IS 2900 – Project on IT Applications

Interim Report

Project Management System

Fantastic Five

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2022

Declaration

We declare that this report is our own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

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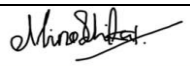
Kapuwaththa H.R.M.R.M.M	
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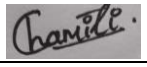
Abeythilaka W.P.G.C.H	
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Abstract

The importance of project management System in organizations can't be overstated. When it's done right, it helps every part of the business run more smoothly. It allows the company team to focus on the work that matters, free from the distractions caused by tasks going off track or budgets spinning out of control. It brings leadership and direction to projects. Without a project management System, a team can be like a ship without a rudder, moving but without direction, control, or purpose. But our client does not have proper system to store their project information. Because of that they have to face many problems.

They don't have proper requirements gathering system, don't have a proper way to store financial information, payment information, or a proper documentation system. When they develop several projects at the same time, it is difficult to handle all the project information. Considering their problems, we are going to develop a proper project management system for them. Our primary objective is creating user-friendly and the best software to do their project management task very easily and comfortability. There are several functions included in our system according to the client's requirements. These are Document management, Requirements management, Backlog management, Sprint management, and financial management. Using all these functions, our clients will be able to manage their projects very easily. 'Our project management system' provides solutions to help the clients' project management activities run more smoothly.

We study our requirements and build UML and EER diagrams before implementing them to provide better applications. Finally, we chose the best for our project. The front end of the web application is built with ReactJS framework and bootstrap, while the back end is built with .NET. Our database technologies include MS SQL Server.

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Chapter 1 Introduction

1.1 Introduction

As a software project, we are going to develop a “Project Management System”. For now, our client is using an excel sheet to gather and record project information. It is difficult to access data when needed. That means they do not have a proper database. This is the main problem that they face. Considering their main problem, we are to create an easy-to-use website to manage their projects. This is our main aim and object. For this, we have decided to use .NET for the backend, react JS and bootstrap for the frontend, and MS SQL for the database. And, the Client, developers, Project Manager, and high-level manager(owner) are the main users of this system. More details are provided as follows.

1.2 Problem in Brief

Our company wants a project management system in order to carry out their processes efficiently and effectively. They have to face many problems because they do not have a proper project management system. They used various existing systems. But,

- Those systems don't have the features that they want.
- Some software is not user-friendly.
- some of them are not customizable.
- Some systems are lower performance and some of them are high performance.

Therefore, they want their own software to do their processes very easily.

- For now, they are using an excel sheet to gather information. It is difficult to access data when needed.
- They don’t have a proper database. Therefore, it is difficult to update clients’ requirements when they change (add requirements, remove some requirements) from time to time. And, they don’t have a proper way to categorize and store clients' requirements relate categorize (changing requirements, features)
- They don’t have proper time management and monitoring system.
- lack of the team Collaboration of the Organization.
- They don’t have a suitable document management system. (SRS, financial statement, payment receipt)

- They must face many difficulties when creating and updating payment records and (The weakness of payment Handling).
- They can’t view the project's progress and view the project history.
- The client is not updated about the progress of the project.

These are the main problems that they must face.

1)Difficulties in managing the payment Handling process

When Handling payments for a project, it is very stressful as there are many projects. They make payments in various amounts and periods. Using unproper methods of payment is not effective and efficient, as it does not have the facility to manage payments and invoices.

2) Challenges in managing clients project details

As several clients deal with software companies, it is not easy to manage their project details using an excel sheet.

3) Hard to manage employee and scheduling

When companies do their project task without a project management system, it is difficult to control the employees. Sometime Developers do not know the tasks assigned to them, miss the deadline of the projects. Clients can’t know the project progress of the system easily. It’s created dissatisfaction in the customer base.

All, it is very important to have project management software to manage the process of the company. There must be a developed way to increase client satisfaction. There should be a proper way to record payment, document information and other all projects information. So, there would be a user-friendly platform to gather, and display needed data.

1.4 Aim and Objectives

1.4.1 Aim

The aim of this project is Creating a web application for small scale companies to monitor a project effectively and efficiently.

1.4.2Objectives

- To Successfully manage all project procedures.
- To Effectively use of the time and effort of the employee of the company.
- To track the progress of the Project through every Signal Stage.
- To provide the teammates and their clients with real time updates.
- To promote better team collaboration

1.5 Proposed Solution

There are Five functions included in our project management system. Those are

- Document Handling
- Requirements Handling
- Task Handling
- Sprint Handling
- Budget and Payment Handling

We are to create an easy-to-use website to manage their projects. When they are given a project, all the details (from requirement gathering to maintenance) will be saved in a database. These could be pictures, audio files, emails, pdfs, or even just plain text.

They can manually allocate time and price for the project. And this web site gives different interfaces to different users. For employees, this makes work from the home process much more effective. Managers and owners can access the web page and see how things are going and monitor the process. Clients have comparatively limited access, but they can see the progress of their project. In addition to that our system can calculate the profit and loss of the projects.

During the project clients can even update their requirements. Then depends on that we can extend the required time and price for the project. At the end of the timeline of the project, this software generates.

1.6 Structure of the Report

Chapter 1 provides a brief description including the aim, objectives, and solution of the project.
Chapter 2 describes the similar approaches available.
chapter 3 it describes the technological approach to solve the problem domain
Chapter 4 is about the problem solution
Chapter 5 is on the UML diagrams.
Chapter 6 is about the implementation
Chapter 7 is on the references

1.7 Summary

In this chapter, we give a brief introduction to our system, the client's problems, describe the aim and objects of our project and what kind of software solutions are given for our client's problem. Next chapter we will describe a literature survey (exciting software).

Chapter 2 Literature Review

2.1 Introduction

Project management is the application of specific knowledge, skills, tools, and techniques to deliver something of value to people. Software development for an improved business process, construction of a building, providing relief after a natural disaster, etc. are examples of deployment management.

For project management we need to understand what a project is. Projects are temporary effort to create value unique products, service, and process. Some expansions can be solved in a short period of time, while for some expansions, problems are solved in a planned manner using a timeline. Ex: Public highways

Project Management Software is software used by a wide range of industries for project planning, resource allocation and scheduling. It enables project managers as well as entire teams to control

their budget, quality management and all documentation exchanged throughout a project. This software also serves as a platform for facilitating collaboration among project stakeholders.
So, with the advancement in software technology, tools were created to manage such projects and nowadays there are many software available. JIRA, Azure DevOps, Asaba, Basecamp, ProofHub are some of them.

2.2 existing Software

2.2.1. JIRA

JIRA is used for issue tracking and project management by over 180,000 customers in 190 countries. Software professionals can plan, track, and work more quickly with the help of the problem tracking application JIRA. The primary source of information for upcoming software releases is JIRA. The next release's new features and bug fixes can be planned by the developers. Set up the tasks for documentation. Progress Monitoring for Documentation
For a variety of reasons, Jira is effective for Agile development projects. One of these is its capacity to build Kanban and Scrum boards with sprint planning and issue time estimating features. The user-friendly burndown charts and cumulative flow diagrams are commonly suggested. Jira Software is a member of a family of tools for managing projects in teams of all sizes. Jira was initially intended to be a bug and issue tracker. Today, however, Jira has developed into a potent work management solution for a variety of use cases, including agile software development and the management of requirements and test cases.

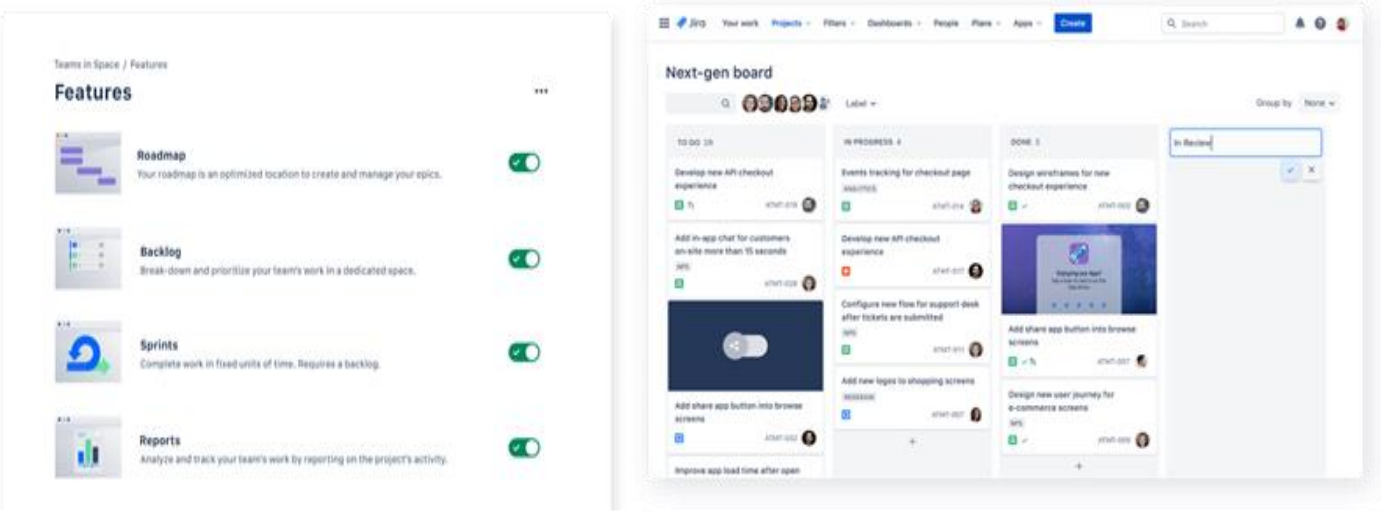


Figure 2.2.1 - JIRA

2.2.2. Azure DevOps

When creating software, developers, project managers, and contributors work together under the umbrella of Azure DevOps, which fosters a collaborative culture and set of procedures. It enables businesses to develop and enhance products more quickly than they could using conventional software development techniques. The combination of cultural philosophies, practices, and tools known as DevOps improves an organization's capacity to deliver applications and services at high velocity: products evolve and improve more quickly than they would in organizations using conventional software development and infrastructure management processes. Dashboard Management,Track and Plan Your Work,Azure Cloude Hosted Services are benifts of Azure DevOps.

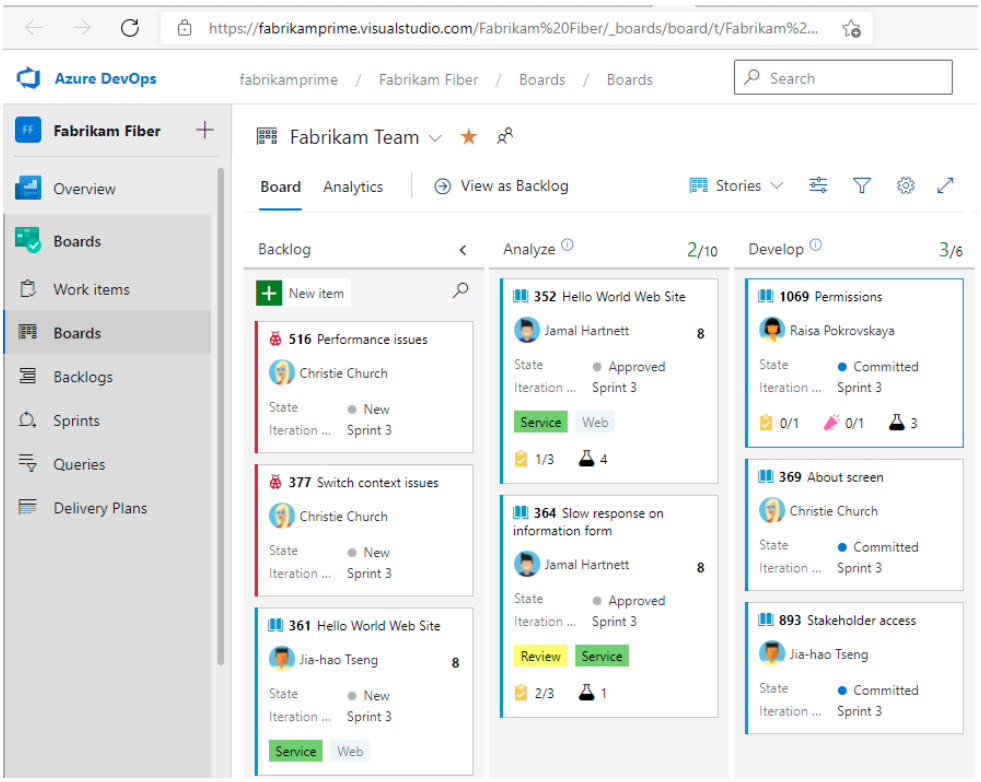


Figure 2.2.2 - Azure DevOps

2.2.3. Summery

Here are some things we studied about existing project management software today and has comprehensive description Of JIRA and Azure DevOps project management software.

Chapter 3 Technology Adapted

3.1 Introduction

There are certain criteria that should be taken into consideration before choosing the technology which best suits the software. Factors such as compatibility, speed, ease of service and portability are paramount when choosing technology. In this chapter, the technology which will be used to develop the easy-to-use web site will be discussed.

Frontend Technology

- React framework
- Bootstrap

Backend Technology

- .NET

Database Technology

- MS SQL database

Crystal Report

3.2 Frontend Technology

3.2.1. React framework

React framework is an open-source JavaScript library that is used for building user interfaces specifically for single-page applications. It's used for handling the view layer for web applications. React also allows us to create reusable UI components. Also, it allows us to create large web applications that can change data, without reloading the web page.

1) Flexibility - Compared to other front-end frameworks, the React code is easy to maintain and is flexible due to its modular structure. This flexibility saves a lot of time and money.

2) Performance - React JS is designed to provide high performance in mind. The core of the framework offers a virtual DOM program and server-side rendering, which enables complex applications to run faster

3)Rich user interfaces - React allows us to create rich, high-quality user interfaces through its declarative components.

3.2.2. bootstrap

Bootstrap is an open-source CSS framework designed to come up with mobile-friendly, responsive front-end web development. There are some advantages to bootstrap.

1. Easy initiation
2. Responsiveness
3. Highly customization

3.3 Backend technology

3.3.1. .NET

.NET is an open-source platform for building desktop, web, and mobile applications that can run natively on any operating system. The .NET system includes tools, libraries, and languages that support modern, scalable, and high-performance software development.

1)Multiple-platform design

The main advantage of .NET Framework programming is that it allows you to write code that runs on numerous platforms. The code is an open-source one, so it continues to become even more sophisticated due to numerous improvements.

2) Being flexible and easy to maintain

.NET Framework can boast of numerous powerful development tools. They make all processes run faster. The written code is easy to maintain and debug.

It enables the fragmentations of applications into small modules for deep analysis. The Sitecore tool is an efficient platform on which businesses can improve their commercial performance.

3.4 Database Technology

3.4.1. MS SQL

A database server is basically a database application that is used to store data and other software applications retrieve and store data using some language which is called SQL (Structured Query Language) in the case of MS SQL server.

1)Improved Performance

MS SQL server contains excellent compression and encryption capabilities that result in improved data storage and retrieval functions.

2) Increase Data Security:

It ensures the security of databases, especially with MS-SQL Server database administrator service.

3) Data Recover Support

If a power interruption or server shutdown occurs data may be corrupted so Microsoft SQL Server eliminates the risk of losing data by having features for data recovery and restoration.

3.5 Crystal Report

Crystal Reports is a business intelligence application used to create custom reports from a variety of data sources. The package includes the major features needed for a business to create a database reporting environment, such as data access, report design/formatting, report viewing, and application integration. This will be especially important for our report making.

Chapter 4 Proposed Solution

4.1 introduction

‘Our Project management system’ provides solutions to increase the efficiency of the Company's project management activities. It will manage different user roles within the system to perform the activities.

It provides a web based platform that save number of projects information. They develop several projects at the same time. Through our system, they can store project information separately (Budget and payments, document, requirements information).

There are several user levels in our system. But they have been given accesses separately.it will improve security of the system. And our system has Budget and payments. Through this function can identify the loss and profit of each project. Our project management system will provide all the features mentioned above in one platform which can be used by the company by containing project information into the web application.

4.2 Software Process Model

The Agile Model is used to develop the system. It requires continuous reviewing and development of the system. The client company is frequently contacted and involved in the development process. The agile model is iterative and starts development early in the process. We have started the development while studying the required technologies.

4.3 User, Input-Output of the System

High level manager (owner)	Activities	• Set a username and password for themself. • Log into the system. • Log out from the system. • Assign project managers for each project • Set default password for newly added users. • Manage all users • enter the employee details • Create modify and delete team(developers)members
	Inputs	• Username • Password
	Output	• view all the processes in the system. (Budget and payments, projects, developers' information)
Project manager	Activities	• Log into the system. • Log out from the system • Manage roles of developers and projects • Create the tasks • Assign the tasks • Modify project tasks
	Inputs	• Username • Password • Add project • Add developers each project
	Out put	• View projects • View developers' interface • View project progress
Developers	Activities	• Log into the system. • Log out from the system
	Input	• Username • Password
	Out put	• View the project details

Client (High level manager)	Activities	• Log into the system. • Log out from the system
	Input	• Username • Password
	Out put	• view Budget Of relate project • View project progress • View developers' details
Client (Low Level)	Activities	• Log out from the system • Log into the system.
	Input	• Username • Password
	Out put	• View project progress • View developers' details

4.4 Process

In this section, we discuss the process of our system. Owner, project manager, project member can sign up and log in to the system providing the username, email, and password. After creating the user account can log into the system providing the username and password. User accounts consist of the user-role. After several physical discussions, meetings, emails, voice recordings, text documents with the customer, the company has identified customer requirements. Data can be entered using text editor and they are categorized as features, improvement and changing requirements.

After that, top level management creates and uploads the initial finalized documents such as project proposal, SRS document, budget estimation to the system, and those documents directly to the company owner for approval. If the company owner has any issues about the documents, he consults with the project manager. Then the project manager asks for the changes of documents. Then correct small issues until the company owner approves. After the owner approves, then the approved initial documents are visible to the customer and relevant parties of the system.

Customers and project participants can be added to the system by the project manager. The project manager can define the project stages. After that project starts, the system starts to develop.

In the tasks assigning process, a project breaks the sequence of events into smaller parts for easier study and development. That one part is called a task and the project is divided into a task. When all the taken together, it is called the backlog. They are processed according to their time and priority. Some tasks are developed in parallel, and some tasks are developed one behind the other. That task is entered into the software and at the end it is displayed as a task list. A task is divided into smaller parts for ease of redevelopment. It's called the Sprint. That is, one task can consist of several Sprint. The development teams choose what to do today and how it archived through the sprint.

If those tasks are completed, then the project manager marks that tasks are completed, or he can assign those tasks to the project member named by the project manager. Then after completing the tasks the project member marks that tasks are completed.

In document management system, top level management uploads documents as attachments, and grants access to view those documents. The users who have access to documents can see the attachments. And create the SRS Document manually and enter it into the System as a Pdf.

In Budget and payments, A Receipt for each receipt is generated through the system. End of the project Progress we can identify whether the project was profitable or not. When we are creating a project, we estimated a Hourly cost rate for each project. Then we divided the Project into tasks and estimated the time for each task in hour. Then, when we complete each task of the project, we record the actual time taken to complete that task. According to the actual time we can calculate the actual cost. Then, comparing Actual cost and estimating Budget we can identify the lost or profit.

The ability for change Requirement is another functionality of our system. The customer can be inquiring about some change requests for his project. Customer can submit the changes to the system by using the changing request. Then if the project manager needs some clarification of the inquiry, he can have a discussion with the customer. Then the project manager finalizes the customer requirements and submits the change request to the owner. Only the owner has the authority to approve or reject a request. After considering the new requirements, the owner sends feedback to the project manager, and then the project manager sends feedback to the customer

regarding his inquiry. After the customer receives the feedback from the project manager, he gives the response to the project manager. This is the procedure for handling a customer change request.

4.5 Our Approach

Our system has five functions.

4.5.1. Requirement Handling

All the needs of customers are gathered here. Data can be entered using text editor and

They are categorized as features, improvement, bugs, changing requirements. It has,

- Create project
- Identify the Requirements
- Categorized the Requirements
- handling Changing requirements process

4.5.2. Document Handling

After the identification of the requirement SRS report and profit & lost statement can

be created here. The format of the SRS document and profit & lost statement in the software and only the required data is entered to the system using text editor. The required document can be selected and generated as per the requirements of the organization. It has,

Create templates and organize documents

- Add attachments
- Document indexing
- Store documents
- Manage and track documents

4.5.3. Task Handling

A Project breaks the sequence of events into smaller parts for easier study and

development. That one Part is called a task and the project is developed as a task. When all the taken together, it is called the backlog. They are processed according to their time and priority.

Some tasks are developed in parallel, and some tasks are developed one behind the other. That task is entered into the software and at the end it is displayed as a task list. It has,

- create tasks
- assign developers
- keep track on time management

4.5.4. Sprint Handling

A task is divided into smaller parts for ease of redevelopment. it's called the Sprint.
That is, one task can consist of several Sprint. The development teams choose what to do today and how it archived through the Sprint. It has,

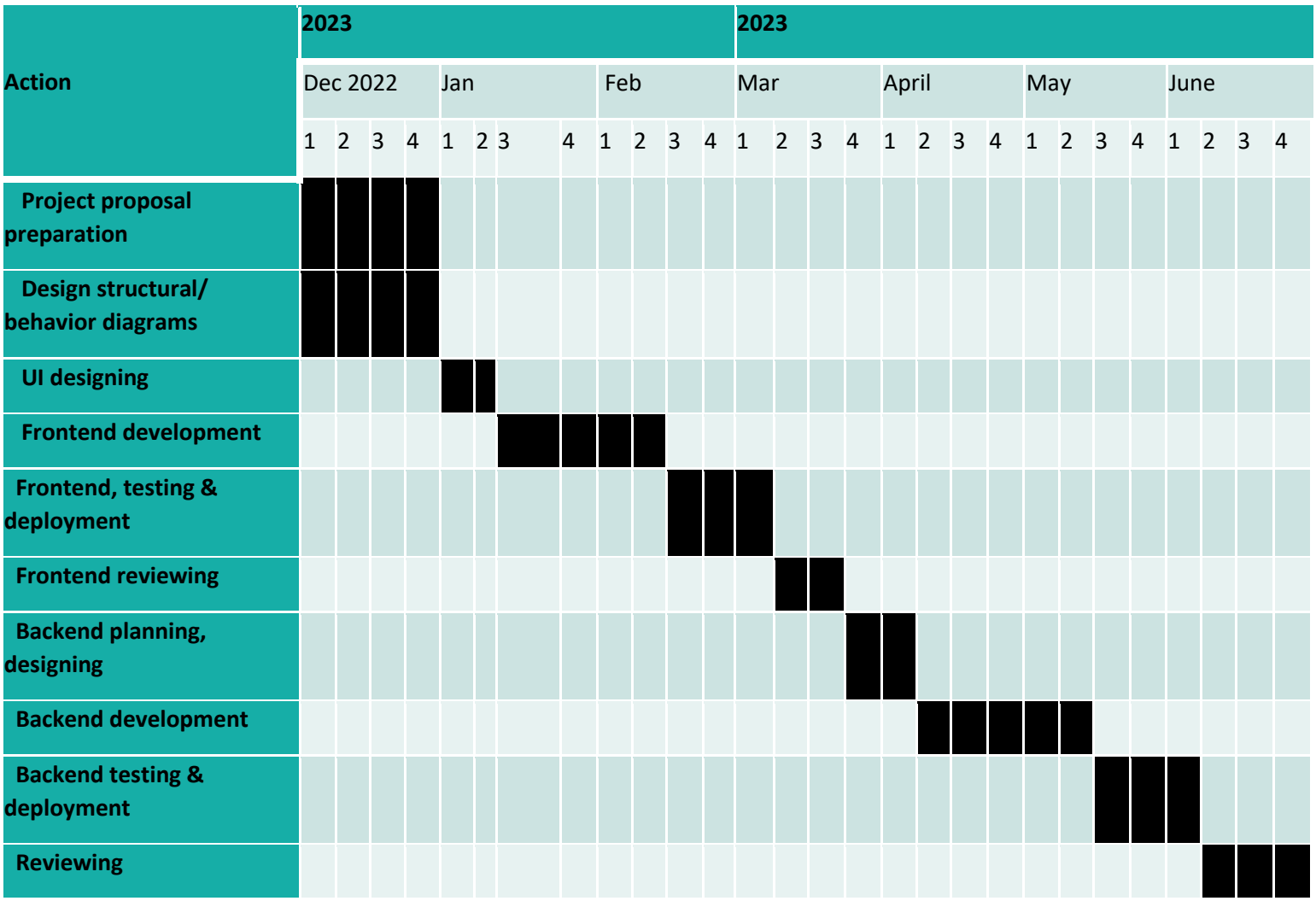
- Create Sprint
- assigning developers to Sprint
- Divided the Sprint Time between developer team
- Time estimating

4.5.5. Budget and Payment Handling

All cash payment and cash receipts of the organization are managed here. Ultimately it determines whether the company has made a loss or a profit.It has,

- Calculate loss or profit
- Record payment
- Received receipt

4.6 Project Management Plan



4.7 Work Breakdown Structure

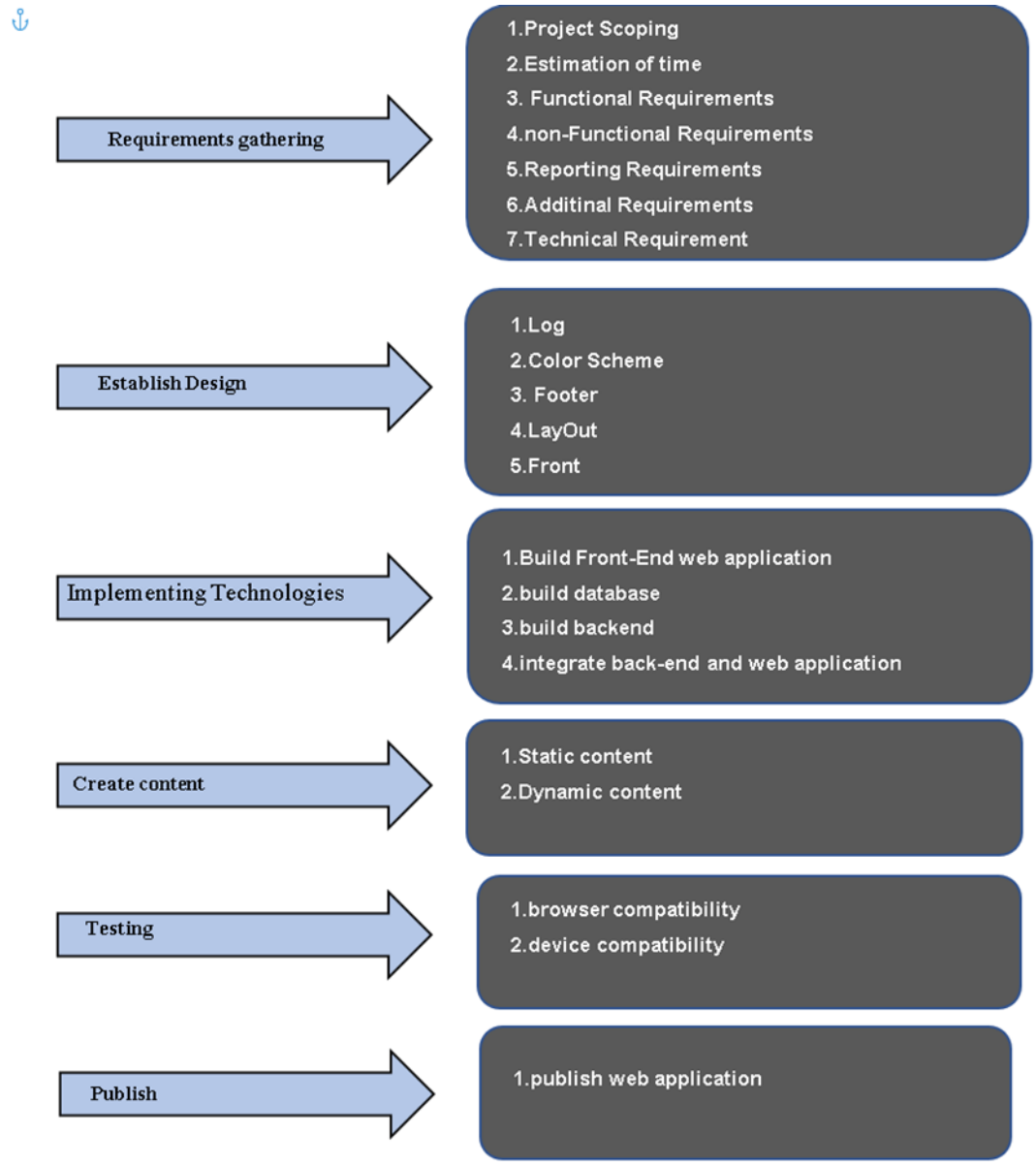


Figure 4.7 – work breakdown structure

4.8 Summary

This chapter provides an overall idea of our proposed solution, users, input, output, and technology of our system. Also, we describe the software process model and architecture which we used. We describe it in more detail in the SRS document.

Chapter 5 Analysis and Design

5.1 Introduction

After the requirement gathering with clients and further studying about the system, diagrams were designed. In this section, the UML and design diagrams are provided. Both structural and behavioral diagrams regarding each subsystem where needed are given below.

5.2 Analysis

We identified the system's functional and non-functional requirements before designing it, as our client requested. The SRS document specifies the functional and non-functional requirements.

5.3 Design

In this chapter, we'll look at the diagrams we created to represent the functional and non-functional needs. The diagrams were created using Lucid Charts. Here are some diagrams we designed:

1. Use case Diagram
2. Activity Diagram
3. Class Diagram
4. Sequence Diagram
5. EER Diagram

We were able to design the mockups for the system after designing the above-mentioned Diagrams.

5.3.1. Use Case

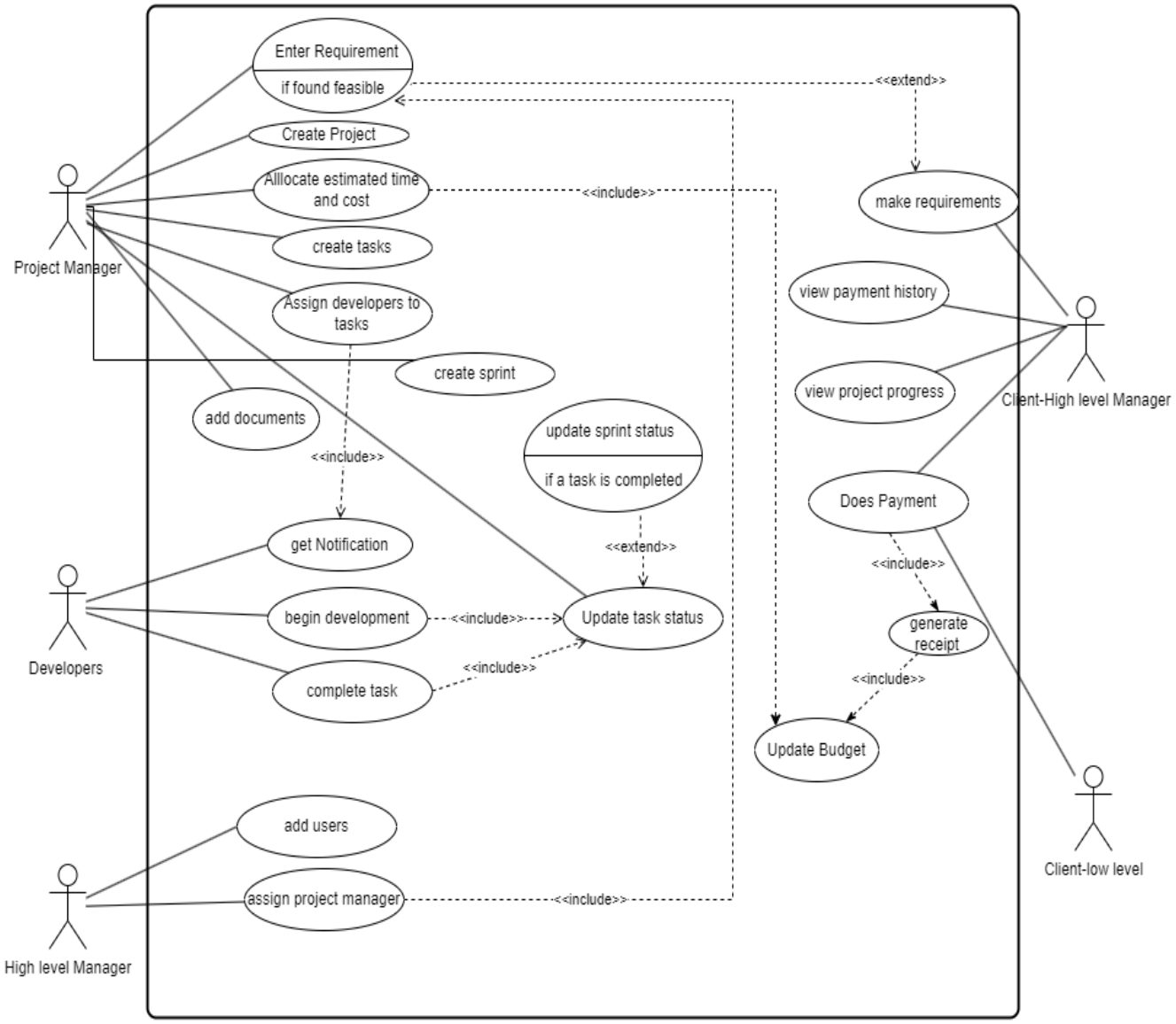


Figure 5.3.1- Use Case

5.3.2. Activity diagram

We have created activity diagrams to demonstrate the main features of our system.

- Document Handling
- Requirement Handling
- Budget and Payment Handling
- Sprint Handling
- Backlog Handling

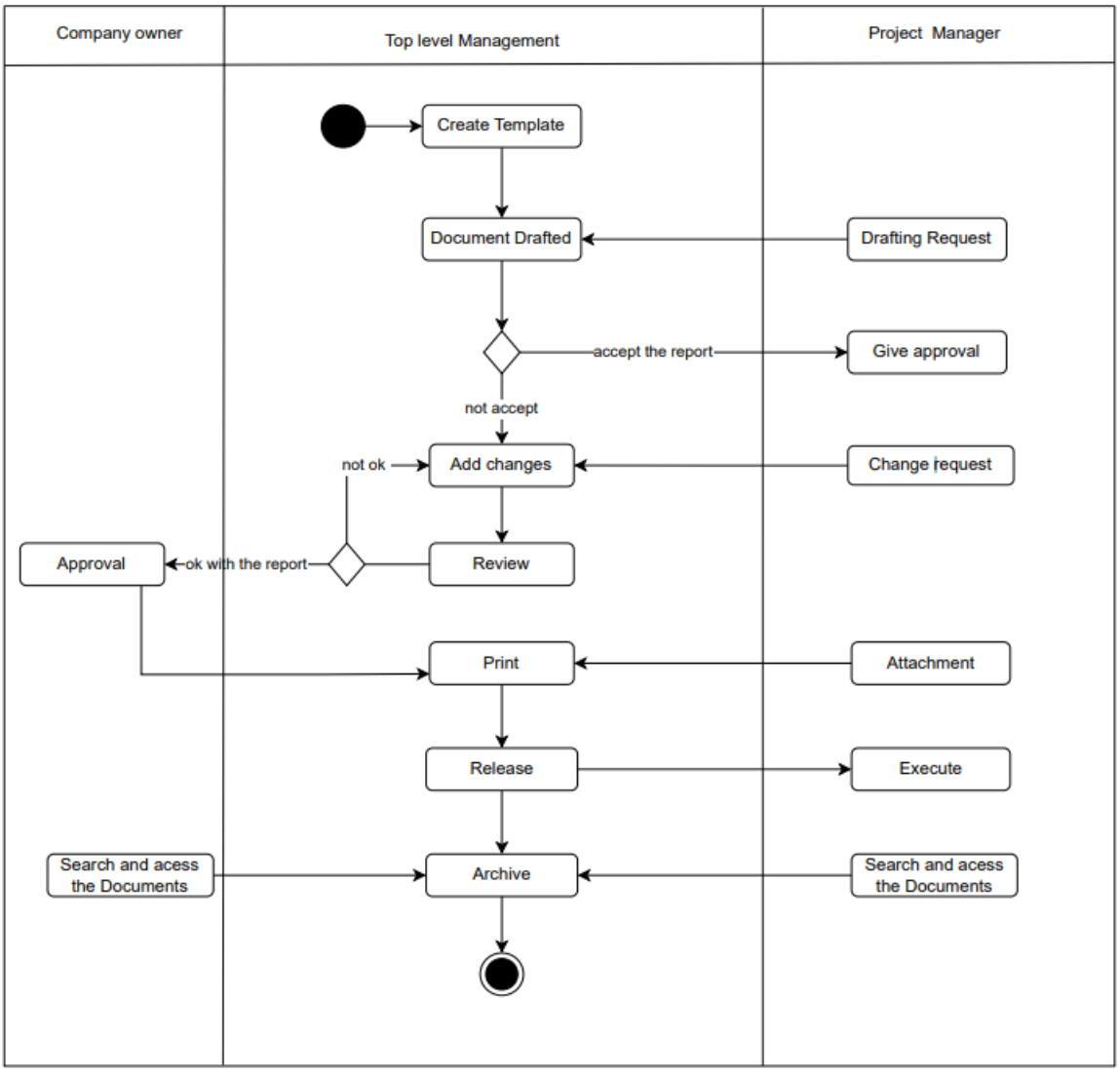


Figure 5.3.2- Document Handling (activity diagram)

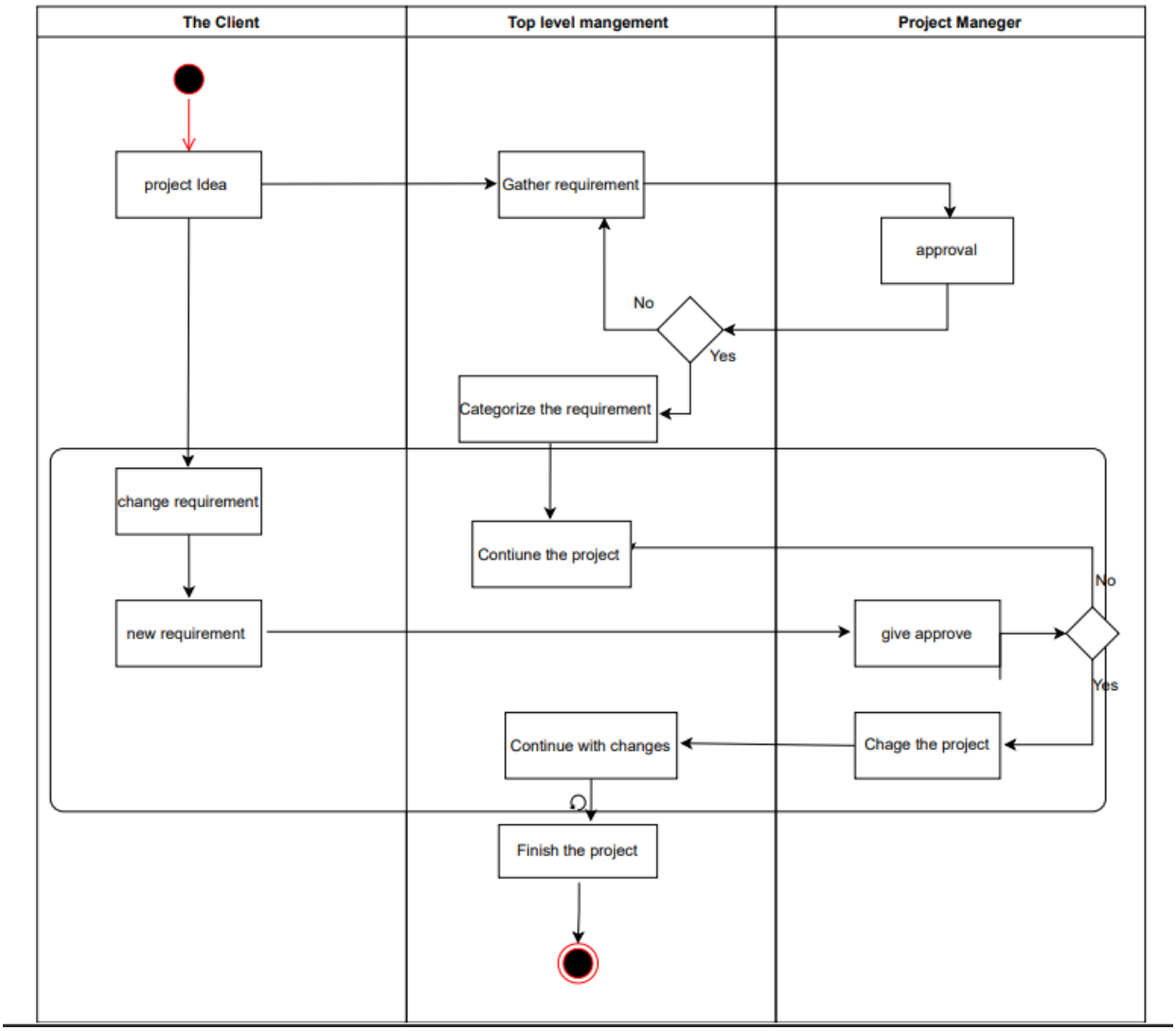


Figure 5.3.2- Requirement Handling (activity diagram)

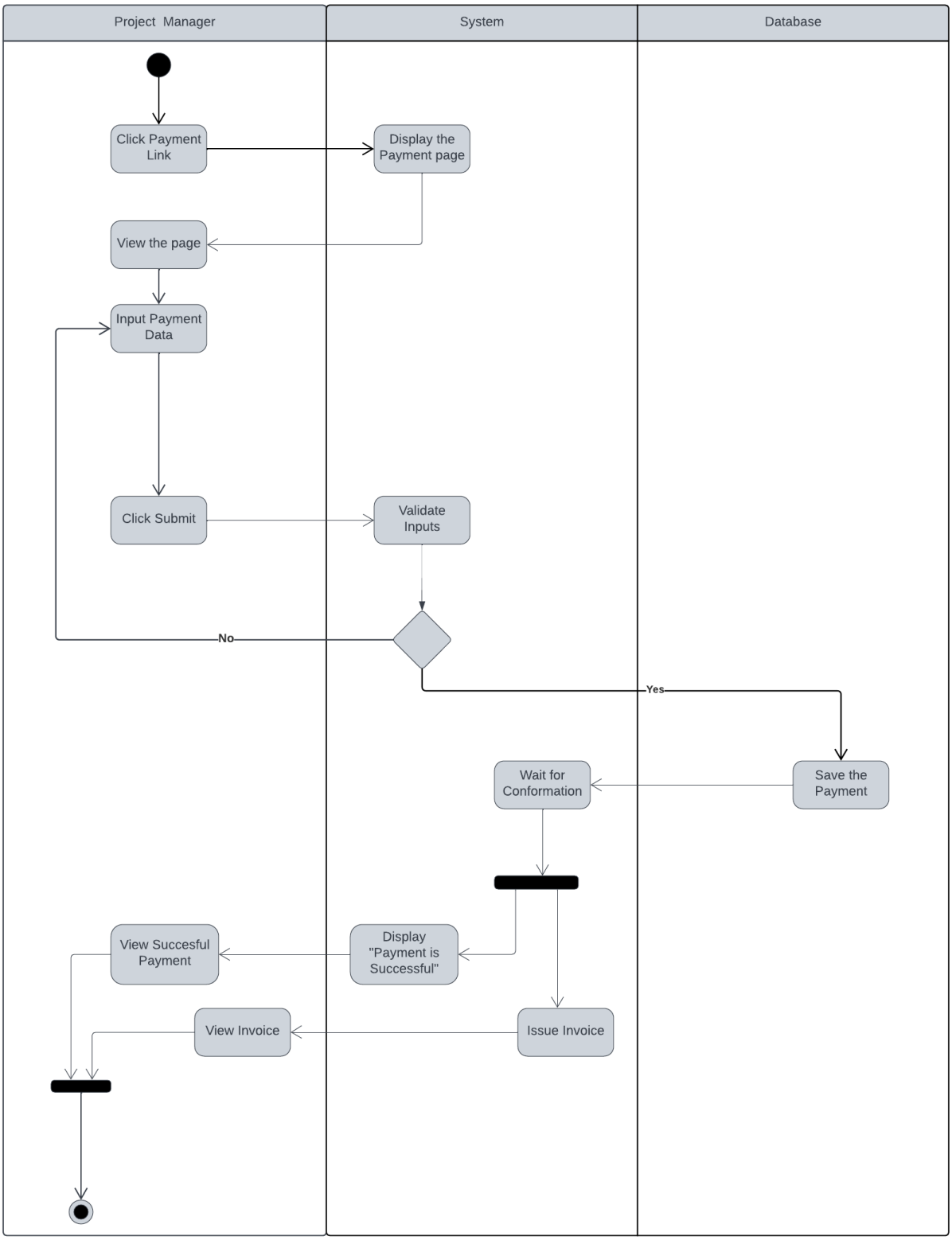


Figure 5.3.2- Budget and Payment Handling (activity diagram)

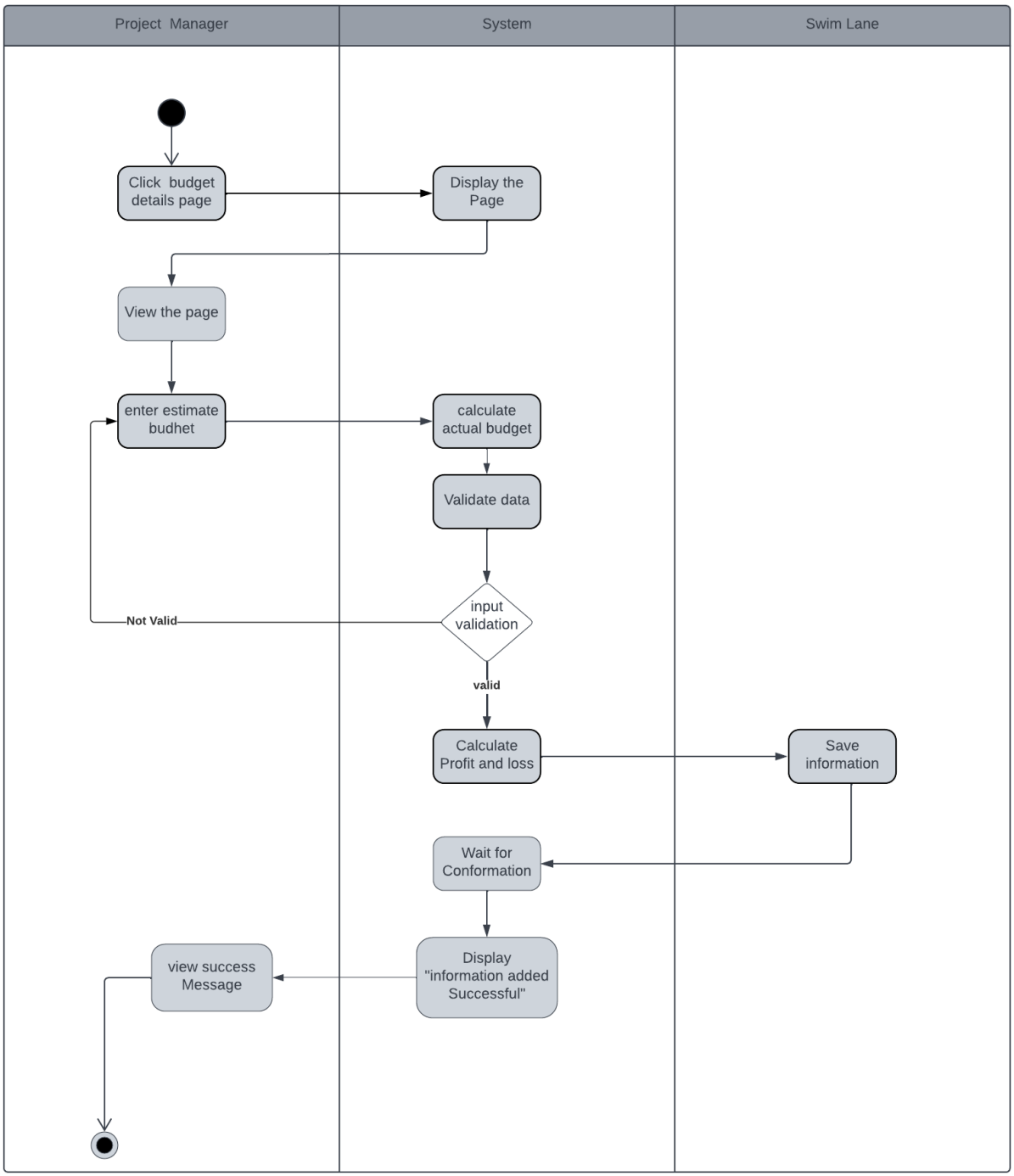


Figure 5.3.2- Budget and Payment Handling (activity diagram)

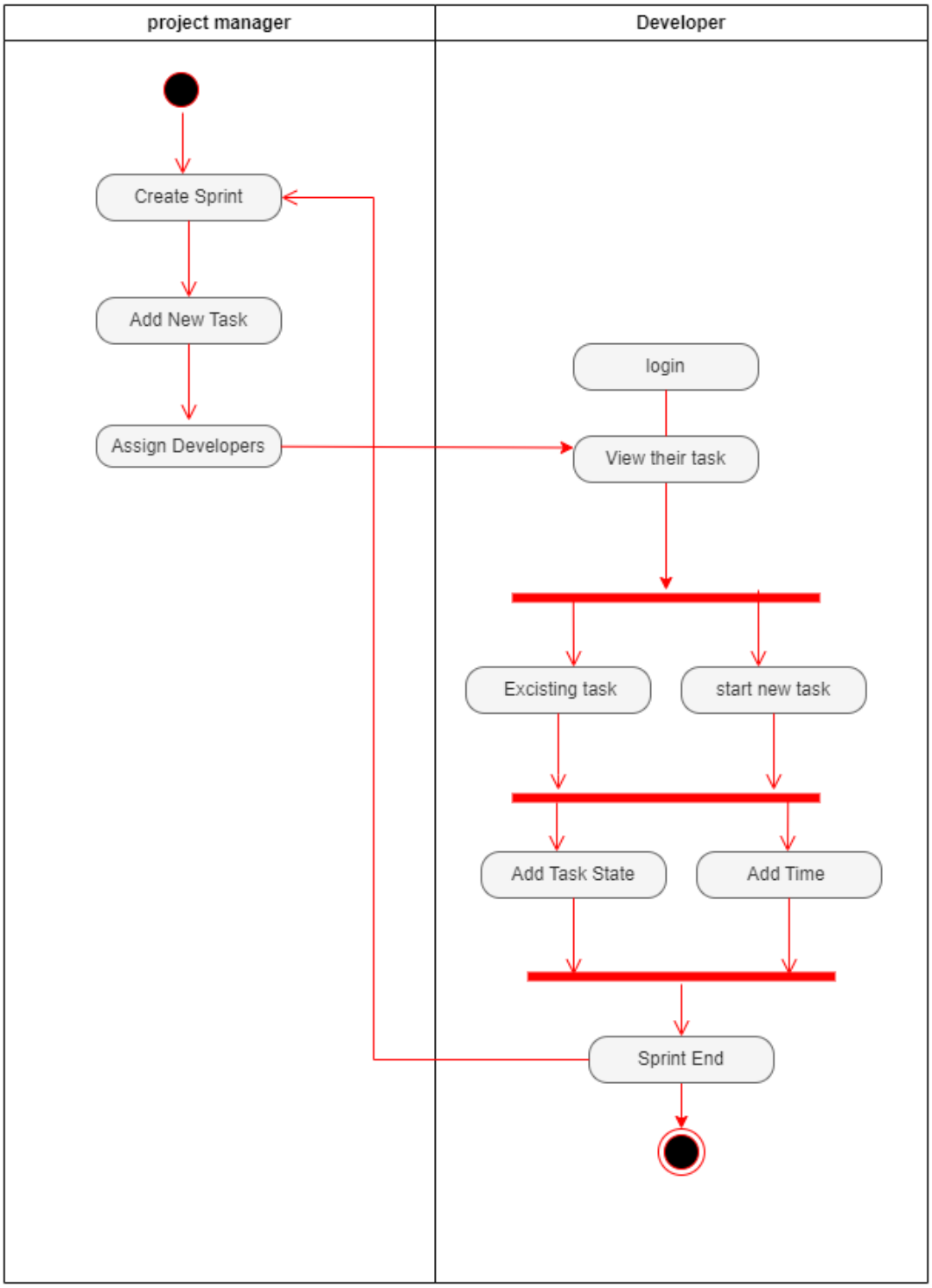


Figure 5.3.2- Sprint Handling (activity diagram)

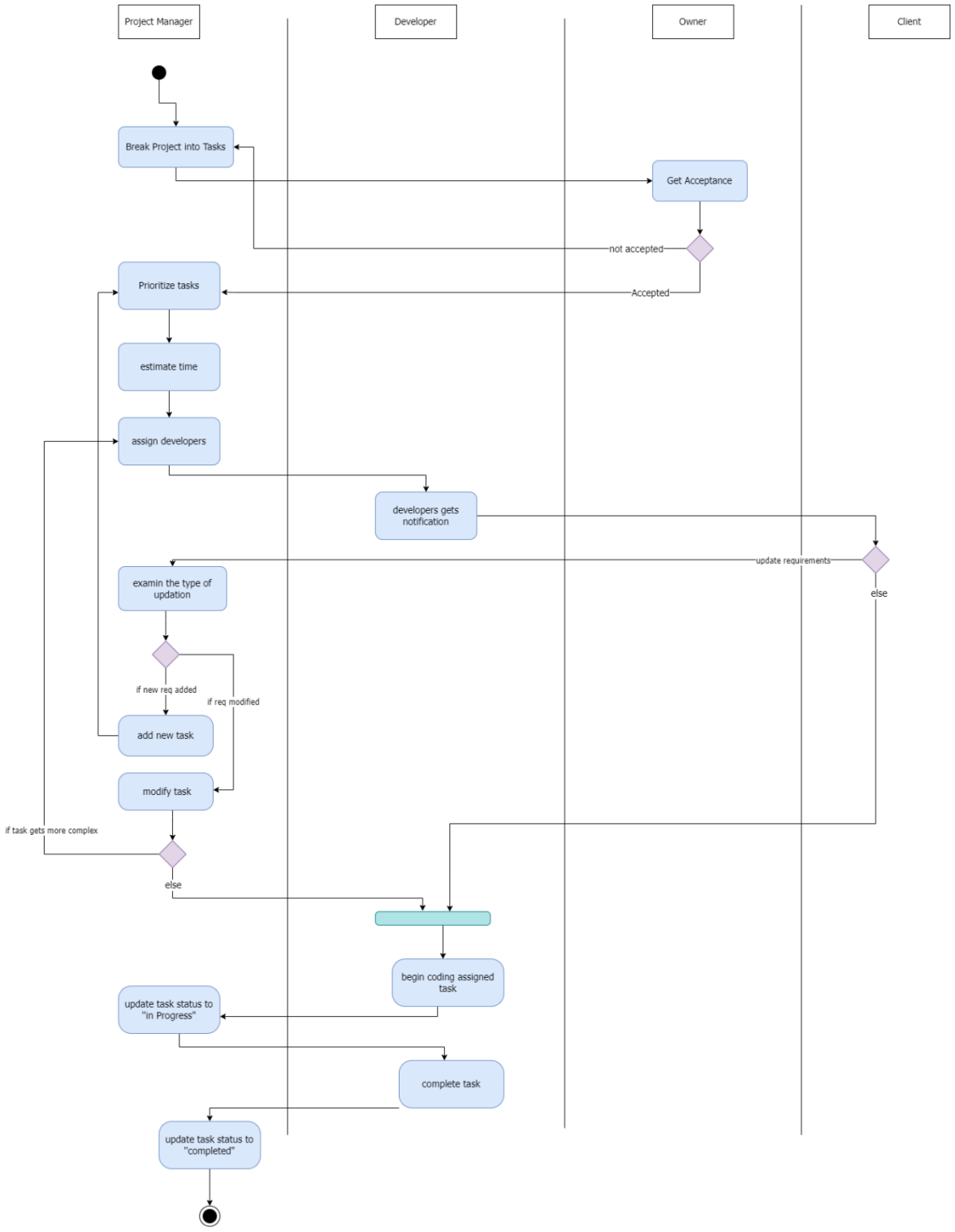


Figure 5.3.2- Task Handling (activity diagram)

5.3.3. Class diagram

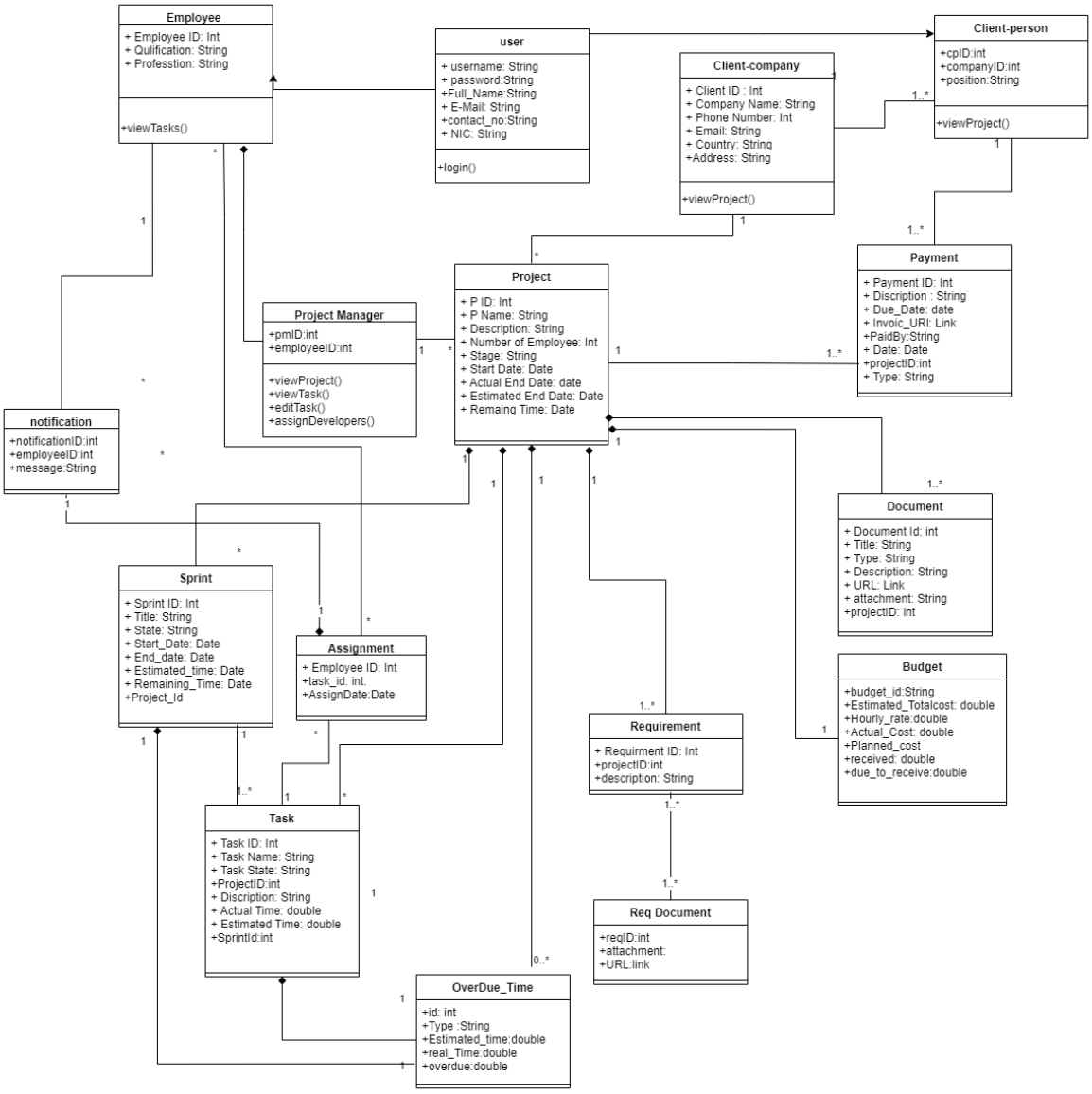


Figure 5.3.3 – Class diagram

5.3.4. Sequence diagram

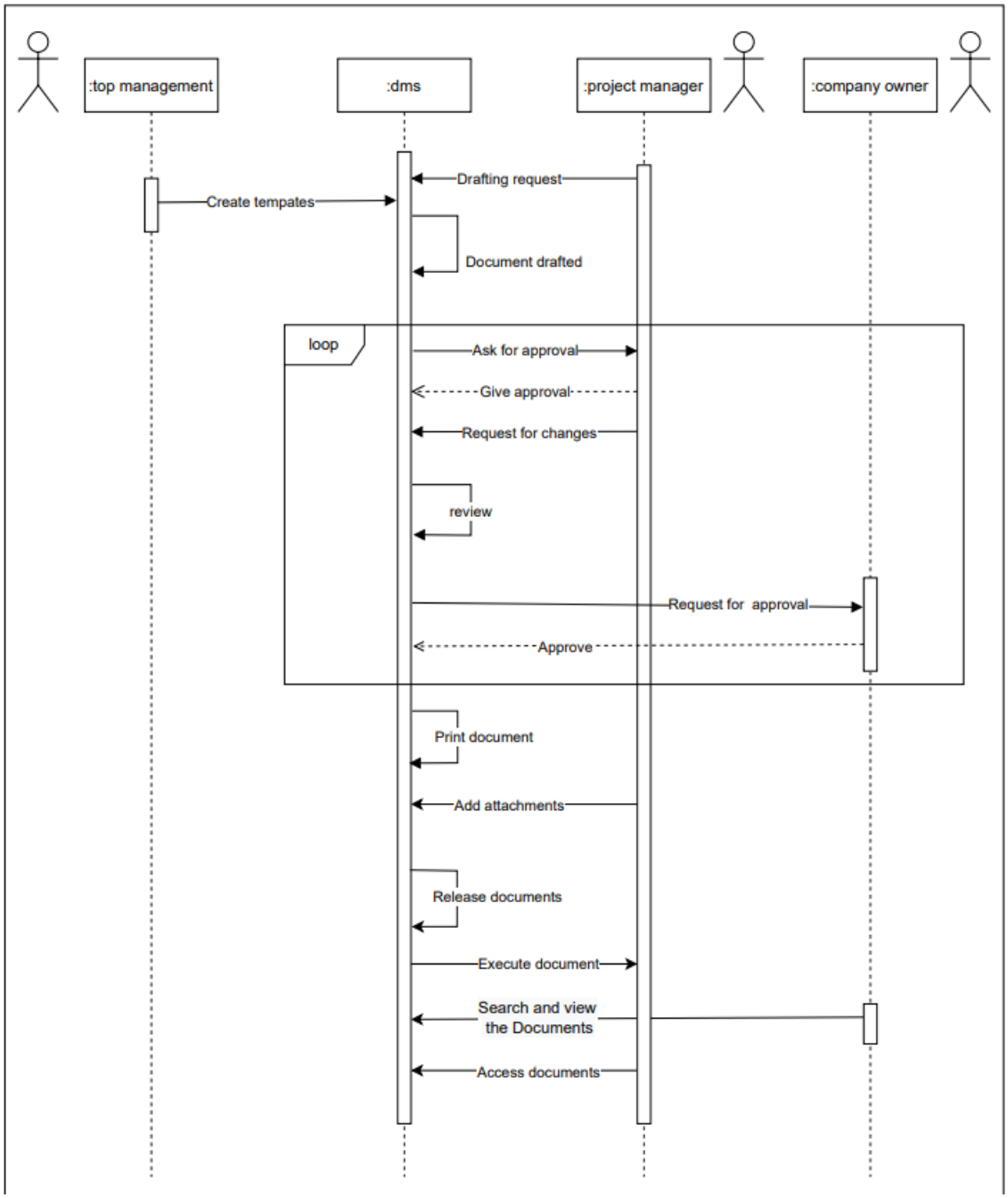


Figure 5.3.4- Document Handling (Sequence diagram)

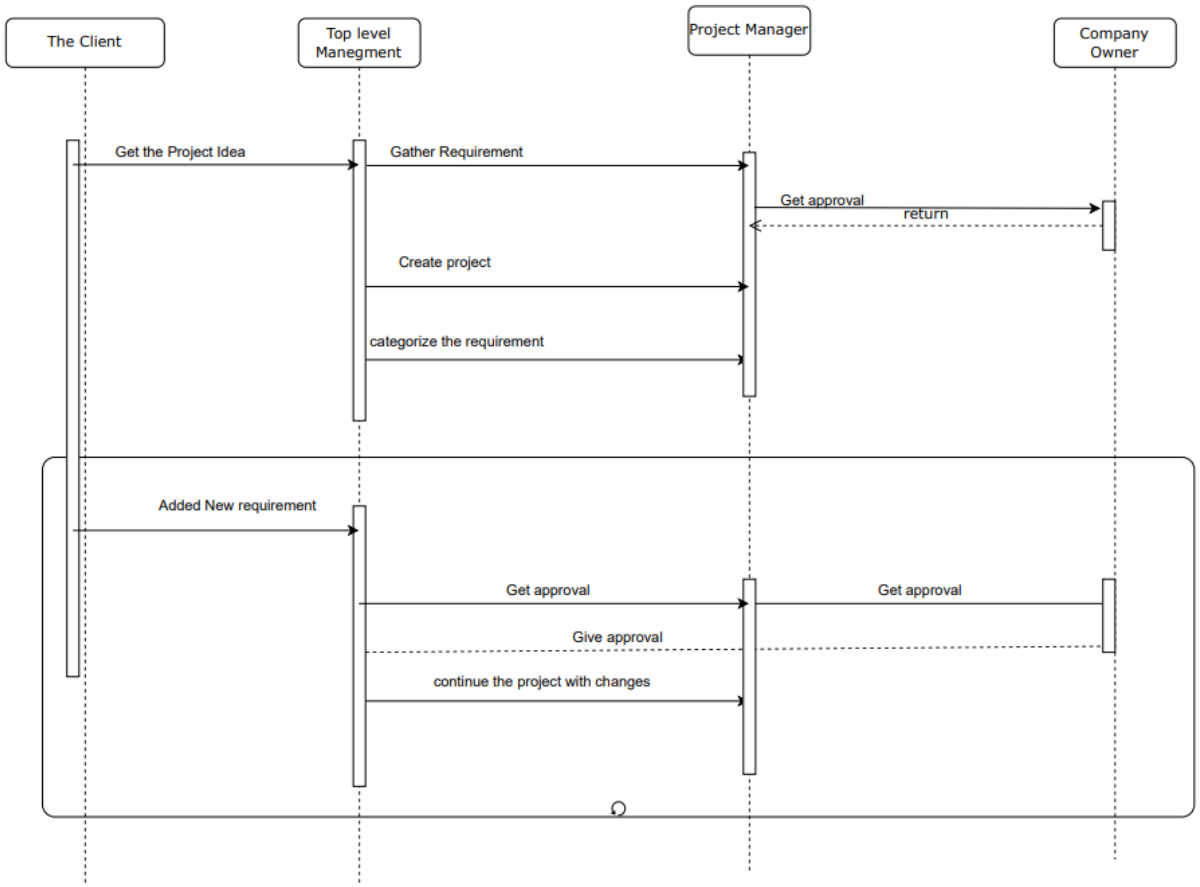


Figure 5.3.4- Requirement Handling (Sequence diagram)

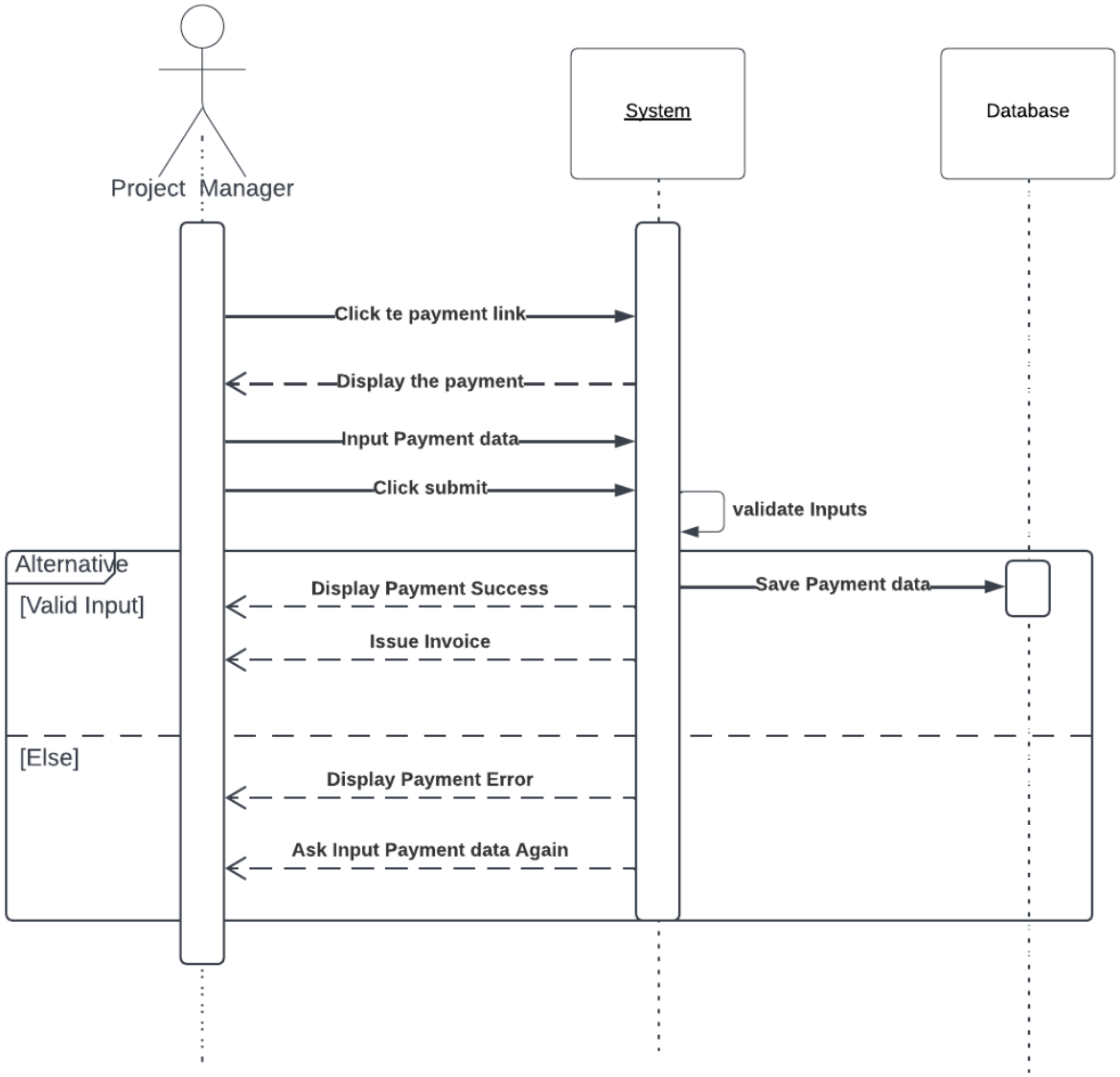


Figure 5.3.4- Budget and Payment Handling (Sequence diagram)

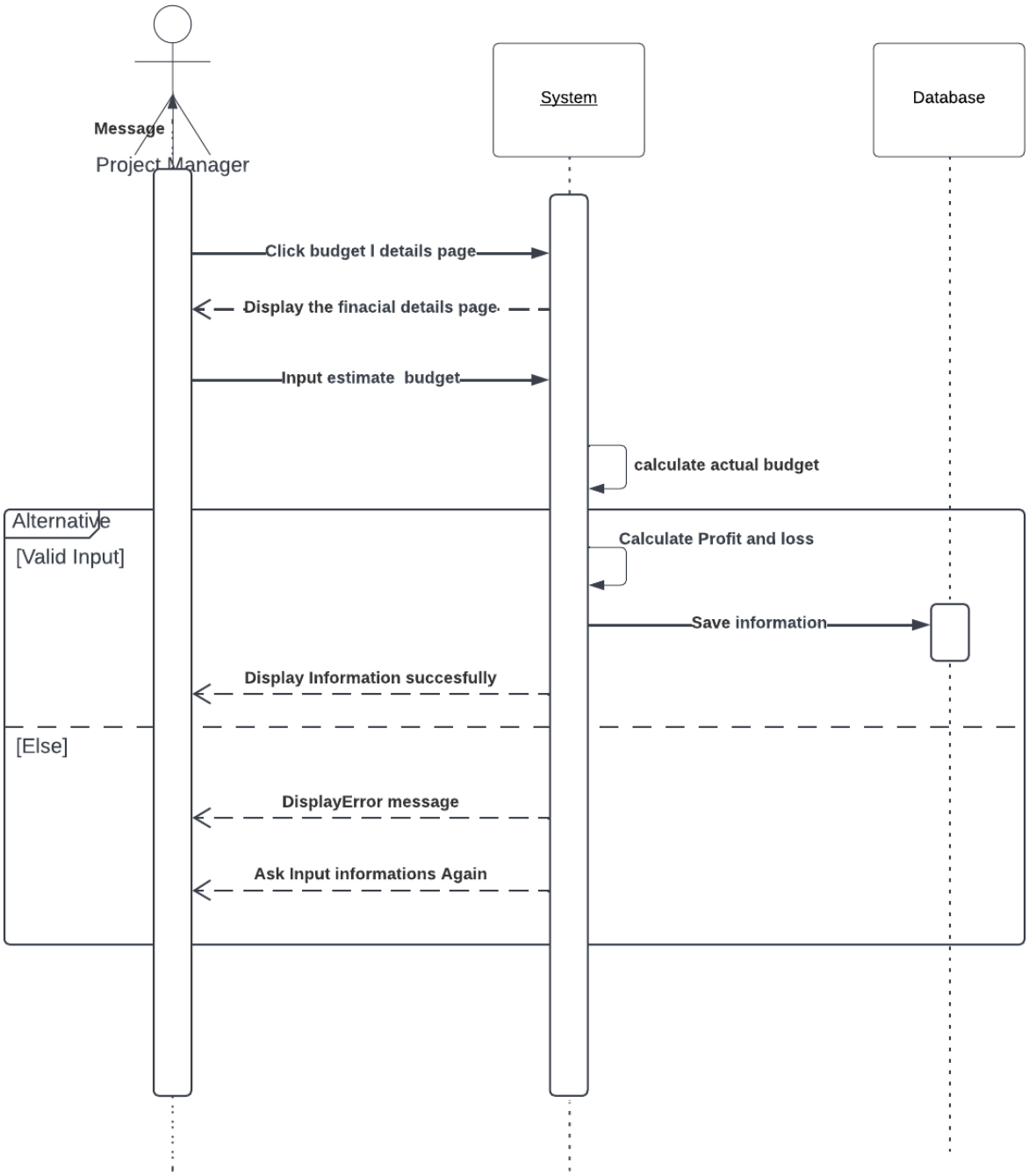


Figure 5.3.4- Budget and Payment Handling (Sequence diagram)

Sequence Diagram -Sprint managment

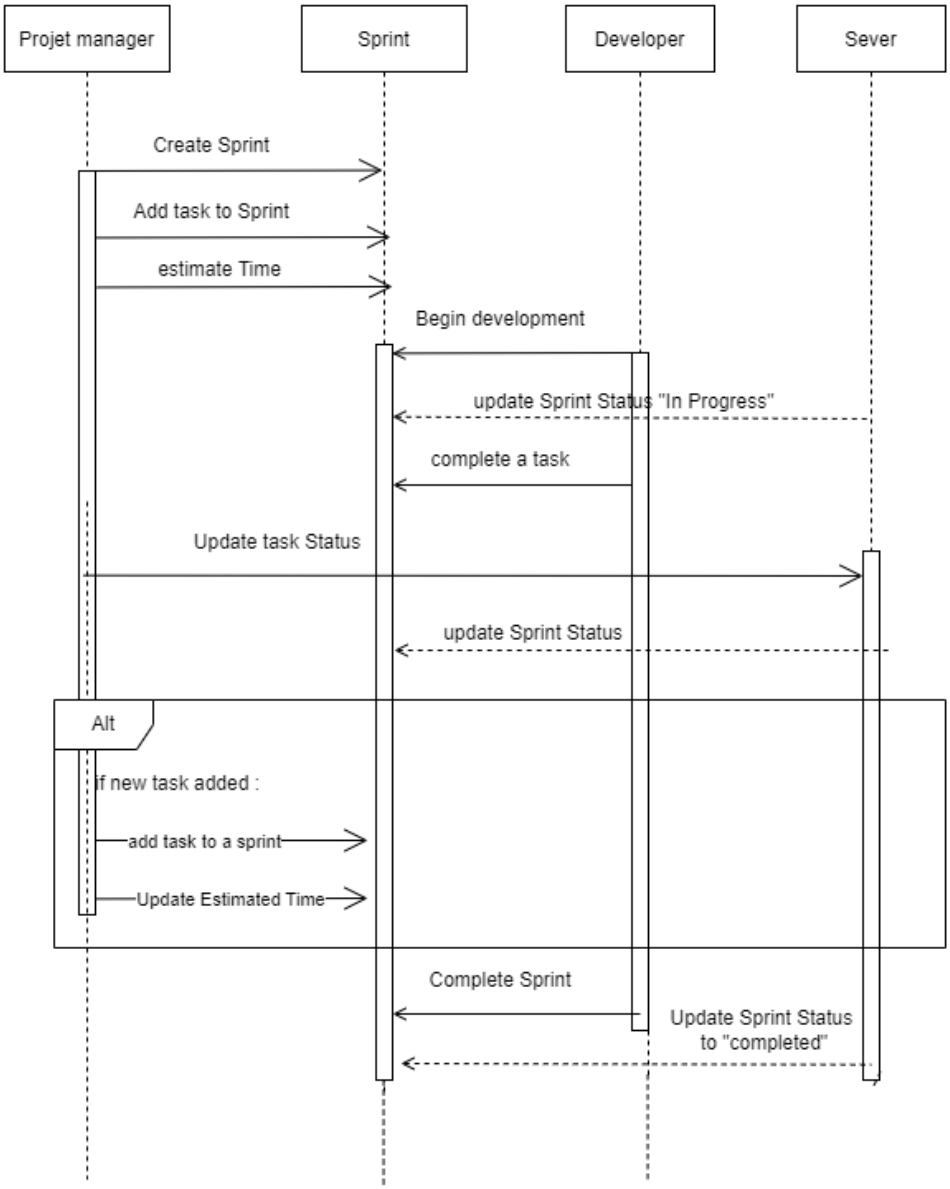


Figure 5.3.4- Sprint Handling (Sequence diagram)

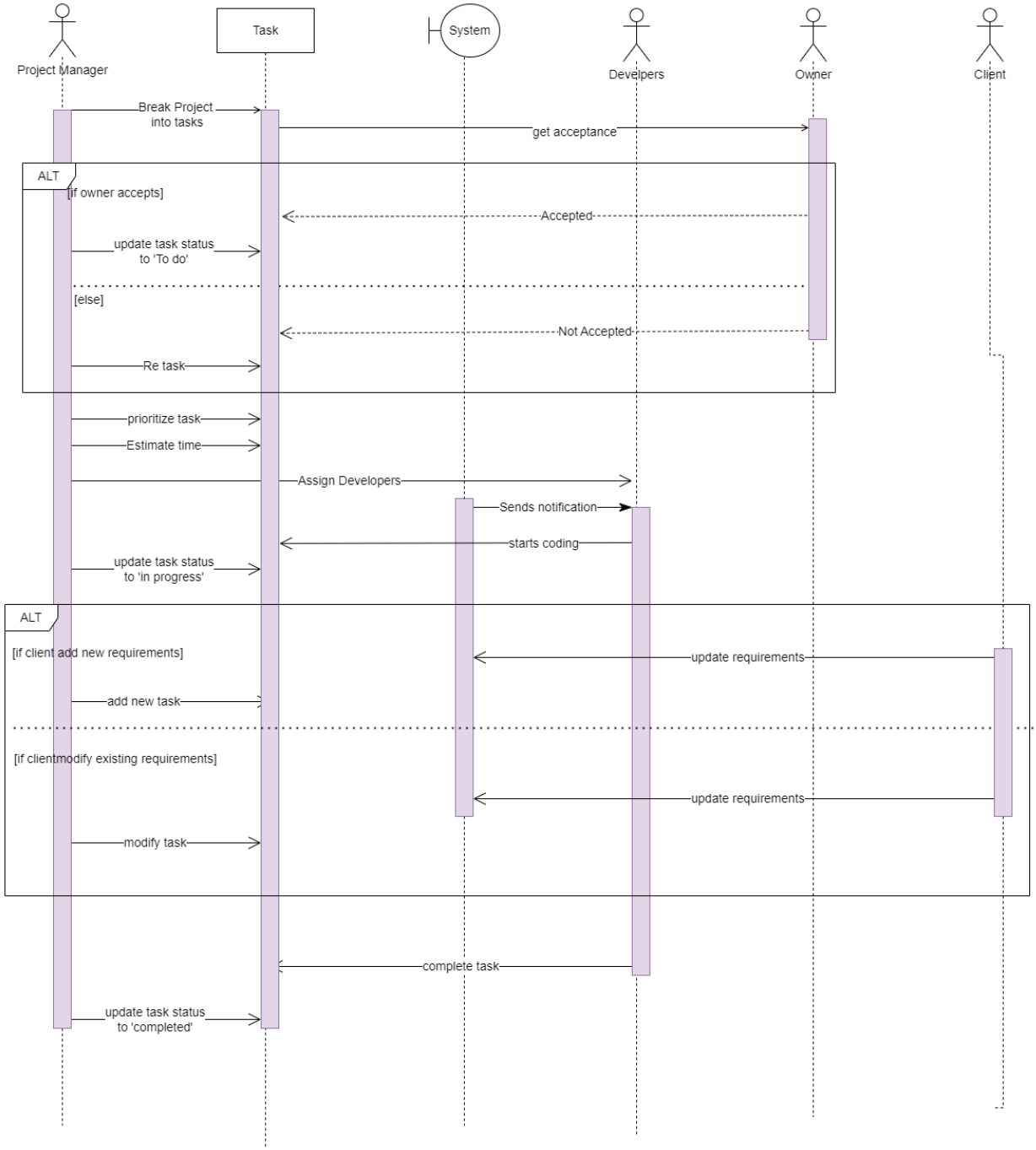


Figure 5.3.4- Task Handling (Sequence diagram)

5.3.5. Entity Relationship Diagram

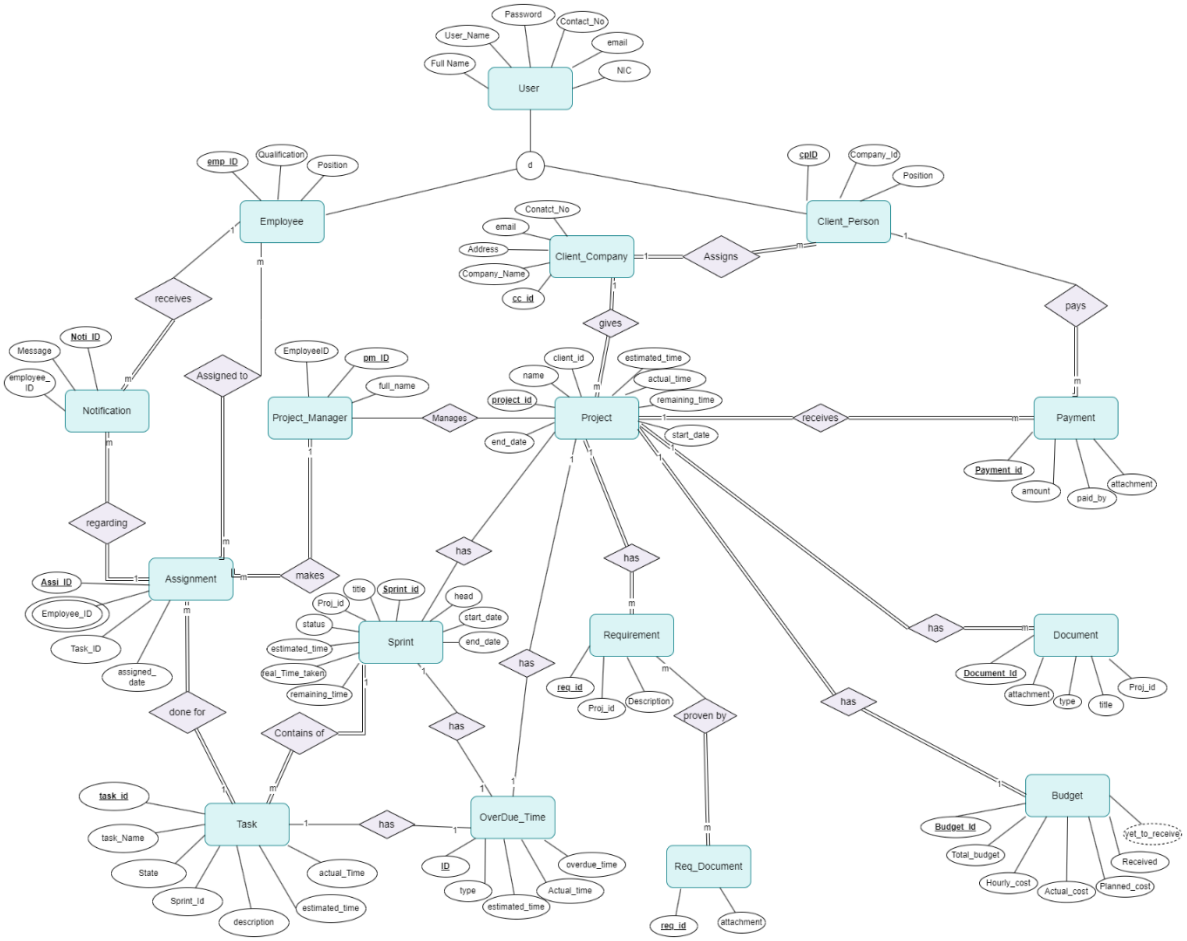


Figure 5.3.5 - Enhanced Entity Relationship Diagram

Chapter 6 Implementation

6.1 introduction

After identification of all user needs, this chapter describes the implementation of our system. We selected the Agile Model as our software process model. We designed a use case, activity, sequence, class UML diagrams and EER diagram to clearly visualize our solution. It will be helpful for our development process. After gathering requirements, we created "UI" (user interface) in Figma. It is easy for us to understand the overall website, and other technical features.

6.2 implementation (UI design)

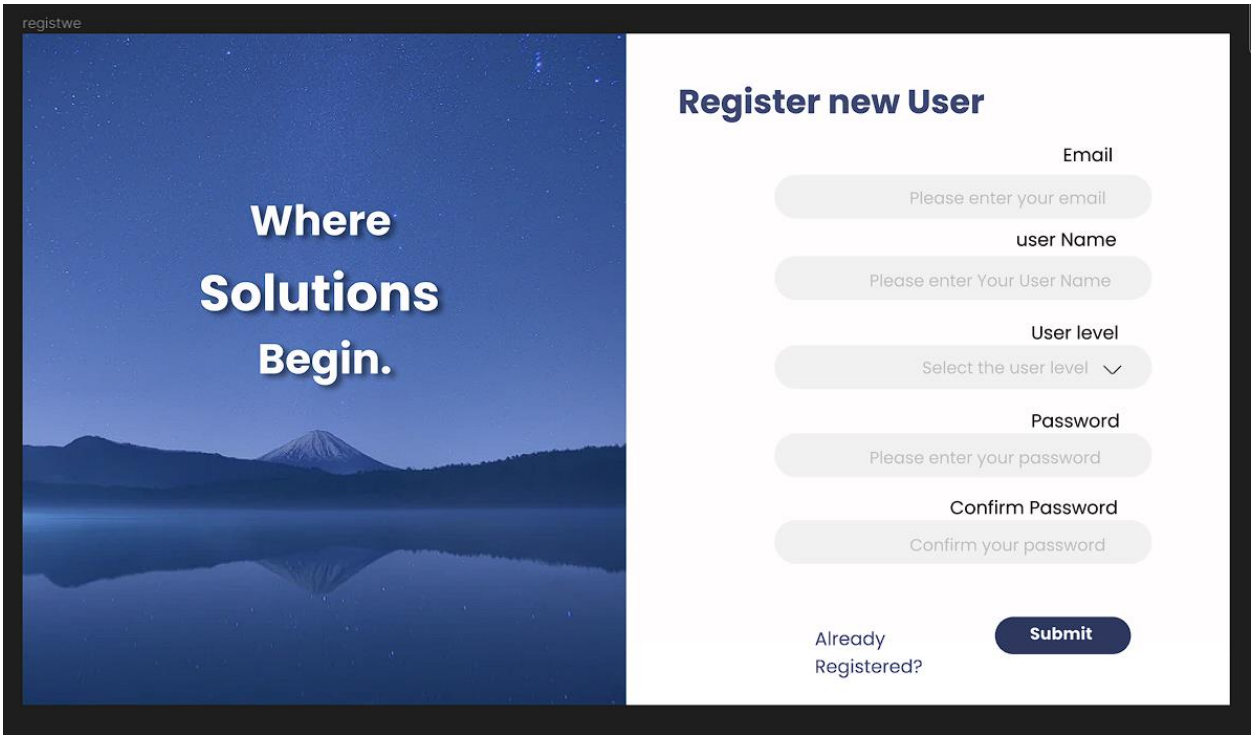


Figure 6.2- Front end (implementation (UI design)

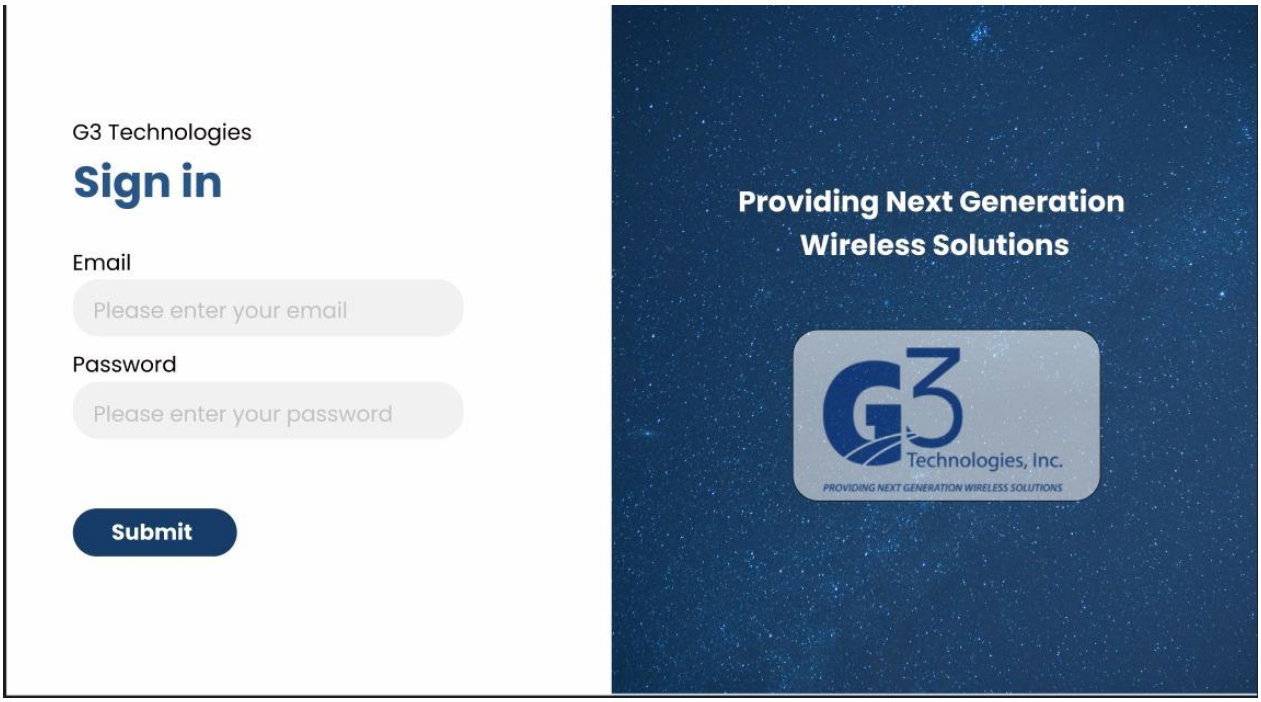


Figure 6.2- Front end (implementation (UI design)

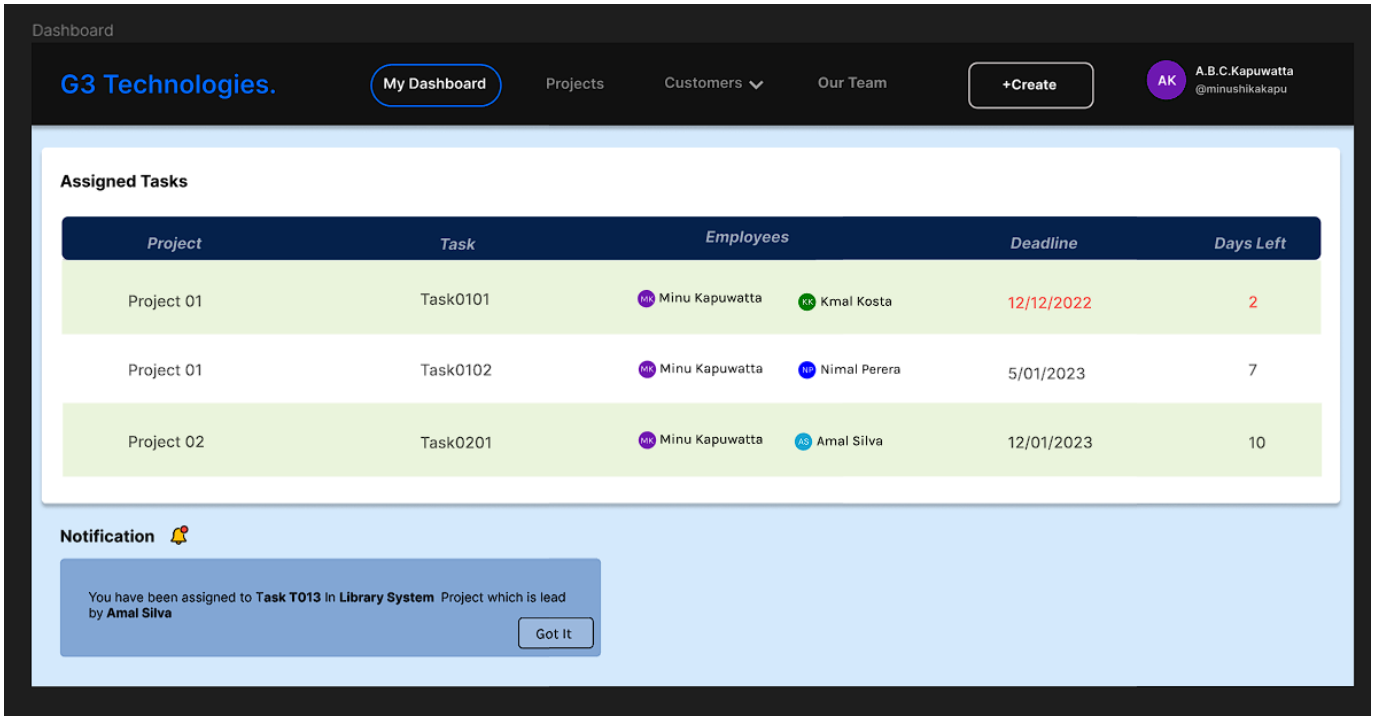


Figure 6.2- Front end (implementation (UI design)

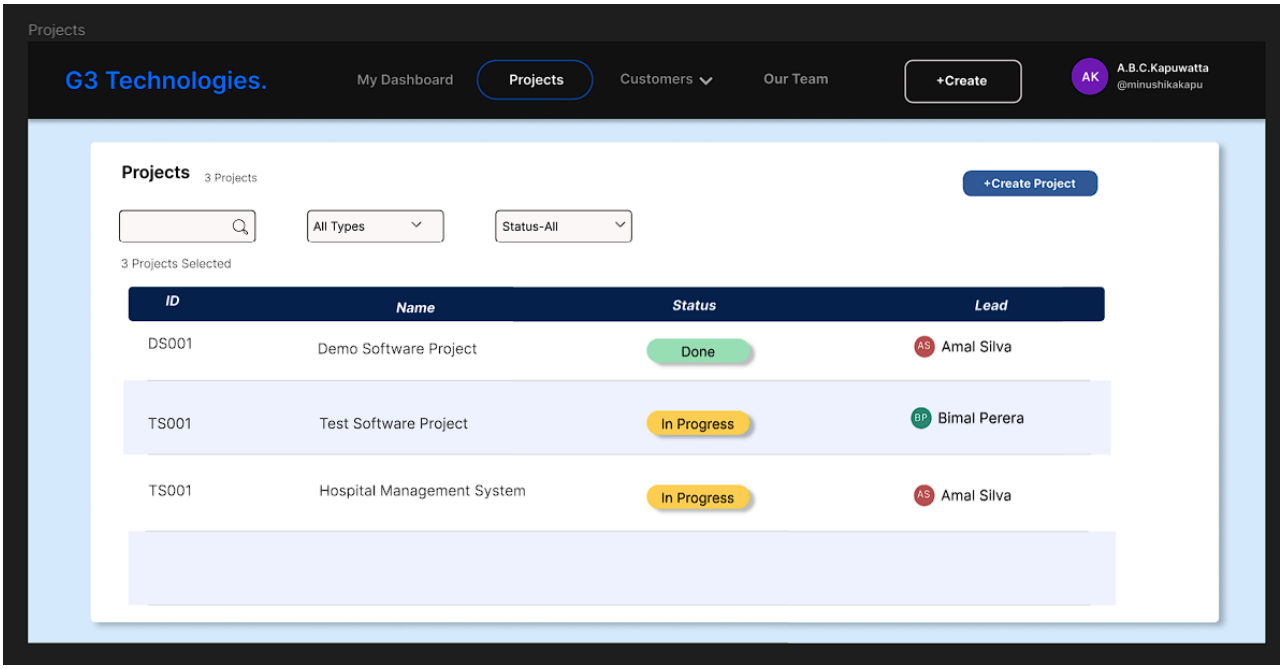


Figure 6.2- Front end (implementation (UI design)

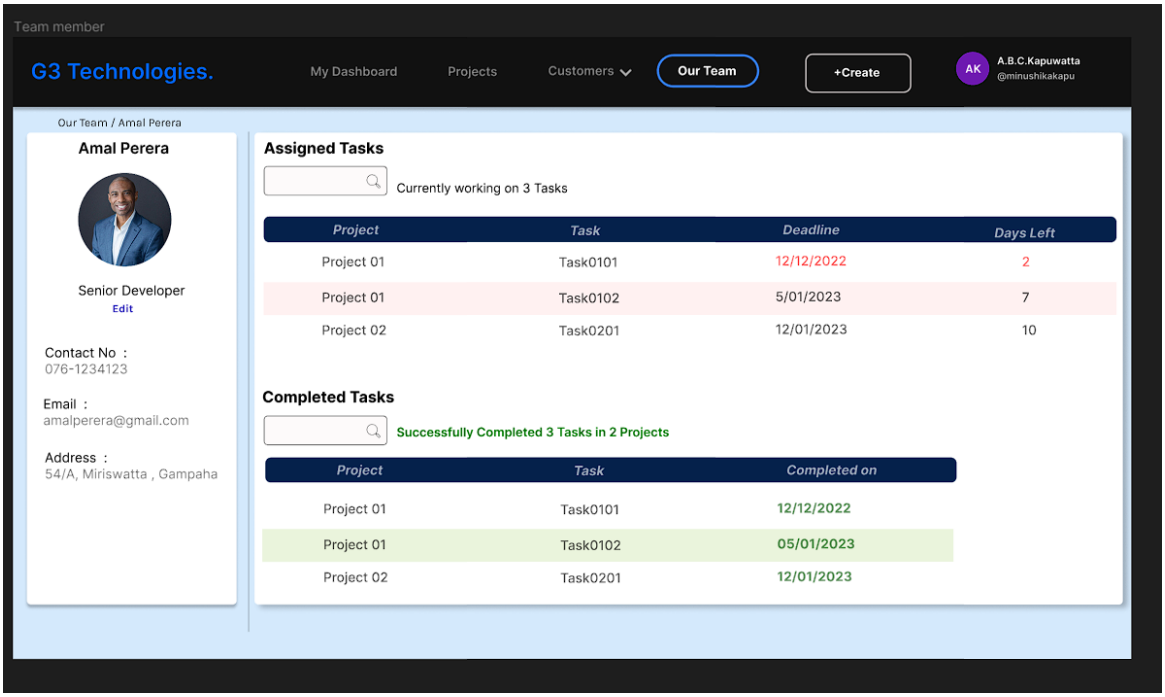


Figure 6.2- Front end (implementation (UI design)

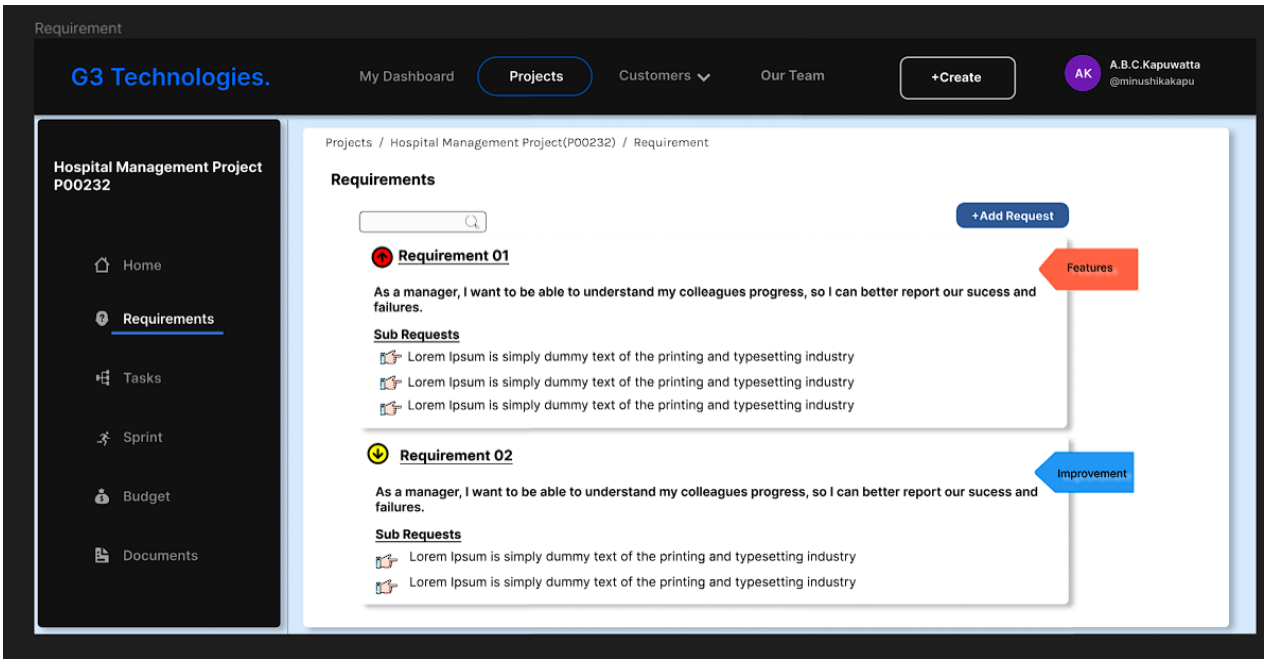


Figure 6.2- Front end (implementation (UI design)

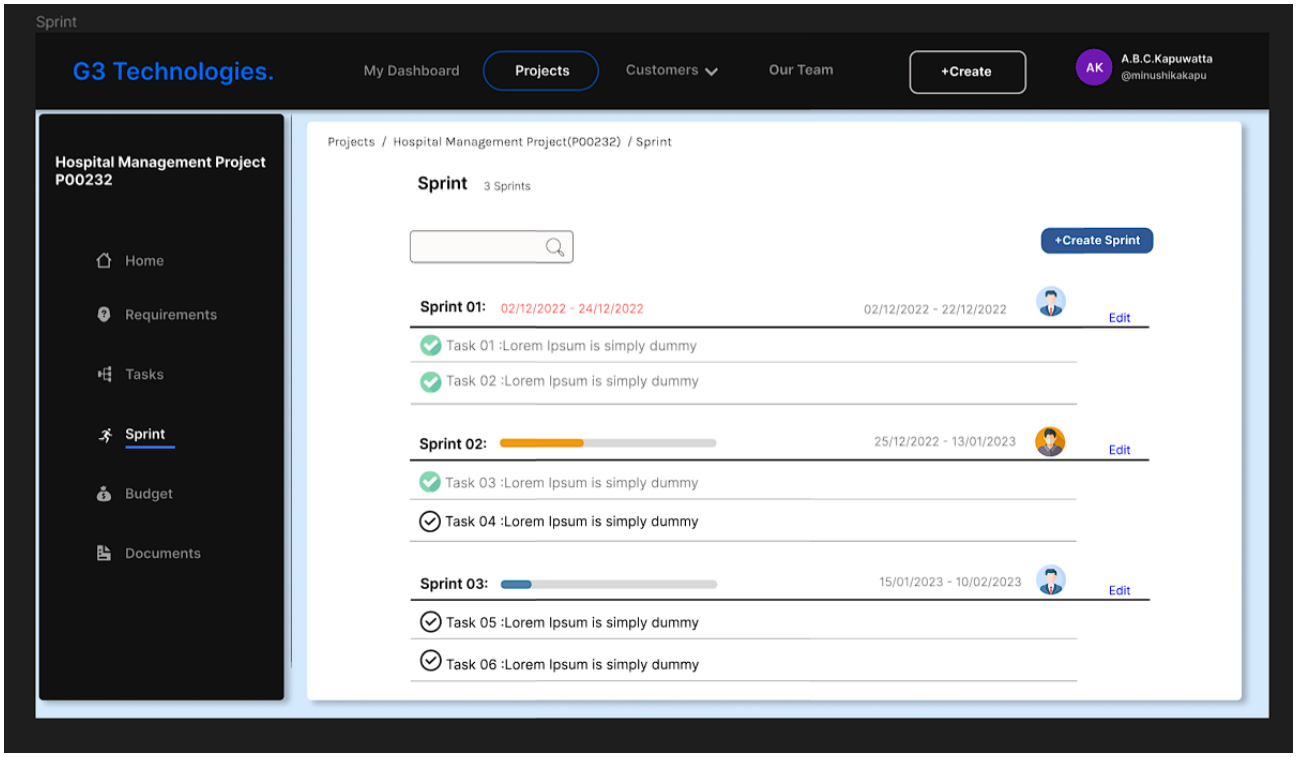


Figure 6.2- Front end (implementation (UI design)

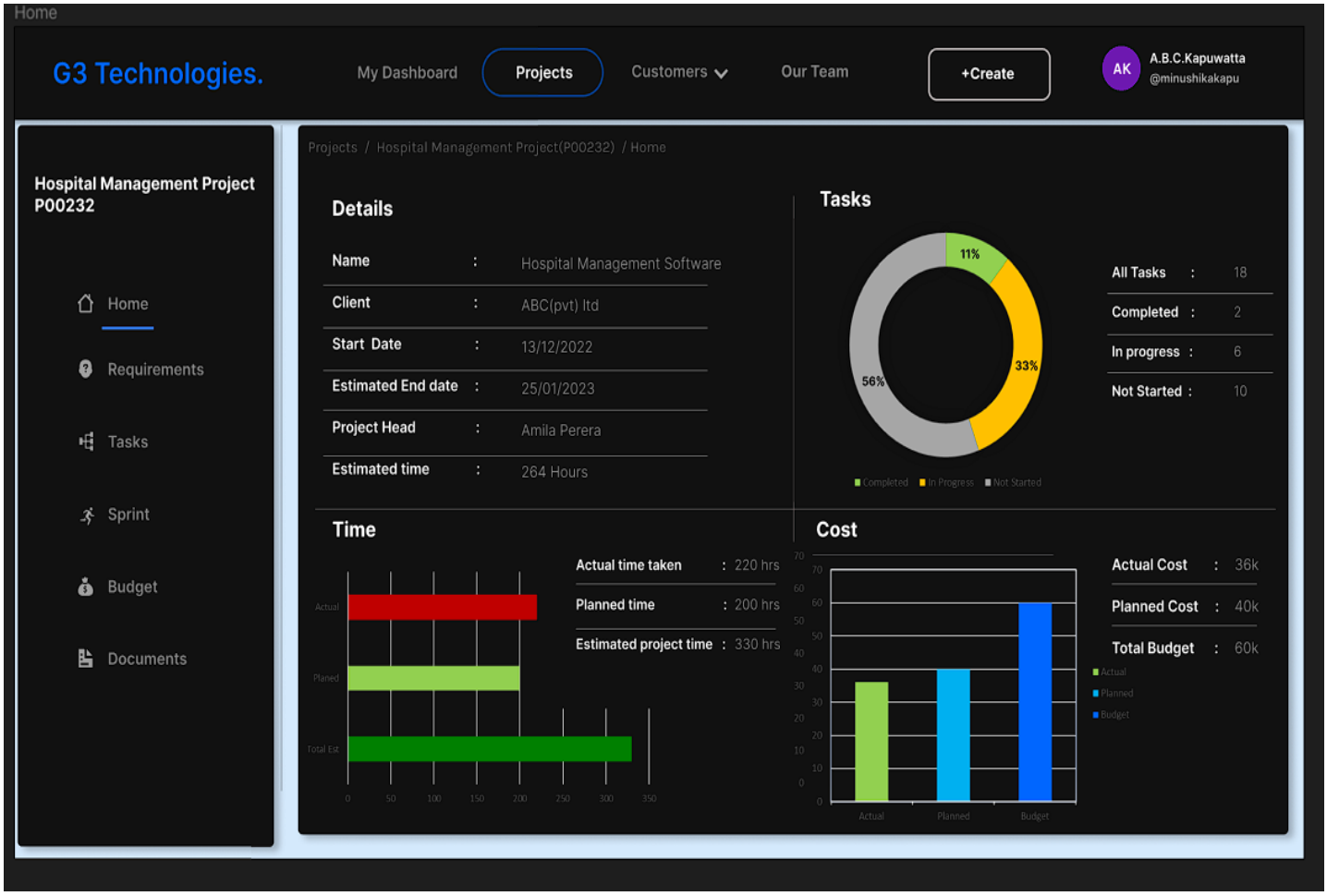


Figure 6.2- Front end (implementation (UI design)

```
function App() {
  const initialValue={username:"",password:""};
  const[formValue,setFormValues]=useState(initialValue);
  const[formErrors,setFormErrors]=useState({});
  const[isSubmit,setSubmit]=useState(false);

  const handleChange = (e) =>{
    const{ name,value }= e.target;
    setFormValues({ ...formValue,[name]:value });

  };
    const handleSubmit =(e) =>{
      e.preventdefault();
      setFormErrors(Validate(formValue));
      isSubmit(true);
    };
    useEffect(()=>{
      console.log(formErrors);
      if(Object.keys(formErrors).length===0 && isSubmit){
        console.log(formValue);
      }
    },[formErrors])

  const Validate=(value) =>{
    const errors={};
    const regex=/^[^\s@]+@[^\s@]+\.[^\s@]{2,}$/i;
    if(!Validate.username){
      errors.username="username is required!";
    }else if(!regex.test(value.username)){
      errors.username="this is not validate type"
    }
    if(!Validate.password){
      errors.password="password is required";
    }else if(value.password<5){
      errors.password="password must be more that 5 charastaristic";
    }
```

Figure 6.2- Front end (implementation)

6.3 Summary

Through this chapter analysis and design, we have represented diagrams like Use case, Activity, Class, Sequence, and ER which provides a basic understanding of our design and analysis mechanism**.**

Chapter 7 references

[1]Kayser, D. (2022) *8 benefits of using a project management software, AI Project Management Software For Professional Services*. Forecast. Available at: https://www.forecast.app/blog/benefits-of-using-project-management-software (Accessed: December 30, 2022).

[2]The Digital Project Manager and Aston, B. (2022) *Why is project management so important to an organization?, The Digital Project Manager*. Available at: https://thedigitalprojectmanager.com/personal/new-pm/why-is-project-management-important/ (Accessed: December 30, 2022).

[3]Mark Otto, J.T. (no date) *Bootstrap, Bootstrap · The most popular HTML, CSS, and JS library in the world.* Available at: https://getbootstrap.com/ (Accessed: December 30, 2022).

Chapter 8 Appendix A: Individual Contribution to the Project

8.1 Induvial contribution - 205050u KAPUWATHTHA H.B.M.R.M.M

As a team leader I have huge responsibility for developing this system successfully, making good communication with the mentor of the company and managing the team members according to their specific skills throughout the system developing period.

So first I planned a meeting with the mentor of G3 Technologies. Then me and my team discussed the system user requirements with the mentor of G3 Technologies.

After that I listed down what are the features we are going to implement in this system, according to the user requirements of our system. Then I assigned those features to implement among our team members according to their skills. Then me and my team started to design UML diagrams and EER diagrams. After that I decided to start designing the UI of our system. Also created a Gantt chart with my team members.

I am responsible for the sprint handling part. I developed activity and sequencer diagrams that are relevant for my sprint handling part. And I contributed to draw EER diagram and use case. Apart from that I am still learning about .net and react technologies using YouTube and google.

8.2 Induvial contribution-205002C Abedeera M.P. P

I am responsible for task handling. First, I studied some existing software and how do they handle the task. And I contributed to drawing the EER diagram, Use Case diagram and Class diagram. I have developed activity and sequence diagrams relevant for task handling.

According to the design ideas we decided on as a team, I started creating the UI designs for the features that using the Figma tool. I am also still studying MS SQL and .Net

8.3 Induvial contribution-205003F Abeythilaka W.P.G.C.H

I am responsible for developing document handling. First, I studied my part and drew the activity and sequential diagrams. And I contributed to drawing the EER diagram. And help to create reports.

I contribute to design UI and share my design ideas. I am still studying about .net react and MS SQL

8.4 Induvial contribution- 205071J Nisansala P.G.S

I am responsible for developing budget and payment handling. I develop sequential and activity diagrams for my part. And I contributed to develop EER, UI and class diagrams.

Apart from the help to create report as well as SRS. I am also still studying about .net, react and MS SQL.

8.5 Induvial contribution- 205101E Sewwandi K.M.D.I.

I am responsible for developing requirement handling. I also develop Activity and sequential diagrams for my part. I cornubite to create a use case and class diagram.

And I helped to create reports and SRS documents. I am also still studying about .net and MS SQL.

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Software Requirements Specification

Project Management System

Prepared by Team Fantastic five

Faculty of Information Technology

University of Moratuwa

12/31/2022

Contents

Chapter 9 1.Introduction

9.1 1.1 Purpose

The main purpose of this document is to present a detailed description and to demonstrate the functionality of the Project Management System. It contains a description of the system, and it will explain the system's functions, features, and interfaces, system goals, limitations, and operating principles. It will also describe how the system will respond to external inputs. Furthermore, this document will give a thorough explanation of how this tool may be used to replace the existing project management system and simplify tasks for project managers who will be utilizing it

9.2 1.2 Document Conventions

This Document was created based on the IEEE template for System Requirement Specification Documents.

9.3 1.3 Intended Audience and Reading Suggestions

The Performance Appraisal (PA) Project Developers and Testers, Mentors Assigned by G3 Technologies (Pvt) Ltd, and anybody else to whom they desire to send it are the intended recipients of the SRS. Owners, project managers, software engineers, other employers, and also their clients, etc. might all fall under this category.

9.4 1.4 Product Scope

The goal of this project is to create a system that will act as a manual for directing how a project is carried out a web application. This online application will assist the organization in creating a nice atmosphere to manage a project effectively and efficiently, as they are currently using a manual method to collect all of the data on excel sheets. This project made efficient use of the resources of the client and the firm. The project's major objective is to accurately store items within the anticipated timeframe while maintaining the expected level of quality and cost. A user-friendly interface would make this work much simpler as well. The introduction of the interim report for a more detailed explanation.

9.5 1.5 References

IEEE 830-1998 standard for writing SRS documents.

Chapter 10 2.Overall Description

10.1 2.1 Product Perspective

We are going to create an easy-to-use website to manage the projects. The project management system is an application where we can attach documents and share those attachments with the other users of the system. This system also helps users to track project activities and determine the current status of the project.

The main purpose of this system is to build proper connections and communication between the project manager, owner and customers involved in the project. Also providing facilities to easily gather and store the requirements, come in any form such as emails, voice recordings, text documents and pictures. And provide a clear view about the current status at which the project is being processed.

In this system we also update clients' payments and even clients can view how much they have paid, and they are due to pay. When clients update their requirements, the company may have to extend the time and price. Those values must be updated in the database and the website will be updated as well.

At the end of the timeline, the website prepares a report about the given project. The time taken, profit or loss and other required statistics

10.2 2.2 Product Functions

This system has five functions.

- Requirement handling
- Document handling
- Budget and payment handling
- Sprint handling
- Task handling

10.3 2.3 User Classes and Characteristics

The different users are given permission to use different features as required and granted access as necessary as can be seen further below.

- High-level manager(owner) can access all pages (Requirement, Document, Budget and payment, Sprint, Task)
- Project managers can only access the project details page.
- The financial manager can only access the financial and payment details.
- Developers can only access project details and their details profiles
- The client can only access project progress and developers' details profiles

10.4 2.4 Operating Environment

This platform can be used on any machine/pc/mobile that has a web browser with a stable internet connection.

10.5 2.5 Design and Implementation Constraints

- The front end of the tool is to be designed using React for web.
- We will use .net to design the backend of the tool.
- MS SQL is used as the database of this application.

10.6 2.6 User Documentation

Our application will consist of online help for ease of use.

10.7 2.7 Assumptions and Dependencies

All the users of the system should be connected to the internet for proper functioning of the system.

This platform will be an effective tool to manage project management system.

Chapter 11 3.External Interface Requirements

11.1 3.1. User Interfaces

Landing page

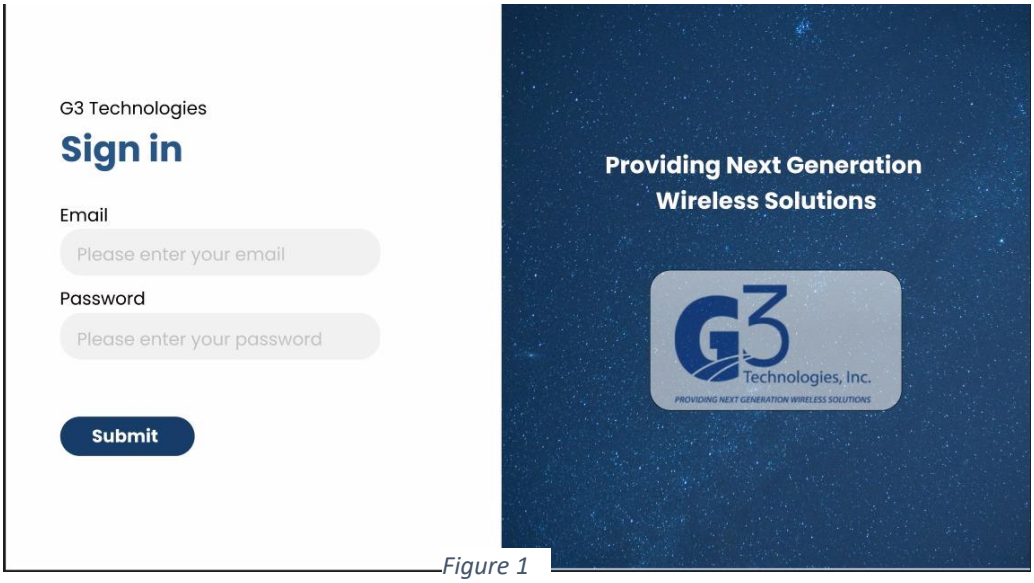
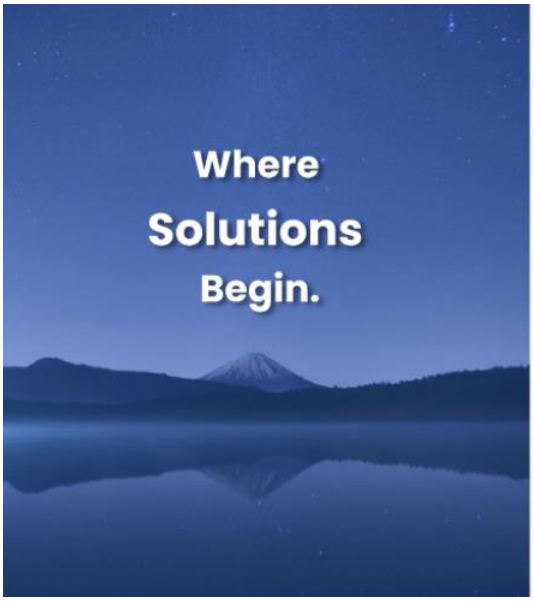
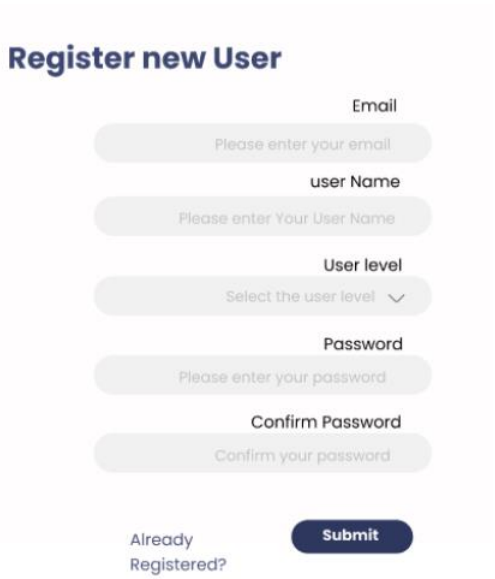


Figure 1

Registration





Task creation

Figure 2

Task creation

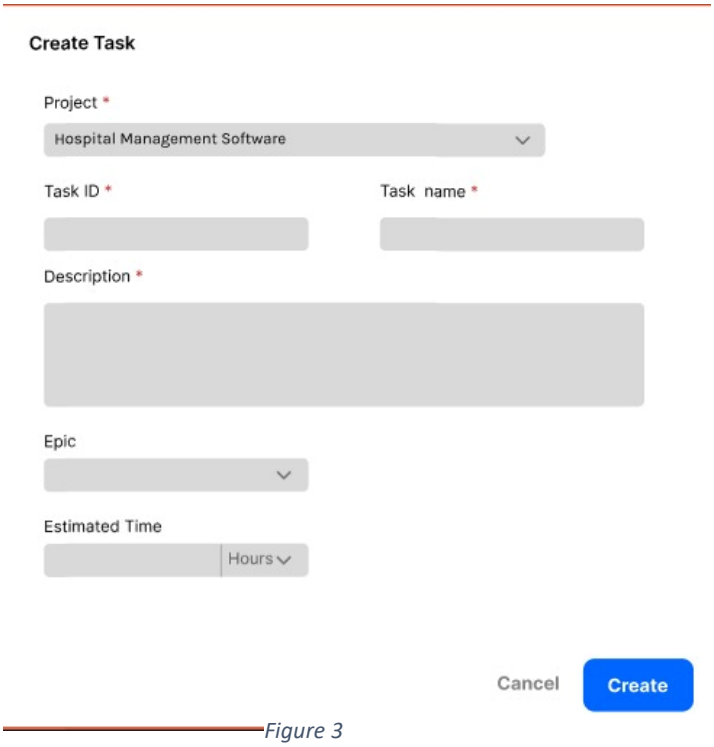


Figure 3

Sprint handling

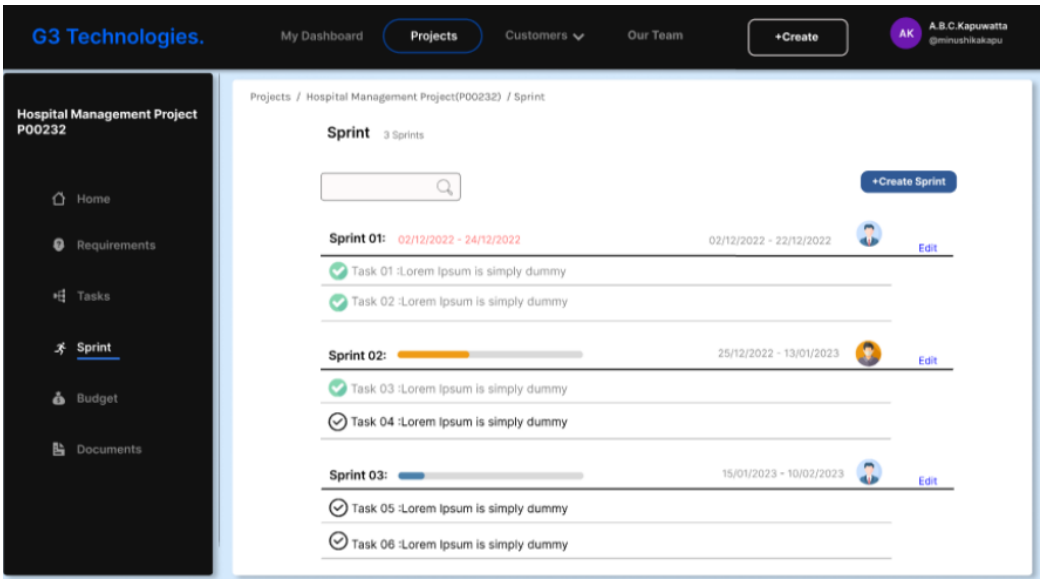


Figure 4

Dashboard

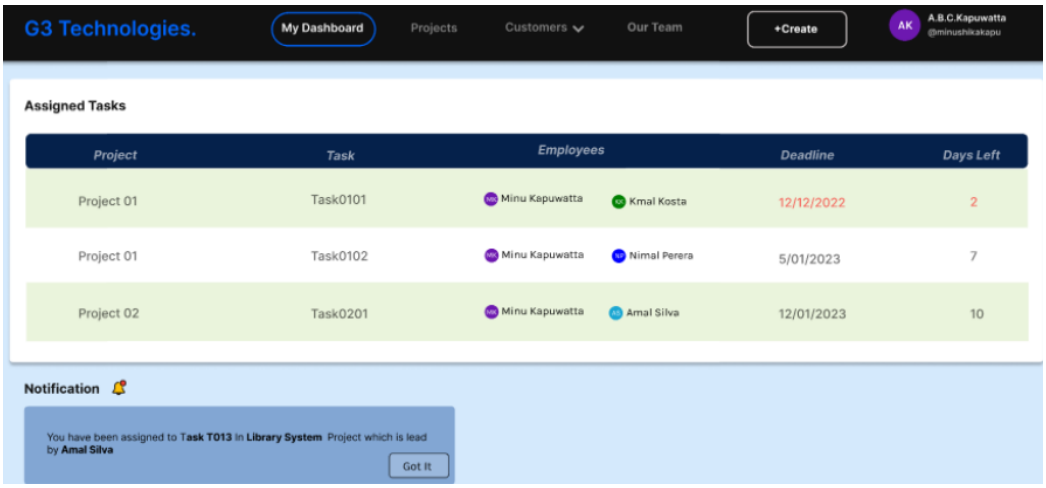


Figure 5

Create project

Figure 6

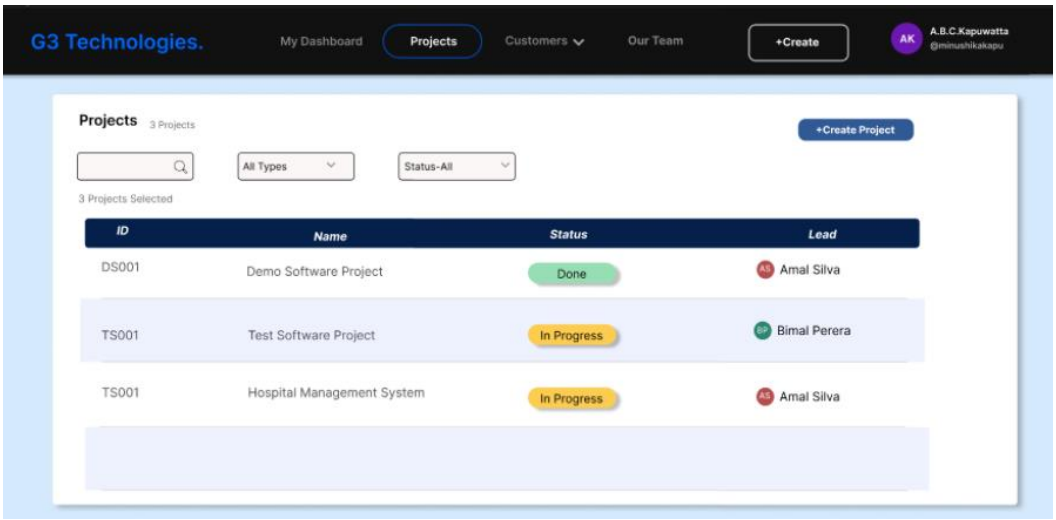


Figure 7

Task handling

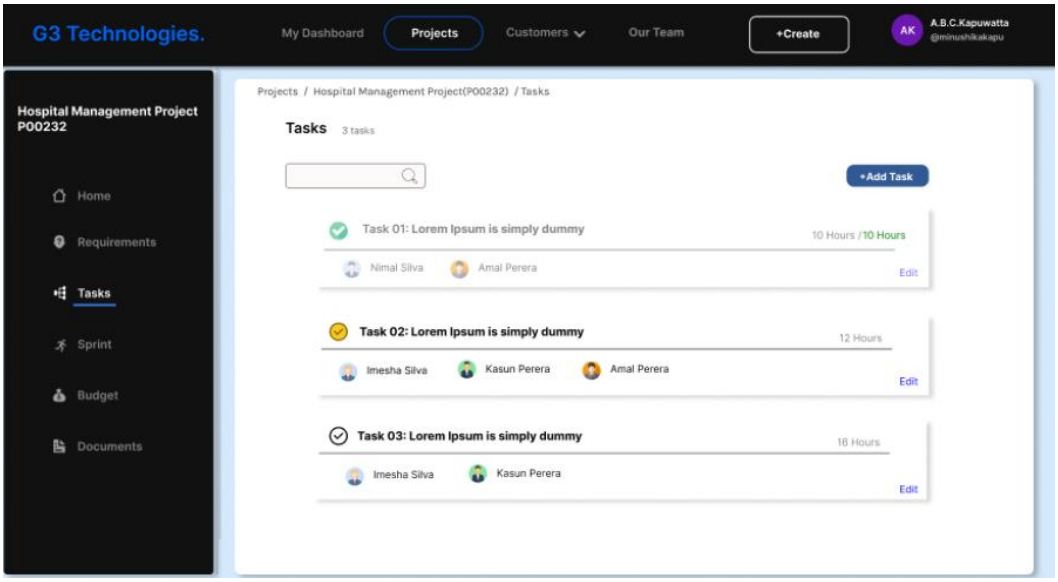


Figure 8

Project Home Page

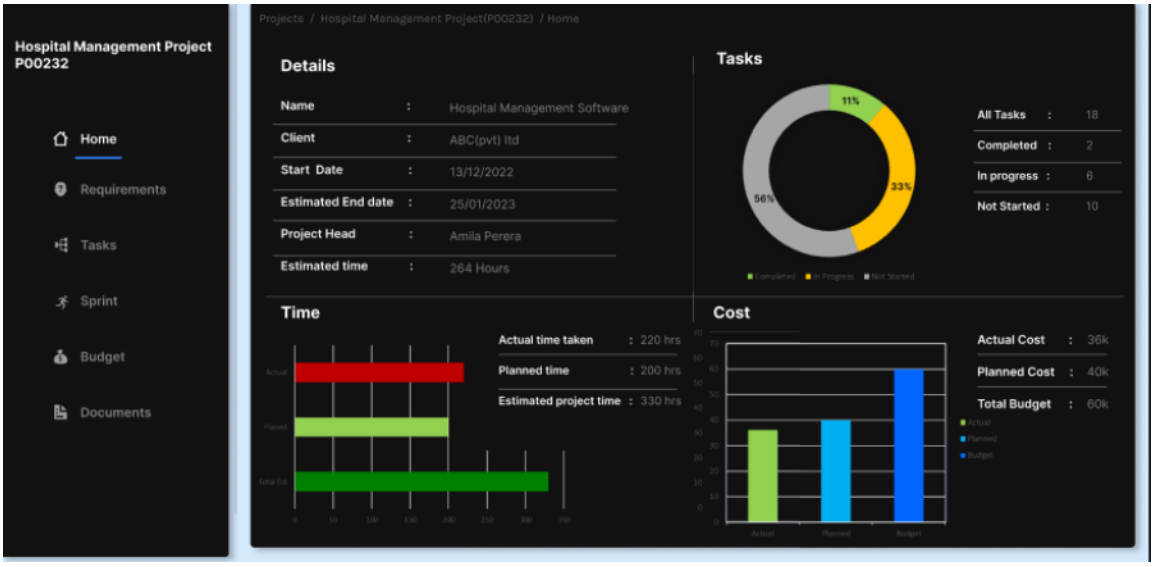


Figure 9

11.2

11.3 3.2 Hardware Interfaces

- In this system we expect to implement it as a web-based application. So, the device can work with any kind of web browser. This system can access without any kind of interruption.
- Also, this system does not need specific internet speed or extra CPU or GPU power. Normal data processing exists. So that a device depends on some hardware specification for normal browsing, it will be the minimum hardware requirement for running this application.

11.4 3.3 Software Interfaces

- In this application we design the front-end using React for web application.
- The backend will be asp.net. .NET is a developer platform made up of tools, programming languages, and libraries for building many different types of applications. And ASP.NET performs faster than any popular web framework in the independent Tec Empower benchmarks.
- We chose MSSQL as database technology. Because of this system we have many relationships among different related databases.

11.5 3.4. Communications Interfaces

- In this system we expect email for communication.
- We hosted the project in a cloud system.
- Application and backend communication will happen on HTTPS web requests.
- An internet connection is required to stay connected to the application and to get the benefit of its functionalities.

Chapter 12 4.System Features

12.1 4.1 Requirement handling

12.1.1. 4.1.1 Description and priority

This is very important and considered a high priority feature of this system. requirement handling manages all the project requirements. sometime clients give their requirements to varies types of voice, text, email etc. Gather all the information and categorize that requirement (changing requirements, feature).

12.1.2. 4.1.2 Stimulus/Response Sequences

Gather each requirement and record them. Then identify the requirements and Categorize them (features, bugs, changing requirements). finally handling Changing requirements process

12.1.3. 4.1.3 Functional requirements

- Create project
- Identify the requirements
- Categorized the requirements
- handling Changing requirements process

4.2 Document handling

4.2.1 Description and priority

This is a high-priority feature of the system. It includes SRS, profit and loss, payment receipt and final report.

4.2.2 Stimulus/Response Sequences

This feature connects other features in order to get information. example: financial management-profit and loss statement

4.2.3 Functional requirements

- Add attachments
- Document indexing
- Store documents
- Manage and track documents
- Sharing documents

12.2 4.3 Budget and payment handling

12.2.1. 4.3.1 Description and priority

Budget and payment handling is a high priority feature in our system. This feature offers managing and recording all the financial details. Payment is other part of this feature.it provides store all the payment information. After receiving the receipt from the client.

12.2.2. 4.3.3 Stimulus/Response Sequences

Gather income and expenses of the company. After getting net and gross profit. calculate the profit and loss. And also, after recording and updating the payments received receipt.

12.2.3. 4.3.3 Functional requirements

- Input estimate cost and calculate actual cost
- Calculate loss or profit
- Record payment
- Received receipt

12.3

12.4 4.4 Sprint handling

12.4.1. 4.4 1 Description and priority

This is a high-priority feature of the system. A task is divided into smaller parts for ease of redevelopment. The development teams choose what to do today and how it archived through the Sprint.

12.4.2. 4.4.2 Stimulus/Response Sequences

This sprint management feature has a ‘to do ‘(to do, doing, done) list. During a sprint, work is done to create new features based on the user stories and backlog. A new sprint starts immediately after the current sprint ends.

12.4.3. 4.4.3 Functional requirements

- Create Sprint
- assigning developers to Sprint
- Divided the Sprint Time between developer team
- Time estimating

12.5 4.5 Task handling

12.5.1. 4.5.1 Description and priority

This is very important and considered a high-priority feature of this system. Without proper, Task handling the backlog can become unreasonably large and complex.

12.5.2. 4.5.2 Stimulus/Response Sequences.

The project manager creates tasks and assigns developers and keeps them on time. Then estimate the time.

12.5.3. 4.5.3 Functional requirements

- create tasks
- assign developers
- keep track on time management

Chapter 13 5.Other Non-functional Requirements

13.1 5.1 Performance Requirements

This is a Project Management system. Through the system, every company employer and also client can see their dashboards. According to the position of the user, the data visible in the dashboard is varied. From the system, the owner can get all data for increment and promotion activities. Also, the project manager or software engineer can get all data about the projects. And the client can access only his or her project details. The application must be user-friendly and able to respond immediately. Also, the system allows multiple users to access it.

13.2 5.2 Safety Requirements

To ensure timely upgrades, all production servers run the Long-Term Support distribution of their operating system. Data entered into the system is backed up regularly. To assist assure their security, all backups are encrypted and kept in numerous off-site locations. On the odd occasion that recovery is necessary, this option is available. Furthermore, system maintenance plans will be evaluated regularly to guarantee that we keep reducing the effect on users.

13.3 5.3 Security Requirements

• The system admin determines whether the requestor has been authorized access to the Web service.

• Data protection ensures that the Web service request and response aren't tampered with along the way. It necessitates the protection of both data integrity and privacy.

• Limit all authorized users' access to all resources (including files, protected URLs, protected functions, services, and all project data) except system admin.

13.4 5.4 Software Quality Attributes

This system can be used by any company and can be used according to their requirements. It brings innovative features for conducting administrative activities and other related activities. The system is platform independent where it can be accessed using devices of any screen size.