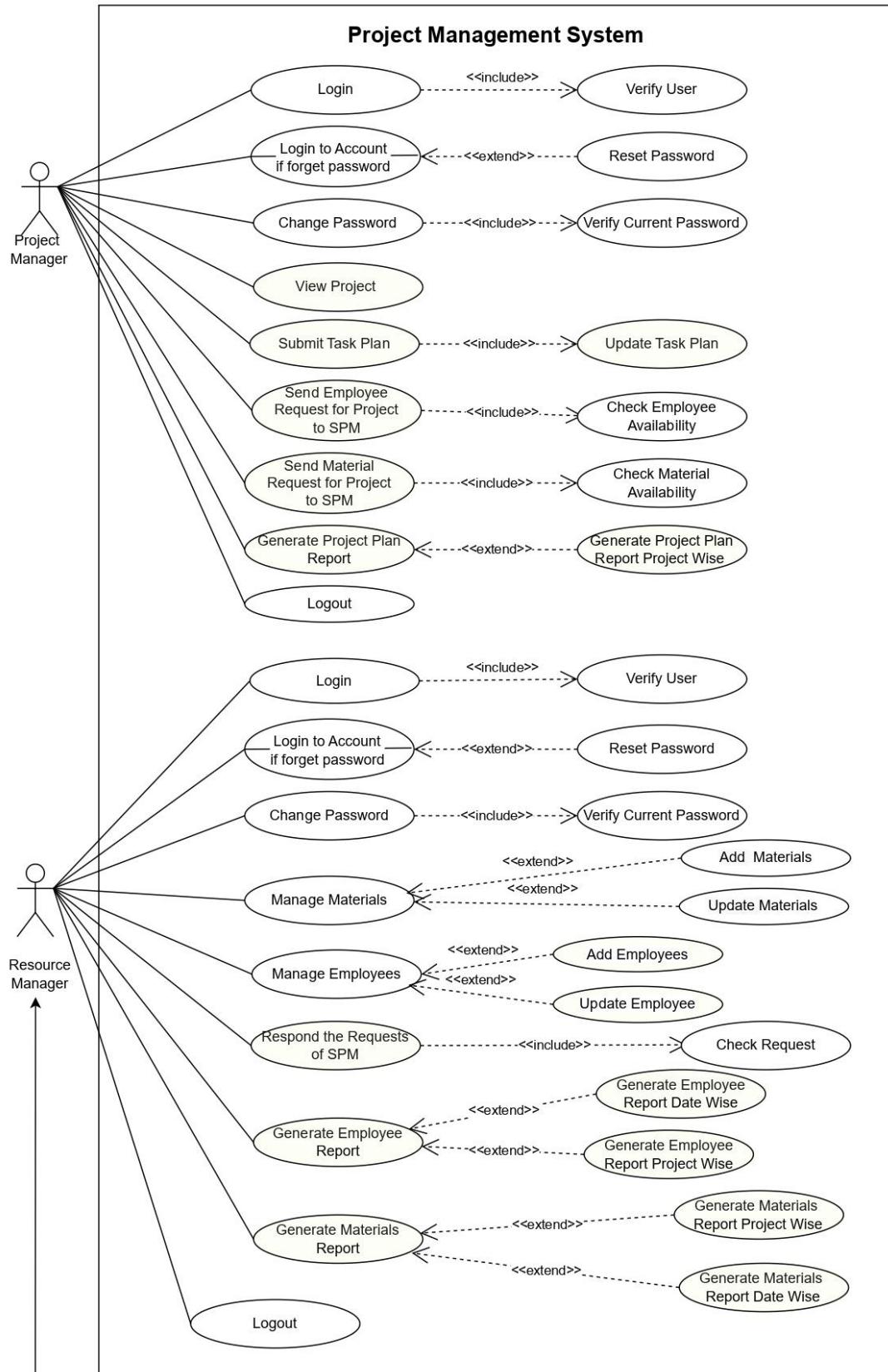
## 3.2 UML Diagram

### 3.2.1 Use Case Diagram of Current System



Figure 6: Use Case Diagram of Current System

### 3.2.2 Use Case Diagram of Proposed System



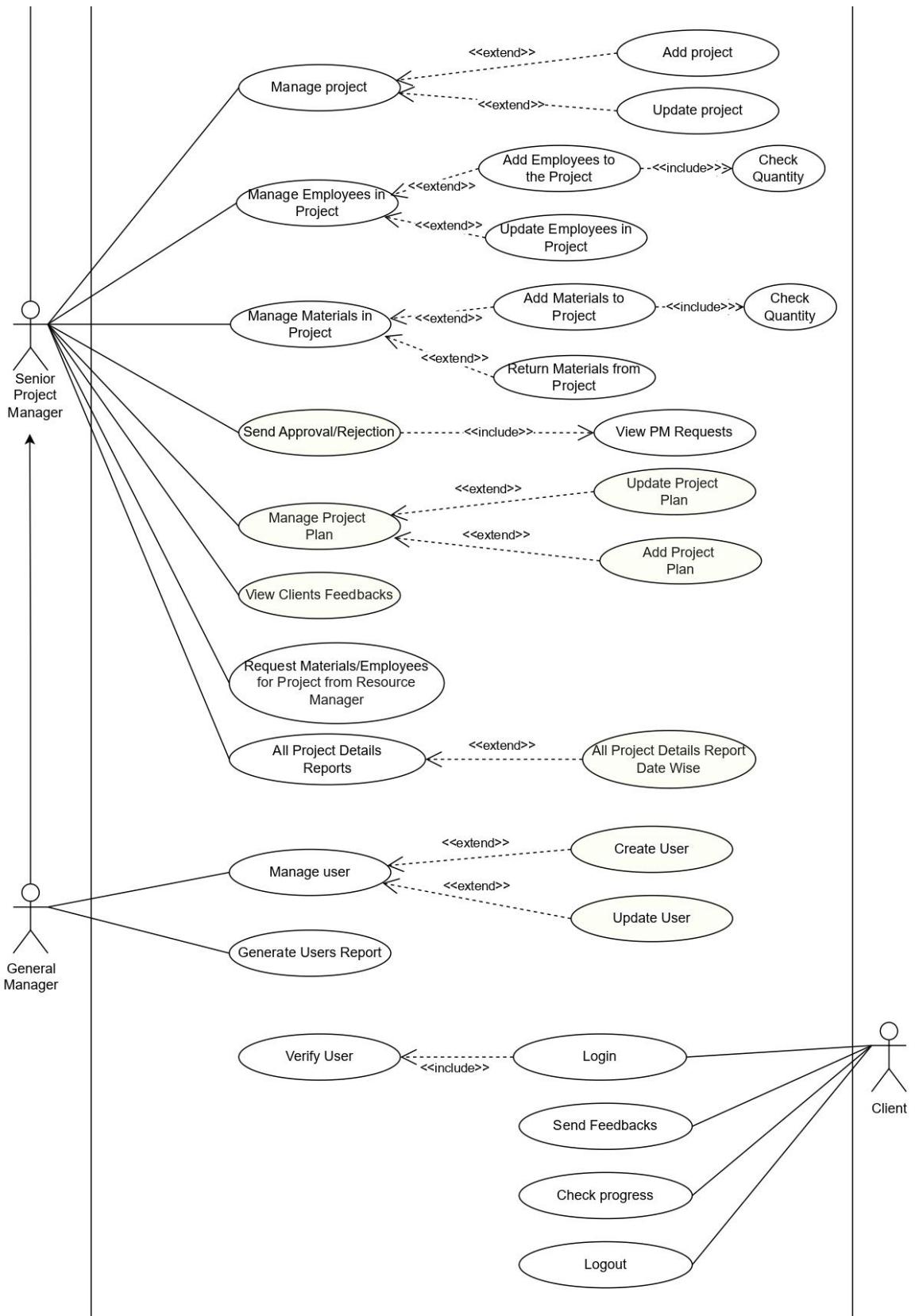


Figure 7: Use Case Diagram of Proposed System

### 3.2.3 Class Diagram of Proposed System

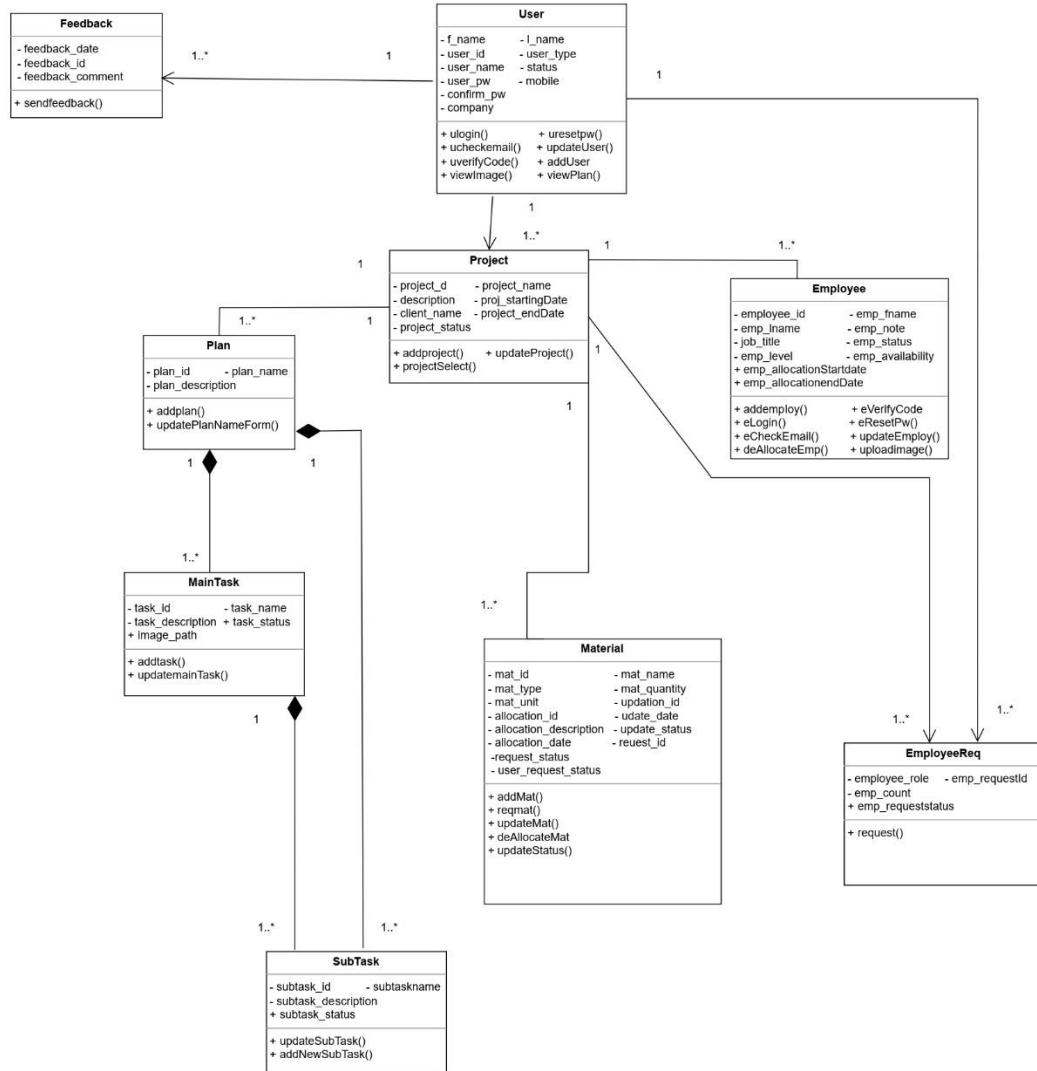


Figure 8: Class Diagram of Proposed System

### 3.2.4 Sequence Diagrams for Proposed System

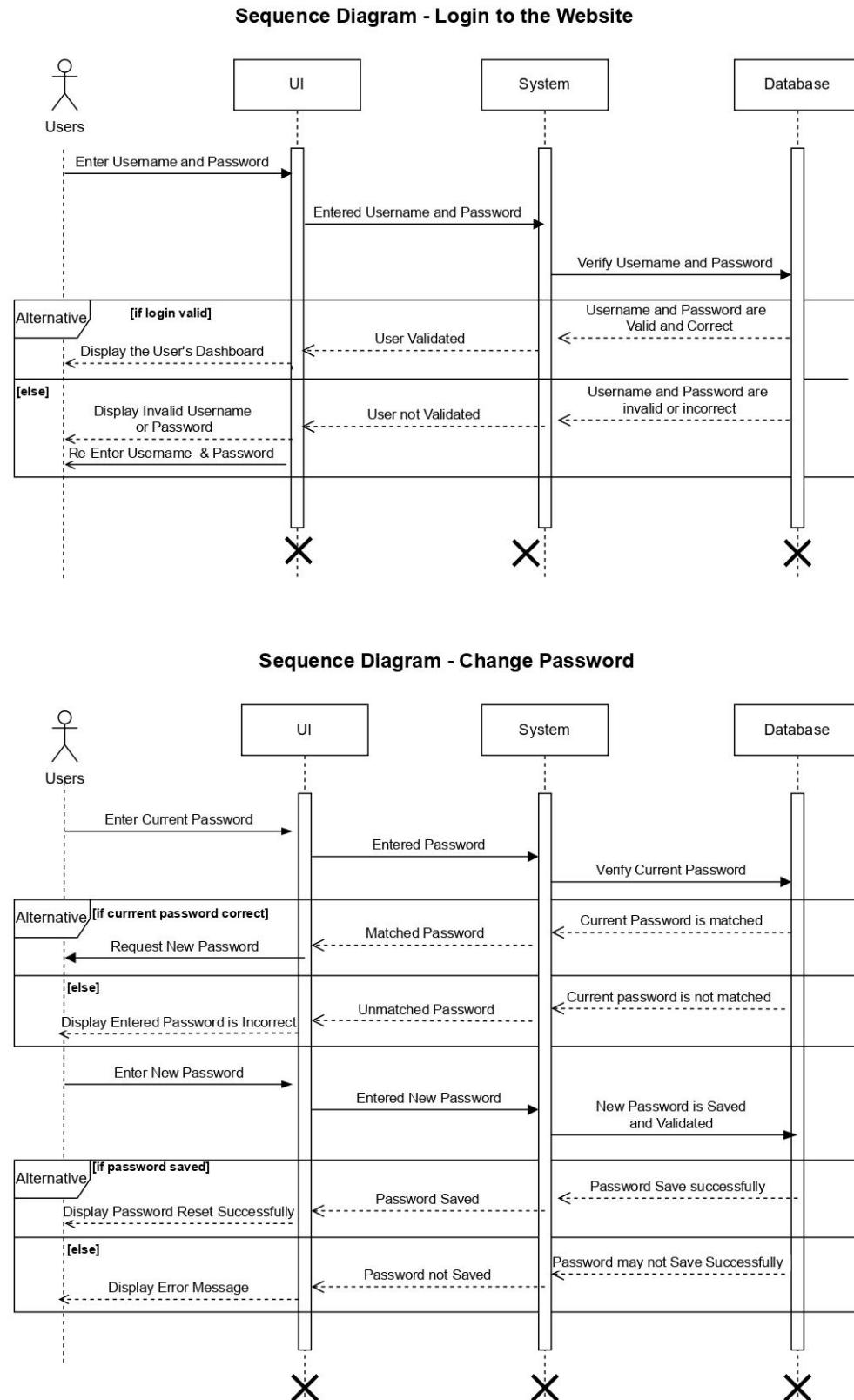
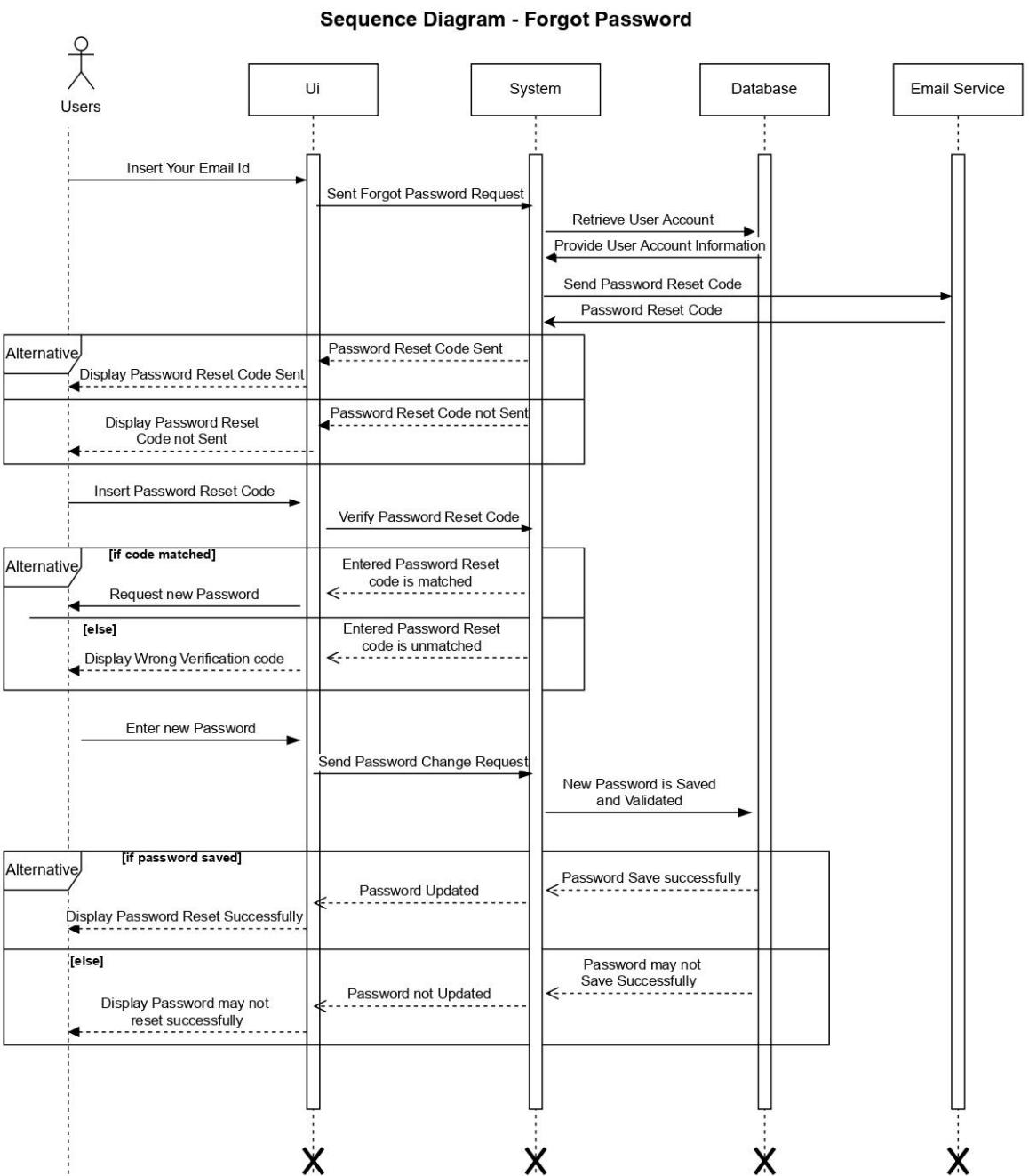


Figure 9: Sequence diagram for login and change password use case



*Figure 10: Sequence diagram for forgot password use case*

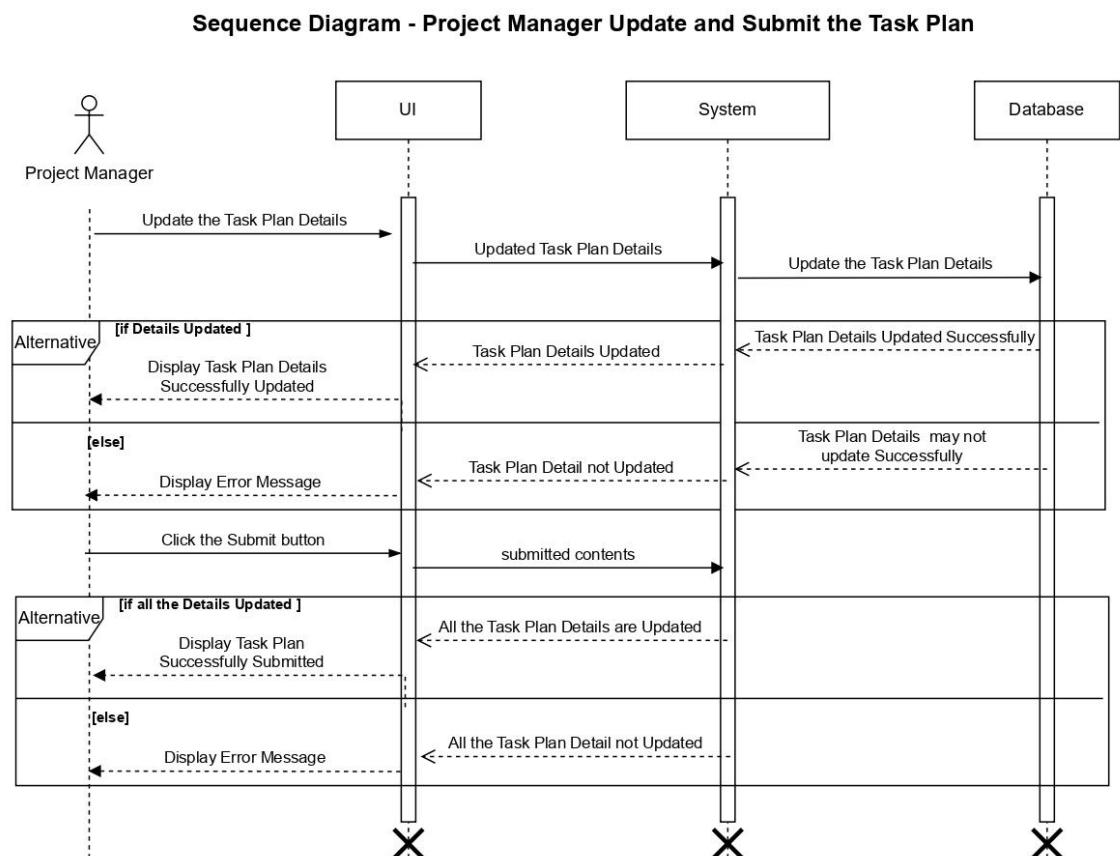
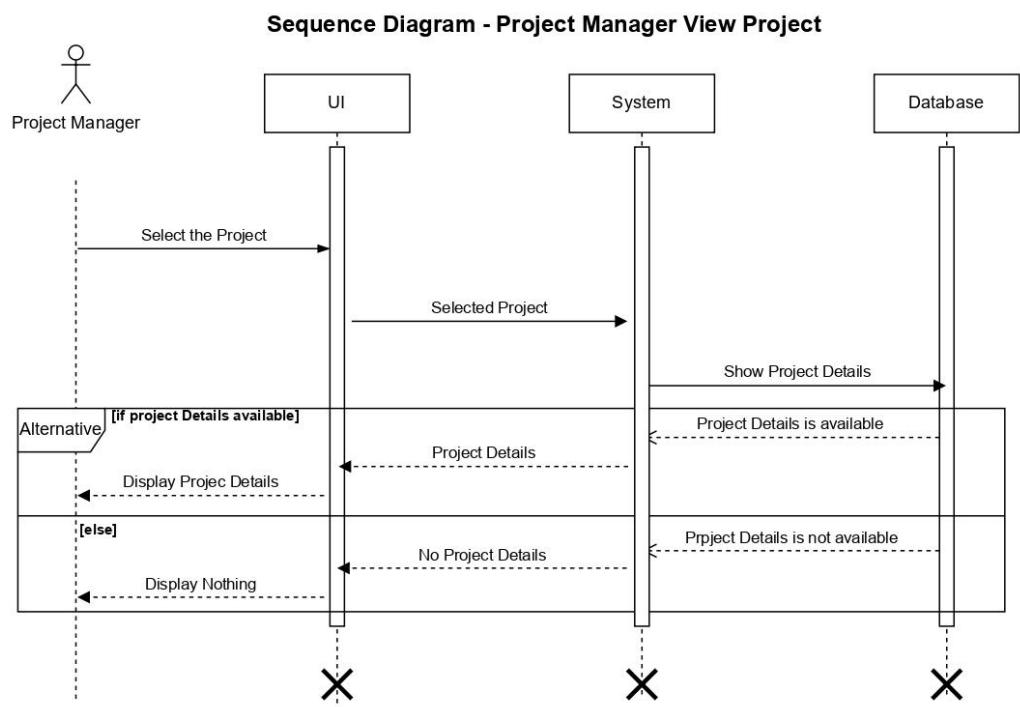
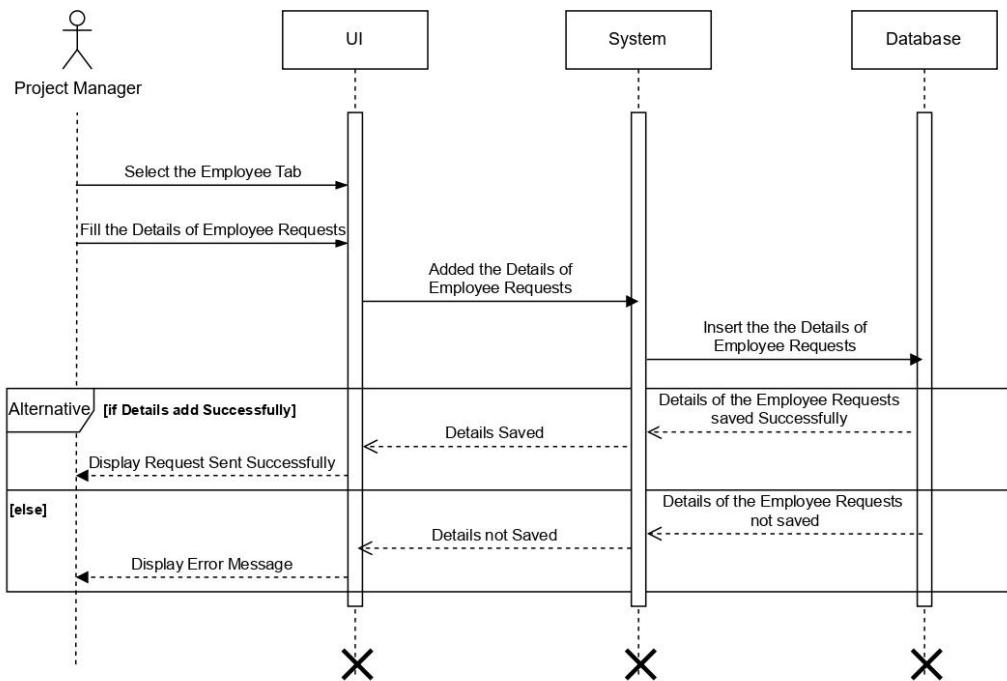


Figure 11: Sequence diagram for PM view project, update and submit task plan

### Sequence Diagram - Project Manager Send Employee Request for Project



### Sequence Diagram - Project Manager Send Material Request for Project

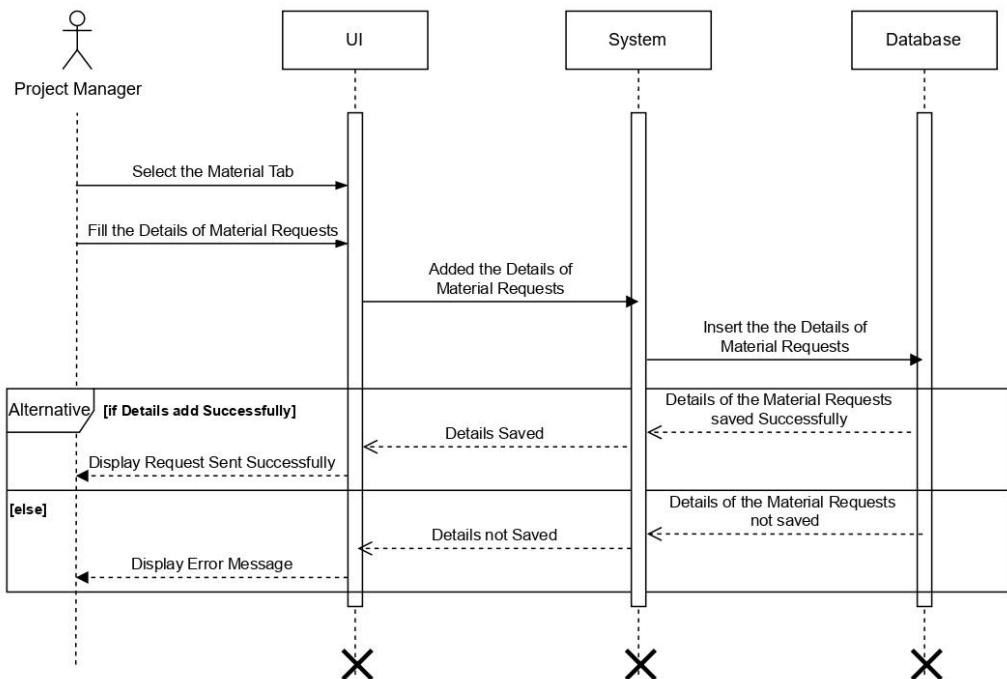
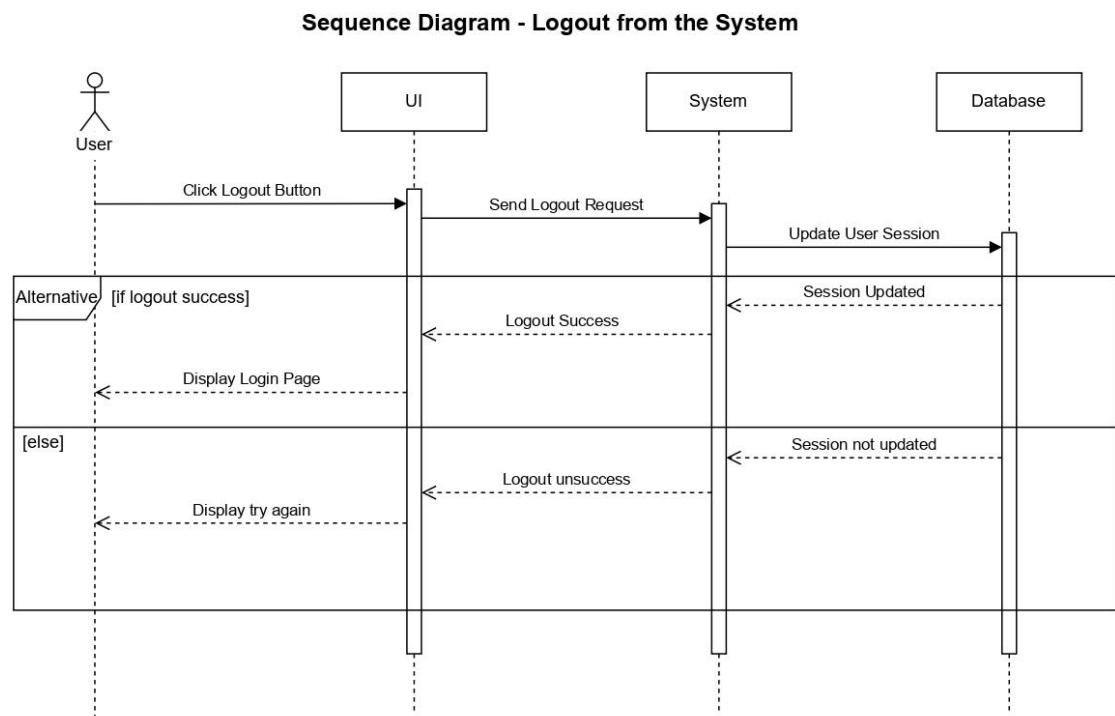
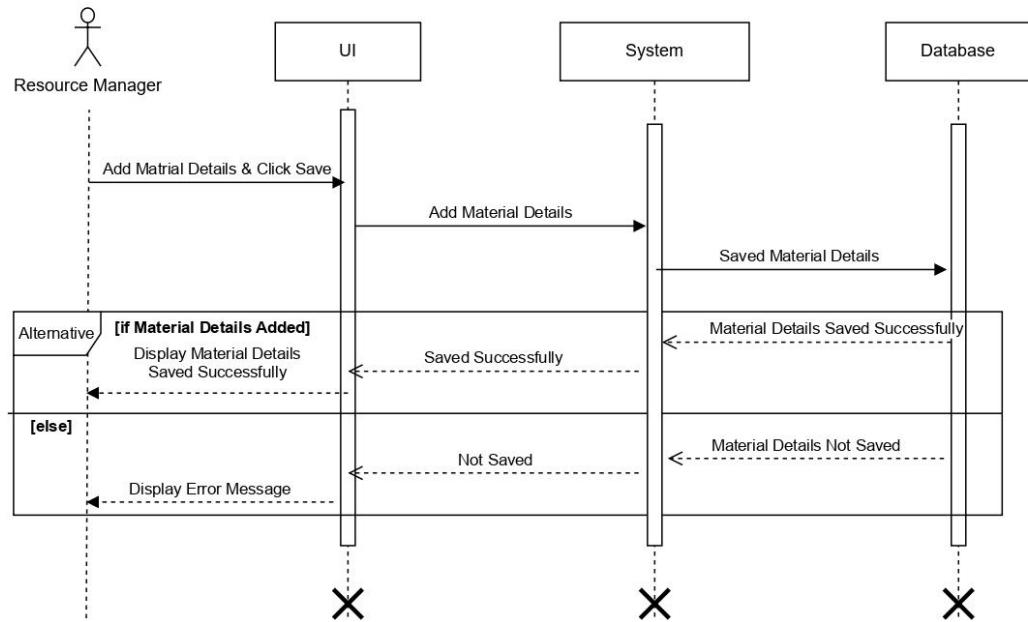


Figure 12: Sequence diagram for PM send employee and material request

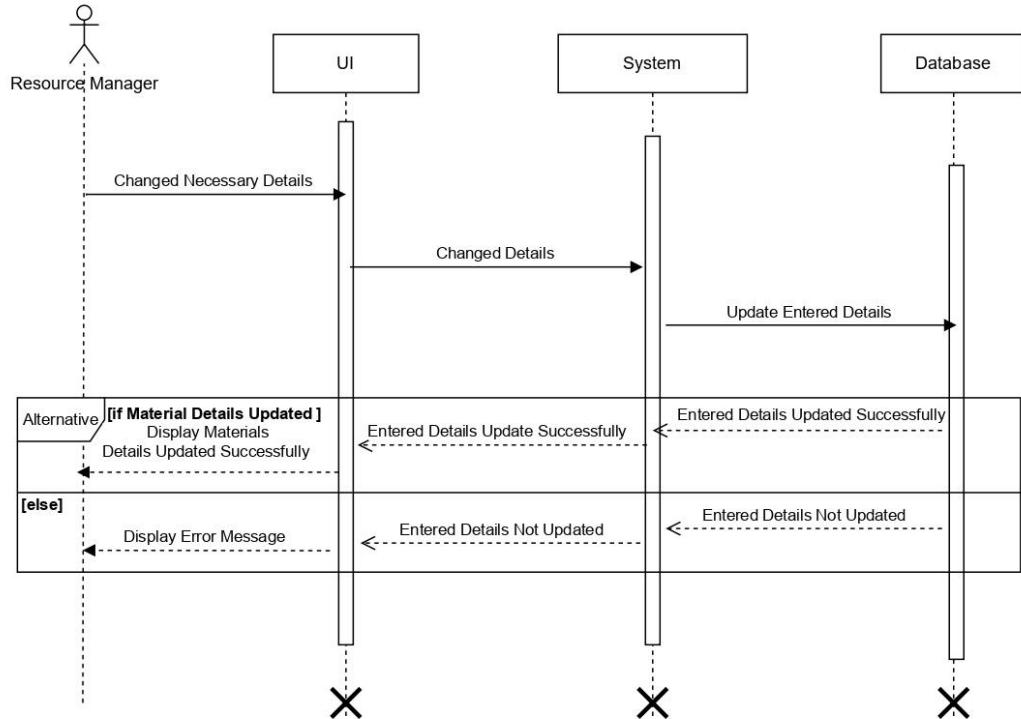


*Figure 13: Sequence diagram for logout from system use case*

### Sequence Diagram - Resource Manager Add Materials to the System

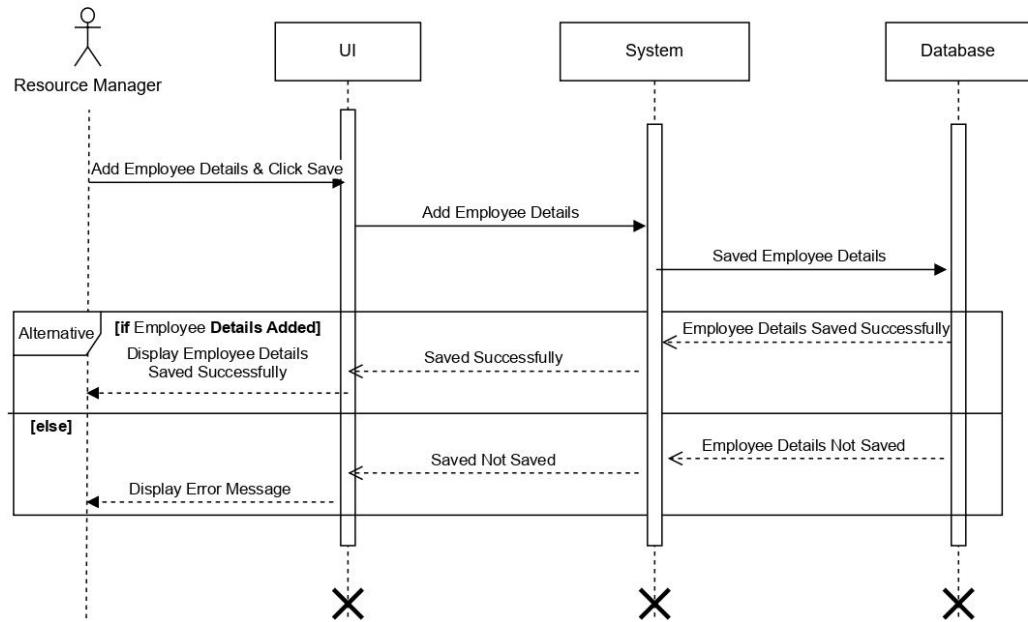


### Sequence Diagram - Resource Manager Update Existing Materials in the System



*Figure 14: Sequence diagram for RM add and update materials to/in system*

### Sequence Diagram - Resource Manager Add Employees to the System



### Sequence Diagram - Resource Manager Update Existing Employees in the System

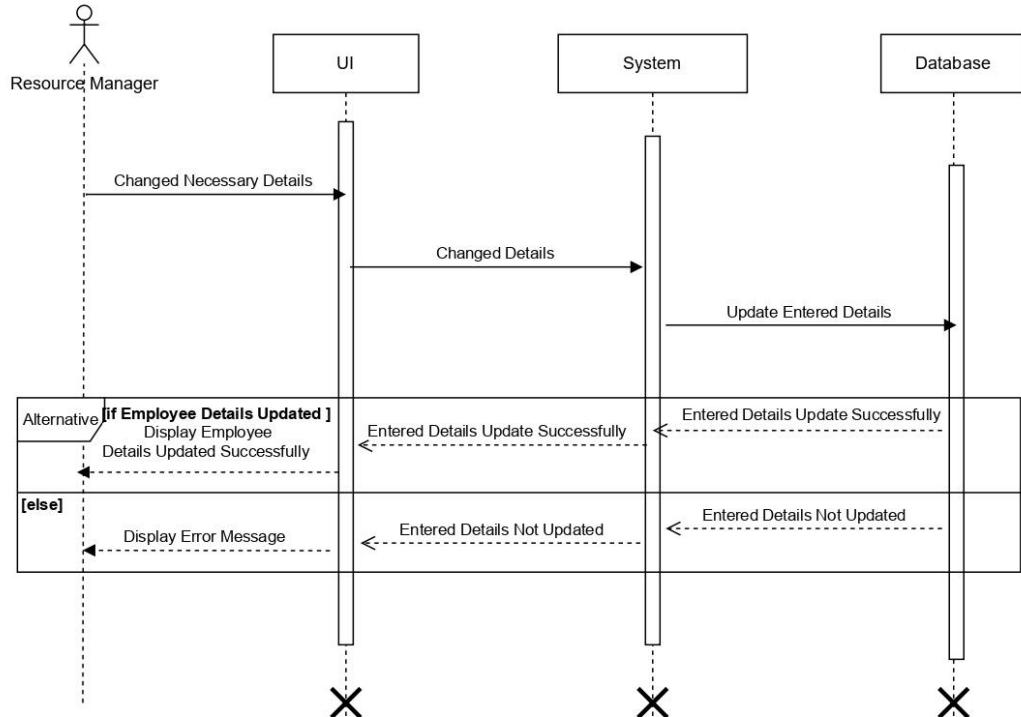


Figure 15: Sequence diagram for RM add and update employees to/in system

### Sequence Diagram - Resource Manager Send Feedback for the Senior Project Manager's Requests

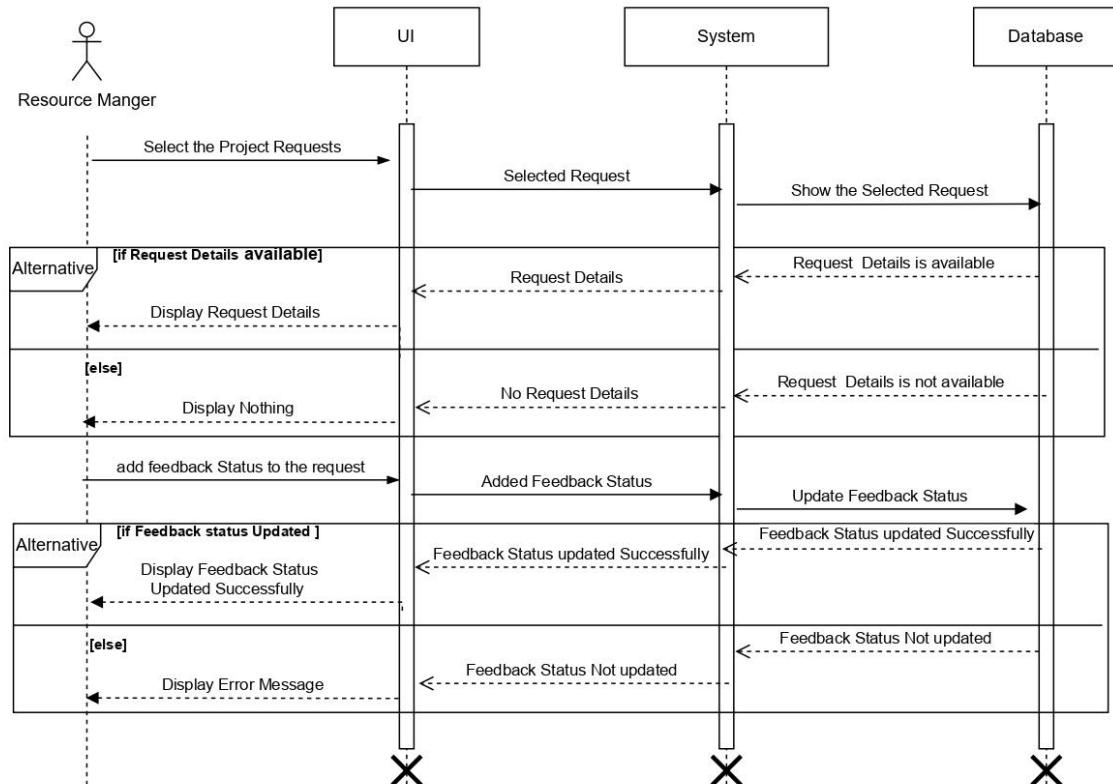
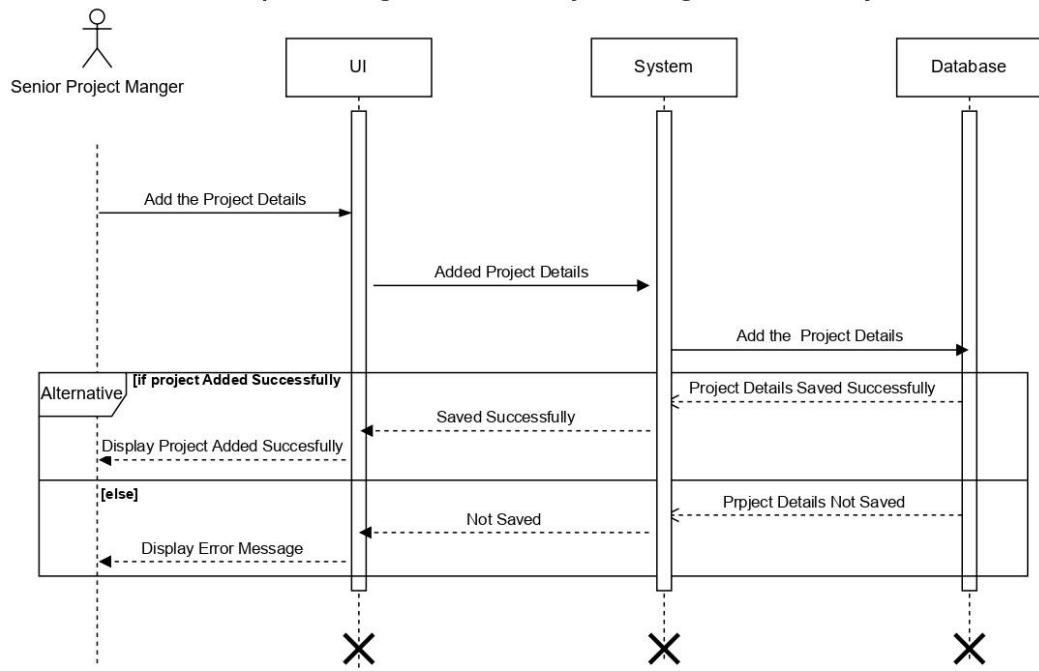
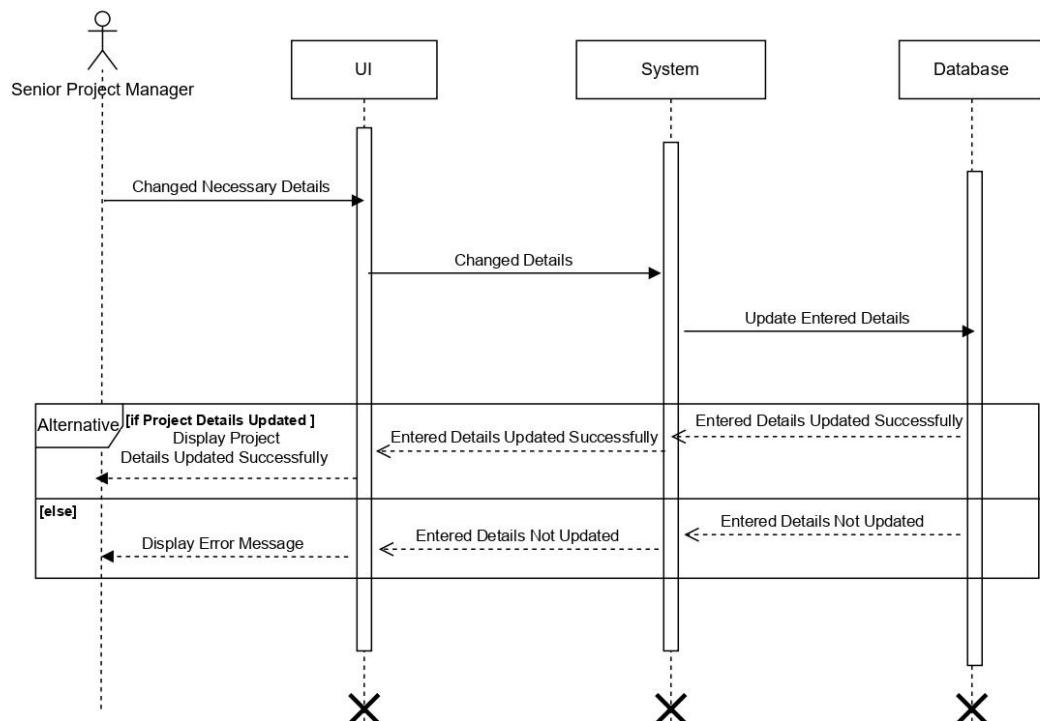


Figure 16: Sequence diagram for RM send feedback to SPM use case

### Sequence Diagram - Senior Project Manager Add New Project

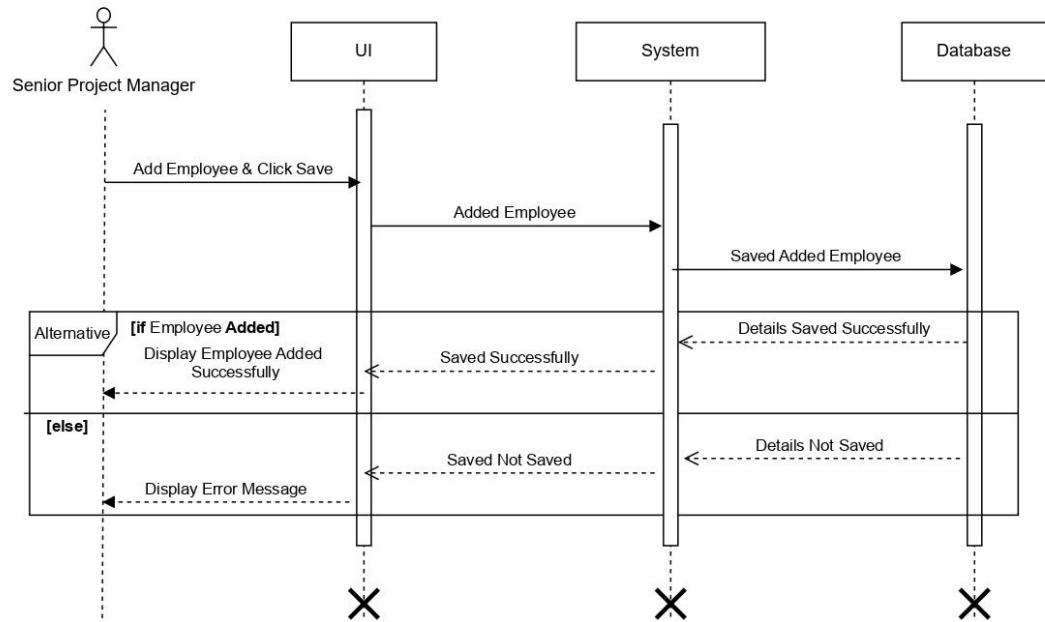


### Sequence Diagram - Senior Project Manager Update Existing Project



*Figure 17: Sequence diagram for SPM add and update projects use case*

### Sequence Diagram - Senior Project Manager Add Employees to the Project



### Sequence Diagram - Senior Project Manager Update Existing Employees in the Project

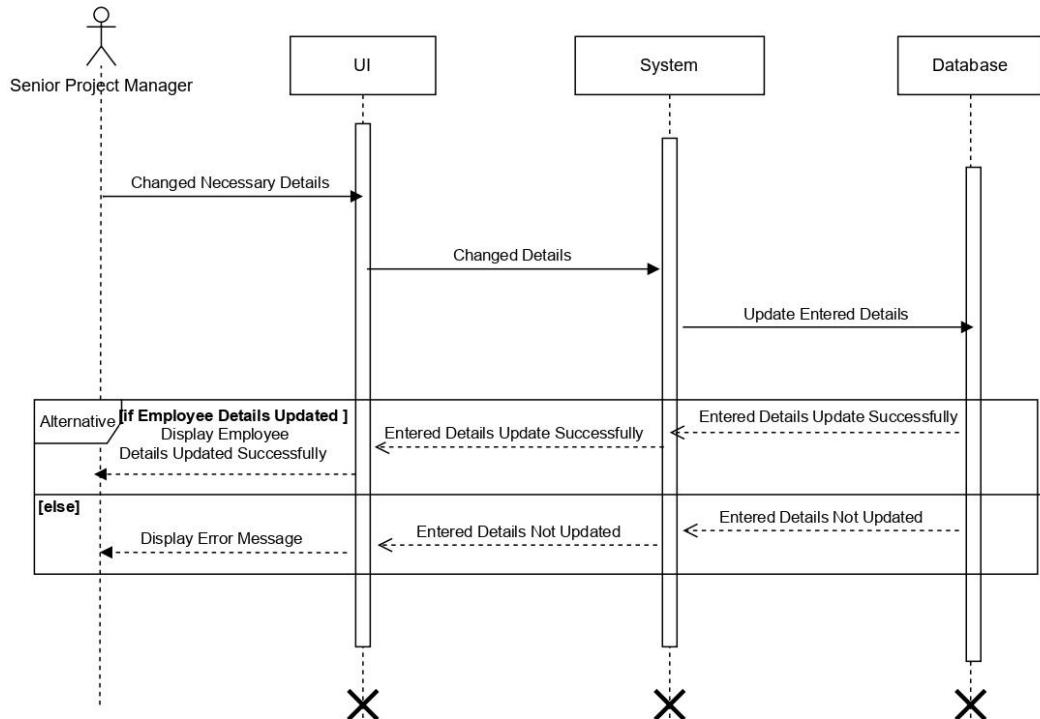
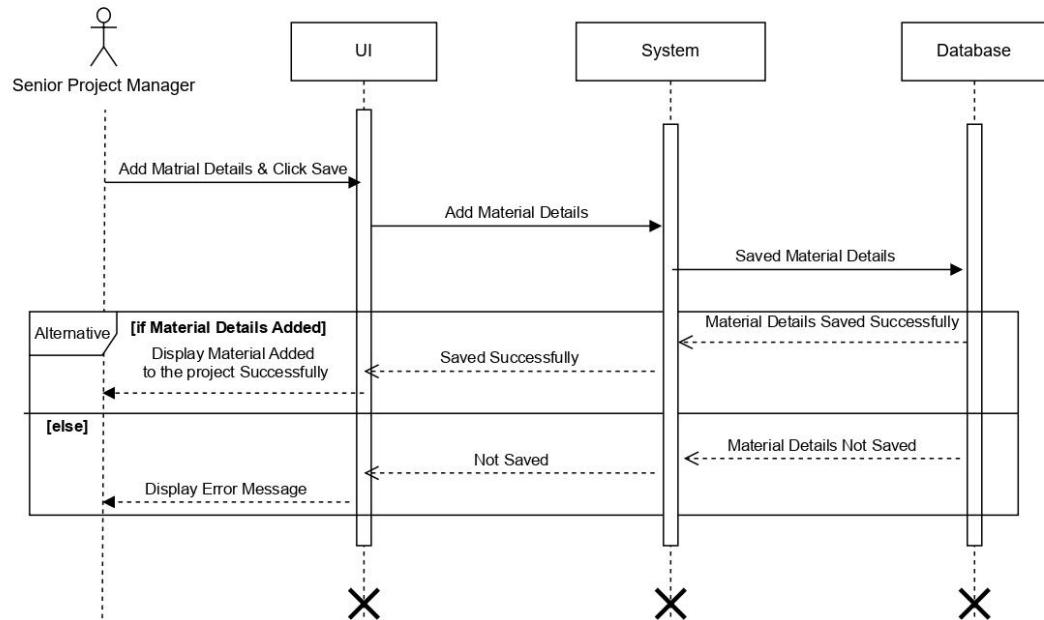
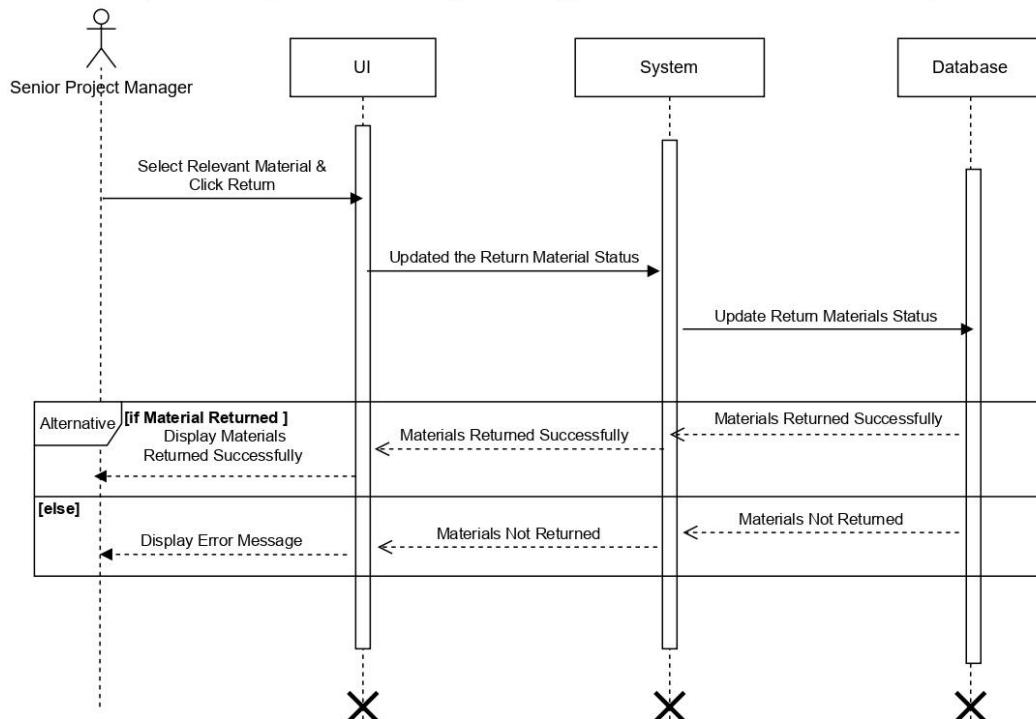


Figure 18: Sequence diagram for SPM add and update employees in project

### Sequence Diagram - Senior Project Manager Add Materials to the Project

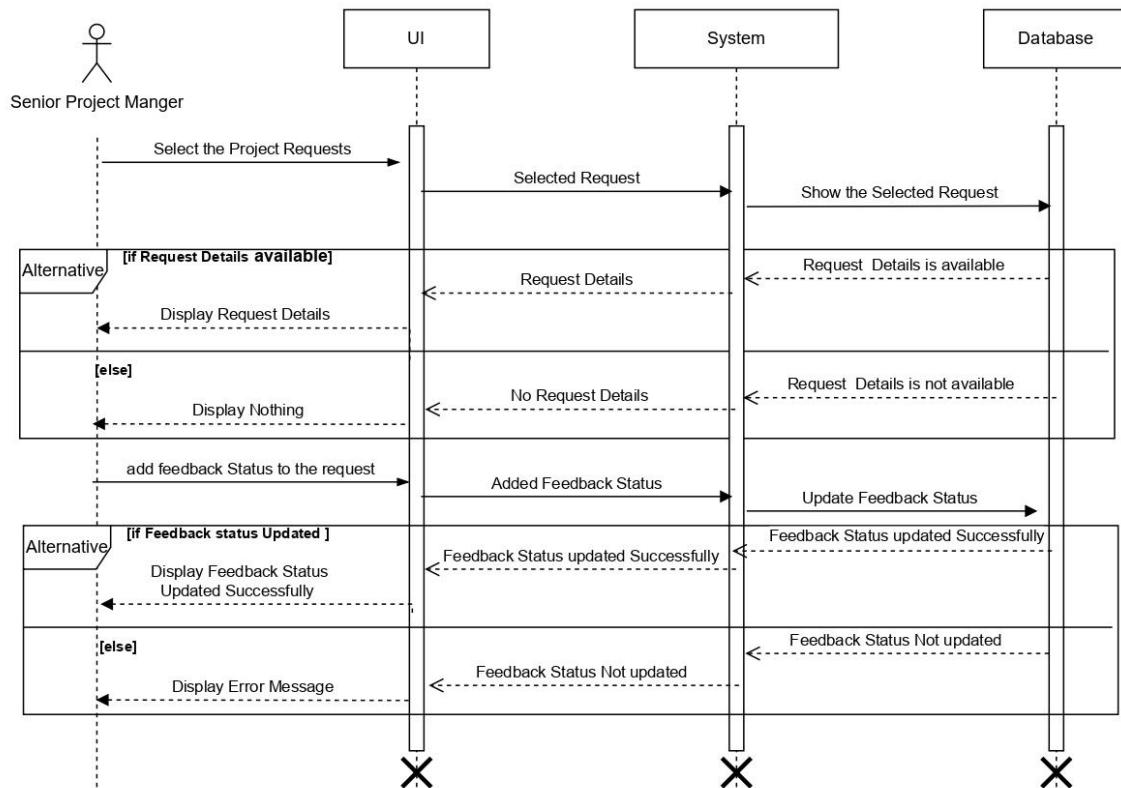


### Sequence Diagram - Senior Project Manager Return Materials from the Project



*Figure 19: Sequence diagram for SPM add and update materials in project*

### Sequence Diagram - Senior Project Manager Send Feedback for the Project Manager's Requests



### Sequence Diagram - Senior Project Manager View Client's Feedbacks

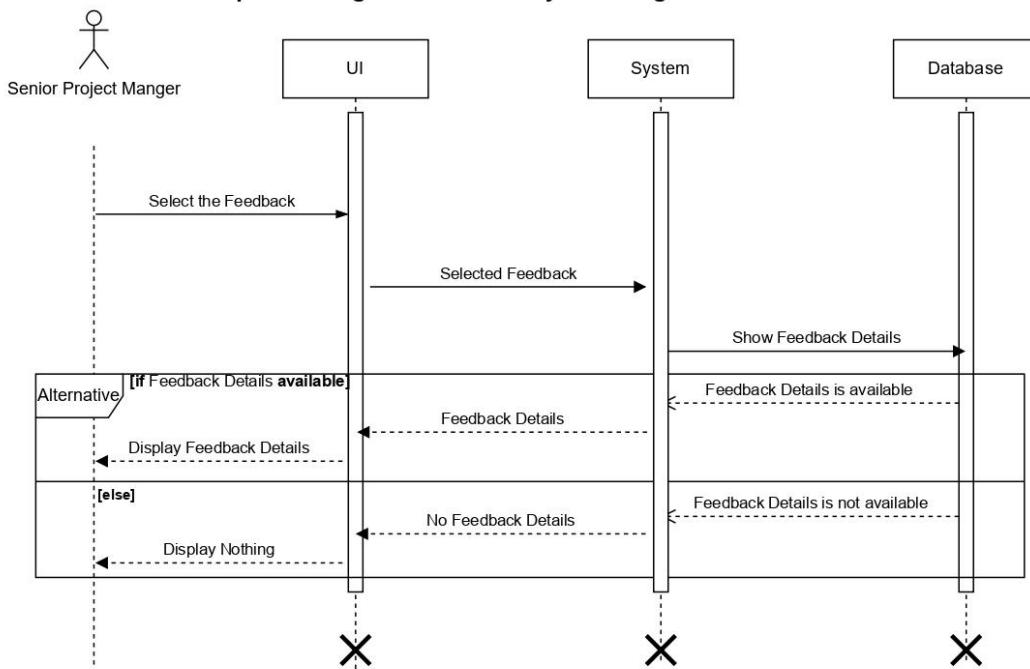
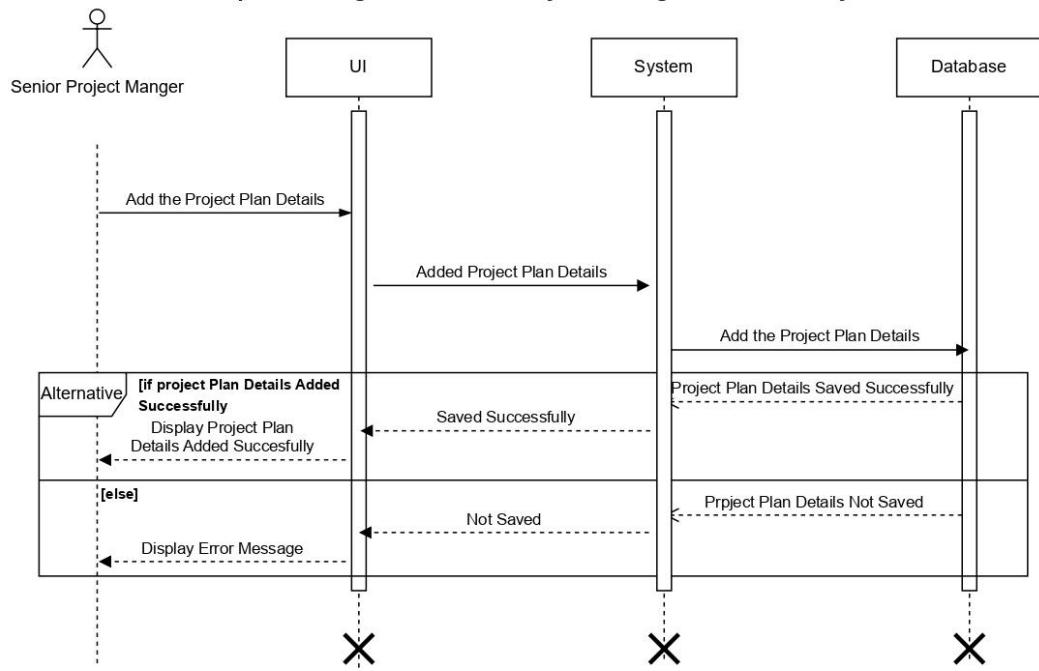


Figure 20: Sequence diagram for SPM view client's feedbacks use case

Figure 21: Sequence diagram for SPM send feedback for the project manager's request

### Sequence Diagram - Senior Project Manager Add New Project Plan



### Sequence Diagram - Senior Project Manager Update Existing Project Plan

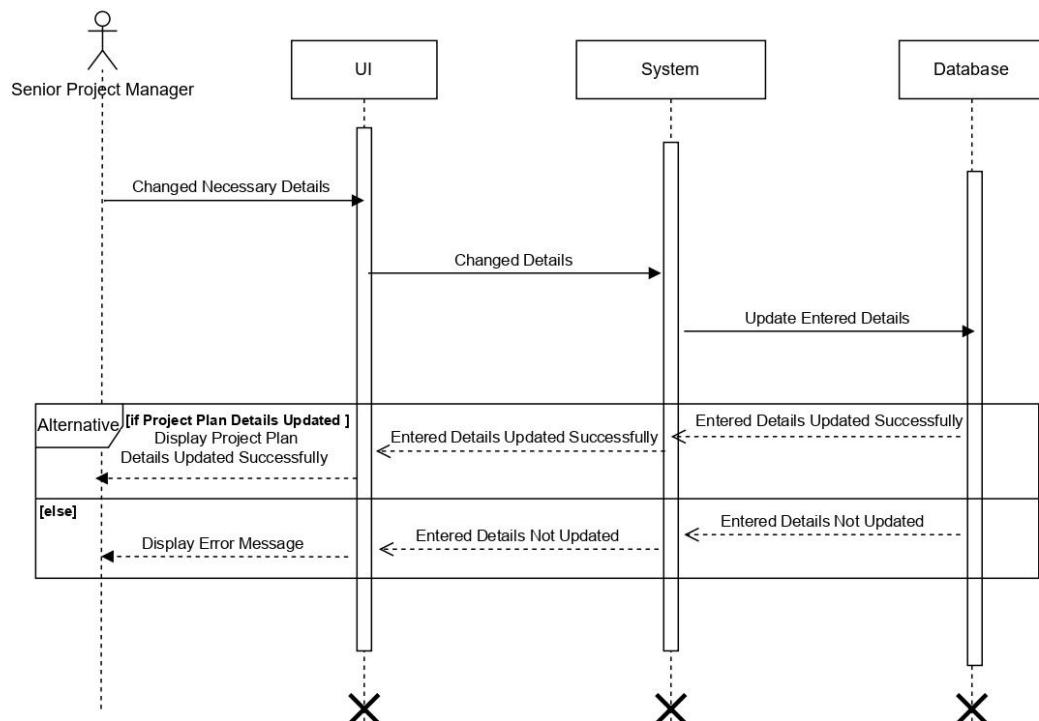
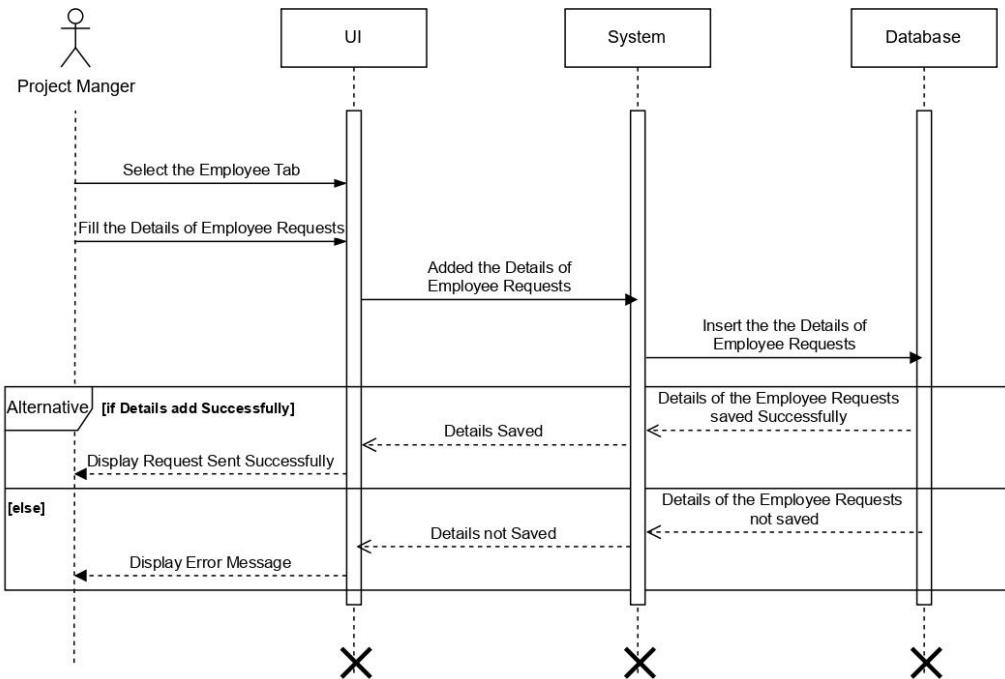
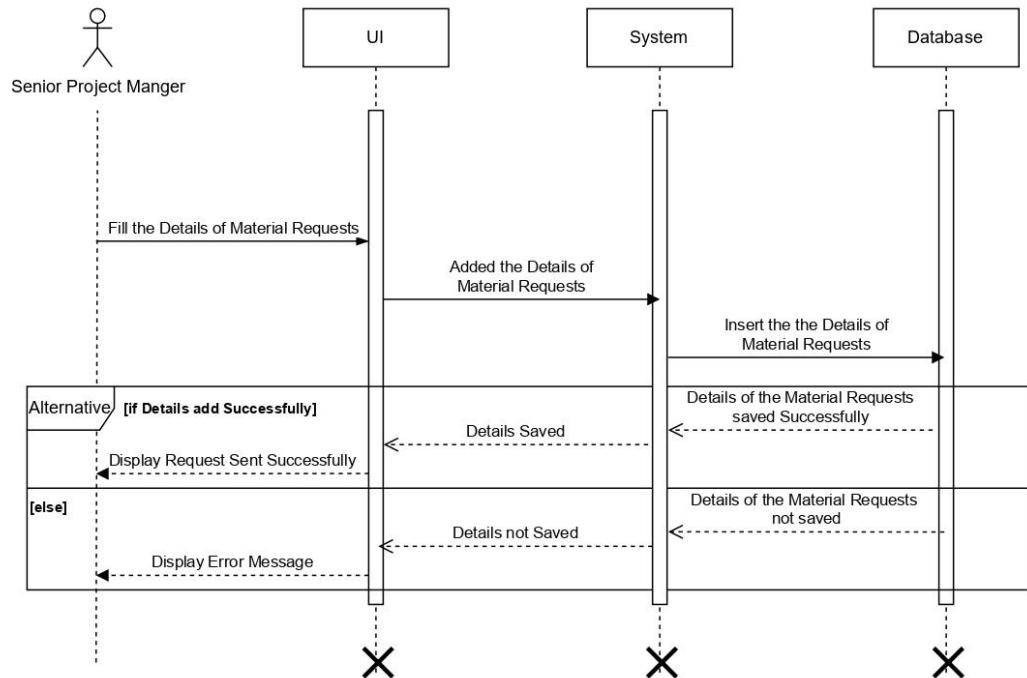


Figure 22: Sequence diagram for SPM add and update project plan use case

**Sequence Diagram - Senior Project Manager Send Employee Request for Project From Resource Manager**



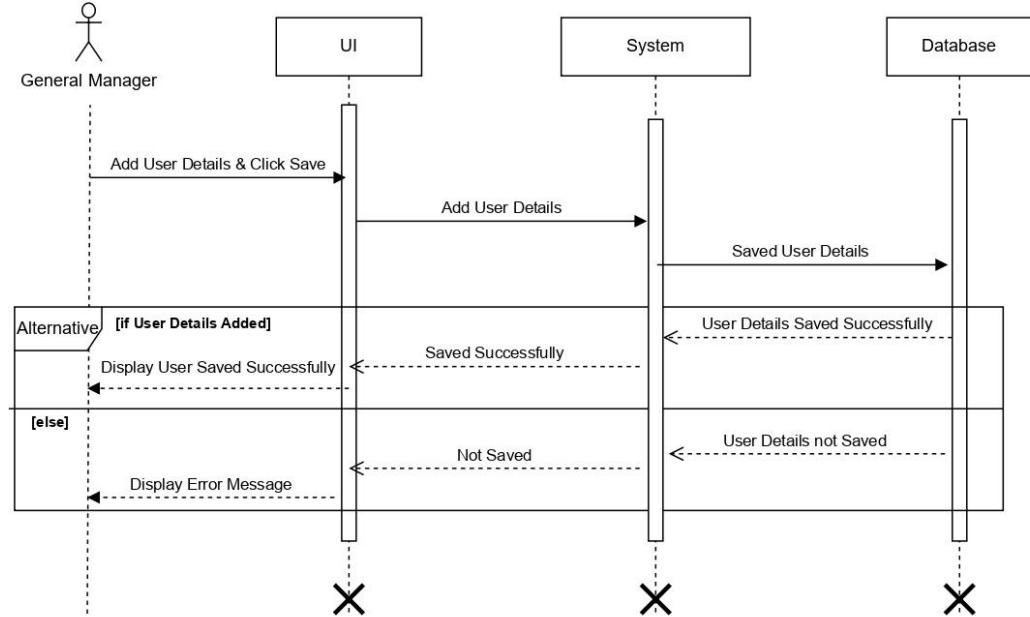
**Sequence Diagram - Senior Project Manager Send Material Request for Project From Resource Manager**



*Figure 24: Sequence diagram for SPM send employee request for project to RM use*

*Figure 23: Sequence diagram for SPM send material request for project to RM use case*

### Sequence Diagram - General Manager Add User to the System



### Sequence Diagram - Resource Manager Update Existing User in the System

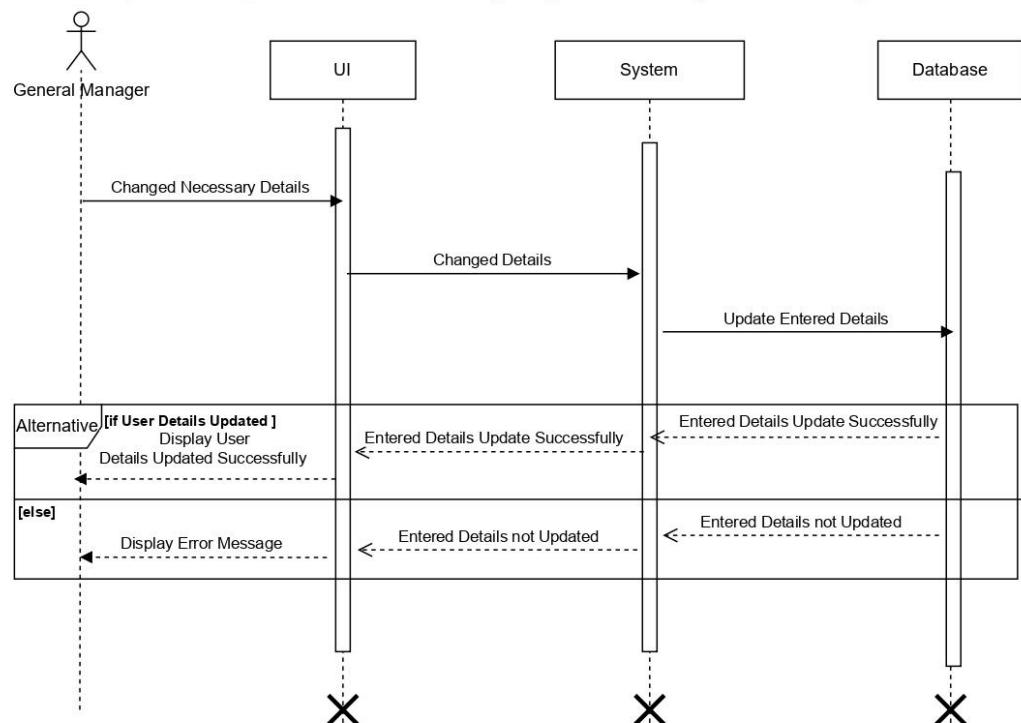
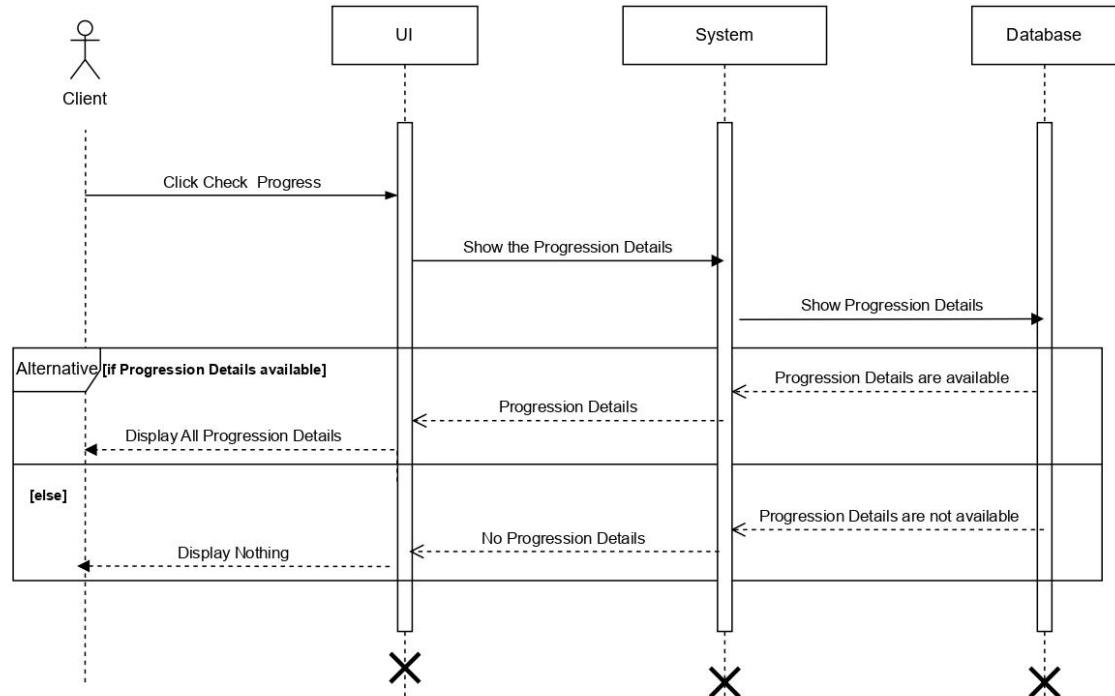


Figure 25: Sequence diagram for GM add and update user use case

### Sequence Diagram - Client Check Project Progress



### Sequence Diagram - Client Send Feedbacks

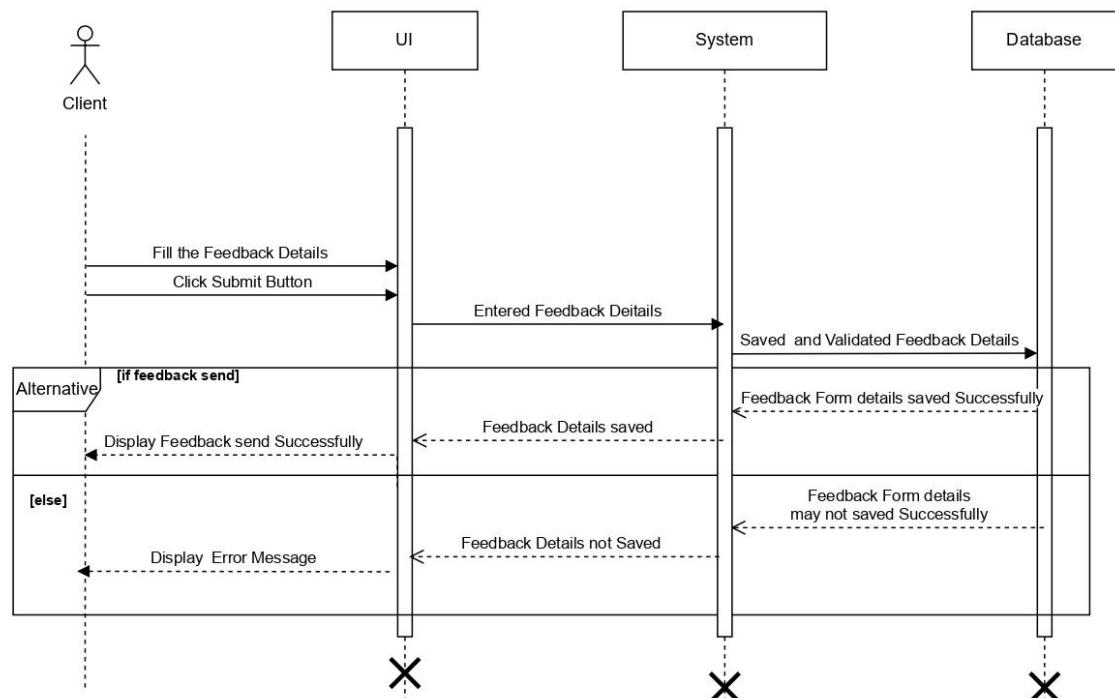


Figure 26: Sequence diagram for client check progress and send feedback use case

**Sequence Diagram - Project Manager/Senior Project Manager/General Manager  
Generate Project Plan Report (Project)**

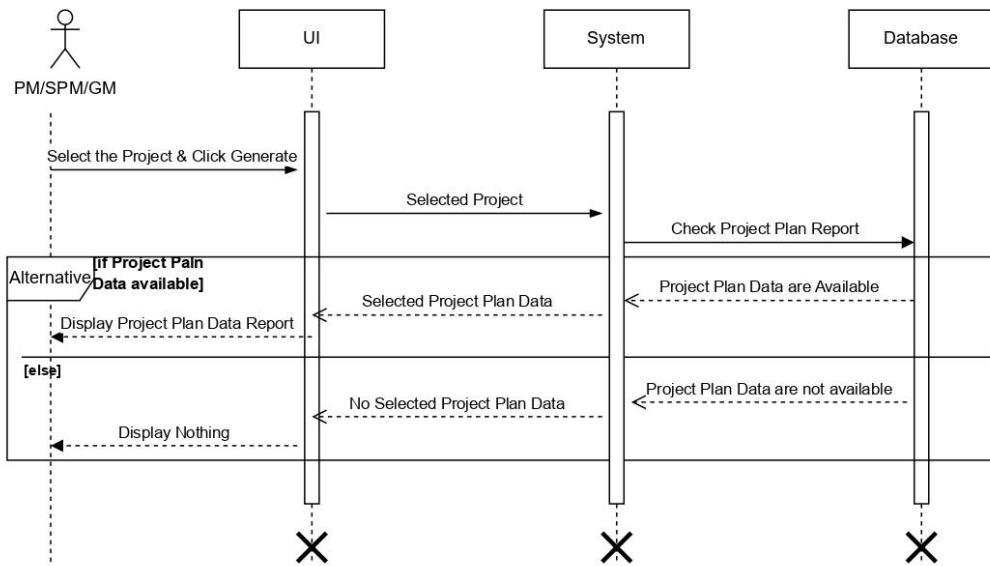
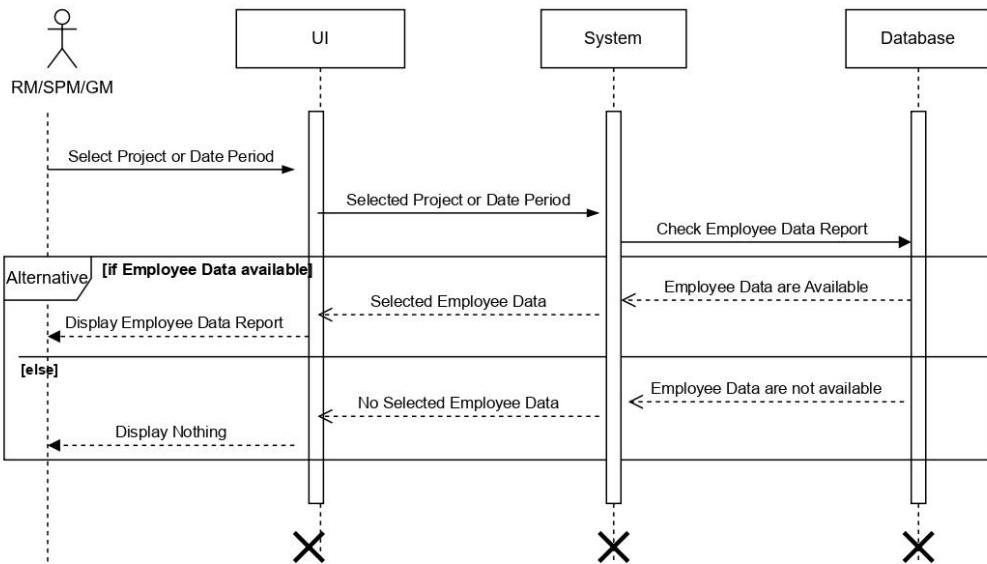
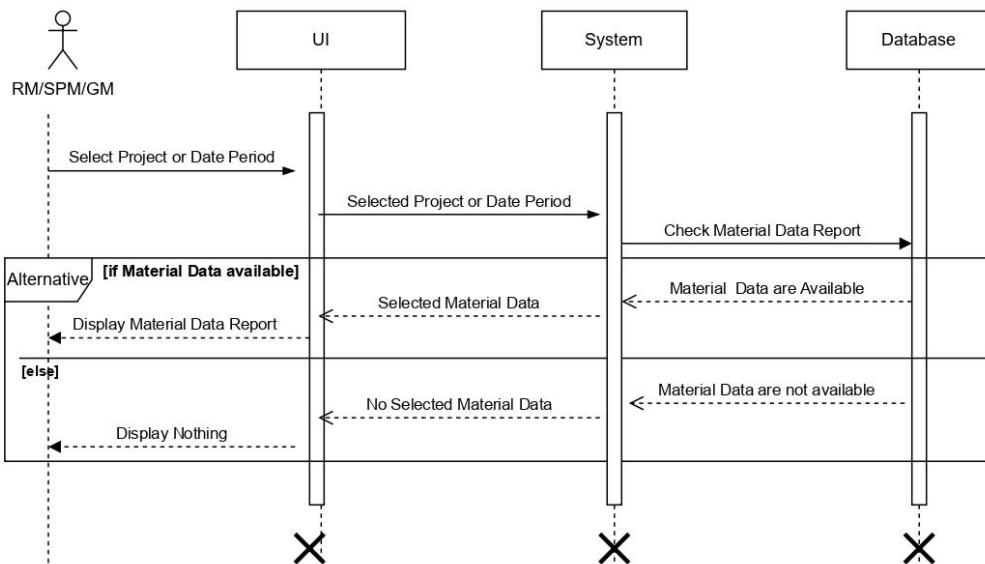


Figure 27: Sequence diagram for generate project plan report use case

**Sequence Diagram - Resource Manager/Senior Project Manager/General Manager Generate Employee Data Report (Project/Date Wise)**

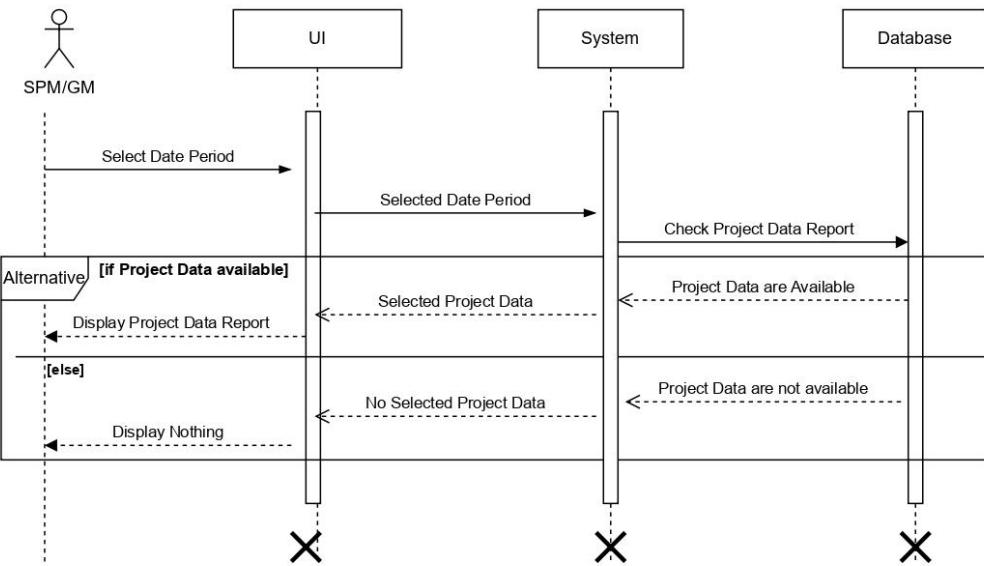


**Sequence Diagram - Resource Manager/Senior Project Manager/General Manager Generate Material Data Report (Project/Date Wise)**



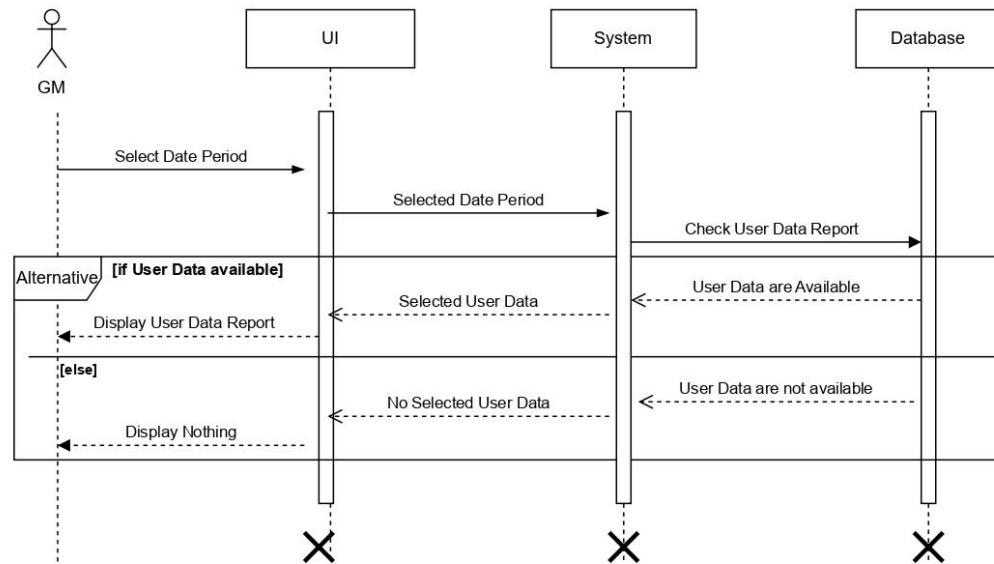
*Figure 28: Sequence diagram for generate employee and material report use case*

**Sequence Diagram - Senior Project Manager/General Manager Generate Projects Data Report (Date Wise)**



*Figure 29: Sequence diagram for generate project report use case*

### Sequence Diagram - General Manager Generate User Data Report (Date Wise)



*Figure 30: Sequence diagram for generating user report use case*

### 3.3 Software Architecture

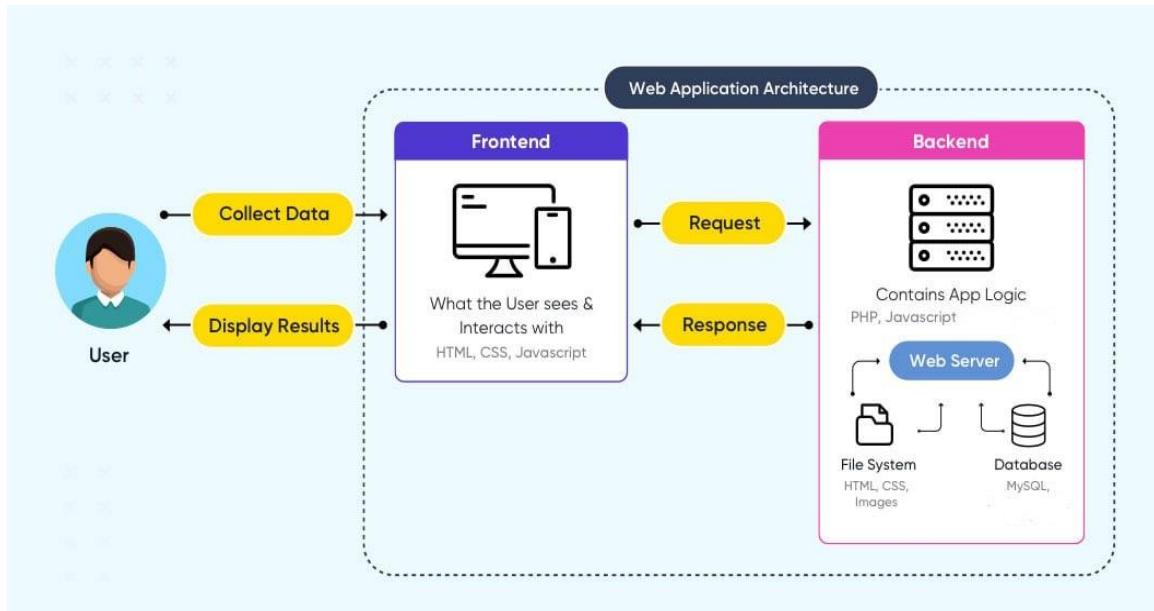


Figure 31: Software Architecture

### 3.4 ER Diagram of the Proposed System

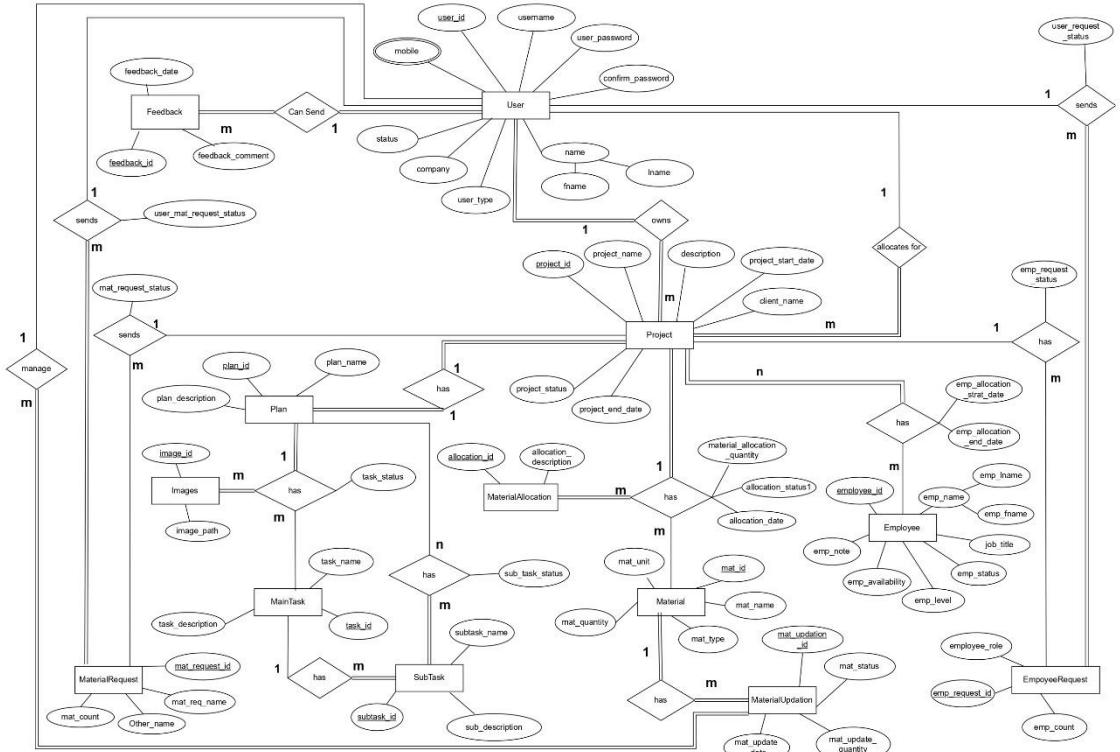


Figure 32: ER Diagram of the Proposed System

### **3.5 Chapter Summary**

As described in the above chapter, the Introduction about the analysis and the current system and the proposed system are analyzed with the help of diagrams.

In brief, UML stands for Unified Modelling Language. It is a standard visual language for describing modelling and documenting the components and structure of the software system.

Under UML diagrams, several other main diagram types were used for our project.

They are,

- Class Diagram:

A class diagram in the Unified Modeling Language is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations, and the relationships among objects.

- Sequence Diagrams:

A sequence diagram consists of a group of objects that are represented by lifelines, and the messages that they exchange over time during the interaction.

- Use Case Diagrams:

Use case diagrams model the functionality of a system using actors and use cases. Use cases are a set of actions, service, and functions that the system needs to perform.

- ER 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.

By that diagrams represent the process of the system.

## **Chapter 4: Solution Design**

### **4.1 Introduction**

The solution design chapter of our project outlines the innovative approach taken to address the challenges faced by the construction industry. It begins by highlighting the importance of the planning phase, which involves breaking down larger project goals into smaller, more manageable monthly tasks. This approach aims to enhance efficiency and reduce delays by providing a clear roadmap for project execution.

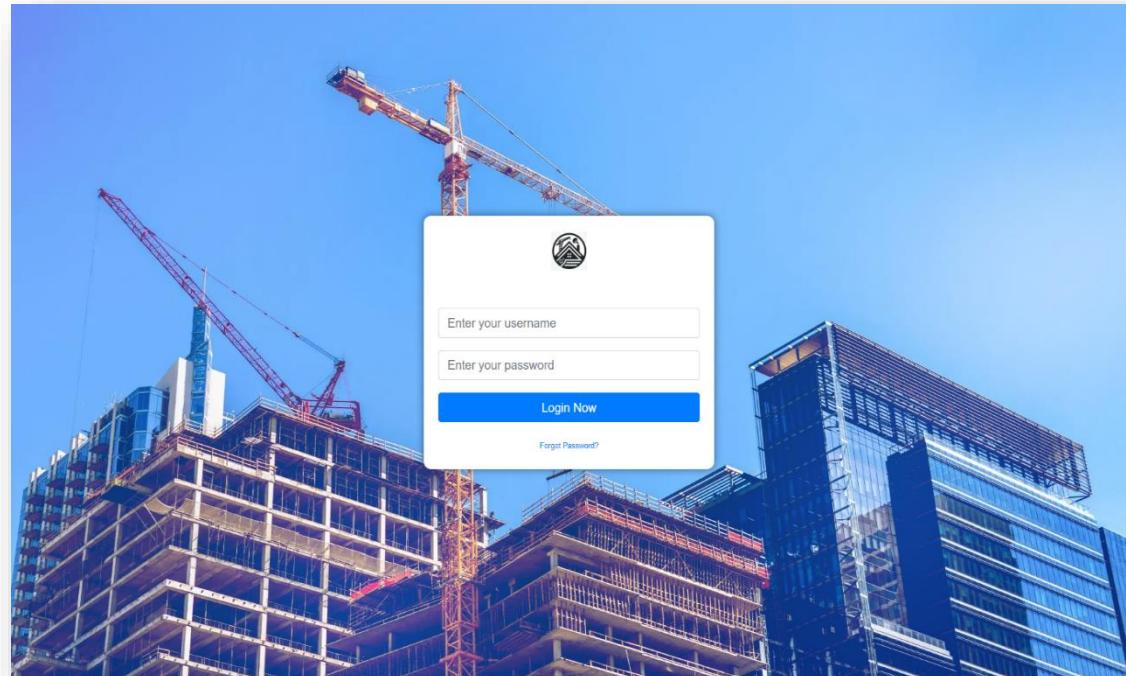
One of the key innovative features of our project is the development of a web application for project management. This application allows clients to track project progress in real-time, providing transparency and improving stakeholder engagement. By leveraging technology, we aim to overcome communication barriers and streamline project workflows.

The chapter also discusses the advantages of our proposed solution, including efficient material and worker management, task allocation, resource optimization, cost efficiency, and a user-friendly interface. These advantages are designed to address the specific needs of the construction industry and provide tangible benefits to construction firms.

Overall, the solution design chapter sets the foundation for our project by outlining the key features and benefits of our proposed solution, demonstrating how it can revolutionize project management in the construction industry.

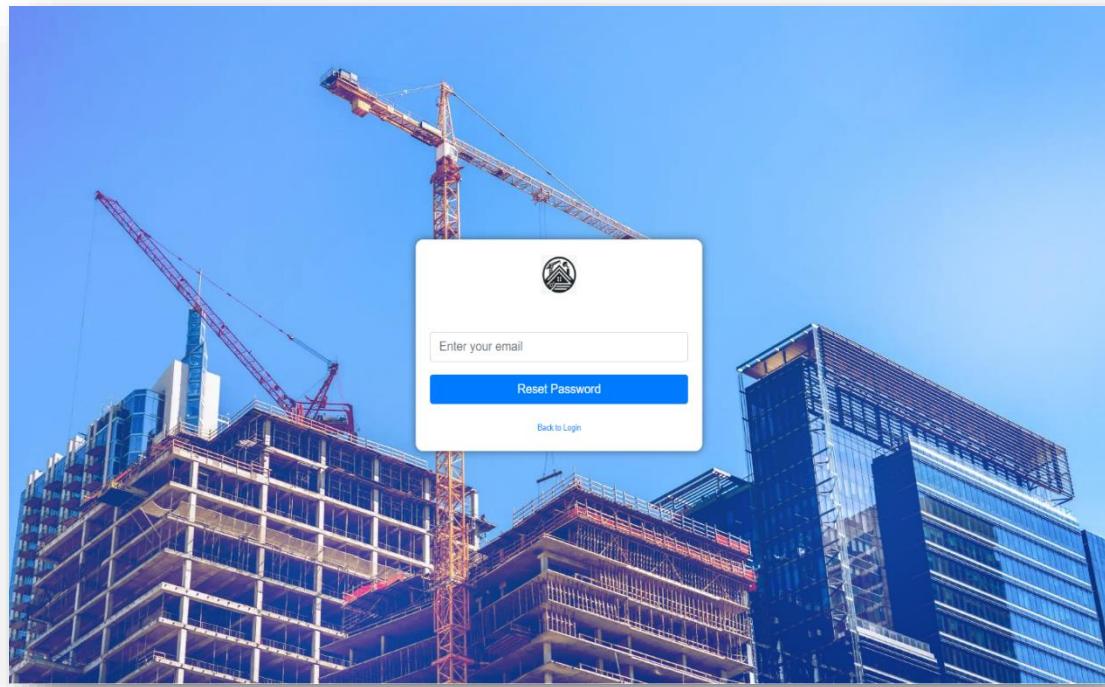
## 4.2 Interface Design

- **Interface 01**
- **Login Page**
- This is a login page for all users.



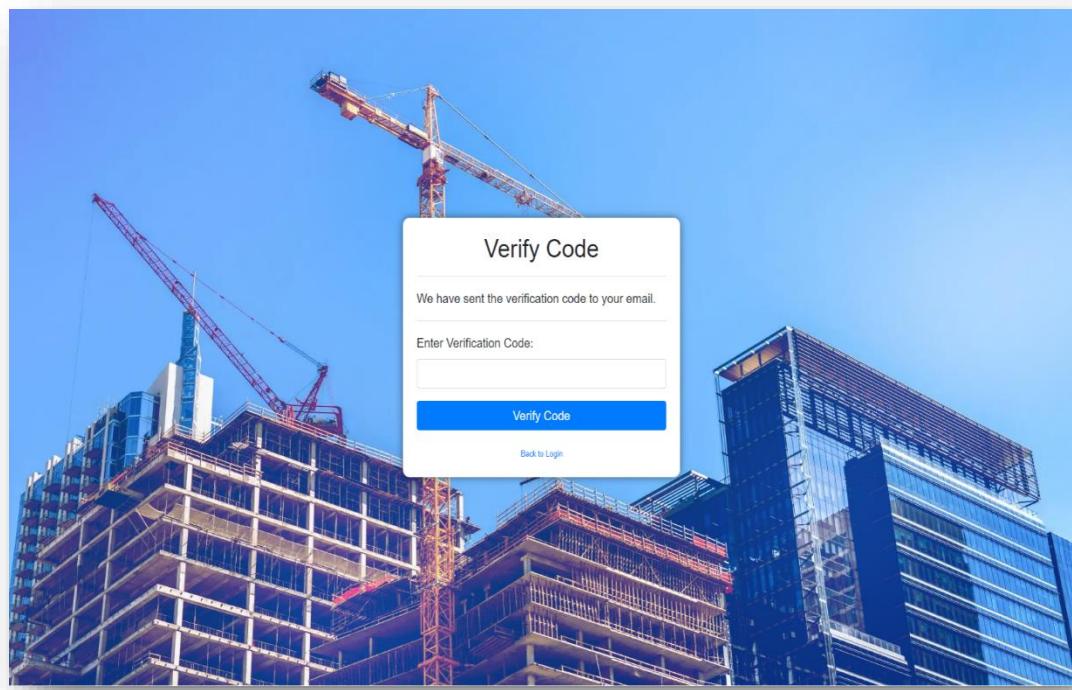
*Figure 33: Login page*

- **Interface 02**
- **Forgot Password Page**
- This is where all users get directed when they click forget password.



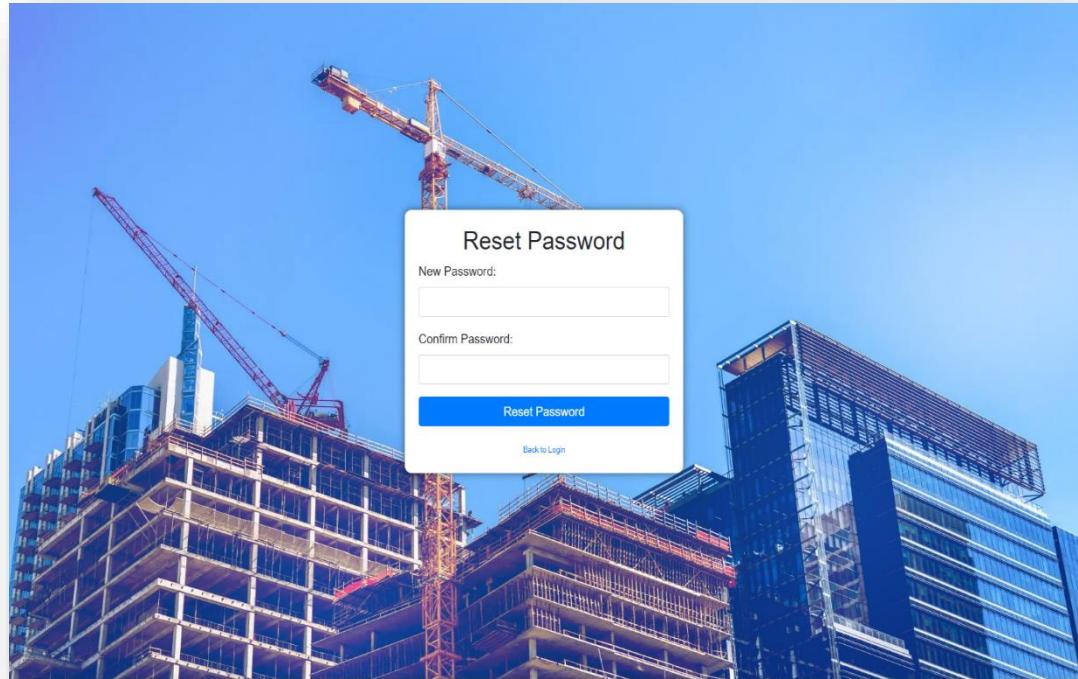
*Figure 34: Forgot Password Page*

- **Interface 03**
- **Verify code page**
- This is where users verify the code that was sent to the email given on the forgot password page.



*Figure 35: Verify code page*

- **Interface 04**
- **Reset password page.**
- This is where users reset their password by giving a new password.



*Figure 36: Reset password page*

- **Interface 05**
- **View project page.**
- This is where the project manager views their assigned project.

The screenshot shows a web-based project management application. At the top, there's a blue header bar with a logo, 'Home', 'Generate Report', 'My Request', and 'Log Out'. Below the header are four buttons: 'Update Plan', 'Request Employee', 'Request Material', and 'View Client Feedback'. The main content area has a title 'Skylineee'. Underneath it, there's a table of project details:

Description:	Test
Start Date:	2024-02-06
End Date:	2024-03-01
Client Name:	Naveen Shalitha
Project Manager:	p p
Status:	Ongoing

---

### Project Plan

**Project Name:** Skylineeeeeee

Description: This is a Skylineeeeeee Plan.

**1. Main Task: Main Task (Test 01) Updated**

Main Task (Test 01) - Description UPDATED [View Image](#)

#	Sub Task Name	Sub Task Description	Sub Task Status
1	Sub Task (Test 01) UPDATED	Sub Task (Test 01) - Description UPDATED	Completed
2	Sub Task (Main Task 01) Add New Sub Task	Sub Task (Main Task 01) Add New Sub Task - Description	Completed

Figure 37: View project page

- **Interface 06**
- **Submit and update the task plan page.**
- This is where the project manager submits and updates the task plan.

The screenshot shows a web application interface titled "Update Plan | Skylineeee". The header includes a logo, navigation links for "Home", "Generate Report", "My Request", and "Log Out". Below the header, the page title is "Skylineeeeeee" with a subtitle "This is a Skylineeeee Plan".

The main content area is divided into two sections:

- Section 1: Main Task (Test 01) Updated**
  - Description: Main Task (Test 01) - Description UPDATED
  - Upload Image button: "Upload a Image"

Sub Task Name	Sub Task Description	Sub Task Status	Action
Sub Task (Test 01) UPDATED	Sub Task (Test 01) - Description UPDATED	Completed	<button>Edit Status</button>
Sub Task (Main Task 01) Add New Sub Task	Sub Task (Main Task 01) Add New Sub Task - Description	Completed	<button>Edit Status</button>
- Section 2: Main Task (Test 02)**
  - Description: Main Task (Test 02) - Description
  - Upload Image button: "Upload a Image"

Sub Task Name	Sub Task Description	Sub Task Status	Action
Sub Task (Test 02)	Sub Task (Test 02) - Description	Not_Yet	<button>Edit Status</button>

Figure 38: Update task plan Page

- **Interface 07**
- **Request Employee page.**
- This is where the project manager requests for employees.

The screenshot shows a web application interface titled "Request Employee". At the top, there is a blue header bar with a user icon, the text "Home", "Generate Report", "My Request", and "Log Out". Below the header, the main content area has a title "Request Employee" with a back arrow icon. It contains two input fields: "Employee Type:" with a dropdown menu showing "- Select Type -" and "Quantity:" with an empty input field. A green "Request" button is located at the bottom left of the form area.

*Figure 39: Request Employee Page*

- **Interface 08**
- **Request material page.**
- This is where This is where the project manager requests materials.

The screenshot shows a web application interface titled "Request Material". At the top, there is a blue header bar with navigation links: "Home", "Generate Report", "My Request", and "Log Out". Below the header, the main content area has a title "Request Material" with a back arrow icon. It contains two input fields: "Material Name:" with a dropdown menu showing "- Select Material -" and "Quantity:" with an empty input field. A green button labeled "Request Material" is positioned below the input fields. The background of the page is white, and the overall layout is clean and modern.

*Figure 40: Request material page*

- **Interface 09**
- **View my requests page**
- This is where the project manager can view his requests.

The screenshot shows a web application interface titled "My Request". At the top, there is a blue header bar with icons for Home, Generate Report, and My Request, along with a Log Out link. Below the header, the main content area has a title "My Request" with a back arrow icon. There are two sections: "Employee Request" and "Material Request", each containing a table of requests.

**Employee Request**

ID	Request	Status
1	Requesting 2 Driver(s) for the project Skylineee	Approve
2	Requesting 50 Worker(s) for the project Skylineee	Decline

**Material Request**

ID	Request	Status
1	Requesting 2 Shovel(s) for the project Skylineee	Decline
2	Requesting 1 Wire (New Material)(s) for the project Skylineee	Pending
3	Requesting 150 Bricks(s) for the project Skylineee	Pending
4	Requesting 25 Test Other (New Material)(s) for the project Skylineee	Pending

Figure 41: View my requests page

- **Interface 10**
- **Home page of the resource manager.**
- This is where the resource manager can view material and employee summaries.

The screenshot shows the homepage of a Resource Manager application. At the top, there is a blue header bar with the following navigation items: Home, Manage Employee, Manage Material, Generate Report, View Request, and Log Out. Below the header, there are two main sections: 'Employee Summary' and 'Material Summary'.

**Employee Summary:**

All Employee		Available Employee		Allocated Employee	
• Worker -	7	• Worker -	4	• Worker -	3
• Site Engineer -	28	• Site Engineer -	28	• Site Engineer -	0
• Carpenter -	53	• Carpenter -	50	• Carpenter -	3
• Electrician -	55	• Electrician -	55	• Electrician -	0
• Plumber -	42	• Plumber -	42	• Plumber -	0
• Mason -	16	• Mason -	16	• Mason -	0

**Material Summary:**

All Materials	
• Shovel -	240 (nos)
• Cement -	1 (nos)
• Bricks -	6 (nos)
• Steel Bars -	94 (nos)
• Concrete Blocks -	54 (nos)
• Sand -	88 (nos)
• Gravel -	80 (nos)
• Wood Planks -	38 (nos)

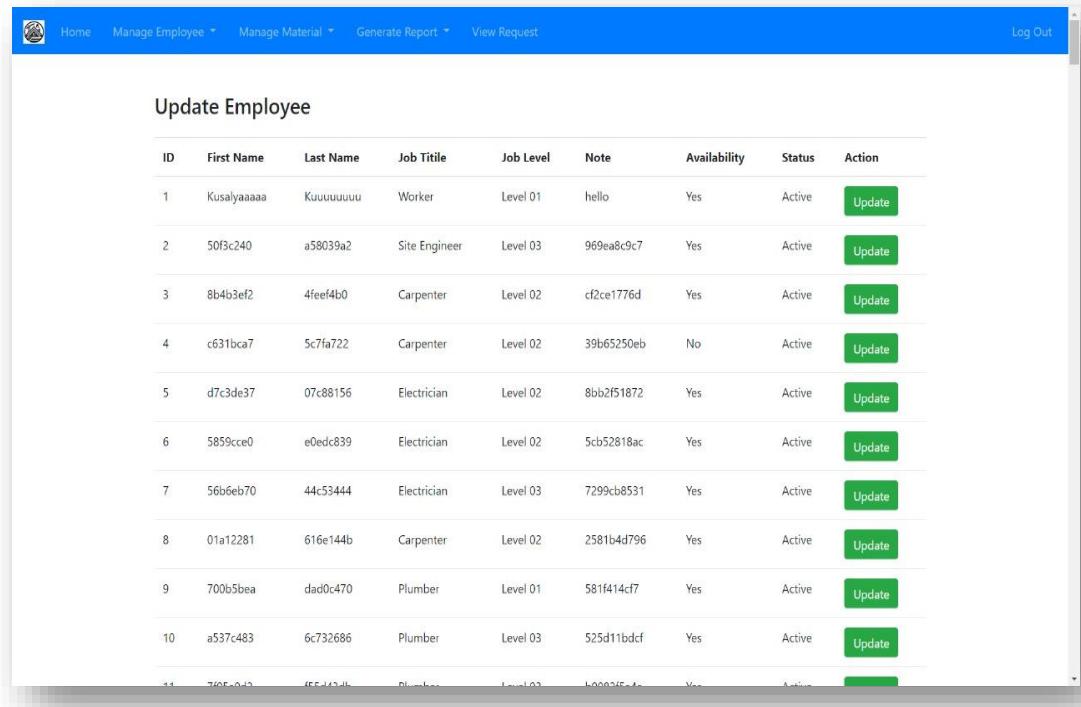
Figure 42: Resource manager home page

- **Interface 11**
- **Add employee page.**
- This is where the resource manager adds employees to the system.

The screenshot shows a web-based application interface for adding new employees. At the top, there's a blue header bar with the following navigation items: Home, Manage Employee, Manage Material, Generate Report, View Request, and Log Out. Below the header, the main content area has a title "Add New Employee". There are several input fields: "First Name" with a text input box; "Last Name" with a text input box; "Job Title" with a dropdown menu currently set to "- Select Role -"; "Employee Level" with a dropdown menu currently set to "Level 01"; and a "Note" field with a text input box. At the bottom of the form is a green rectangular button labeled "Add Employee".

Figure 43: Add employee page

- **Interface 12**
- **Update employee page.**
- This is where the resource manager updates employee data.



The screenshot shows a web-based application interface titled "Update Employee". At the top, there is a blue header bar with navigation links: "Home", "Manage Employee", "Manage Material", "Generate Report", "View Request", and "Log Out". Below the header, the main content area has a title "Update Employee" and a table displaying 11 rows of employee data. Each row contains the following columns: ID, First Name, Last Name, Job Title, Job Level, Note, Availability, Status, and Action. The "Action" column for each row contains a green "Update" button. The data in the table is as follows:

ID	First Name	Last Name	Job Title	Job Level	Note	Availability	Status	Action
1	Kusalyaaaa	Kuuuuuuuu	Worker	Level 01	hello	Yes	Active	<button>Update</button>
2	50f3c240	a58039a2	Site Engineer	Level 03	969ea8c9c7	Yes	Active	<button>Update</button>
3	8b4b3ef2	4fef4b0	Carpenter	Level 02	cf2ce1776d	Yes	Active	<button>Update</button>
4	c631bca7	5c7fa722	Carpenter	Level 02	39b65250eb	No	Active	<button>Update</button>
5	d7c3de37	07c88156	Electrician	Level 02	8bb2f51872	Yes	Active	<button>Update</button>
6	5859cce0	e0edc839	Electrician	Level 02	5cb52818ac	Yes	Active	<button>Update</button>
7	56b6eb70	44c53444	Electrician	Level 03	7299cb8531	Yes	Active	<button>Update</button>
8	01a12281	616e144b	Carpenter	Level 02	2581b4d796	Yes	Active	<button>Update</button>
9	700b5bea	dad0c470	Plumber	Level 01	581f414cf7	Yes	Active	<button>Update</button>
10	a557c483	6c732686	Plumber	Level 03	525d11bdcf	Yes	Active	<button>Update</button>
11	7405-0-12	f5f42-11-	Plumber	Level 02	b0002f5c4-	Yes	Active	<button>Update</button>

Figure 44: Update employee Page

- **Interface 13**
- **Add new material page.**
- This is where the resource manager adds new material to the system.

The screenshot shows a web-based application interface for adding new material. At the top, there is a blue header bar with a logo, navigation links for 'Home', 'Manage Employee', 'Manage Material', 'Generate Report', 'View Request', and 'Log Out'. Below the header, the main content area has a title 'Add New Material'. It contains four input fields: 'Name' (with an empty text input), 'Type' (with a dropdown menu showing '- Select Type -'), 'Quantity' (with an empty text input), and 'Unit' (with a dropdown menu showing '- Select Unit -'). At the bottom left of the form is a green button labeled 'Add Material'.

*Figure 45: Add new material Page*

- **Interface 14**
- **Update material page.**
- This is where the resource manager updates materials.

The screenshot displays two views of a web application's interface for managing materials. The top view shows a table titled 'Update Material' with columns: ID, Name, Type, Quantity, Unit, and Action (containing 'Update' buttons). The bottom view shows a modal window titled 'Edit Material' with fields for Name (Shovel), Type (Special), Quantity (240), and Unit (nos), along with an 'Update Material' button. Both views include a header with navigation links like Home, Manage Employee, Manage Material, Generate Report, View Request, and Log Out.

ID	Name	Type	Quantity	Unit	Action
1	Shovel	special	240	nos	<button>Update</button>
2	Cement	normal	1	nos	<button>Update</button>
3	Bricks	normal	6	nos	<button>Update</button>
4	Steel Bars	normal	94	nos	<button>Update</button>
5	Concrete Blocks	normal	54	nos	<button>Update</button>
6	Sand	normal	88	nos	<button>Update</button>
7	Gravel	normal	80	nos	<button>Update</button>
8	Wood Planks	normal	38	nos	<button>Update</button>
9	Paint	normal	47	nos	<button>Update</button>
10	Roofing Shingles	normal	24	nos	<button>Update</button>
11	Tiles	normal	77	nos	<button>Update</button>

**Edit Material**

Name:

Type:

Quantity:

Unit:

**Update Material**

Figure 46: Update material Page

- **Interface 15**
- **View requests from the senior project manager page.**
- This is where the resource manager can view requests from the senior project manager.

The screenshot shows a web application interface titled "View Request from Senior Project Manager". The top navigation bar includes links for Home, Manage Employee, Manage Material, Generate Report, View Request, and Log Out. The main content area is divided into two sections: "Employee Request" and "Material Request", each containing a table with columns for ID, Request, Request By, Status, and Action.

ID	Request	Request By	Status	Action
1	Requesting 96 Driver (s)	Requested by Diniti Maleesha	Decline	<button>Approve/Decline</button>
2	Requesting 69 Worker (s)	Requested by Amshiieee Costa	Approve	<button>Approve/Decline</button>
3	Requesting 5 Driver (s)	Requested by Amshiieee Costa	Pending	<button>Approve/Decline</button>
4	Requesting 99 Worker (s)	Requested by Amshiieee Costa	Pending	<button>Approve/Decline</button>

ID	Request	Request By	Status	Action
1	We need 11 Shovel (s)	Requested by Amshiieee Costa	Approve	<button>Approve/Decline</button>
2	We need 1 Wire Roll (s) (New Material)	Requested by Amshiieee Costa	Pending	<button>Approve/Decline</button>
3	We need 69 Concrete Blocks (s)	Requested by Amshiieee Costa	Approve	<button>Approve/Decline</button>

Figure 47: View request from the SPM Page

- **Interface 16**
- **Home page of senior project manager.**
- This is where the senior project manager views projects.

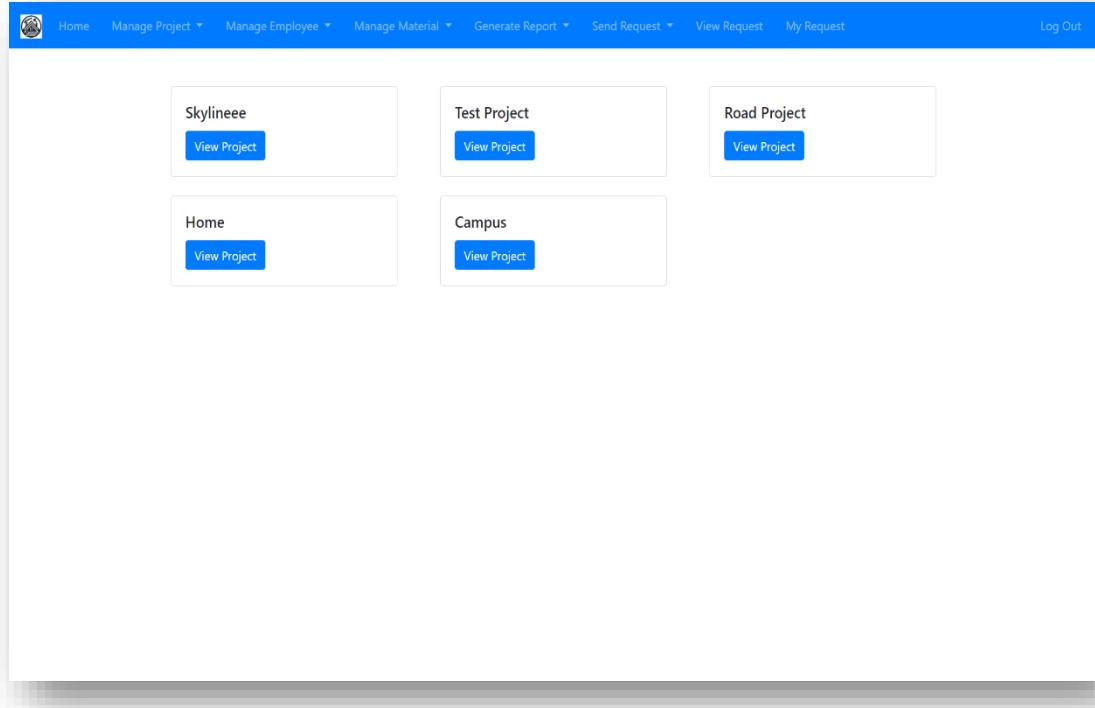


Figure 48: SPM home page

- **Interface 17**
- **Create new project page.**
- This is where the senior project manager creates new projects.

Project Name:

Project Description:

Start Date:

End Date:

Project Manager:

**Client Details**

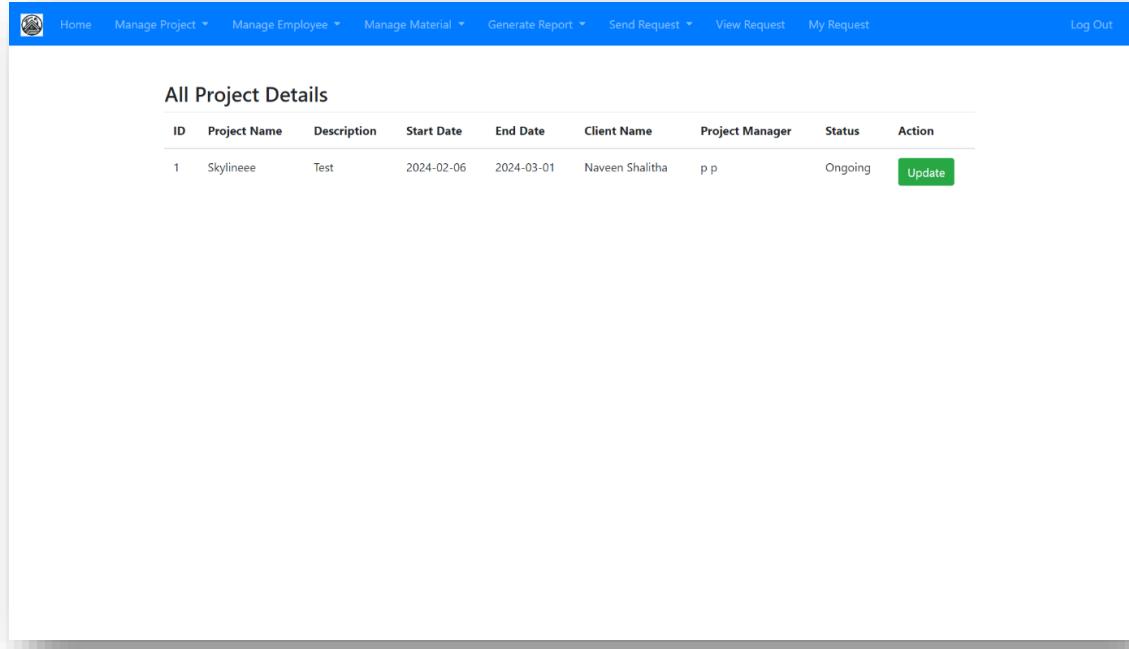
Client First Name:

Client Last Name:

Email:

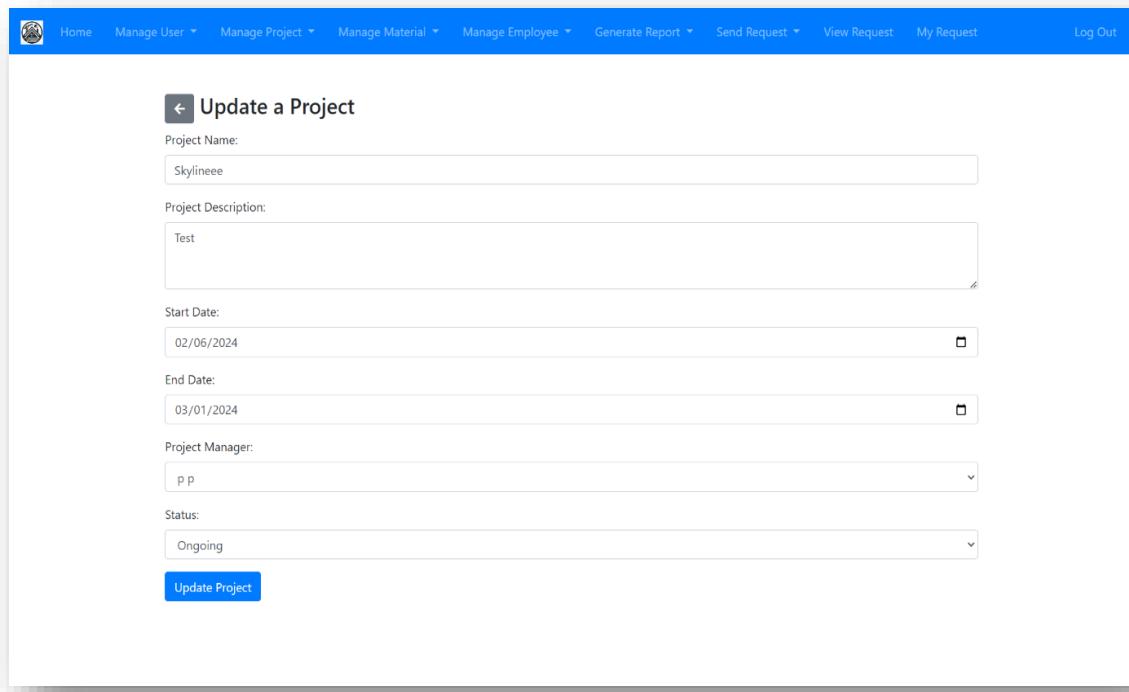
*Figure 49: Create new projects page*

- **Interface 18**
- **Update projects page.**
- This is where the senior project manager updates the projects.



The screenshot shows a table titled "All Project Details" with one row of data. The columns are: ID, Project Name, Description, Start Date, End Date, Client Name, Project Manager, Status, and Action. The data row is:

ID	Project Name	Description	Start Date	End Date	Client Name	Project Manager	Status	Action
1	Skylineee	Test	2024-02-06	2024-03-01	Naveen Shalitha	P P	Ongoing	<button>Update</button>



The screenshot shows a form titled "Update a Project". The fields are:

- Project Name: Skylineee
- Project Description: Test
- Start Date: 02/06/2024
- End Date: 03/01/2024
- Project Manager: P P
- Status: Ongoing

At the bottom is a blue button labeled "Update Project".

Figure 50: Update projects Page

- **Interface 19**
- **Allocate employee page.**
- This is where the senior project manager allocates employees to the projects.

The screenshot shows a web-based application interface titled "Allocate Employee". At the top, there is a blue header bar with various navigation links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the header, the main content area has a title "Allocate Employee" with a back arrow icon. It contains two input fields: "Employee Type:" with a dropdown menu showing "- Select Type -" and "Quantity:" with an empty input field. A green "Add" button is located below the quantity field. The background of the main content area has a subtle gradient effect.

Figure 51: Allocate employee Page

- **Interface 20**
- **View employee page.**
- This is where the senior project manager views employees in projects.

The screenshot shows a web application interface for managing employees. At the top, there is a navigation bar with links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the navigation bar, the title 'View Employee | Skylineee' is displayed with a back arrow icon.

Under the title, there is a section titled 'Employee Count Table' with two rows:

Job Title	Quantity
Worker	3
Carpenter	3

Below this, there is a section titled 'All Employee Details' with a search bar labeled 'Search by Name:' and a placeholder 'Enter employee name'. There are also 'Search' and 'Reset' buttons.

A table lists all employees with columns: ID, Name, Job Title, Allocated Date, and Action. The data is as follows:

ID	Name	Job Title	Allocated Date	Action
3	900e887b 85fb0225	Worker	2024-02-07	<button>Deallocate</button>
4	387fe3db 45f2ab2f	Worker	2024-02-07	<button>Deallocate</button>
5	1e9715cc f58d34ad	Worker	2024-02-07	<button>Deallocate</button>
6	f8f7e35a e80a1722	Carpenter	2024-02-09	<button>Deallocate</button>

Figure 52: Employee in Project Page

- **Interface 21**
- **Add material page.**
- This is where the senior project manager adds materials to projects.

The screenshot shows a web-based application interface titled "Add Material". At the top, there is a blue header bar with various navigation links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the header, the main content area has a title "Add Material" with a back arrow icon. It contains three input fields: "Material Name:" with a dropdown menu showing "- Select Material -", "Quantity:" with an empty text input field, and "Note:" with an empty text input field. A green "Add Material" button is located at the bottom left of the form area.

Figure 53: Allocate material page

- **Interface 22**
- **View material Page**
- This is where the senior project manager views materials in projects.

The screenshot shows a web-based application interface titled "View Material | Skylineee". At the top, there is a blue header bar with various navigation links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the header, the main content area has a title "View Material | Skylineee" with a back arrow icon. The main content is a table showing a single row of material information:

ID	Name	Quantity	Unit	Latest Allocation Date	Description	Action
2	Cement	10	nos	2024-02-07	Added	<button>X Deallocate</button>

Figure 54: View material in project page

- **Interface 23**
- **View requests from project manager page**
- This is where the senior project manager views requests from the PM.

The screenshot shows a web application interface for managing requests. At the top, there is a navigation bar with links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the navigation bar, the main content area has a title 'View Request from Project Manager'. Under this title, there are two sections: 'Employee Request' and 'Material Request'. Both sections have tables with columns: ID, Request, Request By, Status, and Action (a yellow 'Approve/Decline' button). In the 'Employee Request' section, there are two entries: Requesting 2 Driver(s) for the project Skylineee (Requested by p p, Status: Approve) and Requesting 50 Worker(s) for the project Skylineee (Requested by p p, Status: Decline). In the 'Material Request' section, there are four entries: Requesting 2 Shovel for the project Skylineee (Requested by p p, Status: Decline), Requesting 1 Wire(s) (New Material) for the project Skylineee (Requested by p p, Status: Pending), Requesting 150 Bricks for the project Skylineee (Requested by p p, Status: Pending), and Requesting 25 Test Other(s) (New Material) for the project Skylineee (Requested by p p, Status: Pending).

This screenshot shows a modal dialog box titled 'Approve/Decline Request'. Inside the dialog, there is a message: 'Requesting 2 Driver(s) for the project Skylineee' and 'Requested by p p'. Below this, there is a dropdown menu labeled 'Select Status:' with options 'Approve' and 'Decline'. At the bottom of the dialog are two buttons: 'Close' and 'OK'. The background of the page shows the same 'View Request from Project Manager' interface as the previous screenshot, with the 'Employee Request' section partially visible.

*Figure 55: View requests from project manager Page*

- **Interface 24**
- **View project page**
- This is where the senior project manager views the project information.

The screenshot shows a web-based project management application. At the top, there's a blue header bar with various navigation links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the header, there's a row of buttons: + Add Plan, + Allocate Material, + Allocate Employee, View Plan, View Material, View Employee, and View Client FeedBack. The main content area has a title "Skylineee" followed by a table of project details:

Description:	Test
Start Date:	2024-02-06
End Date:	2024-03-01
Client Name:	Naveen Shalitha
Project Manager:	p p
Status:	Ongoing

Below this is a section titled "Project Plan" with a sub-section for "Main Task". It shows a single task entry:

**1. Main Task: Main Task (Test 01) Updated**  
 Main Task (Test 01) - Description UPDATED View Image

Below this is a table of sub-tasks:

#	Sub Task Name	Sub Task Description	Sub Task Status
1	Sub Task (Test 01) UPDATED	Sub Task (Test 01) - Description UPDATED	Completed
2	Sub Task (Main Task 01) Add New Sub Task	Sub Task (Main Task 01) Add New Sub Task - Description	Completed

Figure 56: Project page

- **Interface 25**
- **Add task page**
- This is where the senior project manager adds tasks to the project.

The screenshot shows the 'Add Task | Skylineee' page. At the top, there's a navigation bar with links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the navigation is a title bar with a back arrow and the page title. There are two input fields: 'Main Task:' with placeholder 'Enter Main Task' and 'Sub Task:' with placeholder 'Enter Sub Task'. To the right of these are two buttons: 'Add Sub Task' (blue) and 'Remove Added Sub Task' (red). Below the input fields is a large text area containing the word 'Skylineeeeeee' followed by the subtext 'This is a Skylineeeeeee Plan'. Underneath this is a section titled '1. Main Task: Main Task (Test 01) Updated' with a bullet point 'Main Task (Test 01) - Description UPDATED'. A table follows, with columns 'Sub Task Name', 'Sub Task Description', and 'Sub Task Status'. It contains two rows: 'Sub Task (Test 01) UPDATED' with 'Sub Task (Test 01) - Description UPDATED' and 'Completed', and 'Sub Task (Main Task 01) Add New Sub Task' with 'Sub Task (Main Task 01) Add New Sub Task - Description' and 'Completed'. At the bottom is another section titled '2. Main Task: Main Task (Test 02)' with a bullet point 'Main Task (Test 02) - Description'.

Sub Task Name	Sub Task Description	Sub Task Status
Sub Task (Test 01) UPDATED	Sub Task (Test 01) - Description UPDATED	Completed
Sub Task (Main Task 01) Add New Sub Task	Sub Task (Main Task 01) Add New Sub Task - Description	Completed

*Figure 57: Add tasks Page*

- **Interface 26**
- **View project plan**
- This is where the senior project manager views the project plan.

The screenshot shows a project management interface titled "View Plan | Skylineeee". The main title is "Skylineeeeeee" with a subtitle "This is a Skylineeeee Plan". There are two main sections of tasks:

### 1. Main Task: Main Task (Test 01) Updated

Main Task (Test 01) - Description UPDATED

Sub Task Name	Sub Task Description	Sub Task Status	Action
Sub Task (Test 01) UPDATED	Sub Task (Test 01) - Description UPDATED	Completed	<button>Edit Subtask</button>
Sub Task (Main Task 01) Add New Sub Task	Sub Task (Main Task 01) Add New Sub Task - Description	Completed	<button>Edit Subtask</button>

[Add New Sub Task](#)

### 2. Main Task: Main Task (Test 02)

Main Task (Test 02) - Description

Sub Task Name	Sub Task Description	Sub Task Status	Action
Sub Task (Test 02)	Sub Task (Test 02) - Description	Not_Yet	<button>Edit Subtask</button>

Figure 58: Project Plan Page

- **Interface 27**
- **Client feedback**
- This is where the senior project manager client feedback.

The screenshot shows a project management application with a dark-themed header bar at the top. The header includes links for 'Home', 'Manage Project', 'Manage Employee', 'My Request', 'Logout', and a search bar. Below the header, there are two blue buttons: '+ Add Plan' and '+ Allocate Material'. The main content area displays a project named 'Skylineeee'. The project details are as follows:

Description:	Test
Start Date:	2024-02-06
End Date:	2024-03-01
Client Name:	Naveen Shalitha
Project Manager:	p p
Status:	Ongoing

Below the project details, there is a section titled 'Project Plan' with the following information:

**Project Name:** Skylineeeee  
**Description:** This is a Skylineeeee Plan

**1. Main Task: Main Task (Test 01) Updated**

Main Task (Test 01) - Description UPDATED [View Image](#)

#	Sub Task Name	Sub Task Description	Sub Task Status
1	Sub Task (Test 01) UPDATED	Sub Task (Test 01) - Description UPDATED	Completed
2	Sub Task (Main Task 01) Add New Sub Task	Sub Task (Main Task 01) Add New Sub Task - Description	Completed

Figure 59: Client Feedback Page

- **Interface 28**
- **Request Employees**
- This is where the senior project manager requests employees from RM.

The screenshot shows a web application interface for requesting employees. At the top, there is a blue header bar with a logo and navigation links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the header, the main content area has a title 'Send Employee Request to Resource Manager' with a back arrow icon. It contains two input fields: 'Employee Type:' with a dropdown menu showing '- Select Type -' and 'Quantity:' with a text input field. A green 'Request' button is located at the bottom left of the form area.

Figure 60: Request employee page

- **Interface 29**
- **Request materials**
- This is where the senior project manager requests materials from RM.

The screenshot shows a web application interface for requesting materials. At the top, there is a blue header bar with a logo and navigation links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. Below the header, the main content area has a title 'Send Material Request to Resource Manager' with a back arrow icon. It contains two input fields: 'Material Name:' with a dropdown menu showing '- Select Material -' and 'Quantity:' with an empty input field. A green button labeled 'Request Material' is positioned below these fields. The background of the page is white, and there is a large gray shadow effect at the bottom.

Figure 61: Request materials Page

- **Interface 30**
- **View my requests**
- This is where the senior project manager requests his requests.

The screenshot shows a web application interface titled "My Request". At the top, there is a navigation bar with links: Home, Manage Project, Manage Employee, Manage Material, Generate Report, Send Request, View Request, My Request, and Log Out. The "My Request" link is highlighted.

**Employee Request**

ID	Request	Status
1	Requesting more 69 Worker(s)	Approve
2	Requesting more 5 Driver(s)	Pending
3	Requesting more 99 Worker(s)	Pending

**Material Request**

ID	Request	Status
1	Requesting more 69 Concrete Blocks(s)	Approve
2	Requesting more 1 Wire Roll (New Material)(s)	Pending
3	Requesting more 11 Shovel(s)	Approve

Figure 62: View my Requests Page

- **Interface 31**
- **Add new user**
- This is where the general manager adds users to the system.

The screenshot shows a web-based application interface for managing users. At the top, there's a blue header bar with various navigation links: Home, Manage User, Manage Project, Manage Material, Manage Employee, Generate Report, Send Request, View Request, My Request, and Log Out. Below the header, the main content area has a title "Add New User". It contains several input fields: "First Name" (text input), "Last Name" (text input), "Email" (text input), "Password" (text input), "Confirm Password" (text input), "Phone Number" (text input), and a "Role" dropdown menu with the placeholder "- Select Role -". At the bottom of the form is a green rectangular button labeled "Add User".

Figure 63: Add new user Page

- **Interface 32**
- **Update user**
- This is where the general manager updates users.

The screenshot shows a table titled "Update User" with the following data:

ID	First Name	Last Name	Email	Phone Number	User Type	Company	Status	Action
5	Amshiieee	Costa	s	076000000	Senior Project Manager	In-company	Active	<button>Update</button>
6	p	p	p		Project Manager	no	Active	<button>Update</button>
9	Naveen	Shalitha	c		Client	Naveen pvt	Active	<button>Update</button>
10	rrr	r	r	0789456222	Resource Manager	In-company	Active	<button>Update</button>
11	Amshi	Shalitha	q	0756721456	Client	No	Active	<button>Update</button>
13	test project manager	test project manager	officialyakaproduction@gmail.com	0758989899	Project Manager	in	Active	<button>Update</button>

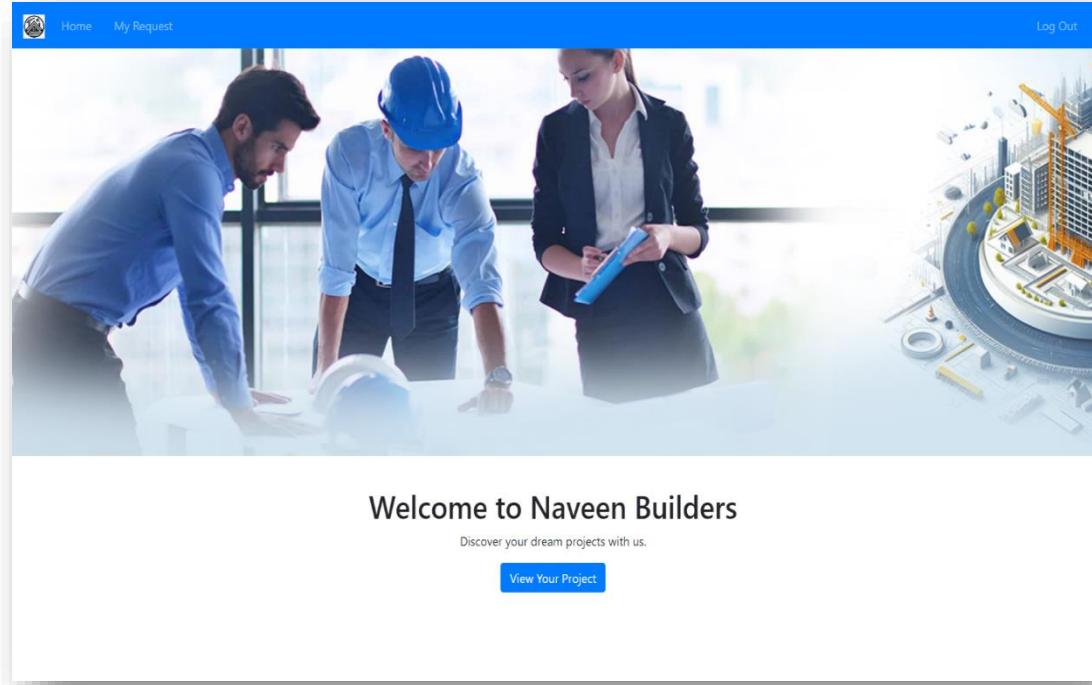
The screenshot shows an "Edit User" modal dialog with the following fields:

- First Name: Amshiieee
- Last Name: Costa
- Email: s
- Phone Number: 076000000
- Role: Senior Project Manager
- Company: In-company
- Status: Active

At the bottom of the modal is a blue "Update User" button.

Figure 64: Update user Page

- **Interface 33**
- **Client home page**
- This is the client's home page.



*Figure 65: Client Home Page*

- **Interface 33**
- **View project details**
- This is where the client views project details.

The screenshot displays a web-based application interface for viewing project details. At the top, there is a blue header bar with a user icon, 'Home', 'My Request', and 'Log Out' buttons. Below the header, there are two buttons: 'View Plan' and 'Send Feedback'. The main content area has a title 'Skylineee'. Underneath the title, there is a table of project details:

Description:	Test
Start Date:	2024-02-06
End Date:	2024-03-01
Client Name:	Naveen Shalitha
Project Manager:	p p
Status:	Ongoing

Below the project details, there is a section titled 'Currently Allocated Employees' which lists 'Worker - 3 employee(s)' and 'Carpenter - 3 employee(s)'. At the bottom, there is a section titled 'Currently Allocated Materials' which lists 'Cement - 10 nos'.

Figure 66: View project details Page

- **Interface 34**
- **Project plan**
- This is where the client views the project plan.

The screenshot shows a web-based project management interface. At the top, there's a blue header bar with a user icon, 'Home', 'My Request', and 'Log Out' buttons. Below the header, the title 'Project Plan' is displayed with a back arrow. The page lists three main tasks:

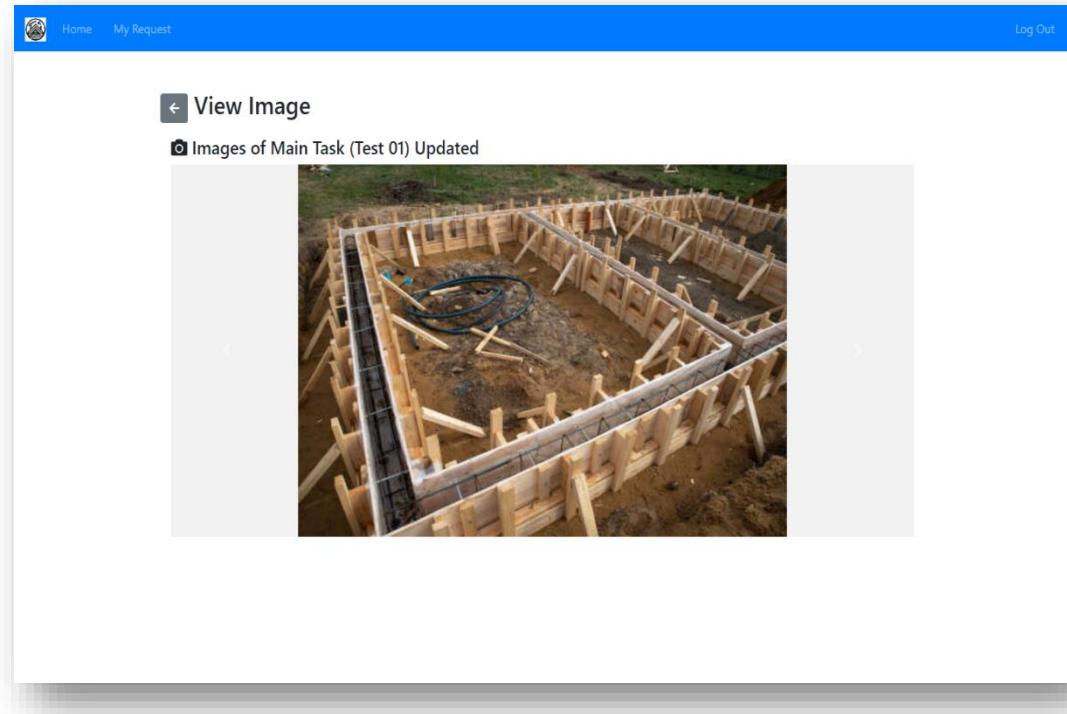
- 1. Main Task: Main Task (Test 01) Updated**  
Main Task (Test 01) - Description UPDATED  
[View Image](#)
- 2. Main Task: Main Task (Test 02)**  
Main Task (Test 02) - Description  
[View Image](#)
- 3. Main Task: Main Task (Test 03)**  
[View Image](#)

Each main task has a corresponding table showing its sub-tasks and descriptions. The first two main tasks have completed sub-tasks, while the third one has an unstarted sub-task.

#	Sub Task Name	Sub Task Description	Sub Task Status
1	Sub Task (Test 01) UPDATED	Sub Task (Test 01) - Description UPDATED	Completed
2	Sub Task (Main Task 01) Add New Sub Task	Sub Task (Main Task 01) Add New Sub Task - Description	Completed
1	Sub Task (Test 02)	Sub Task (Test 02) - Description	Not Yet

Figure 67: Project Plan Page

- **Interface 35**
- **Check progress**
- This is where the client checks the project's progress.



*Figure 68: Check progress Page*

- **Interface 36**
- **Send feedback**
- This is where the client send feedbacks.

The screenshot shows a web-based application interface. At the top, there's a navigation bar with icons for Home and My Request, and links for View Plan and Send Feedback. A 'Log Out' button is also visible. Below the navigation, the page title is 'Skylineee'. It displays project details: Description: Test, Start Date: 2024-02-06, End Date: 2024-03-01, Client Name: Naveen Shalitha, Project Manager: P P, and Status: Ongoing. To the right, a modal window titled 'Send Feedback' is open, containing a text area labeled 'Feedback Message:' and a blue 'Submit Feedback' button. Below the project details, there are two sections: 'Currently Allocated Employees' (listing Worker and Carpenter roles) and 'Currently Allocated Materials' (listing Cement). The background of the main content area is dark grey.

*Figure 69: Feedback Page*

- **Interface 37**
- **Generate project report**
- This is where SPM and GM generate project report.

The screenshot shows a web application interface titled "Project Report". At the top, there is a navigation bar with links: Home, Manage User, Manage Project, Manage Material, Manage Employee, Generate Report, Send Request, View Request, My Request, and Log Out. Below the navigation bar, a dropdown menu is open under the "Select Project" label, showing the option "Skylineee". The main content area displays information for a project named "Naveen Builders", including its contact details: info@naveenbuilders.com, 123 Main Street, Cityville, and the phone number (123) 456-7890. Below this, a section titled "Project Report | Skylineee" lists various project details:

- Project ID: 1
- Project Name: Skylineee
- Description: Test
- Start Date: 2024-02-06
- End Date: 2024-03-01
- Project Status: Ongoing
- Client: Naveen Shalitha
- Project Manager: p p
- Plan ID: 5

Figure 70: Generate project report Page

- **Interface 38**
- **Generate employee availability report**
- This is where RM, SPM, and GM generate employee availability reports.

**Employee Availability Report**

**Naveen Builders**  
info@naveenbuilders.com  
123 Main Street, Cityville  
(123) 456-7890

Employee ID	First Name	Last Name	Job Title	Employee Level	Employee Status	Employee Availability	Employee Note
1	Kunalaaaa	Kuxxxxxuu	Worker	Level 01	Active	Yes	hello
2	50f3c240	a50f39e2	Site Engineer	Level 03	Active	Yes	969ea8c9c7
3	8ab3ef2	#feef40	Carpenter	Level 02	Active	Yes	c12ef776d
5	d7c3de37	07e89156	Electrician	Level 02	Active	Yes	8ab251872
6	589cc001	e0ed0339	Electrician	Level 02	Active	Yes	5db52818ac
7	5696eb70	44c53444	Electrician	Level 03	Active	Yes	7299cb5531
8	01a12281	616a144b	Carpenter	Level 02	Active	Yes	250fb4d796
9	70969aea	def5e470	Plumber	Level 01	Active	Yes	5b1141a7f
...	...	...	...	...	...	...	...

**Generate**

Figure 71: Generate employee availability report Page

- **Interface 39**
- **Generate project plan report**
- This is where PM generate project plan report.

The screenshot shows a web application interface for generating a project plan report. At the top, there is a blue header bar with navigation links: 'Home', 'Generate Report', 'My Request', and 'Log Out'. Below the header, the main content area has a title 'Project Plan Report' with a back arrow icon. A 'Select Project' dropdown menu is open, showing 'Skyline - Colombo' as the selected option. Underneath the dropdown, there is a company profile for 'Naveen Builders' featuring a circular logo with a stylized building icon, the company name, email address (info@naveenbuilders.com), address (123 Main Street, Cityville), and phone number ((123) 456-7890). The main body of the page is titled 'Project Plan Report | Skyline - Colombo'. It displays various project details:

- Project ID:** 1
- Project Name:** Skyline - Colombo
- Description:** Modern and sustainable urban development in Colombo, integrating residential and commercial spaces for a vibrant cityscape.
- Start Date:** 2024-02-06
- End Date:** 2024-03-01
- Project Status:** Ongoing
- Client:** Naveen Shalitha
- Project Manager:** Amal Perera
- Plan ID:** 5

*Figure 72: Generate project plan report Page*

- **Interface 40**
- **Generate employee reports project-wise**
- This is where RM, SPM, and GM generate employee reports project-wise.

The screenshot shows a web-based application interface for generating employee reports. At the top, there is a navigation bar with links: Home, Manage User, Manage Project, Manage Material, Manage Employee, Generate Report, Send Request, View Request, My Request, and Log Out. Below the navigation bar, the title "Employee Report - Project Wise" is displayed, followed by a back arrow icon.

A dropdown menu labeled "Select Project:" contains the option "Skylineee".

Below the dropdown, there is a section for the project "Naveen Builders" with contact information: info@naveenbuilders.com, 123 Main Street, Cityville, and the phone number (123) 456-7890. There is also a small logo of a building.

The main content area is titled "Employee Report | Skylineee" and displays a table of employee assignments. The table has columns: Employee ID, Employee Name, Job Title, Project Name, Allocation Start Date, and Allocation End Date.

Employee ID	Employee Name	Job Title	Project Name	Allocation Start Date	Allocation End Date
1	Kutalyaaaaa Kuuuuuuuu	Worker	Skylineee	2024-02-07	2024-02-09
179	3c1df4cfb4000056	Worker	Skylineee	2024-02-07	2024-02-09
173	900e887b 85fb0225	Worker	Skylineee	2024-02-07	Still Working
13	387fe3db-492e42f	Worker	Skylineee	2024-02-07	Still Working
53	1e9715cc f58d14ad	Worker	Skylineee	2024-02-07	Still Working
75	f87ec3a e0ca1722	Carpenter	Skylineee	2024-02-09	Still Working
23	8784279d 05c7a75	Carpenter	Skylineee	2024-02-09	Still Working
4	c5310ca7 5c7a722	Carpenter	Skylineee	2024-02-09	Still Working

At the bottom left of the table area, there is a blue "Generate" button.

*Figure 73: Generate employee reports project-wise*

- **Interface 41**
- **Generate material report**
- This is where RM, SPM, and GM generate material reports.

The screenshot shows a web application interface for generating material reports. At the top, there is a navigation bar with links: Home, Manage User, Manage Project, Manage Material, Manage Employee, Generate Report, Send Request, View Request, My Request, and Log Out. Below the navigation bar, the title "Material Inventory Report" is displayed with a back arrow icon. To the left of the main content area is the company logo, which is a circular emblem featuring a stylized building or mountain design. The company name "Naveen Builders" is printed next to the logo, along with their contact information: info@naveenbuilders.com, 123 Main Street, Cityville, and the phone number (123) 456-7890. The main content area contains a table titled "Material ID" with eight rows of data. The columns are labeled: Material ID, Material Name, Material Type, Material Quantity, and Material Unit. The data is as follows:

Material ID	Material Name	Material Type	Material Quantity	Material Unit
1	Shovel	special	240	nos
2	Cement	normal	1	nos
3	Bricks	normal	6	nos
4	Steel Bars	normal	94	nos
5	Concrete Blocks	normal	54	nos
6	Sand	normal	88	nos
7	Gravel	normal	80	nos
8	Wood Planks	normal	38	nos

At the bottom left of the table area is a blue "Generate" button.

*Figure 74: Generate material report Page*

- **Interface 42**
- **Generate material reports project-wise**
- This is where RM, SPM, and GM generate material reports project-wise.

Material Report - Project Wise

Select Project:

Skylineee

**Naveen Builders**  
info@naveenbuilders.com  
123 Main Street, Cityville  
(123) 456-7890

Material ID	Material Name	Material Type	Material Quantity	Material Unit
2	Cement	normal	10	nos

Generate

Figure 75: Generate material report-project-wise Page

### 4.3 Database Design

#### User

Primary Key: user\_id

Field Names	Data type	Data Size	Description
user_id	Number	5	User's Id
user_name	Text	50	User's Email
user_password	Text	8	User's password
confirm_password	Text	8	Re-entered User's password
fname	Text	30	User First Name
lname	Text	30	User Last Name
user_type	Text	20	User's Type
status	Text	10	User's Status
company	Text	100	Client's Company
Record Size	261		

Table 1: User Table

#### Project

Primary Key: project\_id

Foreign Key: client\_id, pm\_id, plan\_id

Field Names	Data type	Data Size	Description
project_id	Number	5	Project Id
project_name	Text	50	Project Name
description	Text	300	Project Description
project_start_date	Date	10	Project Starting Date
project_end_date	Date	10	Project End Date
project_status	Text	30	Project Status
client_id	Number	5	Client's Id
pm_id	Number	5	Project Manager's Id
plan_id	Number	5	Project Plan Id
Record Size	420		

Table 2: Project Table

## **Employee**

Primary Keys: employee\_id

Field Names	Data type	Data Size	Description
employee_id	Number	5	Employee Id
emp_fname	Text	30	Employee First Name
emp_lname	Text	30	Employee Last Name
job_title	Text	30	Employee Job Title
emp_level	Text	10	Employee Job Level
emp_status	Text	10	Employee Status
emp_availability	Text	10	Employee Availability
emp_note	Text	100	Employee Special Note
Record Size	225		

*Table 3: Employee Table*

## **Employee\_Allocation**

Primary Key: project\_id, employee\_id

Foreign Key: project\_id, employee\_id

Field Names	Data type	Data Size	Description
project_id	Number	5	Project Id
employee_id	Number	5	Employee Id
emp_allocation_start_date	Date	10	The start date for assigning employees to the project.
Emp_allocation_end_date	Date	10	The end date for assigning employees to the project.
Record Size	30		

*Table 4: Employee\_Allocation Table*

## **Employee\_Request**

Primary Keys: emp\_req\_id

Foreign Keys: user\_id, project\_id

Field Names	Data type	Data Size	Description
emp_req_id	Number	5	Employee Request Id
employee_role	Text	10	Role of Employee
emp_count	Number	5	Employee Count
user_request_status	Text	30	User Request Status
emp_request_status	Text	30	Employee Request Status
user_id	Number	5	User's Id
project_id	Number	5	Project Id
Record Size	90		

*Table 5: Employee\_Request Table*

## **Material**

Primary Key: mat\_id

Field Names	Data type	Data Size	Description
mat_id	Number	5	Material Id
mat_name	Text	50	Material Name
mat_type	Text	30	Type of Material
mat_quantity	Number	5	Material Quantity
mat_unit	Text	10	Unit of Material
Record Size	100		

*Table 6: Material Table*

## **Material\_Allocation**

Primary key: allocation\_id

Field Names	Data type	Data Size	Description
allocation_id	Number	5	Material Allocation Id
allocation_description	Text	30	Material Allocation Description
Record Size	35		

*Table 7: Material\_Allocation Table*

## **Project\_Material\_Allocation**

Primary Keys: project\_id, mat\_id, allocation\_id

Foreign Keys: project\_id, mat\_id, allocation\_id

Field Names	Data type	Data Size	Description
project_id	Number	5	Project Id
mat_id	Number	5	Material Id
allocation_id	Number	5	Material Allocation Id
material_allocation_quantity	Number	5	Material Allocation Quantity
allocation_date	Date	10	Allocation Date
allocation_status1	Text	30	Allocation Status
Record Size	60		

*Table 8: Project\_Material\_Allocation Table*

## **Material\_Updation**

Primary Key: mat\_updation\_id

Foreign Key: mat\_id, user\_id

Field Names	Data type	Data Size	Description
mat_updation_id	Number	5	Material Updating Id
mat_status	Text	30	Material Status
mat_update_date	Date	10	Material Updating Date
mat_update_quantity	Number	5	Material Updating Quantity
mat_id	Number	5	Material Id
user_id	Number	5	User Id
Record Size	60		

*Table 9: Material\_Updation Table*

## **Material\_Request**

Primary Keys: mat\_request\_id

Foreign Key: user\_id, project\_id

Field Names	Data type	Data Size	Description
mat_request_id	Number	5	Material Request Id
mat_req_name	Text	50	Requested Material Name
Other_name	Text	10	New Material Name
mat_count	Number	5	Requested Material Count
user_mat_request_status	Text	10	User Request Status
mat_request_status	Text	10	Material Request Status
user_id	Number	5	User Id
project_id	Number	5	Project Id
Record Size	100		

*Table 10: Material\_Request Table*

## **Plan**

Primary Key: plan\_id

Field Names	Data type	Data Size	Description
plan_id	Number	5	Plan Id
plan_name	Text	30	Plan Name
plan_description	Text	100	Plan Description
Record Size	135		

*Table 11: Plan Table*

## **Main\_Task**

Primary Key: task\_id

Field Names	Data type	Data Size	Description
task_id	Number	5	Main Task Id
task_name	Text	50	Main Task Name
task_description	Text	100	Main Task Description
Record Size	155		

*Table 12: Main\_Task Table*

## **Image**

Primary Key: image\_id

Field Names	Data type	Data Size	Description
image_id	Number	5	Image Id
image_path	Text	150	Image Path
Record Size	155		

*Table 13:Image Table*

## **Plan\_Task\_Image**

Primary Key: plan\_id, task\_id, image\_id

Foreign Key: plan\_id, task\_id, image\_id

Field Names	Data type	Data Size	Description
plan_id	Number	5	Plan Id
task_id	Number	5	Main Task Id
image_id	Number	5	Image Id
task_status	Text	20	Main Task Status
Record Size	35		

*Table 14: Plan\_Task\_Image Table*

## **Sub\_Task**

Primary Key: subtask\_id

Foreign Key: task\_id

Field Names	Data type	Data Size	Description
subtask_id	Number	5	Sub Task Id
subtask_name	Text	50	Sub Task Name
sub_description	Text	100	Sub Task Description
task_id	Number	5	Main Task Id
Record Size	160		

*Table 15: Sub\_Task Table*

## **Plan\_SubTask**

Primary Key: plan\_id, subtask\_id

Foreign Key: plan\_id, subtask\_id

Field Names	Data type	Data Size	Description
plan_id	Number	5	Plan Id
subtask_id	Number	5	Sub Task Id
sub_task_status	Text	20	Sub Task Status
Record Size	30		

*Table 16: Plan\_SubTask Table*

## **Feedback**

Primary Key: feedback\_id

Foreign Keys: user\_id

Field Names	Data type	Data Size	Description
feedback_id	Number	5	Feedback Id
feedback_comment	Text	50	Feedback Comment
Feedback_date	Date	10	Feedback Date
user_id	Number	5	User Id
Record Size	70		

*Table 17 Feedback Table*

## **User\_Mobile**

Primary Keys: user\_id, mobile

Foreign Key: user\_id

Field Names	Data type	Data Size	Description
user_id	Text	5	User's Username
mobile	Number	10	User's Mobile Number
Record Size	15		

*Table 18: User\_Mobile Table*

## 4.4 Report Layout Design

### Report No 01

#### Report Name – Employee Availability Report



**Naveen Builders**

info@naveenbuilders.com

123 Main Street, Cityville

(123) 456-7890

### Employee Availability Report

Employee	First Name	Last Name	Job Title	Employee	Employee Status	Employee Available	Employee Note
1	Kusalya aaaa	Kuuuuuu uuu	Worker	Level 01	Active	Yes	hello
2	50f3c24 0	a58039 a2	Site Engineer	Level 03	Active	Yes	969ea8c9c 7
3	8b4b3ef 2	4feef4b 0	Carpenter	Level 02	Active	Yes	cf2ce1776 d
5	d7c3de3 7	07c881 56	Electrician	Level 02	Active	Yes	8bb2f5187 2
6	5859cce 0	e0edc8 39	Electrician	Level 02	Active	Yes	5cb52818 ac
7	56b6eb7 0	44c534 44	Electrician	Level 03	Active	Yes	7299cb85 31
8	01a1228 1	616e14 4b	Carpenter	Level 02	Active	Yes	2581b4d7 96
9	700b5be a	dad0c4 70	Plumber	Level 01	Active	Yes	581f414cf 7
10	a537c48 3	6c7326 86	Plumber	Level 03	Active	Yes	525d11bd cf
11	7f05a0d 2	f55d43d b	Plumber	Level 03	Active	Yes	b0082f5a4 e
12	cb5a5f6 4	36bcd 1a	Plumber	Level 02	Active	Yes	d417db41 68
14	78b2cc8 d	f88dbaf 3	Carpenter	Level 01	Active	Yes	7d856a3b be
15	fe1e070 0	afa037a c	Electrician	Level 02	Active	Yes	b1e5cb61 0b
16	4398545 d	96f3410 5	Plumber	Level 03	Active	Yes	2a01e43e 9b
17	502253c d	60ce38 cb	Carpenter	Level 01	Active	Yes	62dc82edc d

Figure 76: Employee Availability Report

## Report No 02

### Report Name – Employee Report(Project Wise)



#### Naveen Builders

info@naveenbuilders.com

123 Main Street, Cityville

(123) 456-7890

### Employee Report | Skyline - Colombo

Employee	Employee Name	Job Title	Project Name	Allocation Start	Allocation End	Date
1	Kusalyaaaaa Kuuuuuuuuu	Worker	Skyline - Colombo	2024-02-07	2024-02-09	
179	3c1df4cf b4000056	Worker	Skyline - Colombo	2024-02-07	2024-02-09	
173	900e887b 85fb0225	Worker	Skyline - Colombo	2024-02-07	Still Working..	
13	387fe3db 45f2ab2f	Worker	Skyline - Colombo	2024-02-07	Still Working..	
93	1e9715cc f58d34ad	Worker	Skyline - Colombo	2024-02-07	Still Working..	
75	f8f7e35a e80a1722	Carpenter	Skyline - Colombo	2024-02-09	Still Working..	
23	8784279d 05c7fa75	Carpenter	Skyline - Colombo	2024-02-09	Still Working..	
4	c631bca7 5c7fa722	Carpenter	Skyline - Colombo	2024-02-09	Still Working..	

Generate on: 2024-02-19 08:01:06

Figure 77: Employee Report (Project Wise)

## Report No 03

### Report Name –Material Inventory Report



#### Naveen Builders

info@naveenbuilders.com

123 Main Street, Cityville

(123) 456-7890

## Material Inventory Report

Material ID	Material Name	Material Type	Material Quantity	Material Unit
1	Shovel	special	240	nos
2	Cement	normal	1	nos
3	Bricks	normal	6	nos
4	Steel Bars	normal	94	nos
5	Concrete Blocks	normal	54	nos
6	Sand	normal	88	nos
7	Gravel	normal	80	nos
8	Wood Planks	normal	38	nos
9	Paint	normal	47	nos
10	Roofing Shingles	normal	24	nos
11	Tiles	normal	77	nos
13	Test Material	normal	100	nos
15	Test Material 01	normal	10	nos

Generate on: 2024-02-18 22:02:04

Figure 78: Material Inventory Report

## **Report No 04**

### **Report Name – Material Report (Project-wise)**



#### **Naveen Builders**

info@naveenbuilders.com  
123 Main Street, Cityville  
(123) 456-7890

### **Material Report | Skyline - Colombo**

Material ID	Material Name	Material Type	Material Quantity	Material Unit
2	Cement	normal	10	nos

Generate on: 2024-02-19 08:00:46

*Figure 79: Material Report (Project-wise)*

## Report No 05

### Report Name – Project Report



#### Naveen Builders

info@naveenbuilders.com

123 Main Street, Cityville

(123) 456-7890

## Project Report | Skyline - Colombo

**Project ID:** 1

**Project Name:** Skyline - Colombo

**Description:** Modern and sustainable urban development in Colombo, integrating residential and commercial spaces for a vibrant cityscape.

**Start Date:** 2024-02-06

**End Date:** 2024-03-01

**Project Status:** Ongoing

**Client:** Naveen Shalitha

**Project Manager:** Amal Perera

**Plan ID:** 5

Generate on: 2024-02-19 08:01:17

### Plan Name: Skyline Project - Colombo

Description: Residential and commercial apartment

#### 1. Main Task: Site Preparation

Clear and level the construction site

**Sub Task Name:** Clearing and Excavation

**Sub Task Description:** Clear the construction site of vegetation and debris

*Figure 80: Project Report*

## Report No 06

### Report Name – Project Plan Report



#### Naveen Builders

info@naveenbuilders.com  
123 Main Street, Cityville  
(123) 456-7890

## Project Plan Report | Skyline - Colombo

**Project Name:** Skyline - Colombo

**Description:** Modern and sustainable urban development in Colombo, integrating residential and commercial spaces for a vibrant cityscape.

**Start Date:** 2024-02-06

**End Date:** 2024-03-01

**Client:** Naveen Shalitha

**Project Manager:** Amal Perera

### Plan Name: Skyline Project - Colombo

Description: Residential and commercial apartment

#### 1. Main Task: Site Preparation

Clear and level the construction site

**Sub Task Name:** Clearing and Excavation

**Sub Task Description:** Clear the construction site of vegetation and debris

- **Sub Task Status:** Completed

**Sub Task Name:** Utility Connections

**Sub Task Description:** Establish connections for utilities such as water, electricity, and sewage to the site

- **Sub Task Status:** Completed

#### 2. Main Task: Make Foundation

Figure 81: Project Plan Report

## **4.5 Business Viability**

Ensuring the business viability of our project is paramount to its long-term success and sustainability. This section delves into the economic and strategic aspects that underpin the commercial potential of our endeavor.

### **Market Analysis:**

We conducted a thorough market analysis to comprehend the demand, competition, and potential challenges within the target market. This insight is crucial for identifying opportunities and positioning our project effectively.

### **Revenue Streams:**

An in-depth exploration of revenue streams is presented, outlining the various channels through which the project can generate income. This includes an assessment of pricing models, potential partnerships, and any supplementary avenues for financial growth.

### **Cost Structure:**

A detailed breakdown of the project's cost structure is provided, encompassing development costs, operational expenses, and any associated overheads. This analysis is instrumental in establishing a sustainable financial model.

### **Risk Assessment:**

Potential risks and challenges that may impact the business viability are thoroughly evaluated. Strategies for risk mitigation and contingency plans are outlined to ensure resilience in the face of uncertainties.

### **Scalability:**

We assess the scalability of our project, examining its capacity to adapt and grow in response to increased demand or evolving market dynamics. This analysis positions our project for long-term success by anticipating future needs and opportunities.

## **Chapter 5: Conclusion**

In conclusion, the implementation of a Project management system document is a critical step towards optimizing usage, and improving operational efficiency. By following a systematic implementation plan, organizations can establish clear objectives, engage stakeholders, and enhance their works. The implementation plan should encompass various stages, including assessment, goal setting, project planning, communication, training, and monitoring. Through effective implementation, organizations can expect benefits such as reduced maintenance costs, increased equipment reliability, enhanced environmental sustainability, and improved compliance with regulations. With the commitment of an implementation team and the active involvement of employees, the Project management system document can pave the way for streamlined processes, better decision-making, and a more sustainable and profitable operation in the long run.

## **References**

- Project Management Institute (2017) 'A Guide to the Project Management Body of Knowledge (PMBOK® Guide) - Sixth Edition'. Project Management Institute, Inc.
- Kerzner, H. (2017) 'Project management: a systems approach to planning, scheduling, and controlling'. John Wiley & Sons.
- Turner, J. R. (2014) 'The handbook of project-based management'. McGraw-hill.
- Crawford, L. and Pollack, J. (2017) 'The secrets of successful project management: A guide to planning, organizing, and controlling any project'. Routledge.
- Meredith, J. R. and Shafer, S. M. (2019) 'Project management: a managerial approach'. John Wiley & Sons.Appendices

## Appendices

### QA Report

Test Case ID	Requirement ID	Test Scenario	Test Steps	Test Data	Expected Results	Actual Results	Pass/Fail
TC001	REQ001	Verify the login page is displayed	1. Open the web application. 2. Check if the login page is displayed.	N/A	The login page should be displayed.	The login page is displayed.	Pass
TC002	REQ001	Verify the login functionality with valid credentials	1. Enter a valid username in the username field. 2. Enter a valid password in the password field. 3. Click on the "Login" button.	Username: testier Password: testpassword	The user should be logged in successfully.	The user is logged in successfully.	Pass
	REQ002	Verify the login functionality without valid credentials	1. Enter a invalid username in the username field. 2. Enter a invalid password in the password field. 3. Click on the "Login" button.	Username: dd Password: xxx	The user should get an error that says "username or password is wrong".	The user gets error massage.	pass
TC003	REQ001	Verify the "Forgot Password?" link is working	1. Click on the "Forgot Password?" link.	N/A	The password reset page should be displayed.	The password reset page is displayed.	Pass

TC004	REQ001	Verify the password reset functionality with valid email address	1. Enter a valid email address in the email field. 2. Click on the "Reset Password" button.	Email: validemail@example.com	A password reset link should be sent to the email address provided.	A password reset link is sent to the email address provided.	Pass
TC005	REQ001	Verify the verification code page is displayed	1. Click on the password reset link received in the email. 2. Check if the verification code page is displayed.	N/A.	the verification code page should be displayed.	The verification code page is displayed.	Pass
	REQ002	Verify the verification code functionality with valid verification code	1.Enter a valid verification code in the verification code field. 2.Click on the "Verify Code" button.	Verification Code: 999999	An error message should be displayed indicating that the verification code is invalid.	An error message is displayed indicating that the verification code is invalid.	Pass
	REQ003	Verify the verification code is sent to the correct email address	1. Enter the valid code which was sent to the email.	Verification Code: 123456	Redirecting to password reset page.	Redirected to password reset page.	pass
TC006	REQ001	Verify the password reset functionality with valid new password	1. Enter a valid new password in the new password field. 2. Enter the same new	New Password: Test@1234 Confirm Password: Test@1234	The password should be reset successfully.	The password is reset successfully.	Pass

		and confirm password	password in the confirm password field. 3. Click on the "Reset Password" button.				
TC007	REQ001	Verify employee type and quantity is entered when request button is clicked.	1.select employee type. 2.enter qty.	Emp type: Driver Qty:2	Display "request sent" message.	User gets the massage.	Pass
TC008	REQ001	Verify Material type and quantity is entered when request button is clicked	1.select Material type. 2.enter qty.	Material type: : Bricks Qty:100	Display "request sent" message.	User gets the massage.	Pass
TC009	REQ001	Add a new user with valid inputs	1. Click on "Add New User" 2. Input valid data in all fields 3. Click on "Add User"	First Name: John Last Name: Doe Email: <a href="mailto:john.doe@example.com">john.doe@example.com</a> Password: 12345678 Confirm Password: 12345678 Phone Number: 1234567890 Role: Employee	Display user is added.	Massage gets displayed.	Pass
TC010	REQ001	Add a new employee with valid inputs	1. Click on "Add New Employee" 2. Input valid data in all fields	First Name: John Last Name: Doe Job Title: Software Engineer Role: Developer Employee Level: Level 01	Display Employee is added.	Massage gets displayed	Pass

			3. Click on "Add Employee"	Note: New hire			
TC010	REQ001	Add a new material with valid inputs	1. Click on "Add New Material" 2. Input valid data in all fields 3. Click on "Add Material"	Name: Screwdriver  Type: Hand Tool  Quantity: 10  Unit: Piece	A new material is added with the provided details	Massage gets displayed	Pass
TC011	REQ001	Creating a New Project	1. Navigate to the "Create New Project" section. 2. Enter a project name "Test Project" 3. Enter a project description "Test Description" 4. Enter a start date "01/01/2023" 5. Enter an end date "01/31/2023" 6. Select a project manager "John Doe" 7. Click on the "Create Project" button.	Project Name: Test Project  Project Description: Test Description  Start Date: 01/01/2023 End Date: 01/31/2023  Project Manager: John Doe	A new project should be created with the entered details.	A new project is created with the entered details.	Pass

## Business Model Canvas

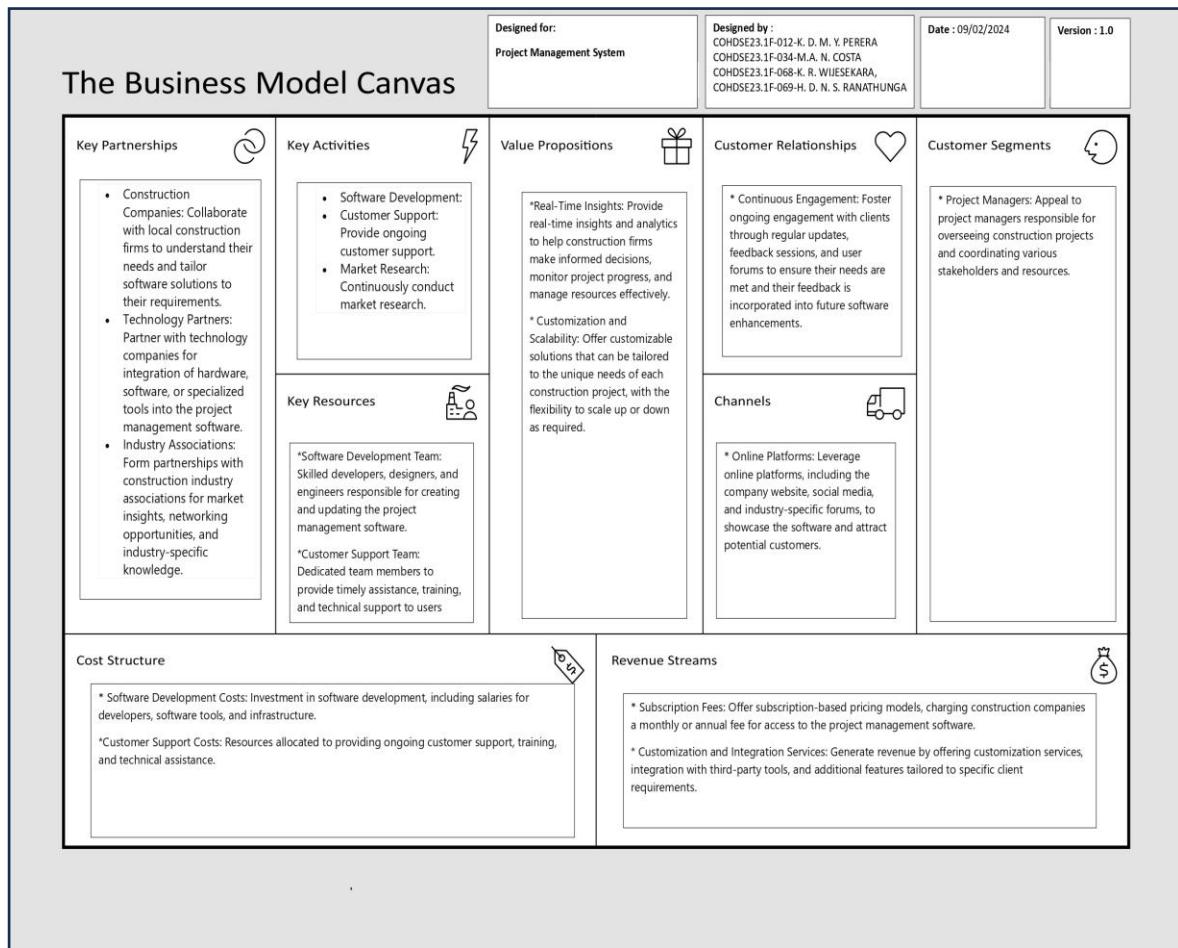


Figure 81: Business Model Canvas

**Thank You!!!**