

# Software Requirement Specification

**GROUP CS 40**

Group Project 1



## **Group and Supervisor Details**

### **Proposed Project Supervisors**

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## 1. Introduction

This documentation is made before the development and implementation of the UPKEEP to identify the requirement specifications of the system. This documentation contains the data related to design and development of the system.

### 1.1. Domain Description

UPKEEP is an Item Maintenance Management System that focuses on providing a management platform to maintainable items that we use in our day to day life. Within the system we will be hoping to provide services covering all the aspects of the lifecycle of a maintainable item.

We all use various kinds of maintainable items in our day-to-day life. By the name of maintainable items following items are preferred.

- Appliances
  - Personal Appliances ex: Laptops, Foot Cycles, etc.
  - Household Appliances ex: Refrigerator, Air Conditions, etc.
- Vehicles

Some of them would be very expensive possessions. However regardless of their price, if we want to make good use of them and keep them up and running smoothly, we need to maintain them properly. Otherwise, they will most likely break way before their lifespan and give you a lot of trouble with respect to the time and cost. Even though you know that their maintenance is important, keeping track of their general details and their maintenance tasks has become very difficult. Most of the time many of us don't know about the maintenance that needs to be done until they break down. Another problem is when a breakdown happens in an item it's very hard to find a technician quickly.

UPKEEP is proposed considering all those problems. It has 5 main Modules that help to overcome those problems.

- Item management module

With this module we provide basic functionalities to keep track of the item's maintenance records and other details such as warranty details and maintenance tasks that we need to done with the timeframe of the task

- Reminder module

With this module we generate reminders to the user on what needs to be done in their items with the data added in the above management module. The user does not need to add reminders manually, the system will automatically generate the reminder for the users. These reminders may include reminders such as, maintenance task reminders, warranty reminders, sub component expiry reminders etc.

- Suggestion module

With this module users will be provided with the suggestions about items. This can be a new item or new maintenance task on a certain item. These suggestions will be generated through the user community of the system. They can either suggest items or tasks manually or the suggestions will be generated automatically through the system with the new data added by the users who use the application.

- Community Module

This module is made for users to communicate with each other about the problems that they face maintaining the items. The technicians will also take part in this community. Therefore it will be more reliable and efficient with regard to solving issues.

- Technician module

With this module Item owners will be able to find technicians easily to do their maintenance tasks and repair tasks of the items. Technicians also get the features to find work within their working domains.

The proposed system aims to provide its users with a proper management system to track down the details and maintenance of their maintainable properties and provide them with a platform whenever they need help and guidance with their maintenance throughout the entire life cycle of their maintainable properties. This contains a system to keep records of properties and automatic suggestions about the property, the community to post their problems and issues regarding the maintenance, and the ability to find technicians for the repair tasks.

## 1.2. Alternatives and limitation

There are some item management systems already on the market but they are mainly focused on the inventory aspect of the item and they are designed for industrial use. Cheqroom and Fractal are a few examples.

But within our system we will be focusing on the maintenance aspect of the item and we are more focused on personal use. We will also be introducing a suggestion system where the system evolves with the data entered by the users. Within the functionalities we provide some may think those functionalities can be achieved by other simple software like reminder systems and statistics record keeping software and also using the public communities like Facebook. But the uniqueness of UPKEEP is the work that user do to achieve those functionalities is very minimum and UPKEEP will automatically do most of the work as well as UPKEEP is an all in one platform for managing maintainable items.

### 1.3. Goals

The main goal of the project is to provide maintainable item owners with a fully functional community-based system to manage their item maintenance with ease and provide them with the features for better management of their items throughout their life cycle.

Some sub goals of the project is building a community platform that accessible for everyone regarding the proper maintenance of their maintainable items and providing technicians with a platform to find jobs related to the items they are able to repair and maintain.

### 1.4. Objectives

- To produce an efficient maintenance management system for maintainable properties of a household and personal level.
- To provide the user with the ability to upkeep their properties and provide them with the knowledge they don't have about maintenance with a community-based system and help them to avoid unnecessary breakdowns.
- To provide aid to the users in maintaining their maintainable items throughout their entire life cycle.
- To provide the property owners with a platform to find technicians to get their repair and maintenance tasks done.
- To provide the technicians with a platform to find jobs easily.

### 1.5. Constraints and Assumptions

#### 1.5.1. Constraints & Limitations

- In this system we are focusing on maintainable items that we use in our day-to-day lives. So the boundary of the items where we can add to this system is difficult to define. So in the initial stage we will be focusing on adding household items, vehicles. We will not be focusing on the industrial items at this stage of the development. And we will be developing the system with the ability to adapt.
- In order to run the system smoothly (feature-wise) it should be ceased for some time with the user data.
- In the initial run of the system admin and moderator should already enter the initial set of item templates to the system.
- Moderators of the system should have some knowledge about the technical aspects of the items (or should have knowledge and ability to do research on items and their maintenance tasks).
- The role of the moderator can be automated using AI in later. But with the development constraints we will not be able to automate the role of moderator.
- The suggestions generated by the system must be approved by the moderator to be added to the system as template.

### 1.5.2. Assumptions

- All the users will enter valid information to the system.
- Every user who registered to the system has a strong network connection
- Users will enter the correct details when creating user accounts.
- Assume that some technical parts can be achieved without using any framework such as generating notifications.
- After a predetermined period, the system will run smoothly with regard to the suggestion features.

## 2. Project Feasibility

### 2.1. Technical Feasibility

Technical feasibility is the process of proving that the system is technically possible. This system is expected to be web-based software.

We are planning to use the following technologies in order to implement our plans.

- HTML5, CSS3 and JavaScript will be used for frontend development and PHP, MySQL will be used for backend.
  - HTML will be used for structuring the web pages. CSS will be used for styling web pages and creating the website responsive on different devices. JavaScript will be used for adding functionalities for the web pages and make more interactive. AJAX will be used to make the updates and searching live.
  - PHP is one of the most widely-used programming languages on the internet, and it allows us to do much more than other back end languages. MySQL is used to create and modify the database for our system.
- IDE and Text Editors:
  - Visual Studio Code and PhpStorm by JetBrains will be used.
- Other Tools:
  - Project Management tool: Trello
  - Communication: Discord, zoom
  - Web Server software - XAMPP
  - Version controlling - GitHub
  - Diagramming - Draw.io
  - Documentation - Google docs, MS Office 365
- Hosting
  - Amazon Web Services' Elastic beanstalk is used for the deployment of UPKEEP
  - Amazon Web Services' Relational Database Service is used for the database management.

## 2.2. Ethical and Legal Feasibility

This system does not break or violate any rules or regulations under the law in Sri Lanka. Since the development uses freely available technologies there could not be any legal barriers. The system will be dealing with some sensitive information of the user such as personal details, Household details, and vehicle details. Because of this nature, the system is ethically bounded not to disclose any information to unauthorized viewers. The following actions have been taken to prevent ethical conflicts.

- User data – User data such as name, email, etc. would not be visible to anyone without the user's permission
- Handling user data – There would not be any kind of data selling for targeted advertising from external parties. The data added by users such as their inventory details, routine details, vehicle details, etc. are only accessible to the user only. They can only be manipulated by the user within the system.
- Community moderation – the community feature of the system will be rigorously moderated by the admin to prevent any community infringements.

According to the above facts, the system is feasible on legal and ethical sides.

## 2.3. Economic Feasibility

Cost-benefit analysis of the project is what determines its economic feasibility. This determines whether it is possible to implement the system.

- The development process will make use of open-source software and tools.
- A free hosting server can be used for initial deployment.
- No additional hardware cost.
- Considering the maintenance cost, it doesn't cost more.
- The cost of communication among the team members is manageable.

So, considering the total cost of the system, the system has the potential to be inexpensive.

When deploying the system, the cost of hosting the web application or for any other hardware equipment would be ideally nil as we are planning to use the EC2 service of the free tier of "Amazon Web Services" (AWS) to deploy the system. As additional services, we are using the Elastic Beanstalk Service from AWS and Relational Database Service from AWS. Eventually, once the user base grows, the system would be updated to the paid versions which would depend upon the user base.

Therefore the system is economically feasible.

## 2.4. Operational Feasibility

Operational feasibility evaluates how well the suggested system solves the cited issues. The main concerns found in end users' side;

- No proper method to track down the maintenance of the maintainable items.
- Lack of knowledge on maintaining items they use in their day-to-day life
- Unable to keep track of essential needed items records such as warranty information.
- No reliable way to find help when needed
- Difficulty on finding technicians to do the necessary maintenance tasks and repairs

By using the UPKEEP Item maintenance system;

- The end-users of the proposed system are technicians and the persons who need to track their maintainable items (Item owners).
  - Item owners will get the features to track down the details of the items, get suggestions about unknown things of the items, and communicate with the people who use the same items and the technician that repairs them to solve issues and to find technicians easily and efficiently.
  - Technicians will get the features to find the work (jobs) on their respective domain and manage those jobs.

So, it is clear from the foregoing that the project is operationally feasible.

## 2.5. Schedule Feasibility

The project timeline that the team members prepared is shown above. The waterfall model, which is the project's chosen software development model, is expected to be used. The project is expected to be completed within the given one-year academic period. The project is therefore assumed to be schedule-feasible. As our team consists of four members, So, we believe we have enough time to complete the project.

## 3. Requirements

### 3.1. Stakeholders of the system

There are four main primary stakeholders who use this system. Namely,

#### General Users

This is the main stake holders of the system that using the main services of the system. UPKEEP is intended to provide service for them.

- Item Owner
- Technician

#### Administrative users

Users that are responsible for maintaining the system to provide better service for General users.

- Admin
- Moderator

### 3.2. Functional Requirements

#### 1. Common functional Requirements

1. Login
2. Logout
3. Edit Profile

#### 2. Item owner has the following functional requirements.

1. Add items
2. Add maintenance tasks
3. Remove items
4. Remove maintenance tasks
5. View items
6. Update maintenance tasks
7. File Complaints
8. View Community posts
9. Search for technicians
10. Create jobs
11. Post issues on community
12. Rate Comments
13. Comments on posts
14. Review technicians
15. Suggest item to the system

3. Technician has the following functional requirements.

1. Generate reports
2. Send verification request
3. View jobs
4. Respond to jobs
5. View statistics
6. Create gigs
7. Manage gigs
8. View Community
9. Comment on community

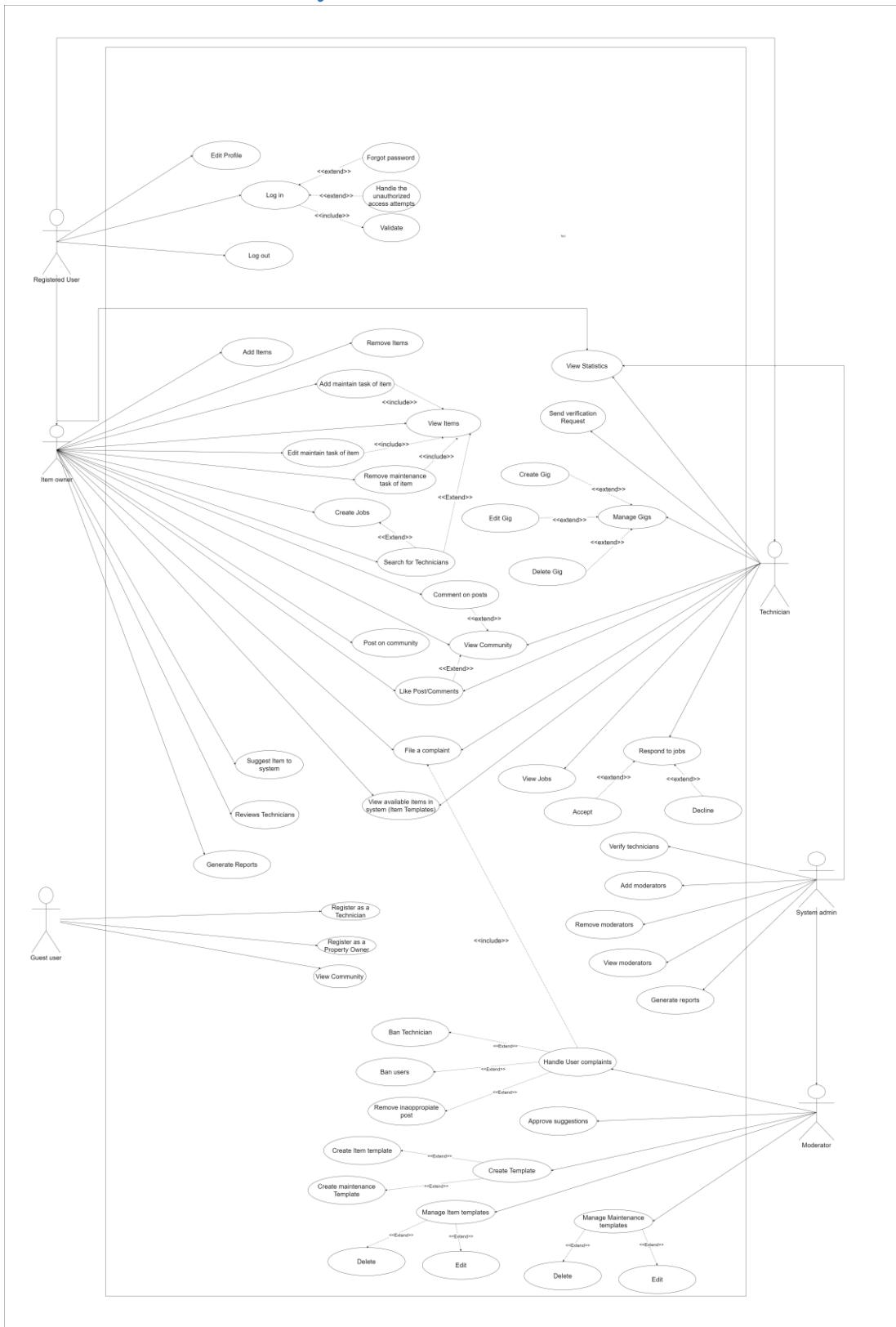
4. Admin has the following functional requirements.

1. Add moderators
2. Remove moderators
3. Verify technicians
4. Generate reports

5. Moderator has the following functional requirements.

1. Manage maintenance tasks
2. Handle user complaints
3. Approve suggestions
4. Manage item template
5. Create template

### 3.3. Use case of the system



### 3.4. Use case narratives

#### Item Owner

Use case	Add item
Description	This use case describes the details about the types of items entered by the user into the system. User can add items with its necessary details for the system and in adding process. User can enter the details of the items according to the categorization.
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	
<ul style="list-style-type: none"> <li>• Item Owner must be logged into the system</li> </ul>	
Main Flow	
<ol style="list-style-type: none"> <li>1. Go to the item tab.</li> <li>2. Click add items.</li> <li>3. Users enter item information into the provided form.</li> <li>4. User clicks on the enter button.</li> <li>5. User clicks the confirm button.</li> </ol>	
Alternative Event	
None	
Post- condition	
User gets an overview of the added item details.	

Use case	Remove item
Description	User can delete items which were added in the previous time periods.
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	<ul style="list-style-type: none"><li>• Item owner must be logged into the system</li></ul>
Main Flow	<ol style="list-style-type: none"><li>1. Go to items.</li><li>2. Click on a specific item.</li><li>3. Click on delete item.</li><li>4. Confirm the deletion.</li><li>5. Update the database.</li></ol>
Alternative Event	
None	
Post- condition	

Use case	Add maintain task
Description	This use case is used to add maintenance for a corresponding item(s) for the system by the user and in the adding process.
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	
<ul style="list-style-type: none"> <li>• User must be logged into the system</li> <li>• Users must have already created a property or an item.</li> </ul>	
Main Flow	
<ol style="list-style-type: none"> <li>1. Users navigate to the items maintenance section.</li> <li>2. Click on the add maintenance task button.</li> <li>3. Users enter the information about the maintenance task.</li> <li>4. Click on the add button.</li> <li>5. User confirm the provided preview.</li> </ol>	
Alternative Event	
<ol style="list-style-type: none"> <li>1. Navigate to the property section.</li> <li>2. Select a property or item under a property.</li> </ol>	
Post- condition	
Reminders will be created according to the task	

Use case	Remove maintain task
Description	This use case is used to remove the maintenance of an item(s).
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	
<ul style="list-style-type: none"> <li>• Item Owner must be logged into the system</li> </ul>	
Main Flow	
<ol style="list-style-type: none"> <li>1. Item Owner navigate to the item maintenance section.</li> <li>2. Click on the remove maintenance task button.</li> <li>3. System will show the information about the task(s).</li> <li>4. Click on the submit button.</li> <li>5. Users confirm the process.</li> <li>6. Update the database.</li> </ol>	
Alternative Event	
None	
Post- condition	

Use case	View item
Description	This use case describes the event of the item details.
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	

<ul style="list-style-type: none"> <li>• Item Owner must be logged into the system.</li> </ul>
Main Flow
<ol style="list-style-type: none"> <li>1. Item Owner navigates item section.</li> <li>2. Click on specific item.</li> <li>3. View the details of the item.</li> </ol>
Alternative Event
Post- condition

Use case	Update maintain task
Description	This use case is used to update the maintenance of an item(s). User can view and delete each item
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	
<ul style="list-style-type: none"> <li>• User must be logged into the system</li> </ul>	
Main Flow	
<ol style="list-style-type: none"> <li>1. Users navigate to the item maintenance section.</li> <li>2. Click on the update maintenance task button.</li> <li>3. System will show the information about the task(s).</li> <li>4. Click on the update button.</li> <li>5. Users confirm the provided preview.</li> </ol>	
Alternative Event	

None
Post- condition
Show the changing things according to the task.

Use case	View Community posts
Description	This use case describes the event of the viewing of community. Item Owner can view community post items which are posted by the other users.
Primary Actor	Item Owner, Technician, Guest
Secondary Actor	None
Pre-condition	
<ul style="list-style-type: none"><li>• Item Owner must be logged system.</li></ul>	
Main Event	
<ol style="list-style-type: none"><li>1. Item Owner navigates to the community section</li><li>2. Select the items category</li><li>3. View community post</li></ol>	
Alternative Event	
Post- condition	
<ul style="list-style-type: none"><li>• User can comment the post.</li></ul>	

Use case	Search for technicians
Description	Users can search technicians for their item maintenance.
Primary Actor	User
Secondary Actor	None
Pre-condition	The user must be logged into the system and has a maintainable item to maintain.
Main Flow	<ul style="list-style-type: none"> <li>• Users navigate to the search technicians section.</li> <li>• System loads select location feature.</li> <li>• User enters his location.</li> <li>• System validates the location.</li> <li>• If it is correct, the system requests to enter the item name.</li> <li>• If not, the user can re-enter the location.</li> <li>• Users should enter the item name.</li> <li>• System suggests the service providers.</li> </ul>
Alternative Event	<ul style="list-style-type: none"> <li>• Users will be able to navigate to maintain tasks sections.</li> </ul>
Post- condition	<ul style="list-style-type: none"> <li>• View the service providers list.</li> </ul>

Use case	Create Jobs
Description	Item Owner can create jobs according to their maintenance items.
Primary Actor	Item Owner
Secondary Actor	Technician
Pre-condition	The Item Owner must be logged into the system and has a maintainable item to maintain.
Main Flow	<ul style="list-style-type: none"> <li>• Users navigate to the create jobs section.</li> <li>• System loads the current job roles and adds job roles features.</li> <li>• User enter the job role and item name according to his maintainable item</li> <li>• Select technicians.</li> <li>• System update the database and update job roles to the technicians.</li> </ul>
Alternative Event	<ul style="list-style-type: none"> <li>• Navigate to the update or create maintenance tasks section.</li> </ul>
Post- condition	<ul style="list-style-type: none"> <li>• View the current created job roles.</li> <li>• System will generate notification to the corresponding technicians</li> </ul>

Use case	Post on community
Description	User can post issues that are connected to their property maintenance.
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	The user must be logged into the system and has a maintainable item to maintain.
Main Flow	<ol style="list-style-type: none"> <li>1. Users navigate to the community section.</li> <li>2. Users select the choice.</li> <li>3. Users enter issues details.</li> <li>4. System shows a preview of the post.</li> <li>5. System asked, edit or not the post.</li> <li>6. If yes, navigate to re-enter issues.</li> <li>7. If not, the user can click the submit button.</li> <li>8. System sends data to the database.</li> <li>9. System publishes posts in the community.</li> </ol>
Alternative Event	
None	
Post- condition	
	<ul style="list-style-type: none"> <li>• View posts in the community.</li> </ul>

Use case	Rate comments
Description	User (owner of the post) can rate comments on posts that are published by other users in the community.
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	The user must be logged into the system.
Main Flow	<ol style="list-style-type: none"> <li>1. User navigate to the community tab.</li> <li>2. System loads the community interface.</li> <li>3. User clicks on the post.</li> <li>4. System loads the post.</li> <li>5. User clicks on the comment button.</li> <li>6. System loads the comments. <ul style="list-style-type: none"> <li>• User give ratings.</li> <li>• System send data to the database.</li> <li>• System notified the owner of the comment.</li> </ul> </li> </ol>
Alternative Event	
None	
Post- condition	
	<ul style="list-style-type: none"> <li>• View posts and comments, ratings in community.</li> </ul>

Use case	Comments on post
Description	User can comment on posts that are published by other users in the community.
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	The user must be logged into the system.
Main Flow	<ol style="list-style-type: none"> <li>1. User navigate to the community tab.</li> <li>2. System loads the community interface.</li> <li>3. User clicks on the post.</li> <li>4. System loads the post.</li> <li>5. User clicks on the comment button.</li> <li>6. User enters the comment.</li> <li>7. System asked, edit or not the comment.</li> <li>8. If yes, navigate to re-enter comment.</li> <li>9. If not, the user can click the submit button.</li> <li>10. System sends data to the database.</li> <li>11. System notified the owner of the post.</li> </ol>
Alternative Event	
	None
Post- condition	<ul style="list-style-type: none"> <li>• View posts and comments in the community.</li> </ul>

Use case	Create item template
Description	User can create a default template for the special item to add their item.
Primary Actor	Item Owner
Secondary Actor	None
Pre-condition	The user must be logged into the system.
Main Flow	<ol style="list-style-type: none"> <li>1. User navigate to item section.</li> <li>2. Click add new Item.</li> <li>3. Click new template</li> <li>4. Add details about the item.</li> <li>5. System asks for confirmation.</li> </ol>
Alternative Event	
	<ul style="list-style-type: none"> <li>• View comments about technicians.</li> </ul>
Post- condition	<ul style="list-style-type: none"> <li>• User can request to add their own item template to the Administrator to add the system to use to other users</li> </ul>

Use case	Rate technicians
Description	User can rate technicians considering their work.
Primary Actor	User
Secondary Actor	Technician
Pre-condition	The user must be logged into the system.
Main Flow	<ol style="list-style-type: none"> <li>1. User navigate to the rate technician tab.</li> <li>2. System loads interface.</li> <li>3. User clicks give ratings.</li> <li>4. System save changes in database.</li> <li>5. System show the ratings.</li> <li>6. System notify the corresponding technician.</li> </ol>
Alternative Event	<ul style="list-style-type: none"> <li>• View comments about technicians.</li> </ul>
Post- condition	View ratings on technicians.

Use case	Review technicians
Description	User can review technicians considering their work.
Primary Actor	Item Owner
Secondary Actor	Technician
Pre-condition	<ul style="list-style-type: none"> <li>• The item owner must be logged into the system.</li> <li>• Item owner must have a job that was done by the relevant technician</li> </ul>
Main Flow	<ol style="list-style-type: none"> <li>1. Item Owner navigate to the rate technician tab.</li> <li>2. System loads interface.</li> <li>3. User clicks give ratings.</li> <li>4. System save changes in database.</li> <li>5. System show the ratings.</li> <li>6. System notify the corresponding technician.</li> </ol>
Alternative Event	<ul style="list-style-type: none"> <li>• View comments about technicians.</li> </ul>
Post- condition	<ul style="list-style-type: none"> <li>• View reviews on technicians.</li> </ul>

Use case	File Complaint
Description	Item Owner can send complaints.
Primary Actor	Item Owner
Secondary Actor	
Pre-condition	The item owner must be logged into the system.
Main Flow	<ol style="list-style-type: none"> <li>1. Item Owner navigate to the community tab.</li> <li>2. Select specific post.</li> <li>3. Click on report button.</li> <li>4. Enter complaint details.</li> <li>5. Confirm the details.</li> <li>6. Update the database.</li> </ol>
Alternative Event	
Post- condition	

## Admin

Use case	Add moderator
Description	This use case describes to add moderators to the system.
Primary Actor	Admin
Secondary Actor	None
Pre-condition	Admin should be logging into the system.
Main Flow	<ol style="list-style-type: none"> <li>1. Navigate to the moderator section.</li> <li>2. Click on add new moderator.</li> <li>3. Enter moderator's details.</li> <li>4. Checking the correctness of the details.</li> <li>5. Create moderator account.</li> <li>6. Update the database.</li> </ol>
Alternative Event	
None	
Post- condition	

<b>Use case</b>	Remove moderator
<b>Description</b>	This use case describes to remove moderators from the system.
<b>Primary Actor</b>	Admin
<b>Secondary Actor</b>	None
<b>Pre-condition</b>	
Admin should be logging into the system.	
<b>Main Flow</b>	
<ol style="list-style-type: none"> <li>1. Navigate to the moderator section.</li> <li>2. Click on remove moderator.</li> <li>3. Enter moderator's id.</li> <li>4. Checking the correctness of the details.</li> <li>5. Delete moderator account.</li> <li>6. Update the database.</li> </ol>	
<b>Alternative Event</b>	
None	

<b>Use case</b>	Verify technicians
<b>Description</b>	This use case describes to verify technicians from the system.
<b>Primary Actor</b>	Admin
<b>Secondary Actor</b>	None
<b>Pre-condition</b>	
Admin should be logging into the system.	
<b>Main Flow</b>	
<ol style="list-style-type: none"> <li>1. Navigate to the sign-up request section.</li> <li>2. Click on a request.</li> <li>3. Mark the verified details.</li> <li>4. Do the verification until all the details ticked.</li> <li>5. Send verification status email to technician.</li> </ol>	
<b>Alternative Event</b>	
None	

## Moderator

<b>Use case</b>	Manage Item Templates
<b>Description</b>	This use case describes to add new item, remove and make update to an existing item.
<b>Primary Actor</b>	Moderator
<b>Secondary Actor</b>	None
<b>Pre-condition</b>	
Moderator must be logged into the system.	
<b>Main Flow</b>	
<ol style="list-style-type: none"> <li>1. Navigate to the item templates section.</li> <li>2. System shows the basic item.</li> <li>3. Select a item.</li> <li>4. Click add/remove/edit button.</li> <li>5. Do the relevant task</li> </ol>	
<b>Alternative Event</b>	
<ul style="list-style-type: none"> <li>• None.</li> </ul>	
<b>Post- condition</b>	
<ul style="list-style-type: none"> <li>• A notification will be generated related to the changes in the item template.</li> </ul>	

<b>Use case</b>	Manage Maintenance tasks Templates
<b>Description</b>	This use case describes to update, remove an existing maintenance task.
<b>Primary Actor</b>	Moderator
<b>Secondary Actor</b>	None
<b>Pre-condition</b>	
Moderator must be logged into the system.	
<b>Main Flow</b>	
<ol style="list-style-type: none"> <li>1. Navigate to the item templates section.</li> <li>2. Select specific item.</li> <li>3. Click on maintenance of the item.</li> <li>4. Click on edit or delete a task.</li> <li>5. Confirm the details</li> <li>6. Update the database.</li> </ol>	
<b>Alternative Event</b>	
<ul style="list-style-type: none"> <li>• None.</li> </ul>	
<b>Post- condition</b>	
<ul style="list-style-type: none"> <li>• A notification will be generated related to the changes in the maintenance task template.</li> </ul>	

<b>Use case</b>	Handle User Complaints
<b>Description</b>	This use case describes to ban technician and users related to user's complaints.
<b>Primary Actor</b>	Moderator
<b>Secondary Actor</b>	None
<b>Pre-condition</b>	<ul style="list-style-type: none"> <li>• A complaint should be received from a user.</li> <li>• Moderator should be logging into the system.</li> </ul>
<b>Main Flow</b>	<ol style="list-style-type: none"> <li>1. Navigate to the complaints section.</li> <li>2. System will show all the complaints.</li> <li>3. Checking the correctness of the complaints.</li> <li>4. Changing things that need to be changed related to complaints.</li> </ol>
<b>Alternative Event</b>	<ul style="list-style-type: none"> <li>• When complaints are not suitable send a return message.</li> </ul>
<b>Post- condition</b>	<ul style="list-style-type: none"> <li>• Checking the correctness of the information related to a complaint and banning a technician or user.</li> </ul>

<b>Use case</b>	Approve Suggestion
<b>Description</b>	This use case describe to review the suggestions coming from the user and the suggestions coming automatically and create a template related to them.
<b>Primary Actor</b>	Moderator
<b>Secondary Actor</b>	None
<b>Pre-condition</b>	<p>Suggestion should be received from the user or system.  Moderator must be logging to the system.</p>
<b>Main Flow</b>	<ol style="list-style-type: none"> <li>1. Navigate to the suggestion section.</li> <li>2. System will show all the suggestion list.</li> <li>3. Review the validation of suggestions.</li> <li>4. Approve suggestion.</li> <li>5. Create a template.</li> <li>6. Send a notification.</li> </ol>
<b>Alternative Event</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Post- condition</b>	<ul style="list-style-type: none"> <li>• System will send a notification to the user for adding new template.</li> </ul>

<b>Use case</b>	Create item template
<b>Description</b>	Moderator can create a default template for the item to add item.
<b>Primary Actor</b>	Moderator
<b>Secondary Actor</b>	None
<b>Pre-condition</b>	
The moderator must be logged into the system.	
<b>Main Flow</b>	
<ol style="list-style-type: none"> <li>1. User navigate to item section.</li> <li>2. Click add new Item.</li> <li>3. Click new template</li> <li>4. Add details about the item.</li> <li>5. System asks for confirmation.</li> </ol>	
<b>Alternative Event</b>	
<b>Post- condition</b>	

## Technician

<b>Use case</b>	Generate reports
<b>Description</b>	This use case describes the event of generating reports which includes previously done jobs, earning details according to the daily/monthly/ yearly, number of orders, number of cancel orders etc.
<b>Primary Actor</b>	Technician
<b>Secondary Actor</b>	None
<b>Pre-condition</b>	
<ul style="list-style-type: none"> <li>• User must be logged into the system.</li> </ul>	
<b>Main event</b>	
<ol style="list-style-type: none"> <li>1. User navigates report generate section.</li> <li>2. User select type of the report.</li> <li>3. Confirm process</li> <li>4. System generate the report</li> </ol>	
<b>Alternative Event</b>	

- |  |
|--|
| <ul style="list-style-type: none"> <li>• If the parent submits form with important information are empty, then refill massage will be shown.</li> <li>• If the user submits invalid information an error message will be shown.</li> </ul> |
|--|

Post- condition
-----------------

- |  |
|--|
| <ul style="list-style-type: none"> <li>• User can view overview of the items details and add lend and borrow items.</li> </ul> |
|--|

Use case	Send verification request
Description	This use case describes the event of sending verifications requests to admins.
Primary Actor	Technician
Secondary Actor	Admin
Pre-condition	
<ul style="list-style-type: none"> <li>• Technician must be logged into the system.</li> </ul>	
Main event	
<ol style="list-style-type: none"> <li>1. Technician navigates to his profile.</li> <li>2. Click on get verification button.</li> <li>3. Enter details of verification.</li> <li>4. Click on submit button.</li> </ol>	
Alternative Event	
Post- condition	

Use case	View jobs
Description	Technicians can see the available jobs.
Primary Actor	Technician
Secondary Actor	None
Pre-condition	
<ul style="list-style-type: none"> <li>• Technician must be logged into the system.</li> </ul>	
Main event	

Use case	View statistics
Description	Technicians can see the statistics.
Primary Actor	Technician
Secondary Actor	None
Pre-condition	
<ul style="list-style-type: none"><li>• Technician must be logged into the system.</li></ul>	
Main event	
<ol style="list-style-type: none"><li>1. Navigate to statistics section.</li><li>2. Click on a specific statistic.</li><li>3. View the details with the charts</li></ol>	
Alternative Event	
Post- condition	
<ol style="list-style-type: none"><li>12. Navigate to the jobs section.</li><li>13. Click on a job.</li><li>14. Click on accept or reject button corresponding to job details.</li><li>15. Update the database.</li></ol>	
Alternative Event	
Post- condition	
<ul style="list-style-type: none"><li>• If technician accepts request, system will send notification to the particular user.</li></ul>	

Use case	Respond jobs
Description	When the Technician publishes their Service Gigs, User can send a request for a job. In Technician's interface, in the requests section, all the job requests are displayed in the order of the requests that are sent.
Primary Actor	Technician
Secondary Actor	None
Pre-condition	
<ul style="list-style-type: none"> <li>• User must be logged into the system.</li> <li>• User must be select the corresponding food item</li> </ul>	
Main event	
16. Navigate to the requests section. 17. View the requests received so far. 18. Click and see the details of each of the requests. 19. Able to accept or reject requests. 20. If accept the job, it will show in job section.	
Alternative Event	
Post- condition	
<ul style="list-style-type: none"> <li>• If technician accepts request, system will send notification to the particular user.</li> </ul>	

Use case	Manage Gig
Description	Technician is able to create, update or delete a brief description about job and service him/her offer.
Primary Actor	Technician
Secondary Actor	
Pre-condition	<ul style="list-style-type: none"> <li>• Technician must be logged into the system.</li> </ul>
Main event	<ol style="list-style-type: none"> <li>1. Technician navigates the service section.</li> <li>2. Select create, update or delete gig.</li> <li>3. If creates, add enter all the necessary details.</li> <li>4. Confirm the process.</li> <li>5. Service gigs are published by the system.</li> <li>6. If update, select specific gig and enter details.</li> <li>7. Confirm the process.</li> <li>8. Service gigs are published by the system.</li> <li>9. If delete, select the specific gig.</li> <li>10. Confirm the deletion.</li> <li>11. Update the database.</li> </ol>
Alternative Event	<ul style="list-style-type: none"> <li>• If the technician submits form with important information are empty, then refill massage will be shown.</li> <li>• If the technician submits invalid information an Error massage will be shown.</li> <li>• Maximum number of services reached</li> </ul>
Post- condition	

### 3.5. Quality attributes (Non-Functional requirements)

Below are the quality attributes that are identified to be in our system.

- Security
- Usability
- Performance
- Modifiability
- Testability

The quality attribute scenarios for above attributes are as follows.

#### 3.5.1. Security

The system contains some sensitive information about their users as well as user's household and their vehicles such as names, mobile numbers, emails, and vehicle numbers. Therefore achieving security quality attribute is important in this system.

- How to achieve,
  - Use of PDO in PHP in order to prevent SQL injection attacks
  - Each user shall have a user account to log in.
  - Passwords are never viewable after it's added. (Password encryption)
  - User must verify using email OTP when resetting the password.
  - We will be hoping to use cloudflare domain which is more secure
  - Get SSL certification to the website

#### 3.5.2. Performance

Performance of the system is concerned with response times and shows the response of the system to specific operation actions for a certain period of time. We can use the following ways to achieve performance,

- Using efficient database queries to minimize the data retrieving and storing time.
- Using optimization algorithms to reduce time complexity
- Optimize the code as much as possible.
- Optimizing image size used in the web application.
- Using minimal layout for the user interfaces.

### 3.5.3. Usability

Usability is concerned with how easy to the end user to learn the features of the system and how efficiently the end user can use the system. Usability is improved by end user to allow respond appropriately. For instance, strategy like cancel helps the user either fix mistakes or be more productive. How to achieve,

- Using simple and user-friendly user interface.
- We will be developing the user interface to be responsive to the mobile phones. Therefore, Using mobile phone, end users can easily log into the system.
- Notification system is efficient way for end users to get sufficient information.
- We will be creating a in-built user guide for the users with step by step information to use the system
- Community chat function helps to improve the interaction among users.

### 3.5.4. Testability

Ease with which the software can be made to demonstrate errors in the system through testing. Tester can be human or automated tester.

We can use the following ways to achieve testability,

- After each completion of coding increment, corresponding component get tested.
- Using a component-based architecture. We will be using the MVC architecture each component can be tested individually.

### 3.5.5. Modifiability

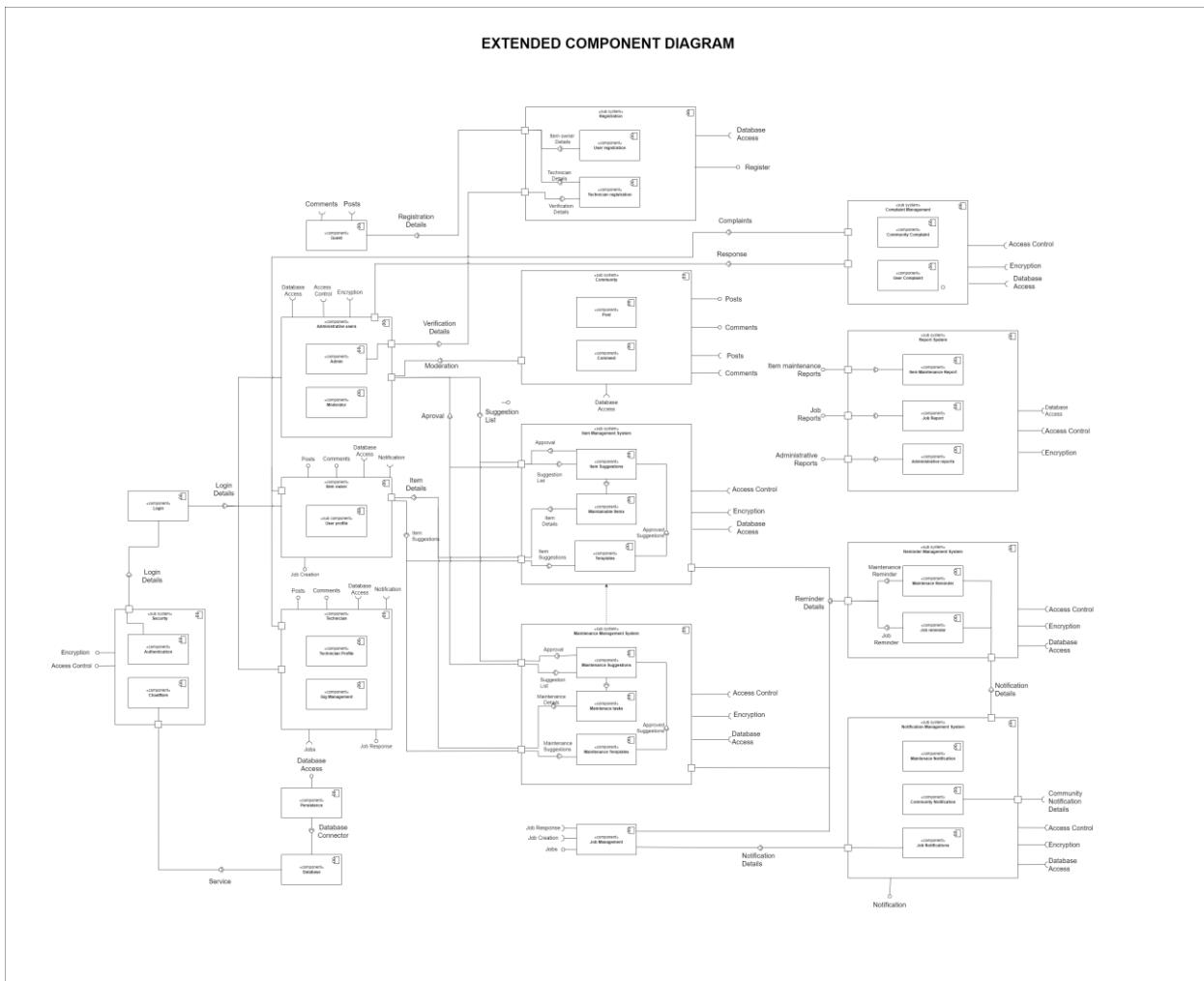
A modification may be made to the platform, capability, or function that the system computes. It takes longer and costs more money to adjust if the user needs to. Since UPKEEP is evolving with the user data modifiability is very important to the system

We can use the following ways to achieve Modifiability,

- Reducing coupling between components such that dependencies between modules are minimized as much as possible. Therefore, we are planning to use component-based architecture for the development.
- We will be planning our code base to enhance the readability of the code so it is important to understand the code easily.

## 4. Proposed System Architecture

### 4.1. Extended Component diagram



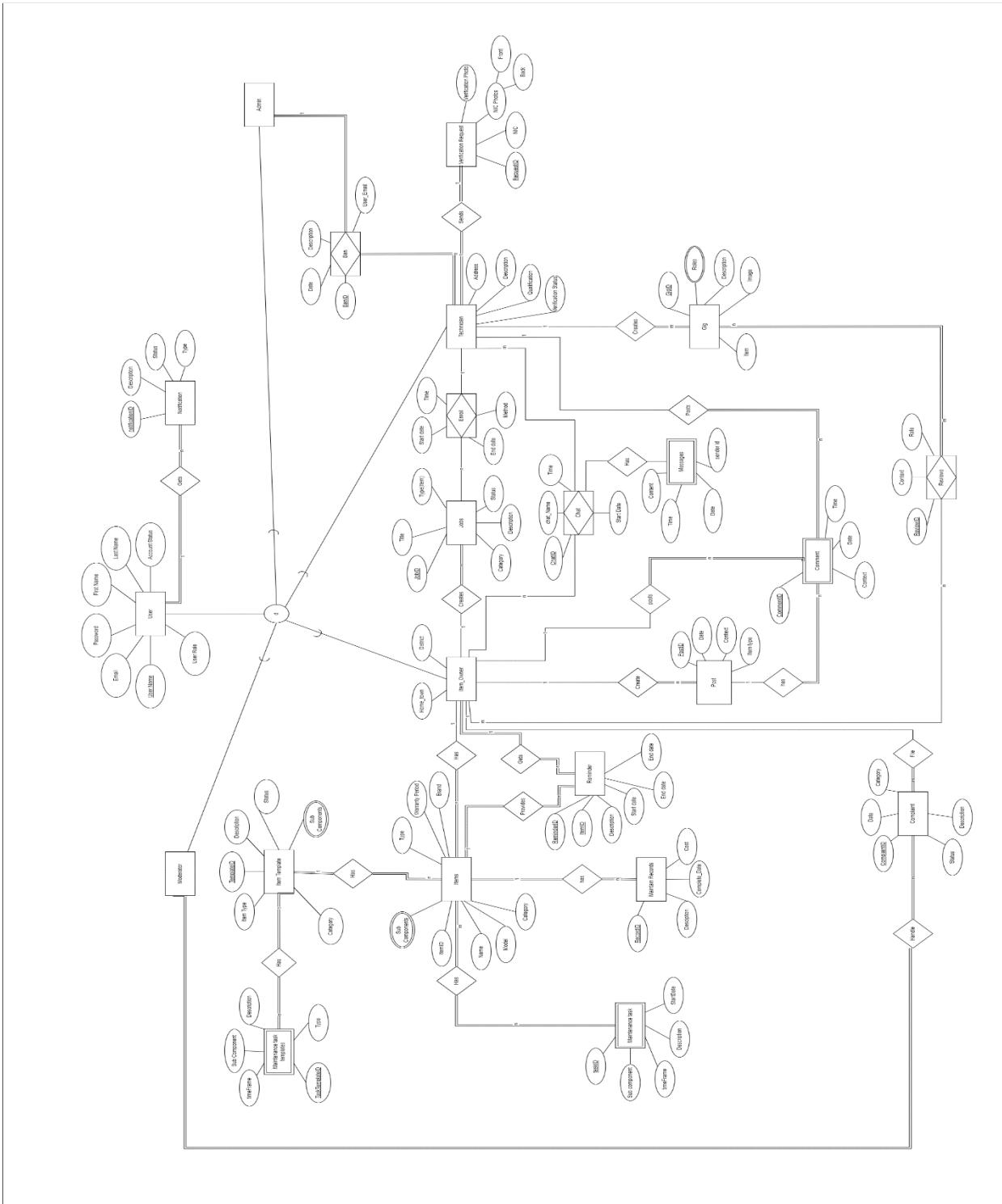
## 4.2. Components and their Responsibilities

Component	Responsibility
Administrative user subsystem	<ul style="list-style-type: none"> <li>Responsible for handling profiles and activities of the administrative users. Consists             <ol style="list-style-type: none"> <li>Admin</li> <li>Moderator</li> </ol> </li> </ul>
Item Owner component	<ul style="list-style-type: none"> <li>Responsible for handling the Item owner profiles of the system and their UIs. This include the profile sub component.</li> </ul>
Technician component	<ul style="list-style-type: none"> <li>Responsible for handling the activities of the technician in the system. This includes the profile management of the technician as well as the Gig management of the technician.</li> </ul>
Login component	<ul style="list-style-type: none"> <li>This component is responsible in handling the logins of the users to the system. This component fetches the login details from the users and feed them to the security module to authenticate the users</li> </ul>
Security component	<ul style="list-style-type: none"> <li>Component which is responsible for the security of the system. Authentication module is a subcomponent of the system.</li> </ul>
Registration sub system	<ul style="list-style-type: none"> <li>Component which is responsible for handling the registrations to the system. Consists of 2 main subcomponents which is technician registration and user registration.</li> </ul>
Community subsystem	<ul style="list-style-type: none"> <li>Responsible for handling the community feature od the system. Consists with the sub components of post and comment.</li> </ul>
Item management system	<ul style="list-style-type: none"> <li>Components that handles the items added to the system by the users.</li> <li>This component also responsible for generating the suggestions to the users through the system.</li> <li>The item templates which is core requirement for generating suggestions is also handled by this component.</li> <li>One of the most important component of the system</li> </ul>
Maintenance management system	<ul style="list-style-type: none"> <li>Responsible for handling maintenance tasks of the items.</li> <li>This will also handle the maintenance suggestion system as well as the maintenance template component which helps to generate suggestions.</li> </ul>
Job Components	<ul style="list-style-type: none"> <li>Responsible for handling the jobs created by the item owners to find the technicians.</li> </ul>

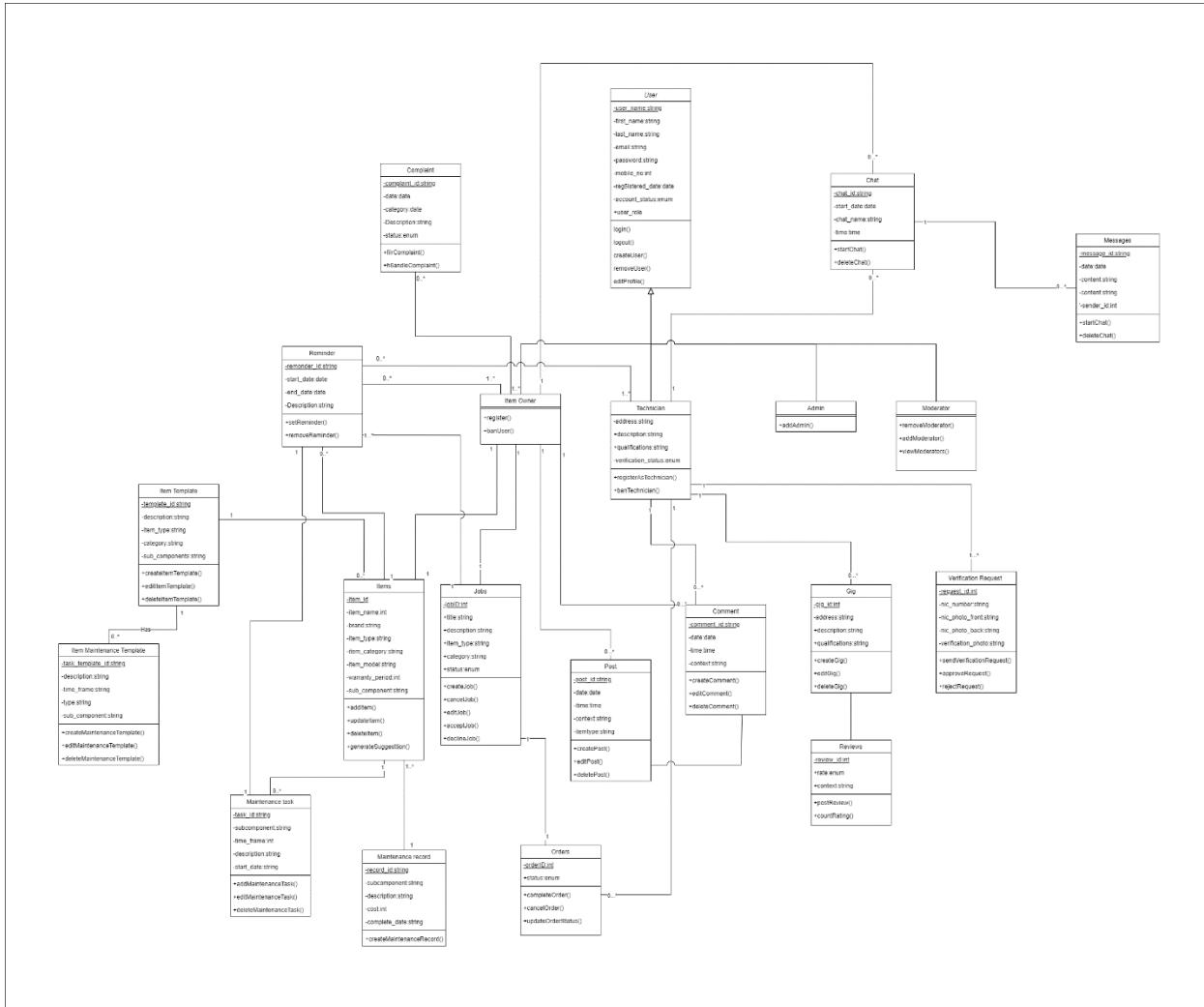
Complaint management system	<ul style="list-style-type: none"><li>• Responsible for handling the user complaints which are filed by the item owners and the technicians.</li></ul>
Reminder	<ul style="list-style-type: none"><li>• Responsible for handling the reminders received by the item owners such as maintenance reminders and the reminders such as job reminders for technicians.</li><li>• Fetches data from item and maintenance subsystem as well as from the jobs component in order to generate reminders for relevant users.</li></ul>
Notification management system	<ul style="list-style-type: none"><li>• Responsible for sending the notification to the users by fetching the necessary details from the other components.</li></ul>

## 5. System Design

## 5.1. Entity Relationship Diagram



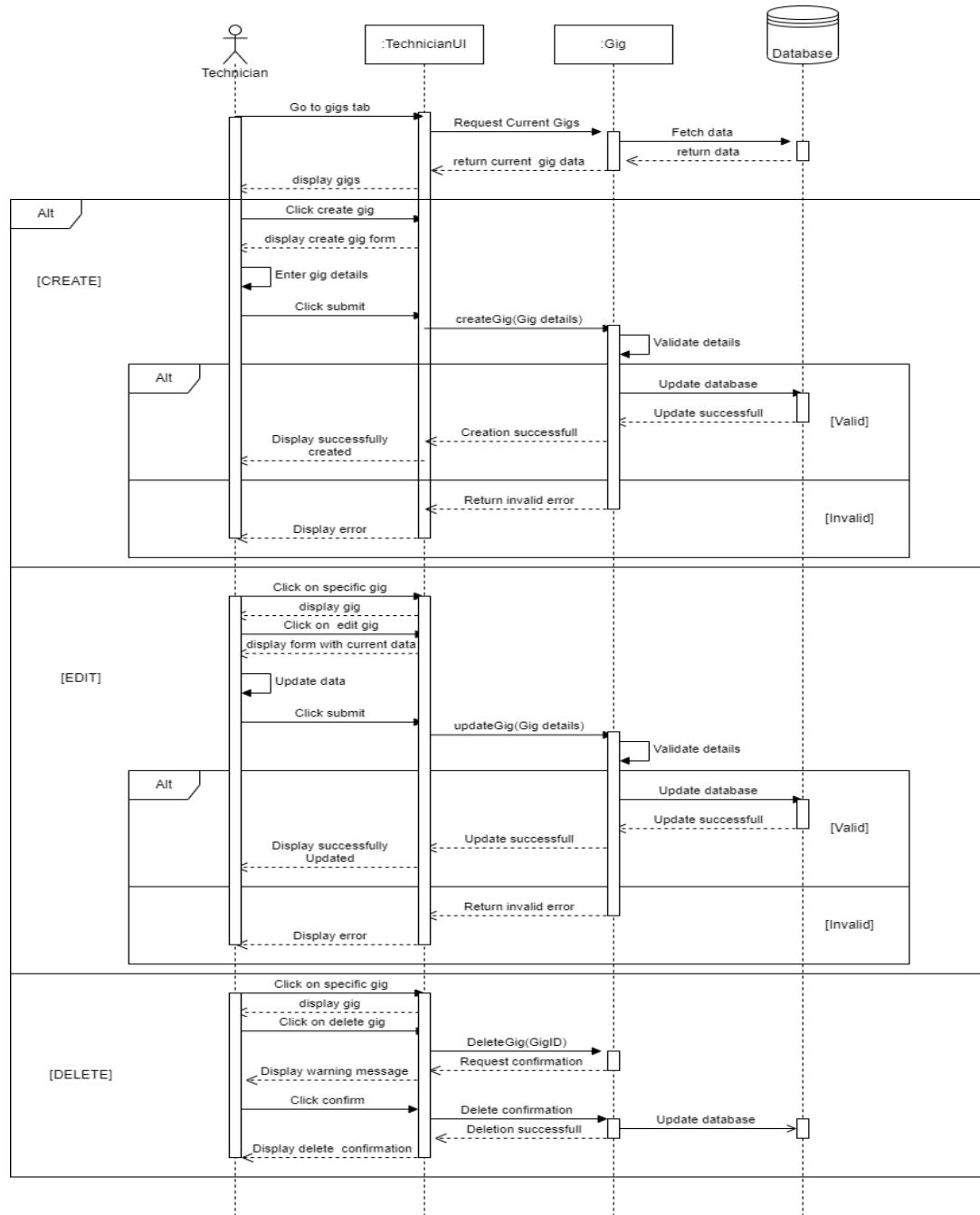
## 5.2. Class Diagram



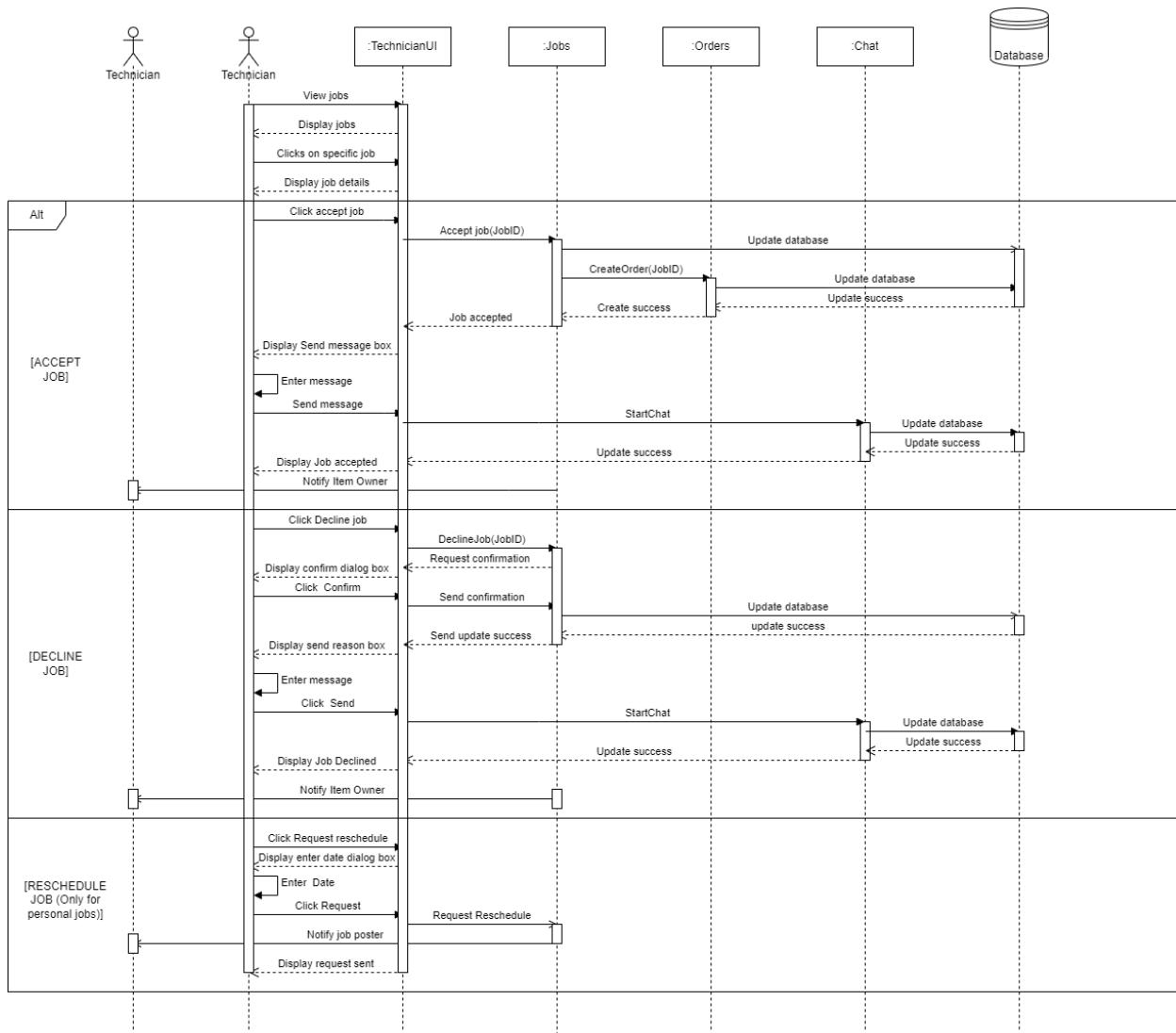
## 5.3. Sequence Diagram

### Technician's Sequence Diagrams

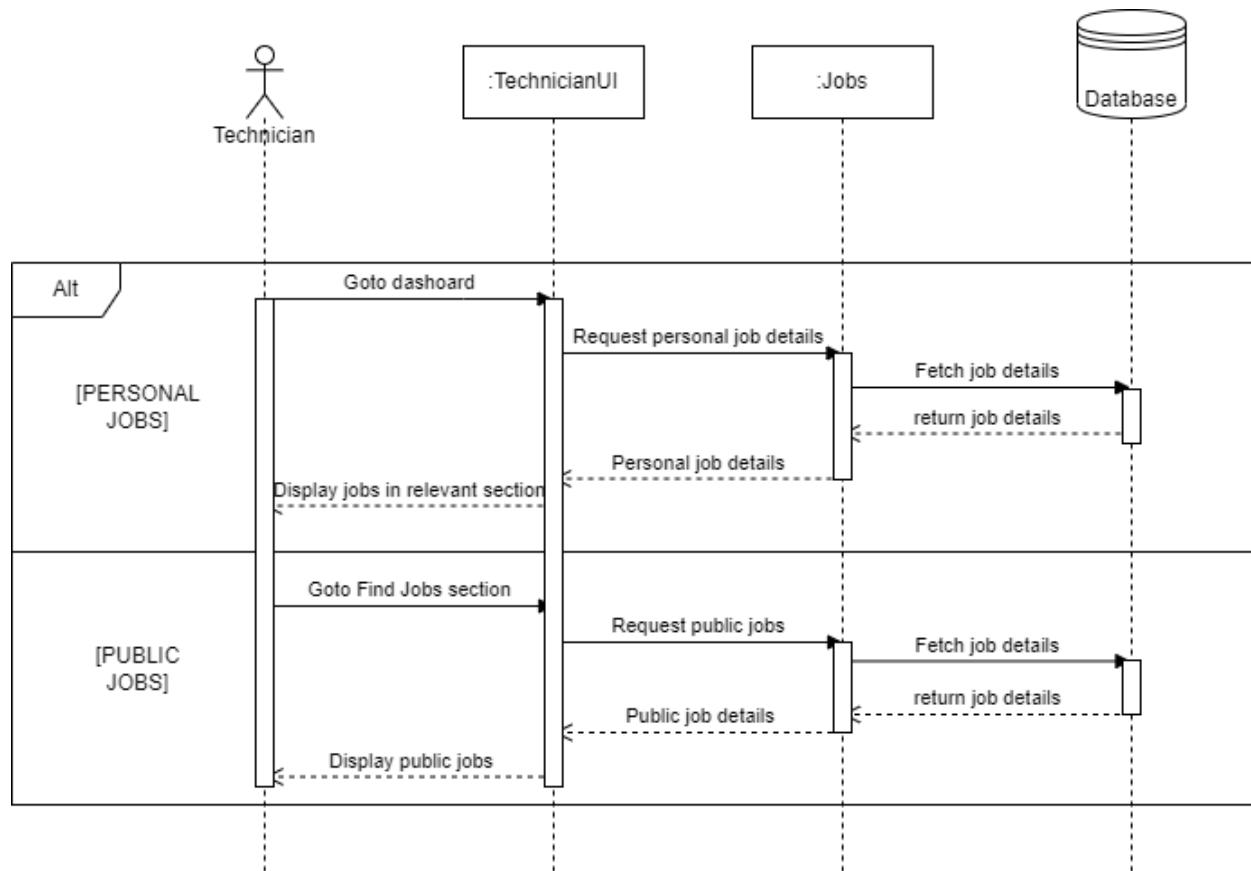
Manage gigs



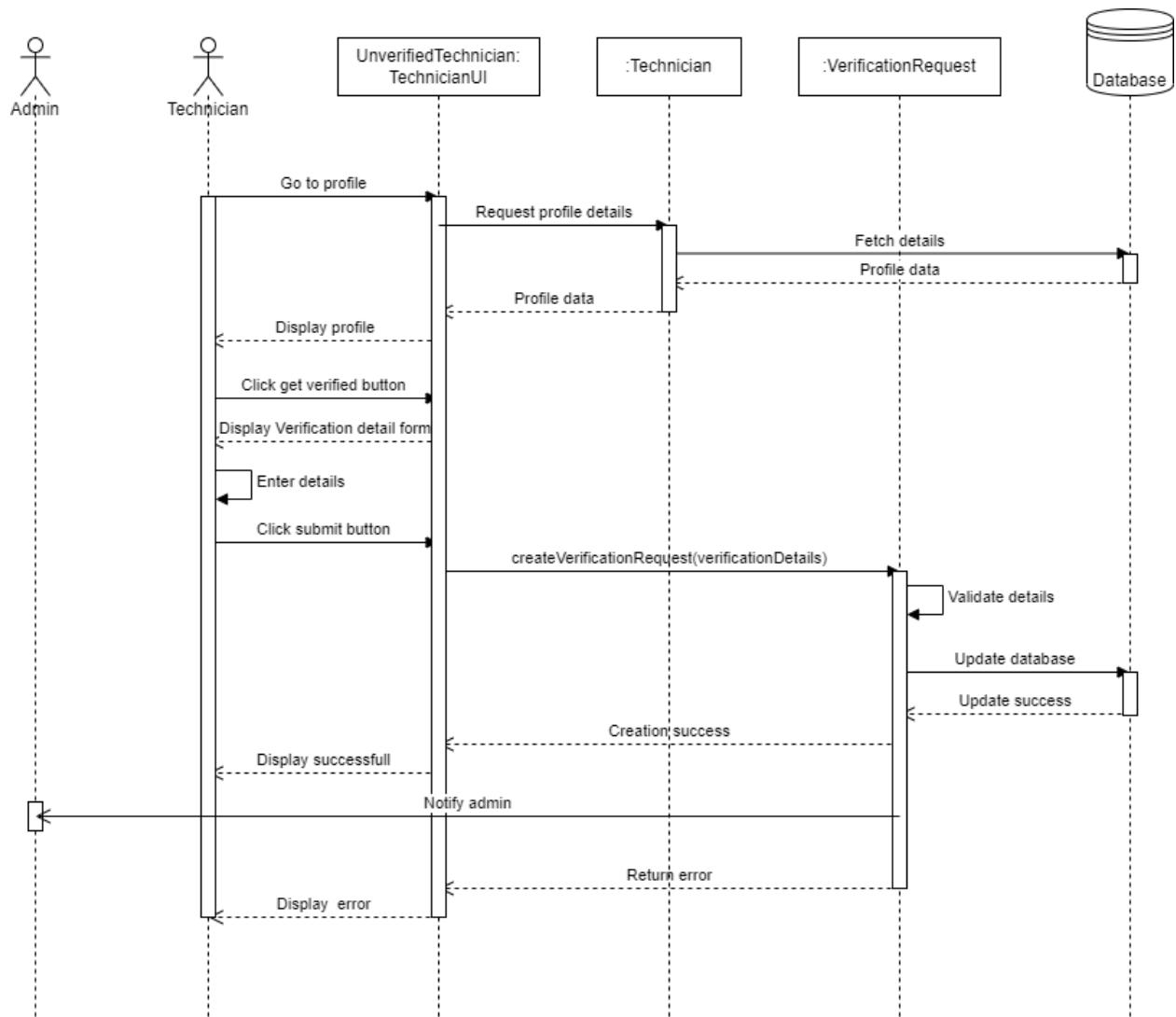
## Respond to jobs



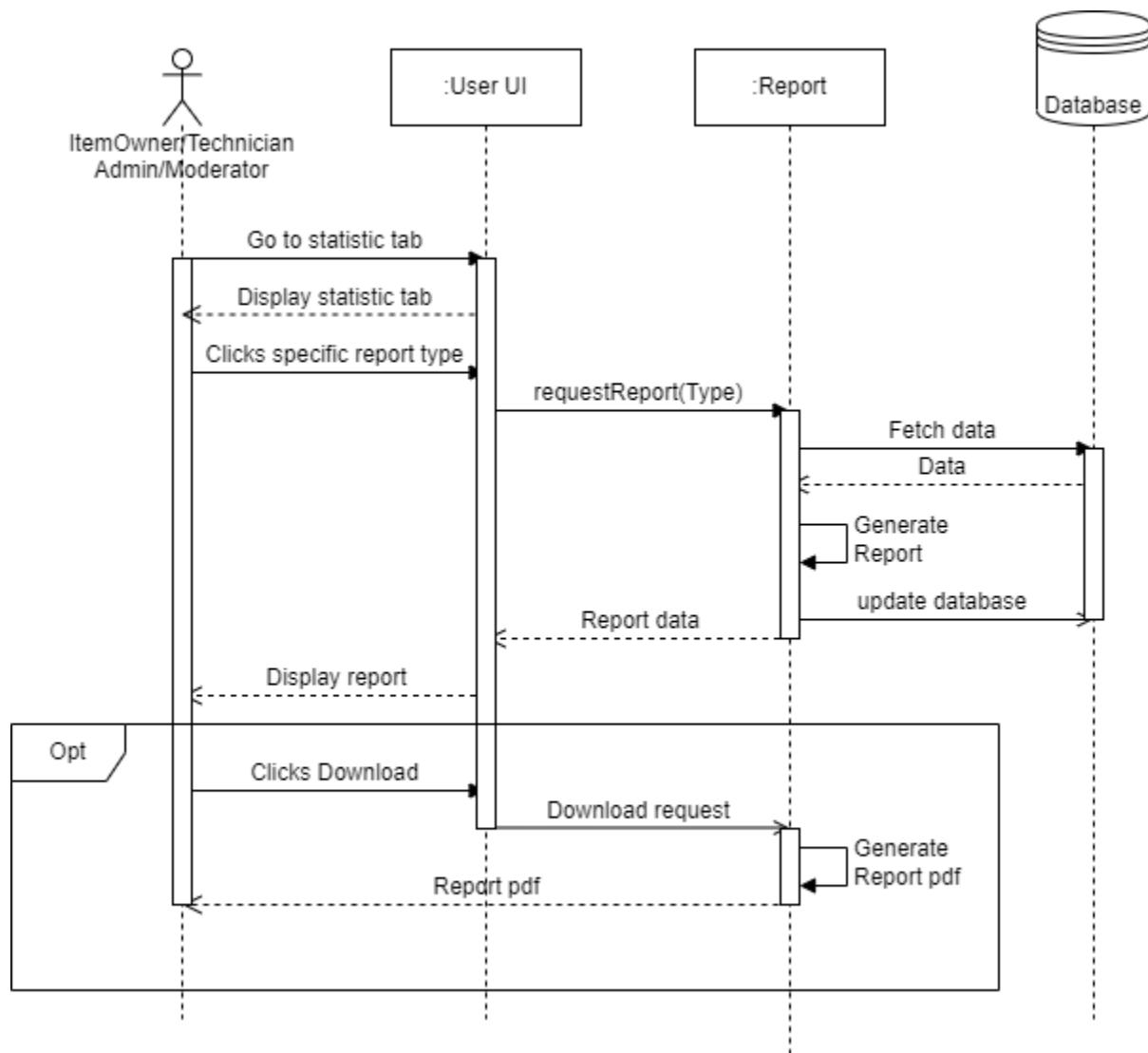
## View jobs



## Send verification request

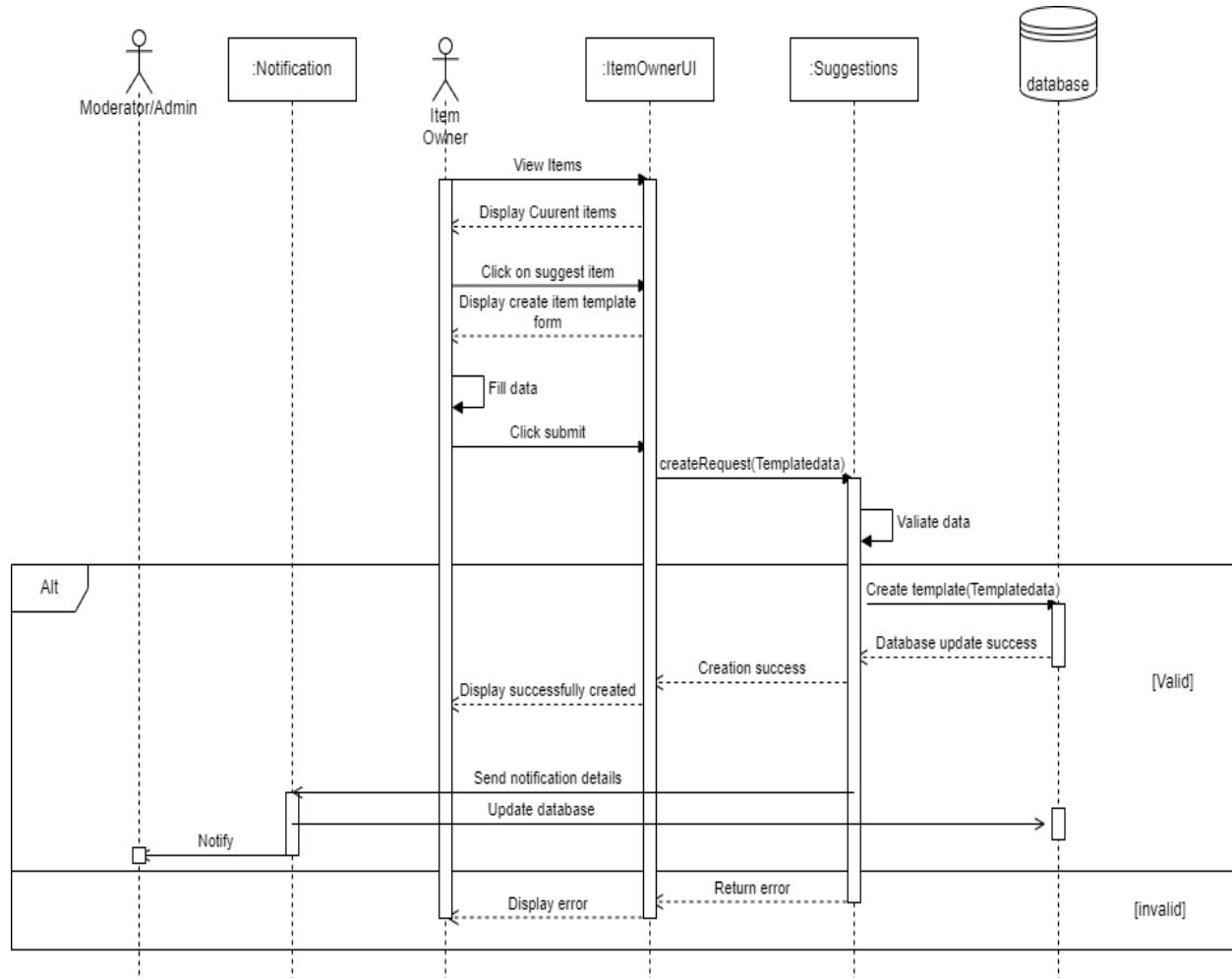


Generate reports

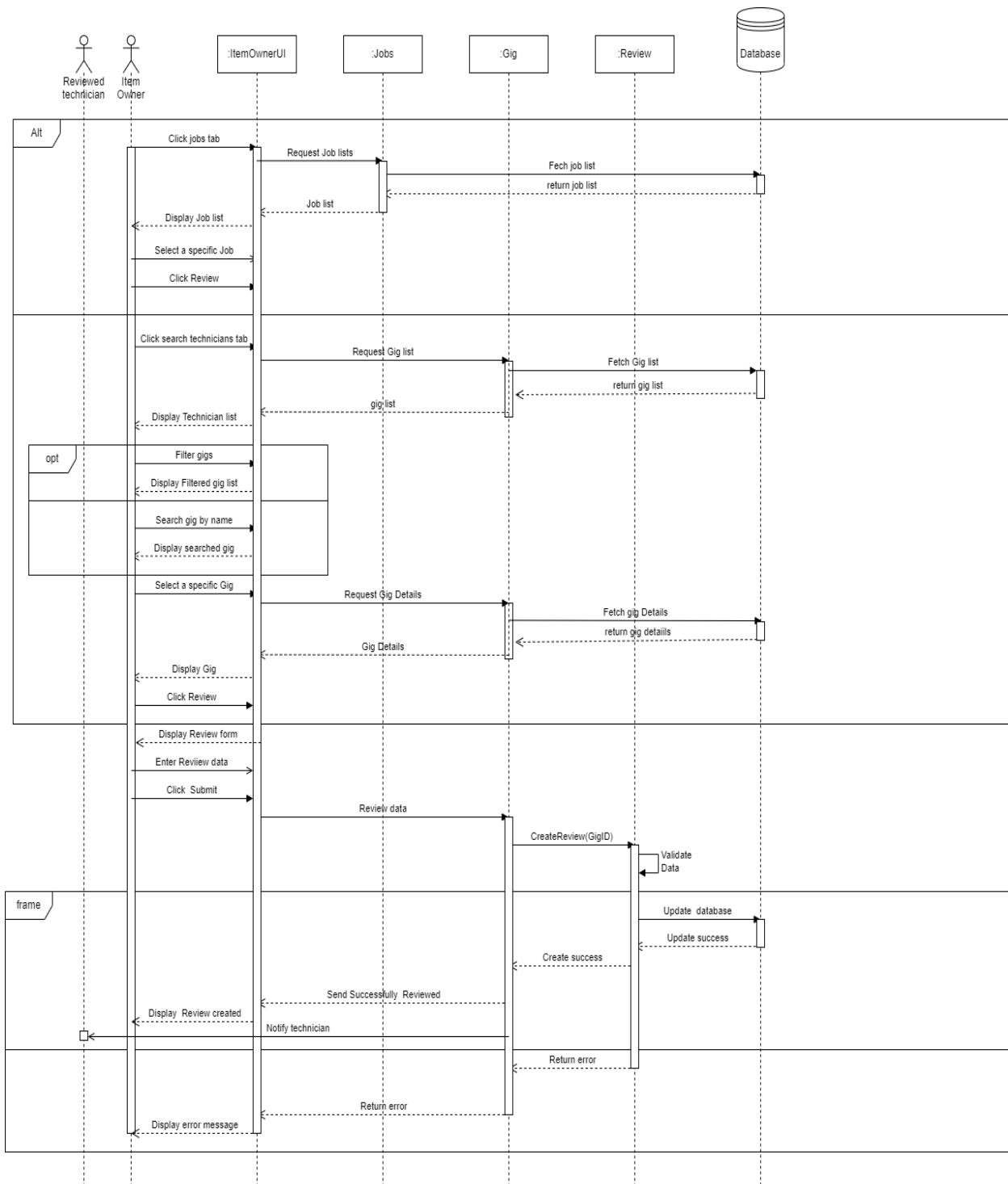


## Item Owner's Sequence Diagrams

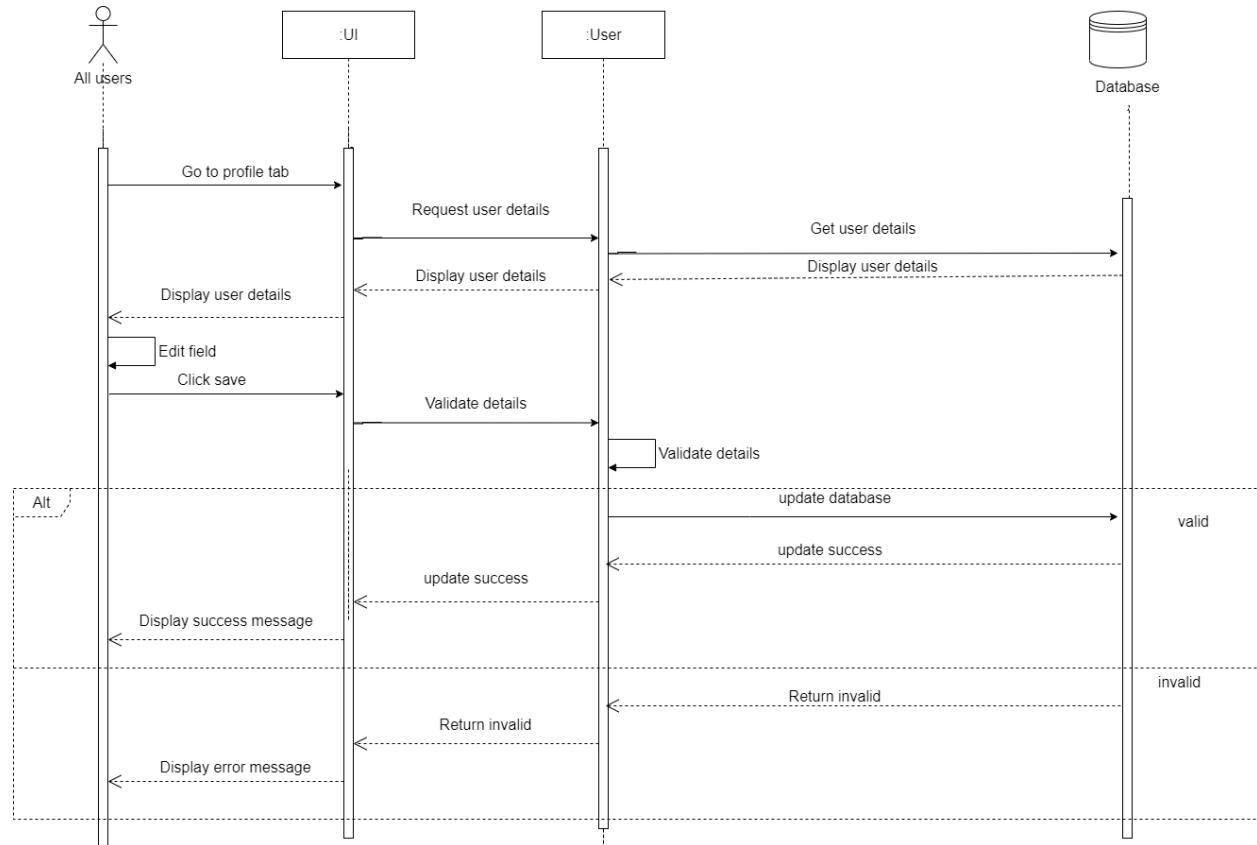
Create item template



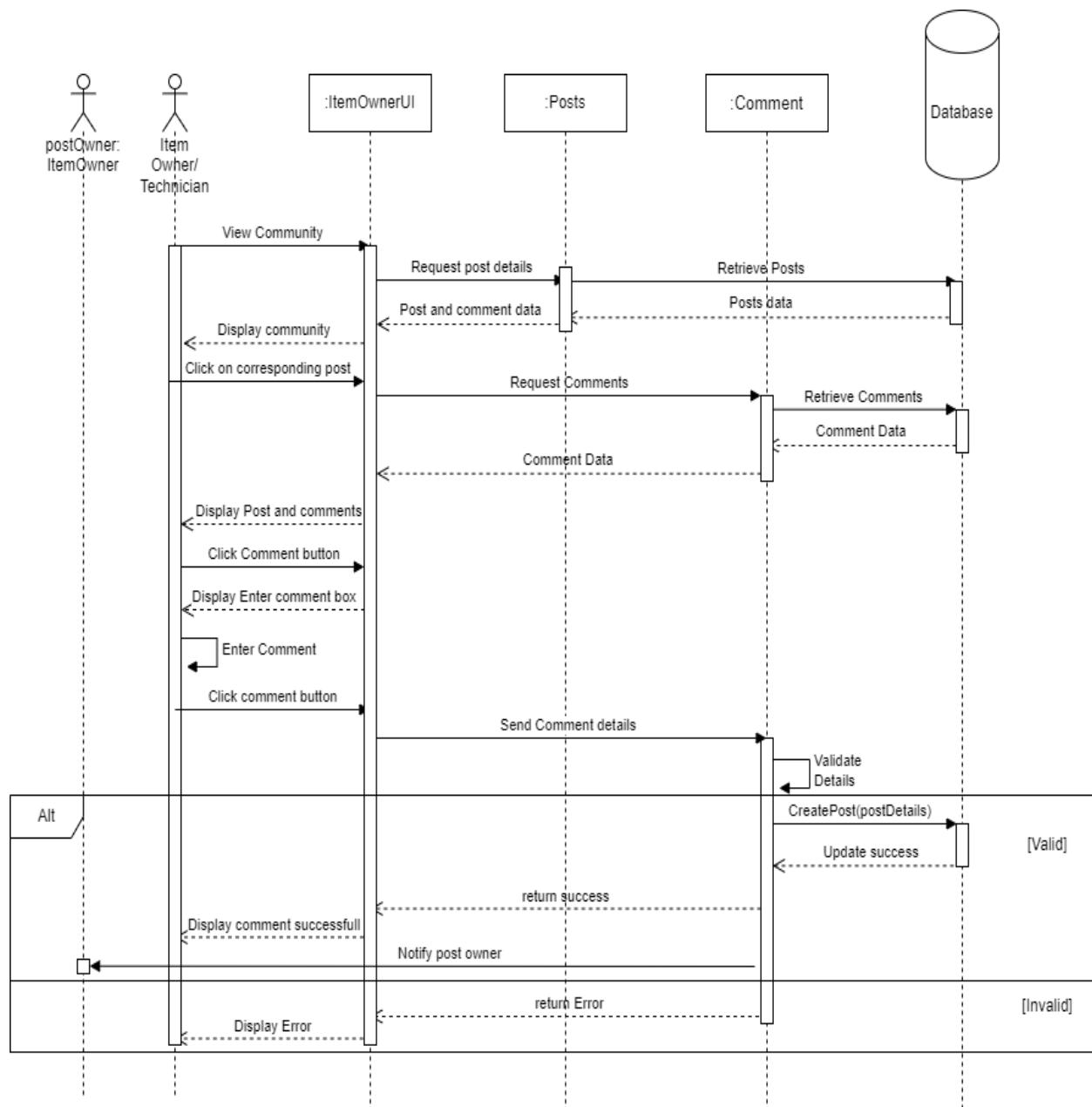
## Review technicians



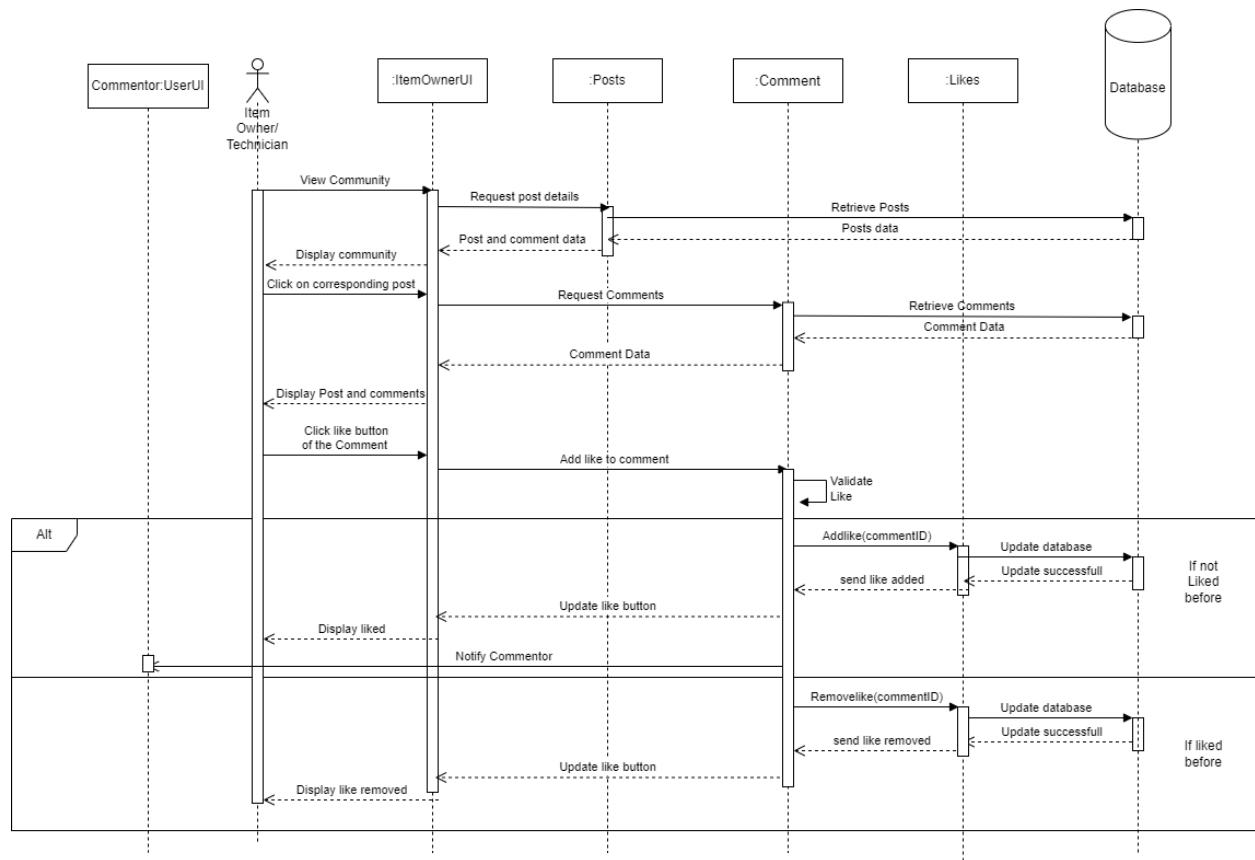
## Edit profile



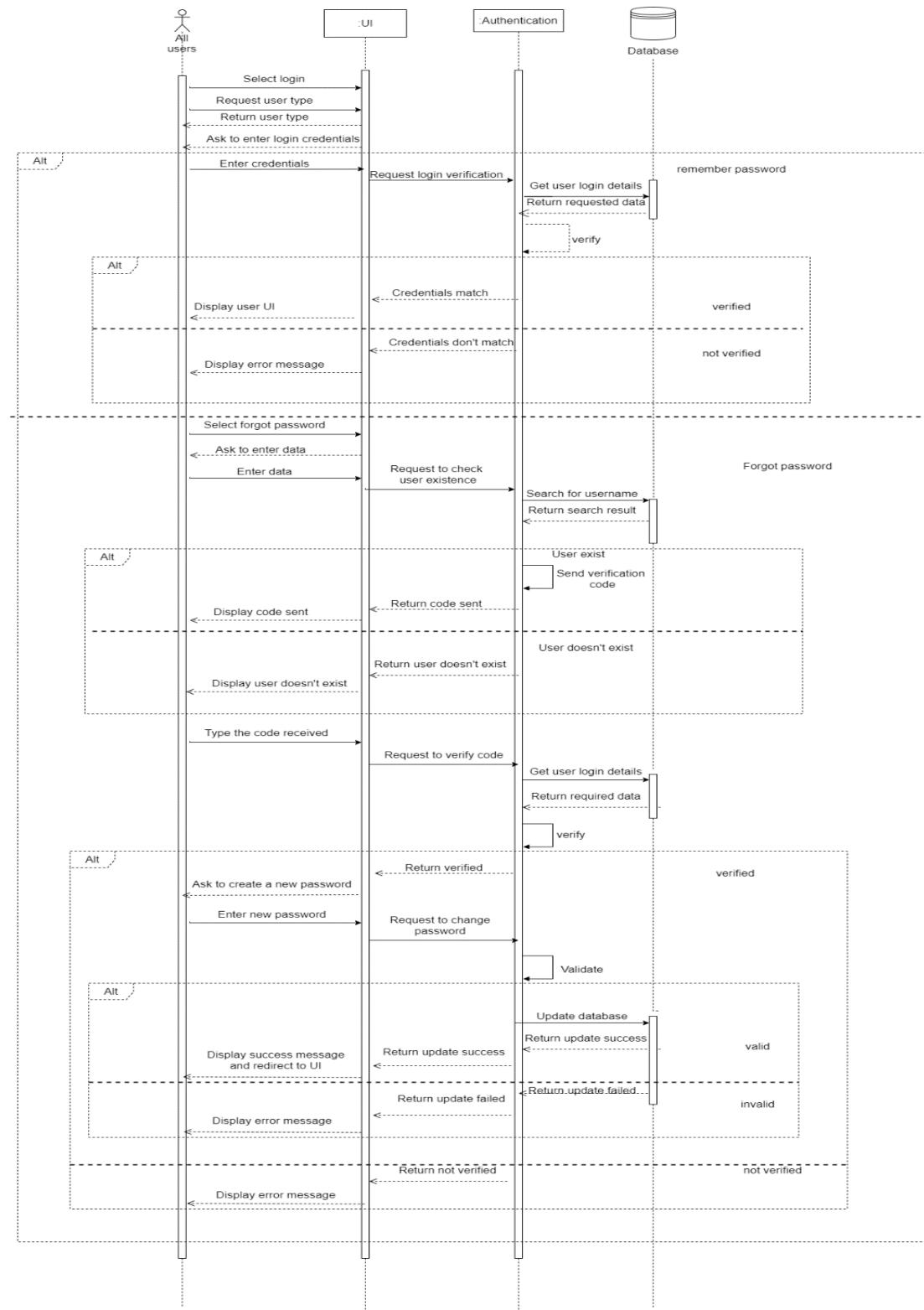
## Comment on posts



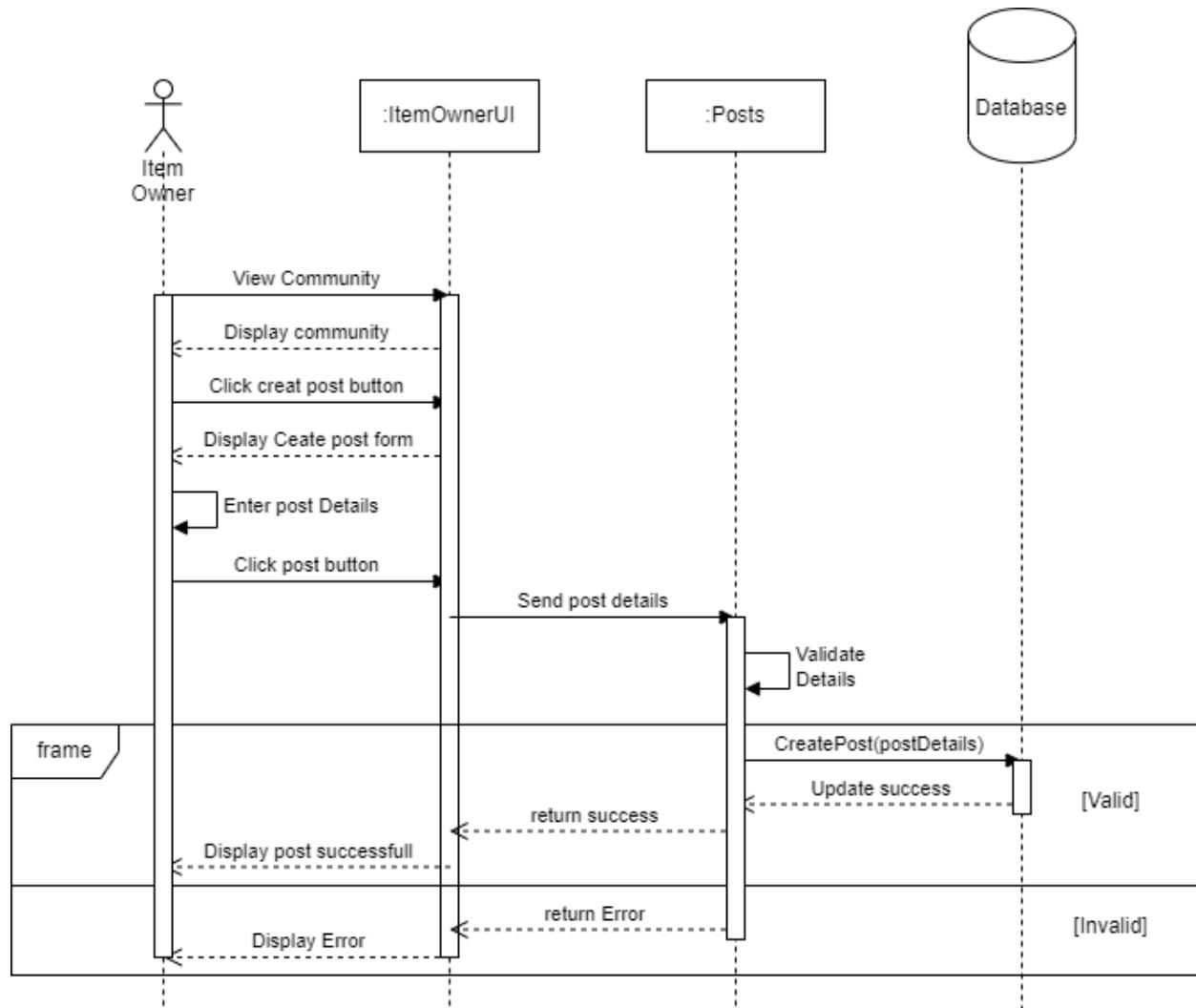
## Rate comments



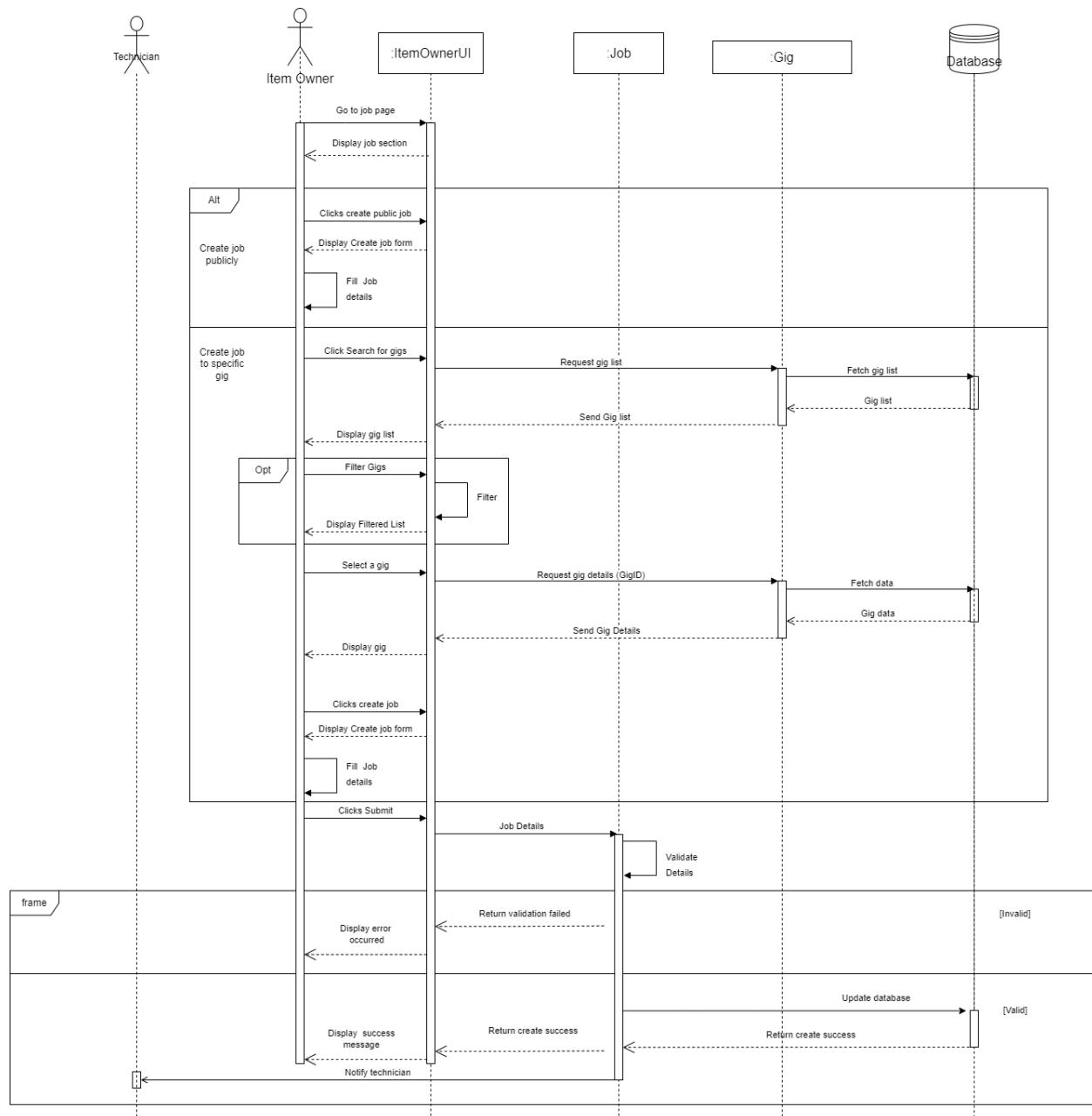
## User log in



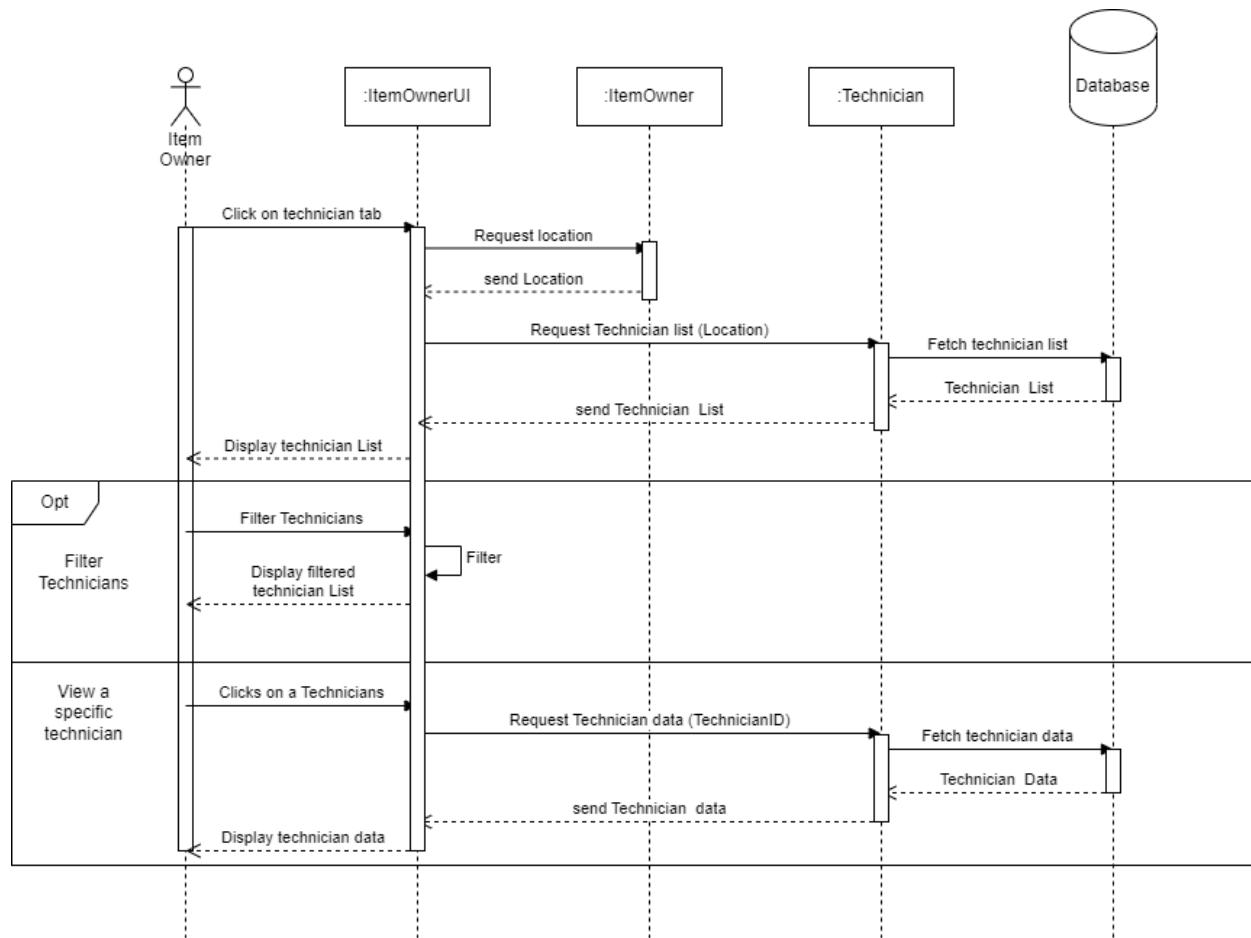
Post issues on community



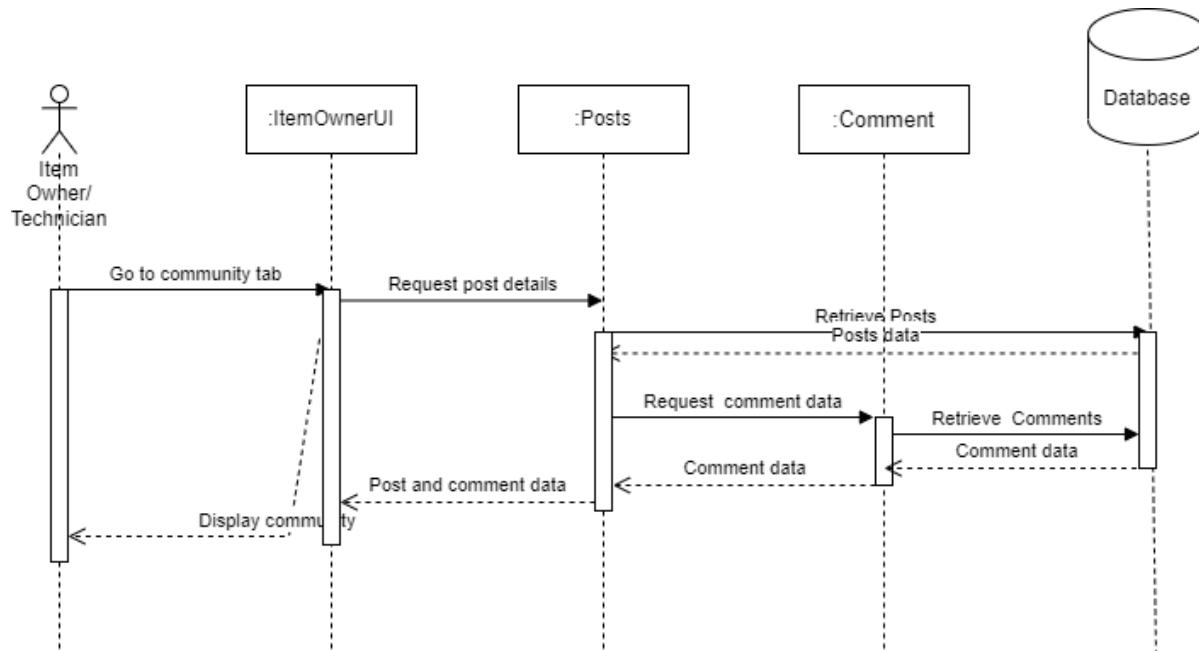
## Create jobs



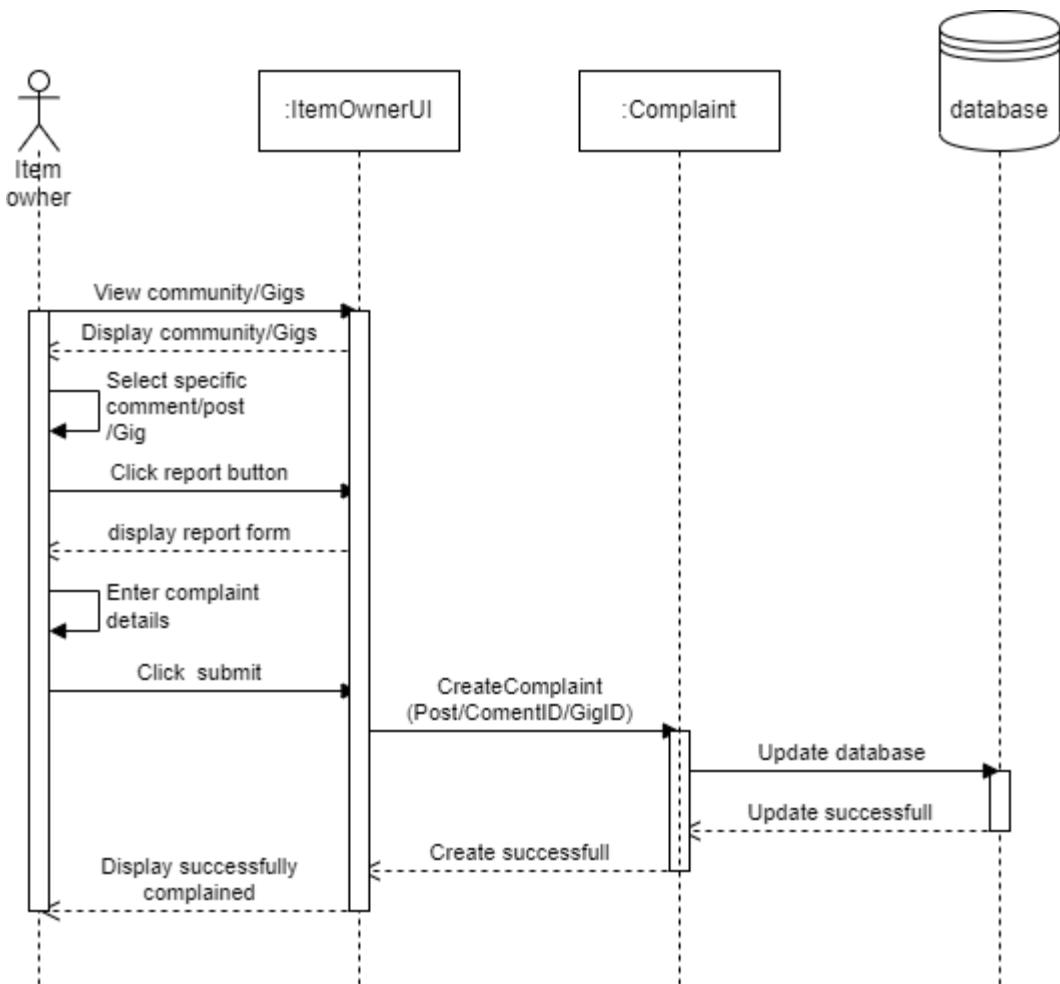
## Search for technicians



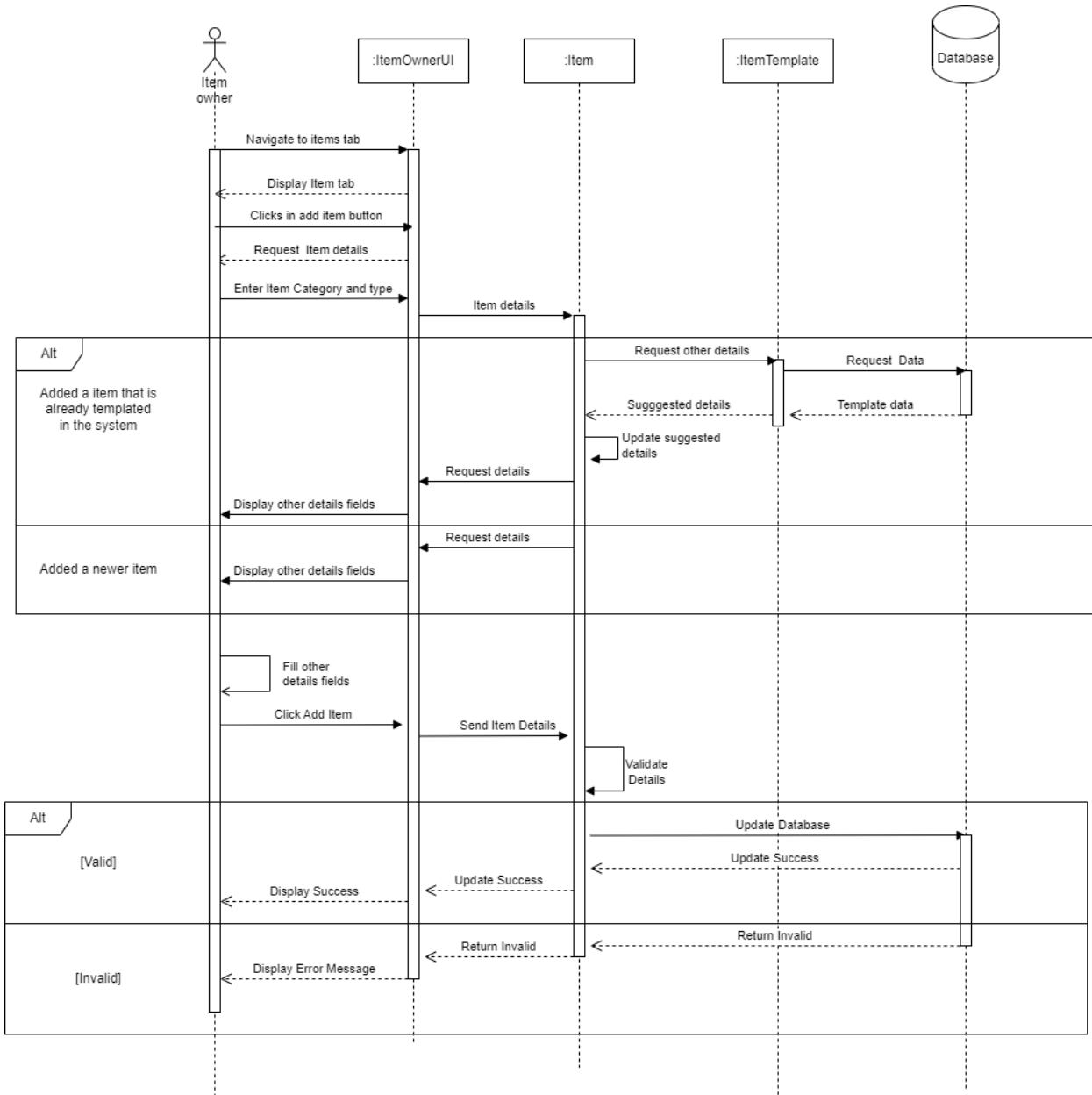
## View community posts



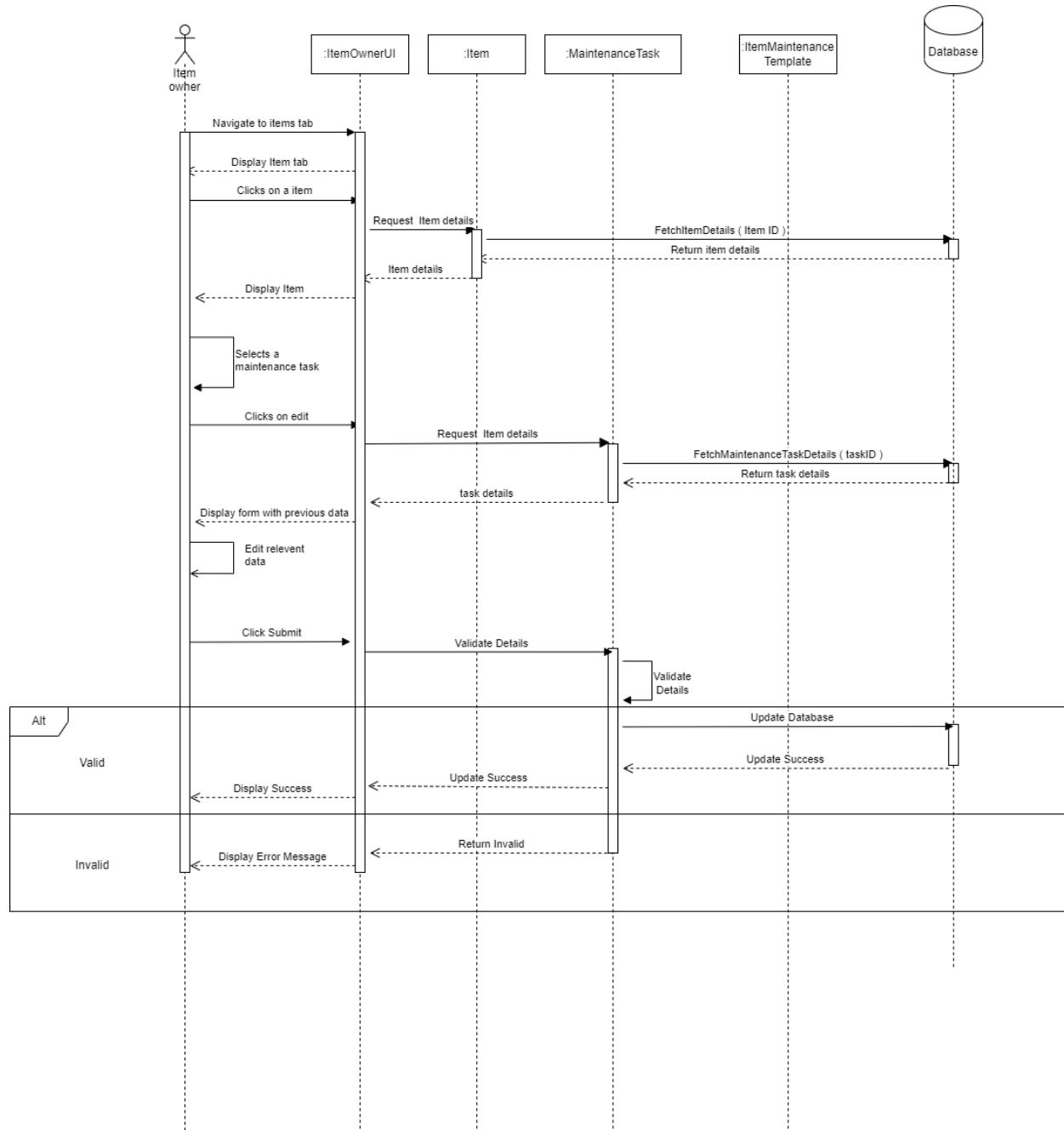
## File complaint



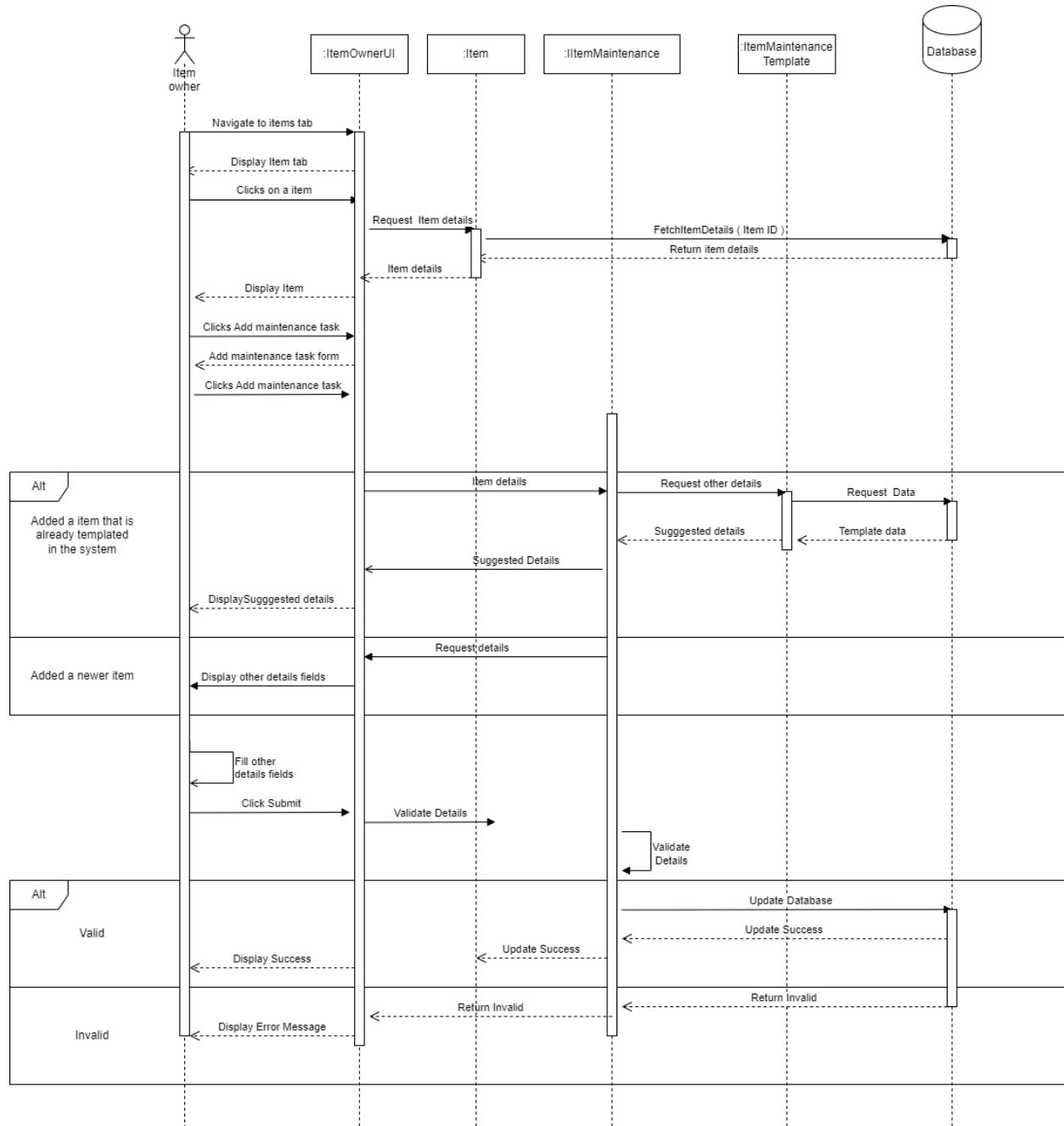
## Add items



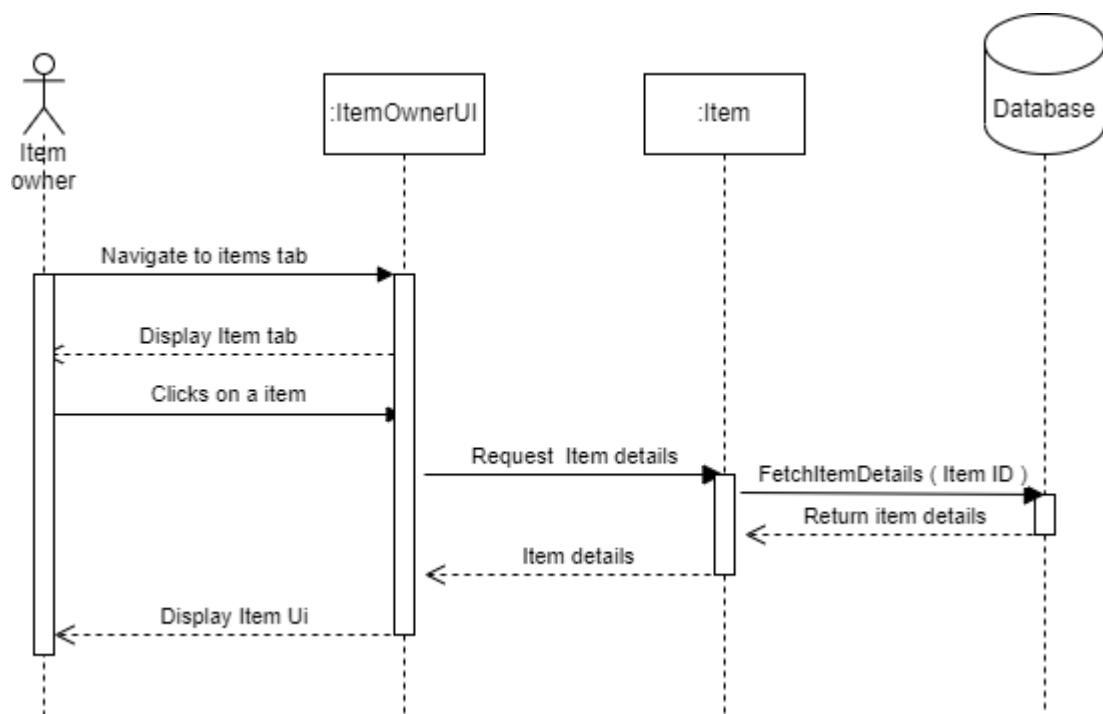
## Update maintenance tasks



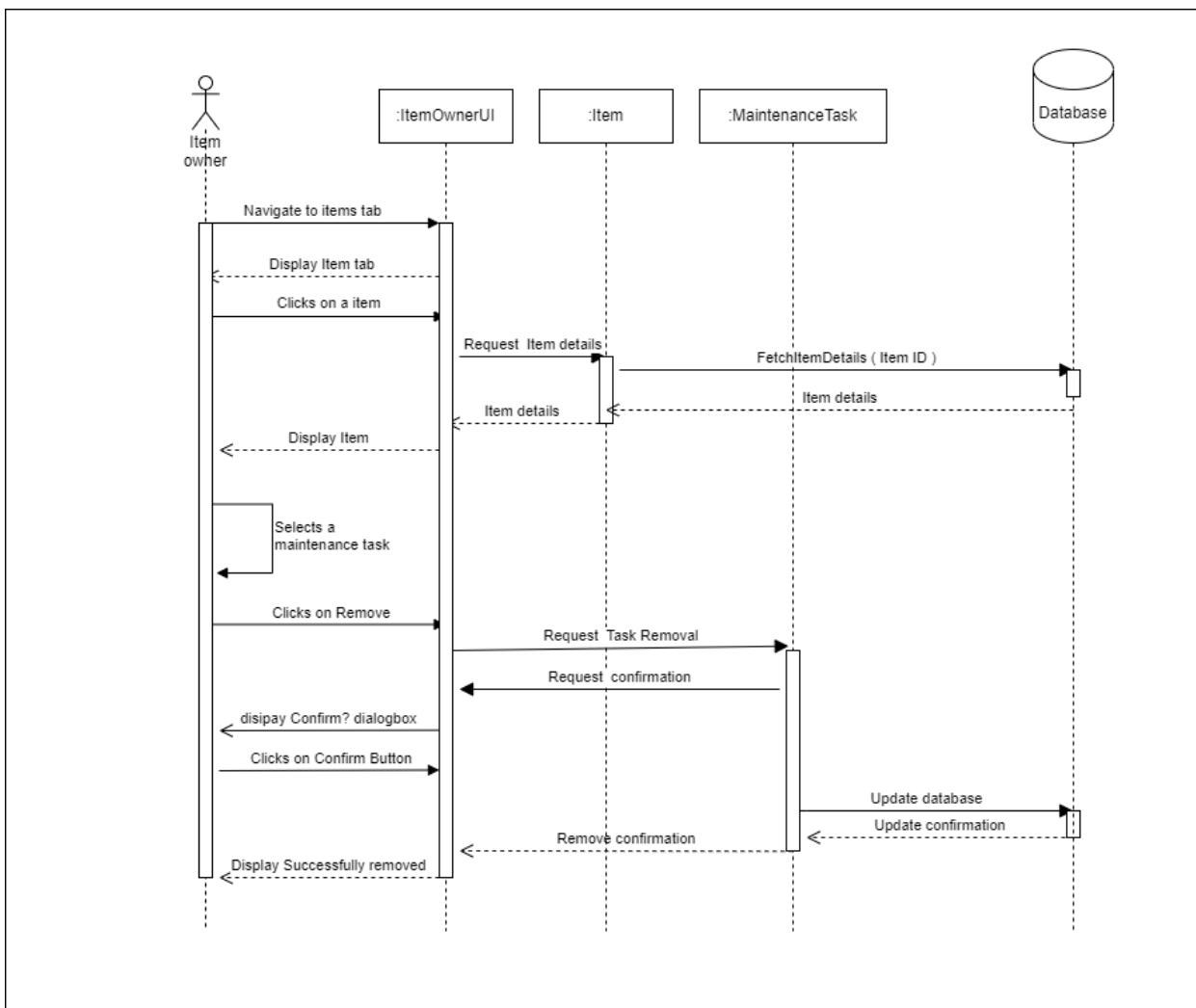
## Add maintenance tasks



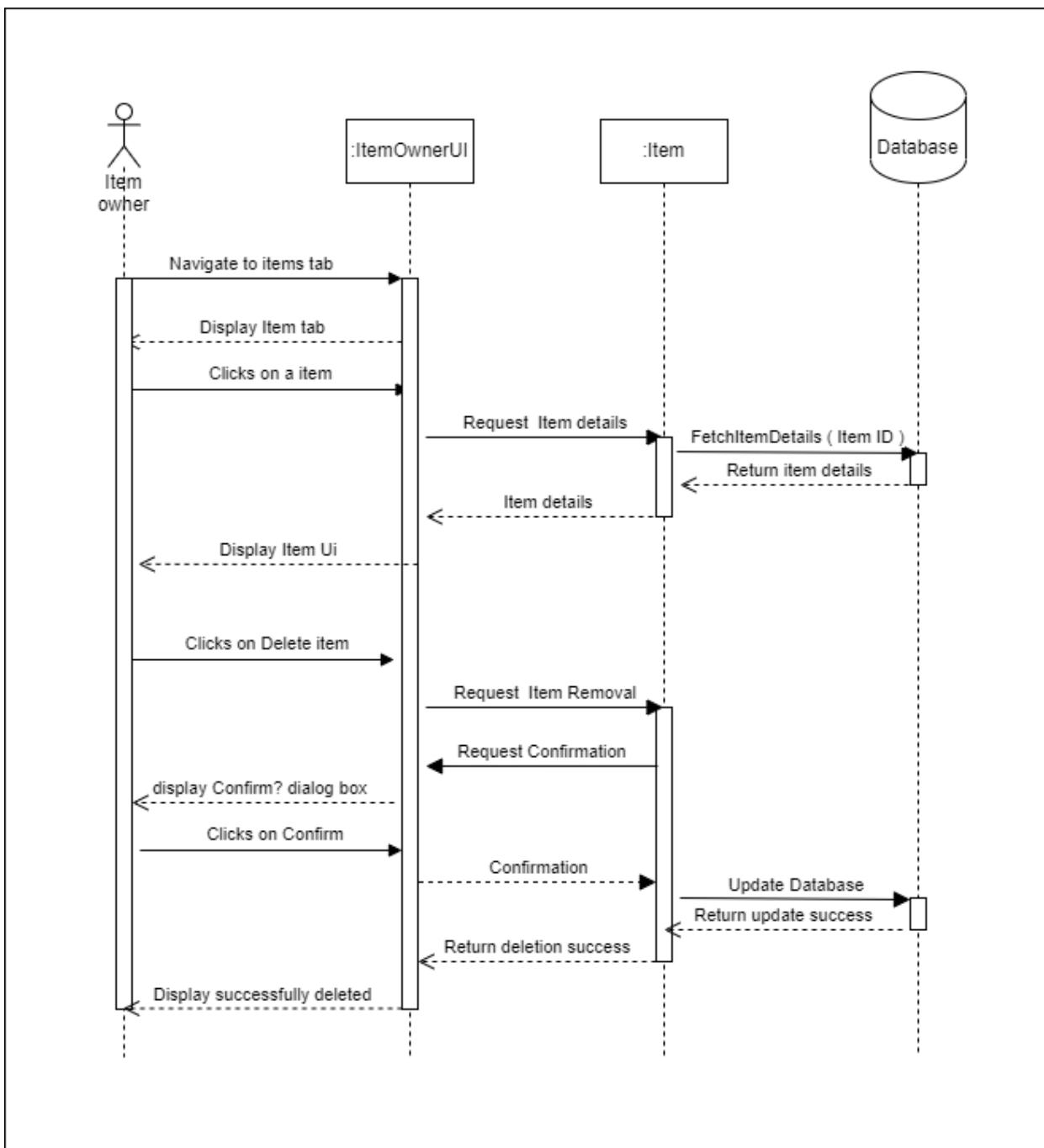
## View items



## Remove maintenance tasks

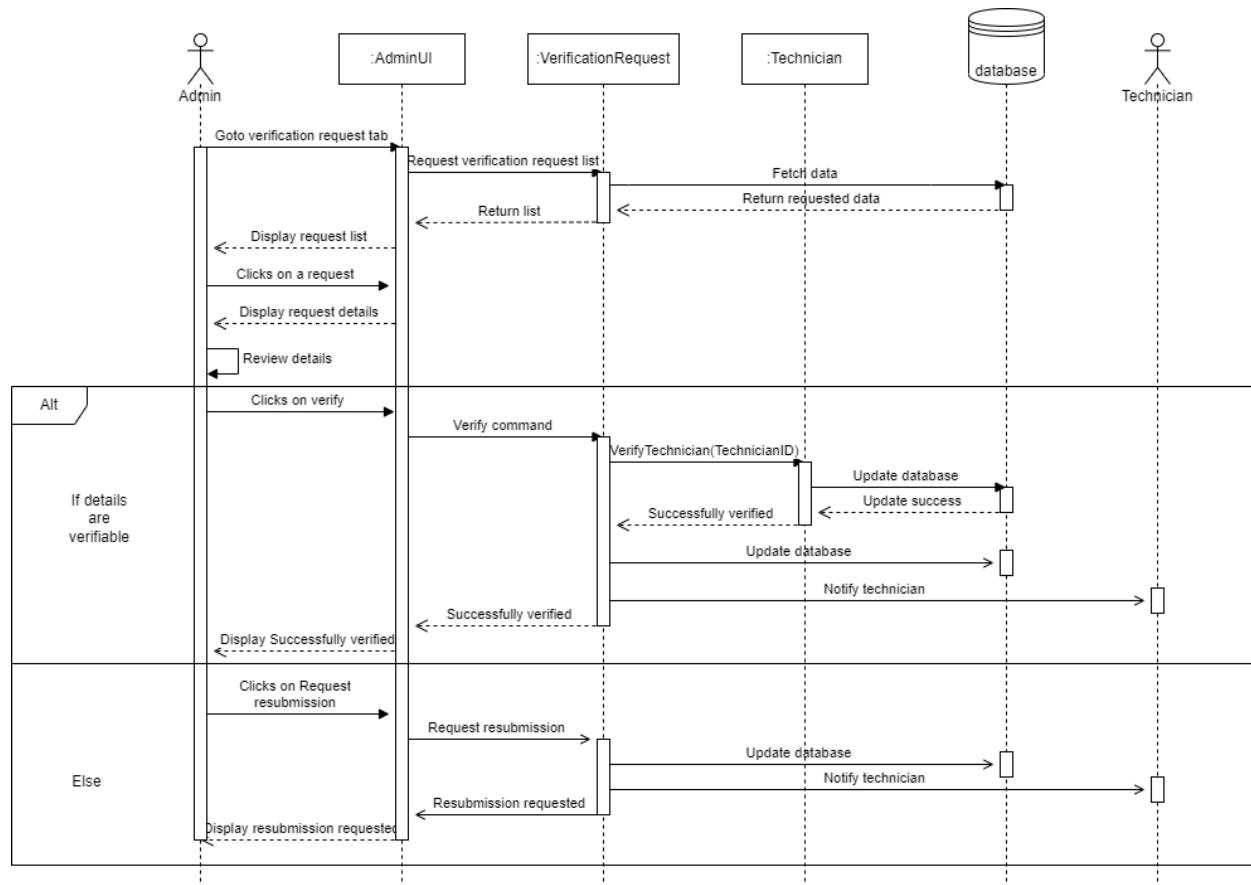


## Remove items

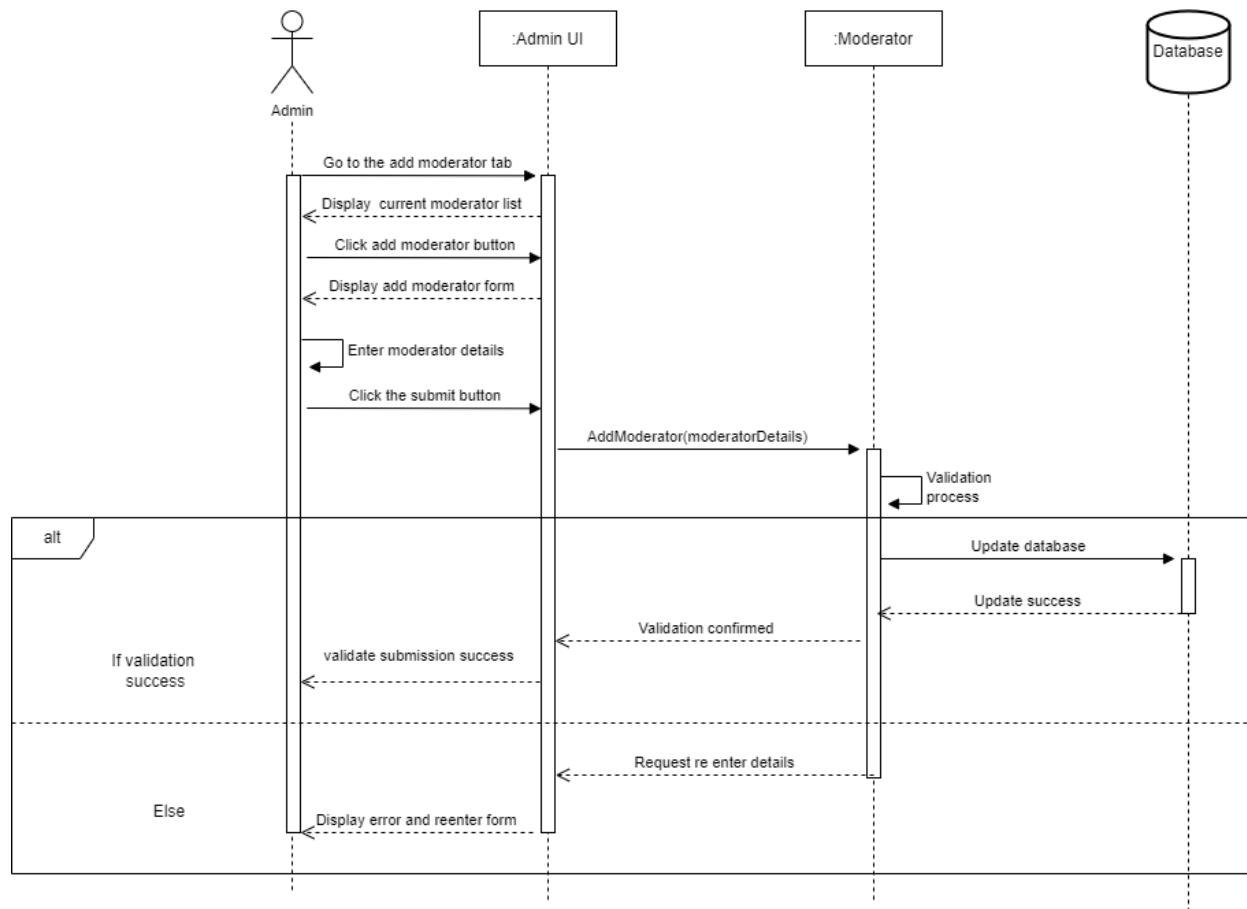


## Admin's Sequence Diagram

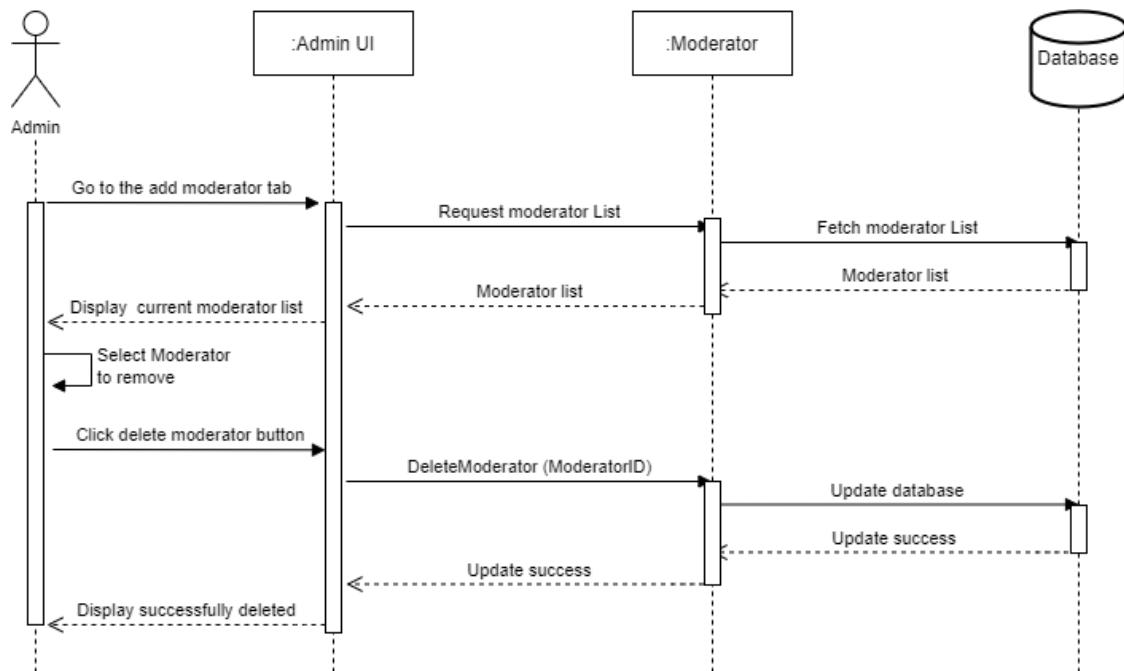
Verify technicians



### Add moderator

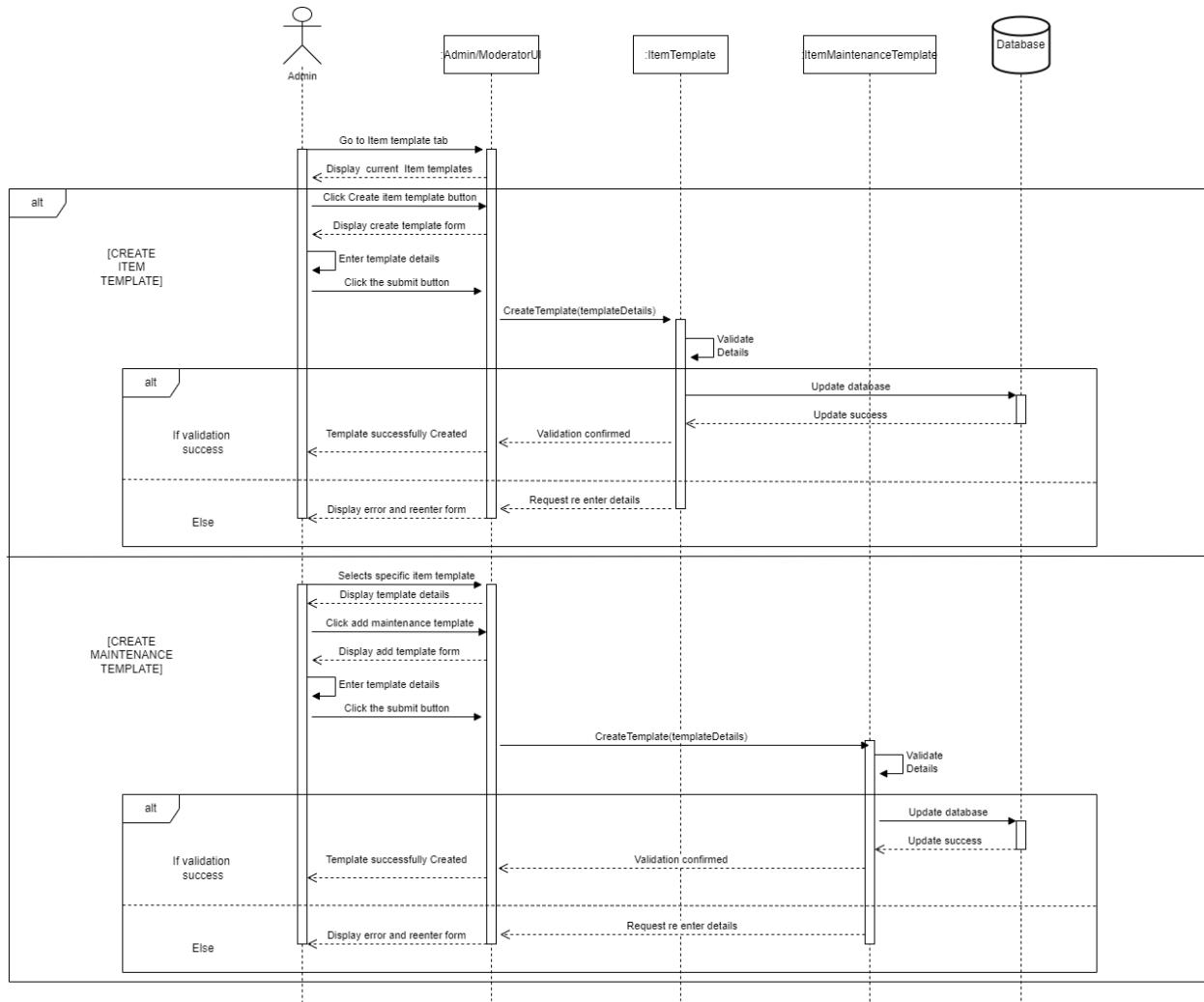


### Remove moderator

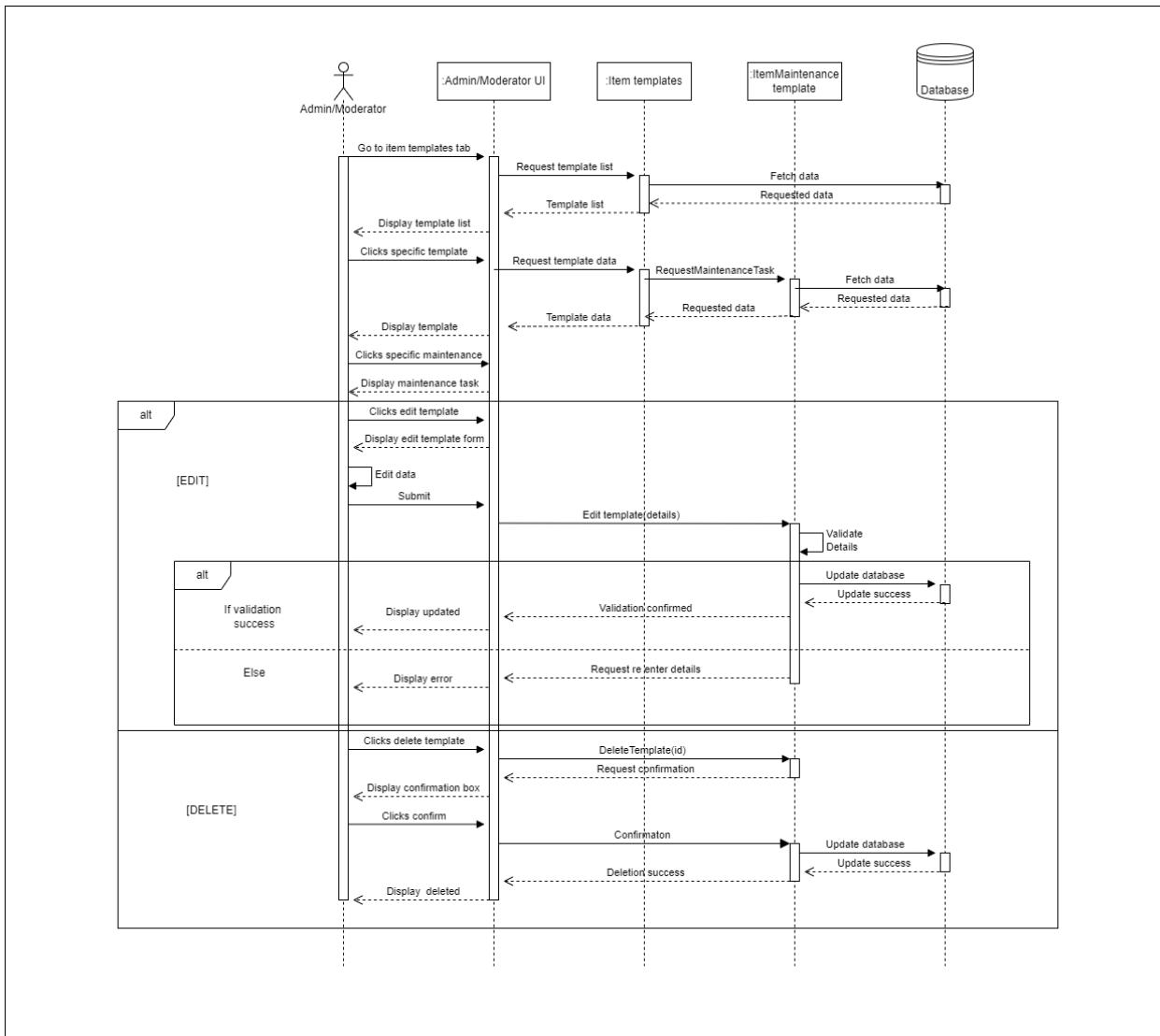


## Moderator's Sequence Diagram

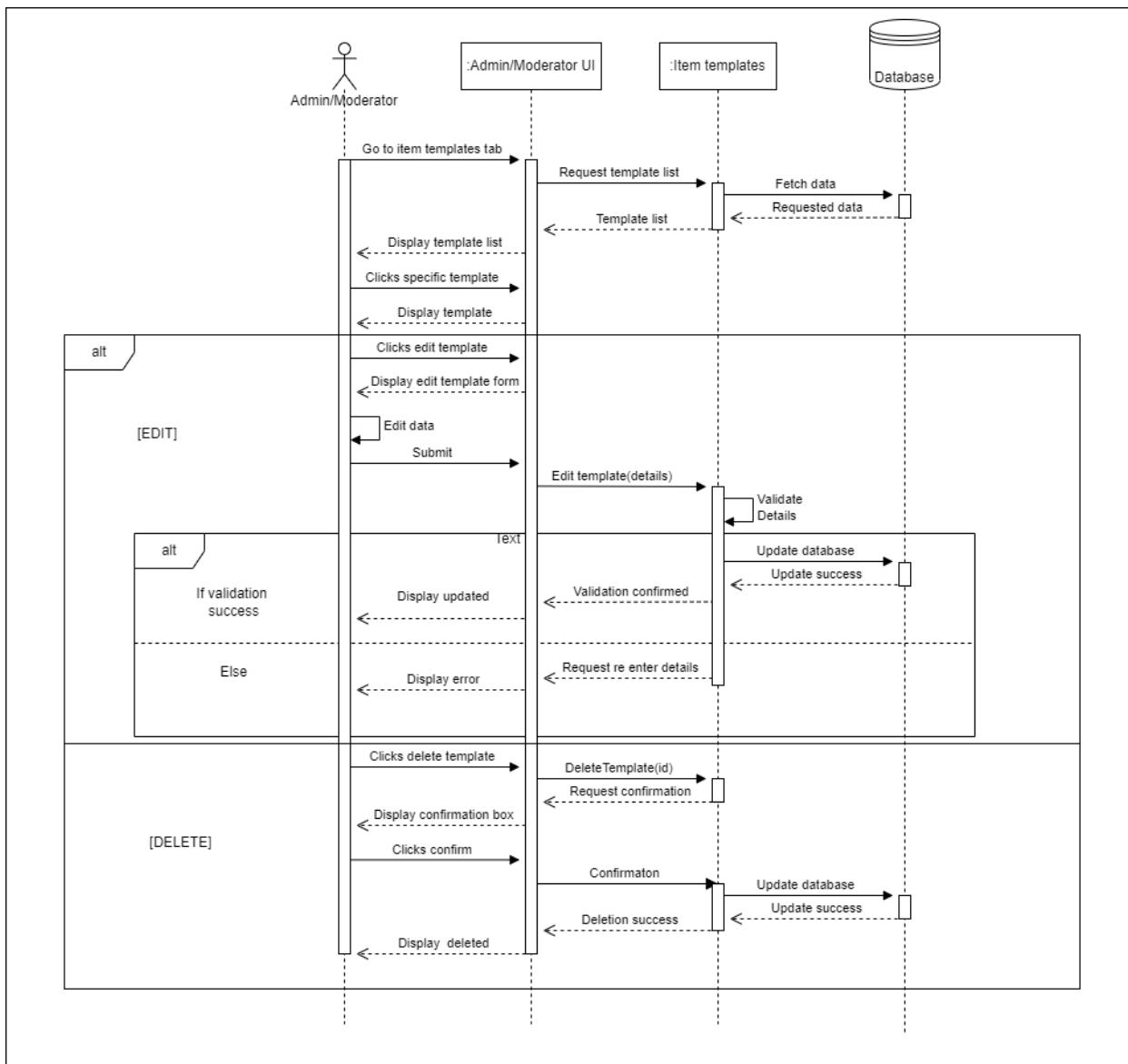
### Create template



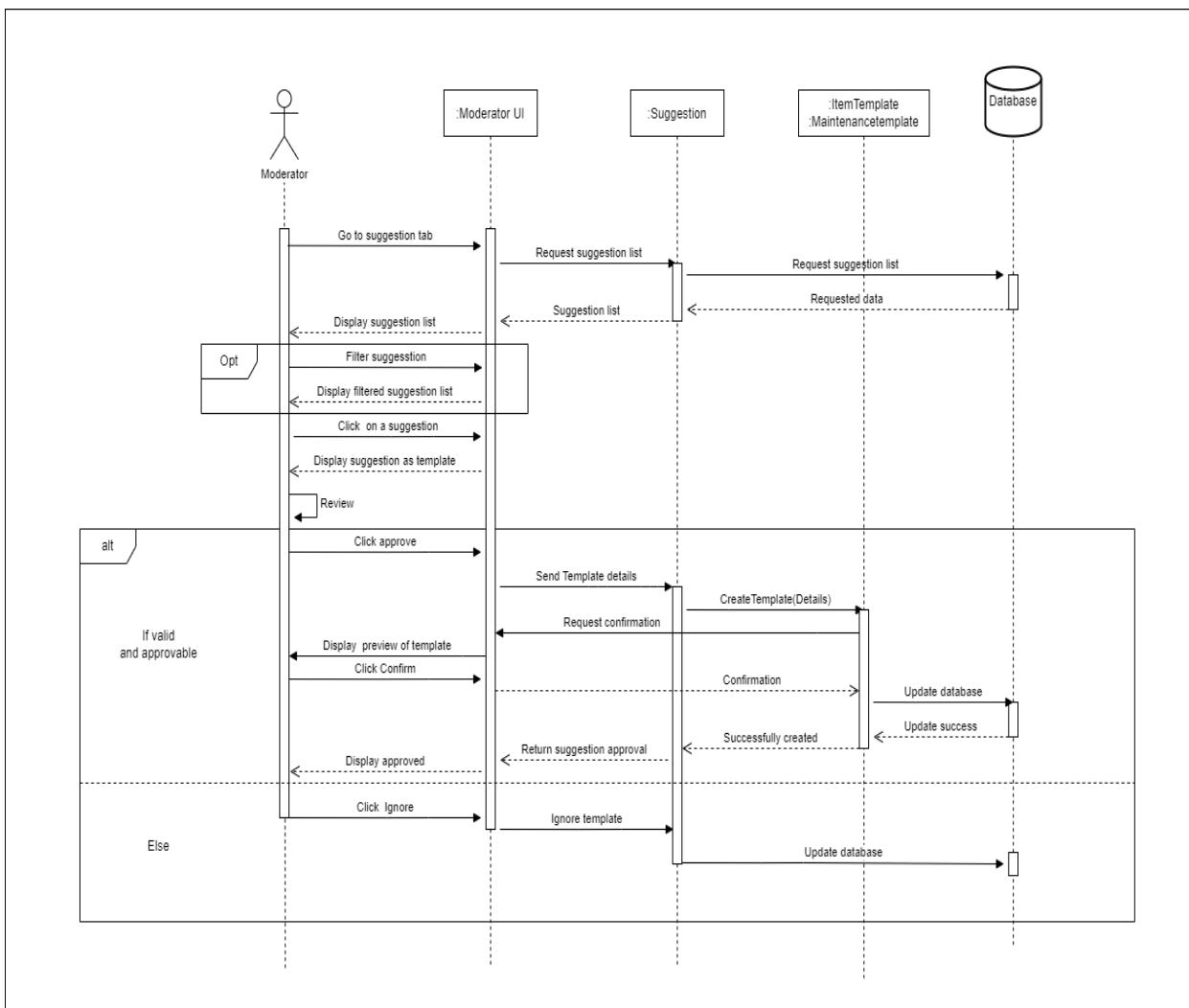
## Manage maintenance tasks



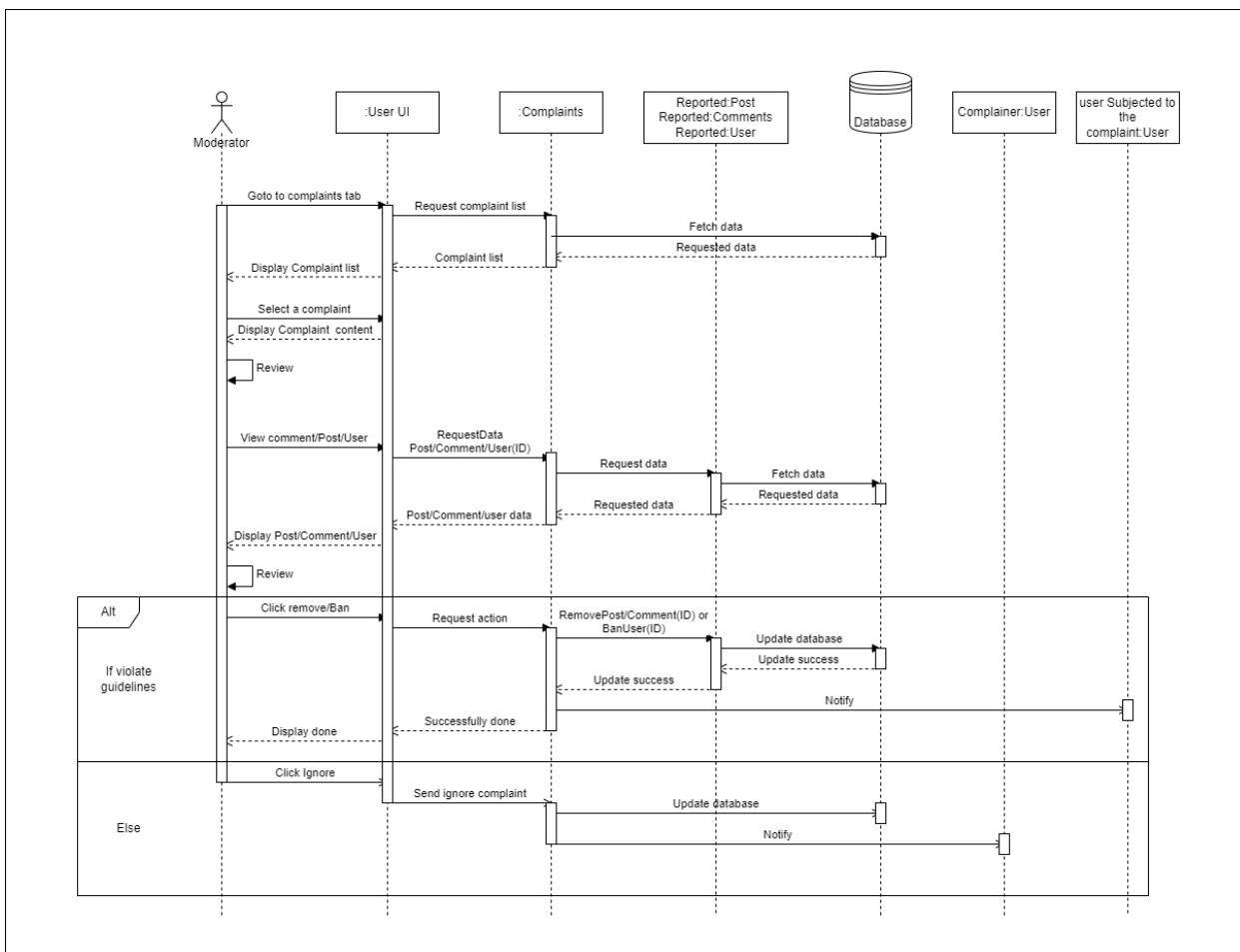
## Manage item template



## Approve suggestions

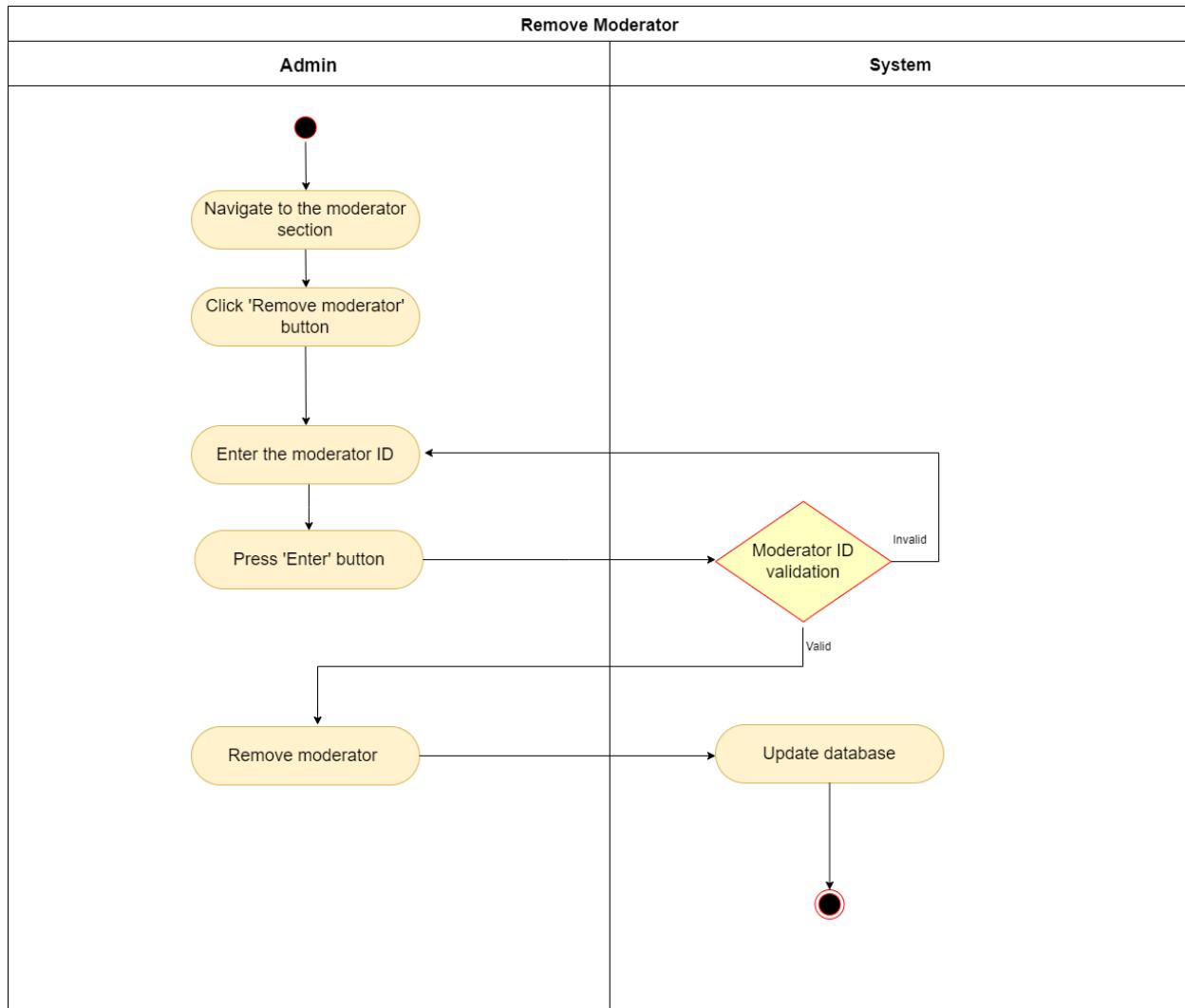


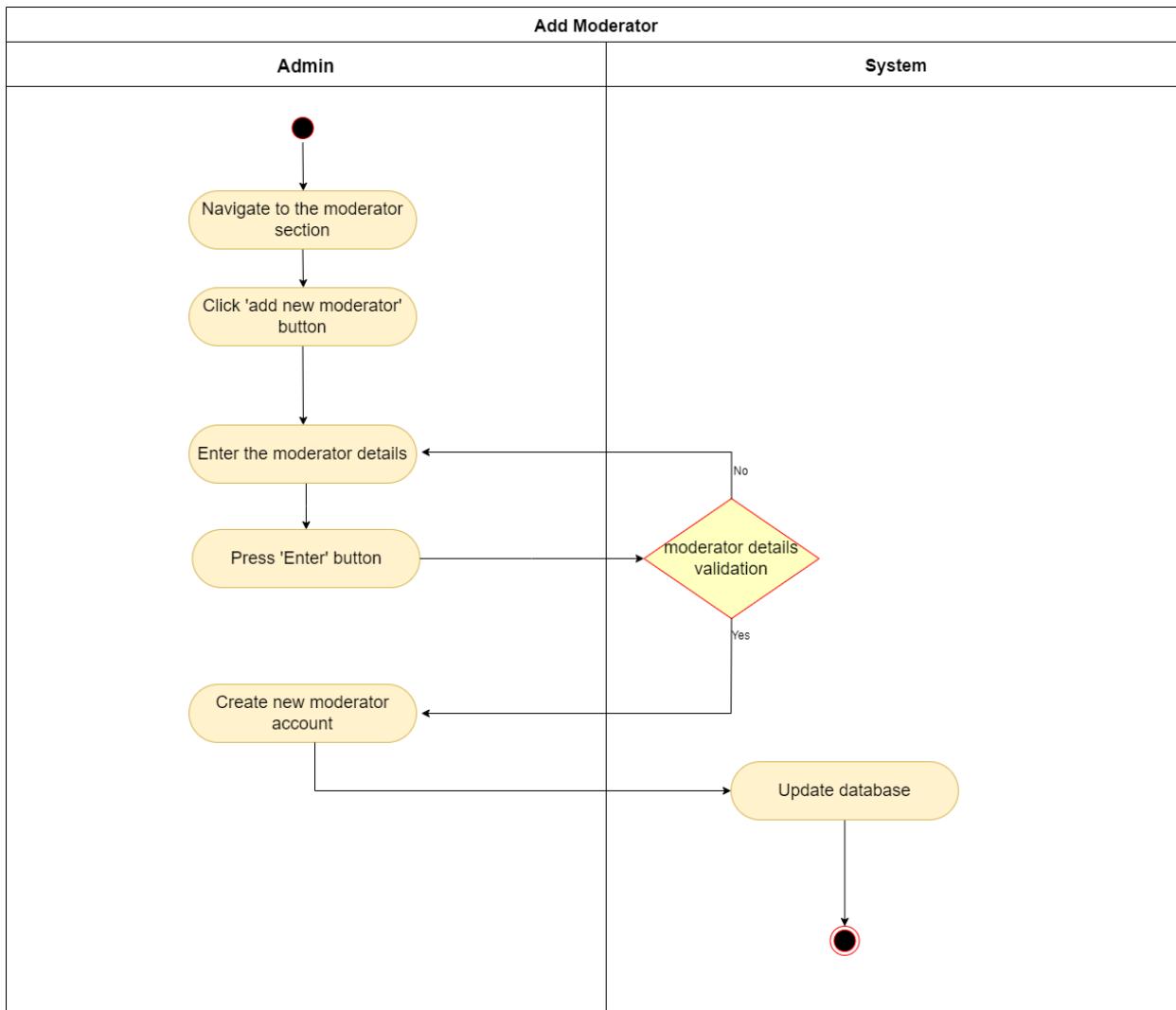
## Handle user complaints

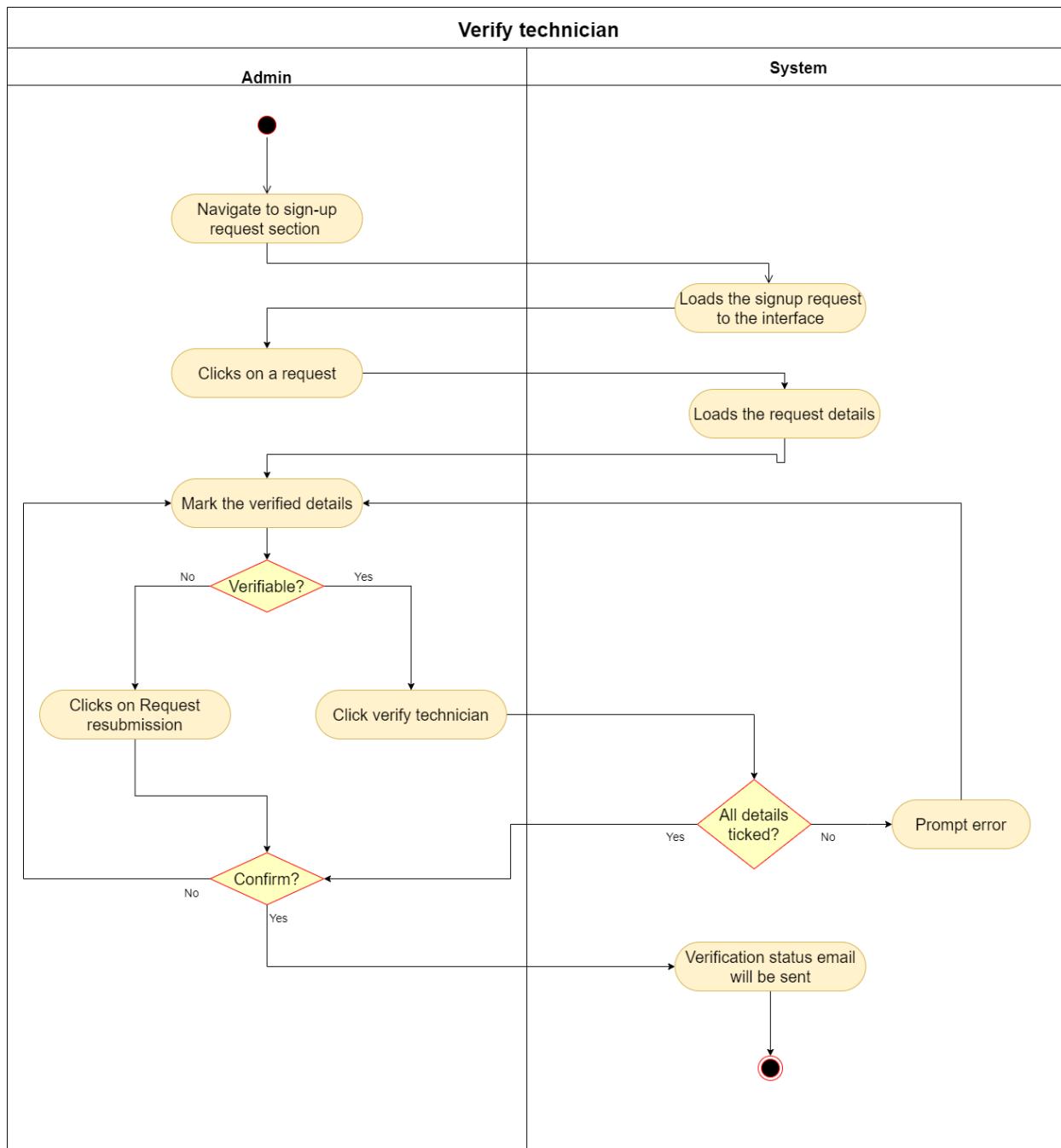


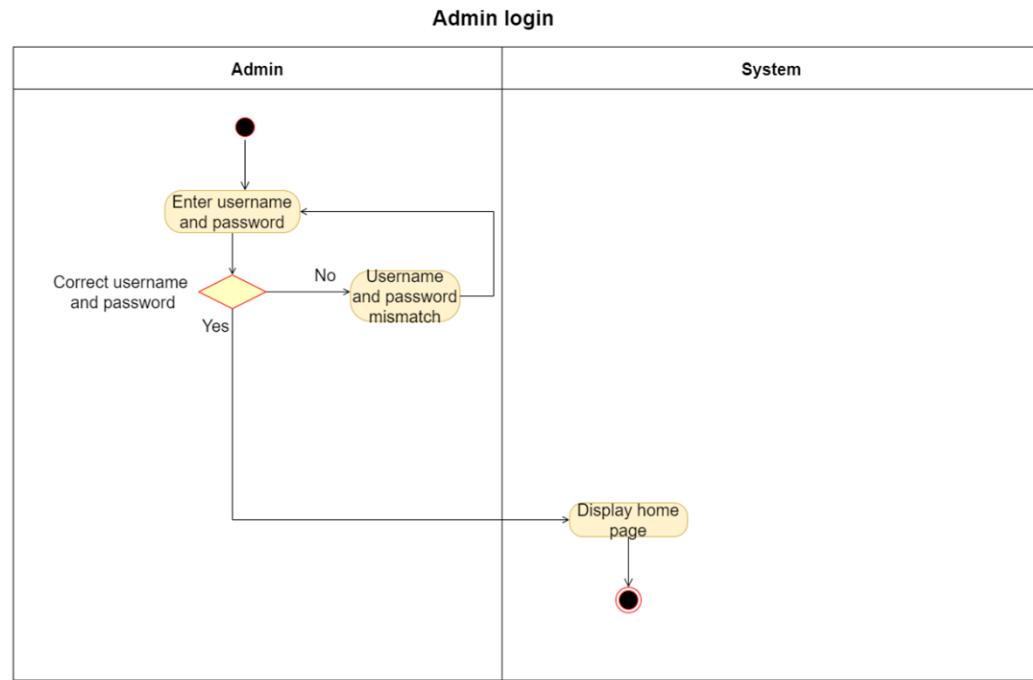
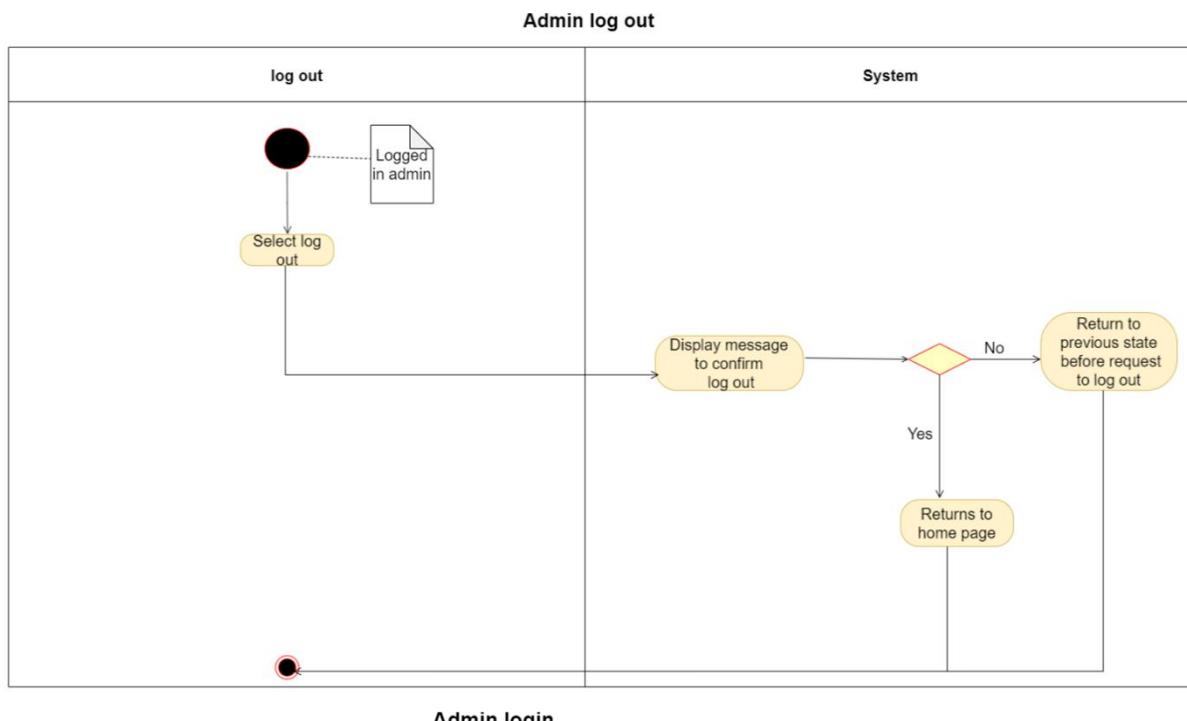
## 5.4. Activity Diagrams

Admin

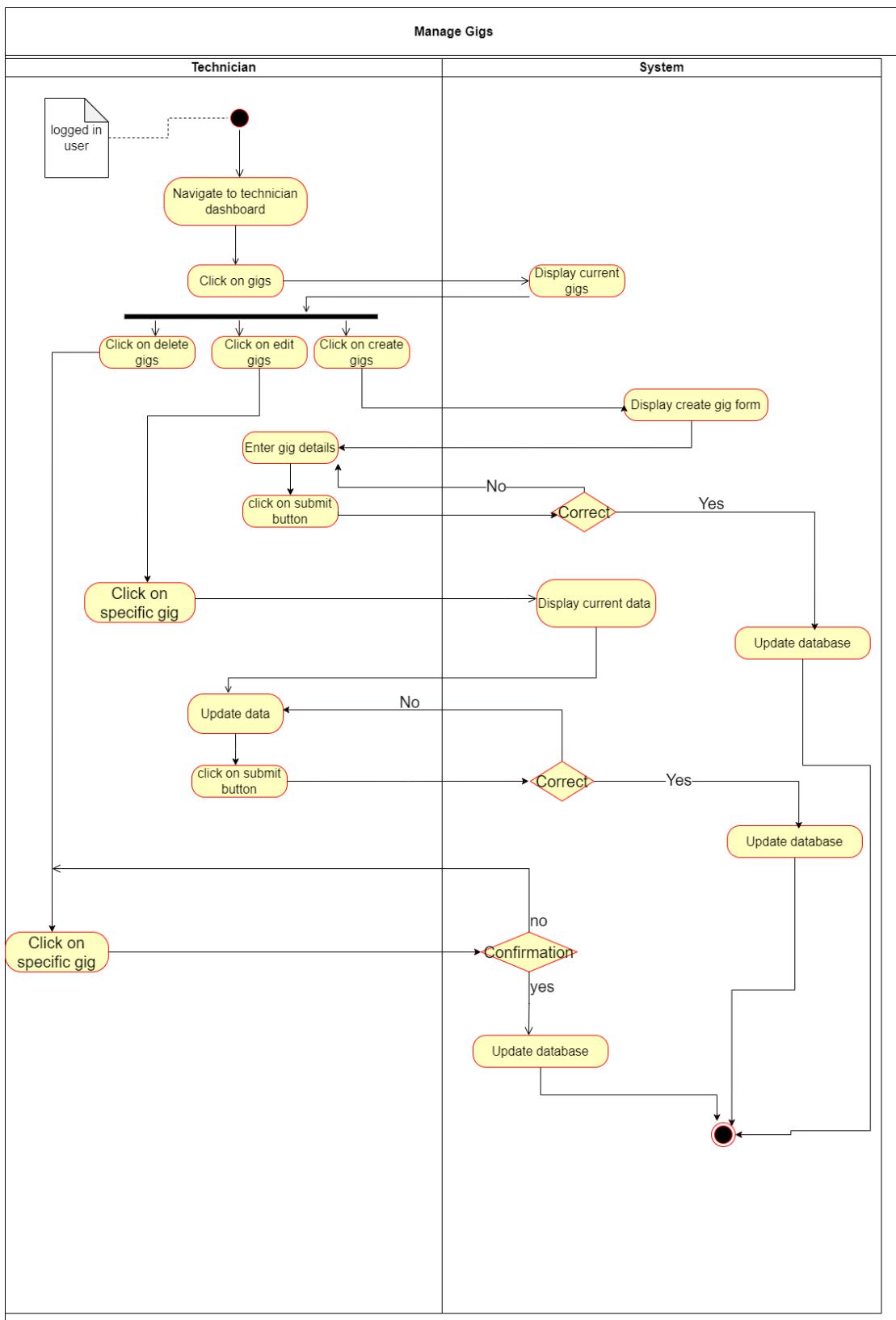


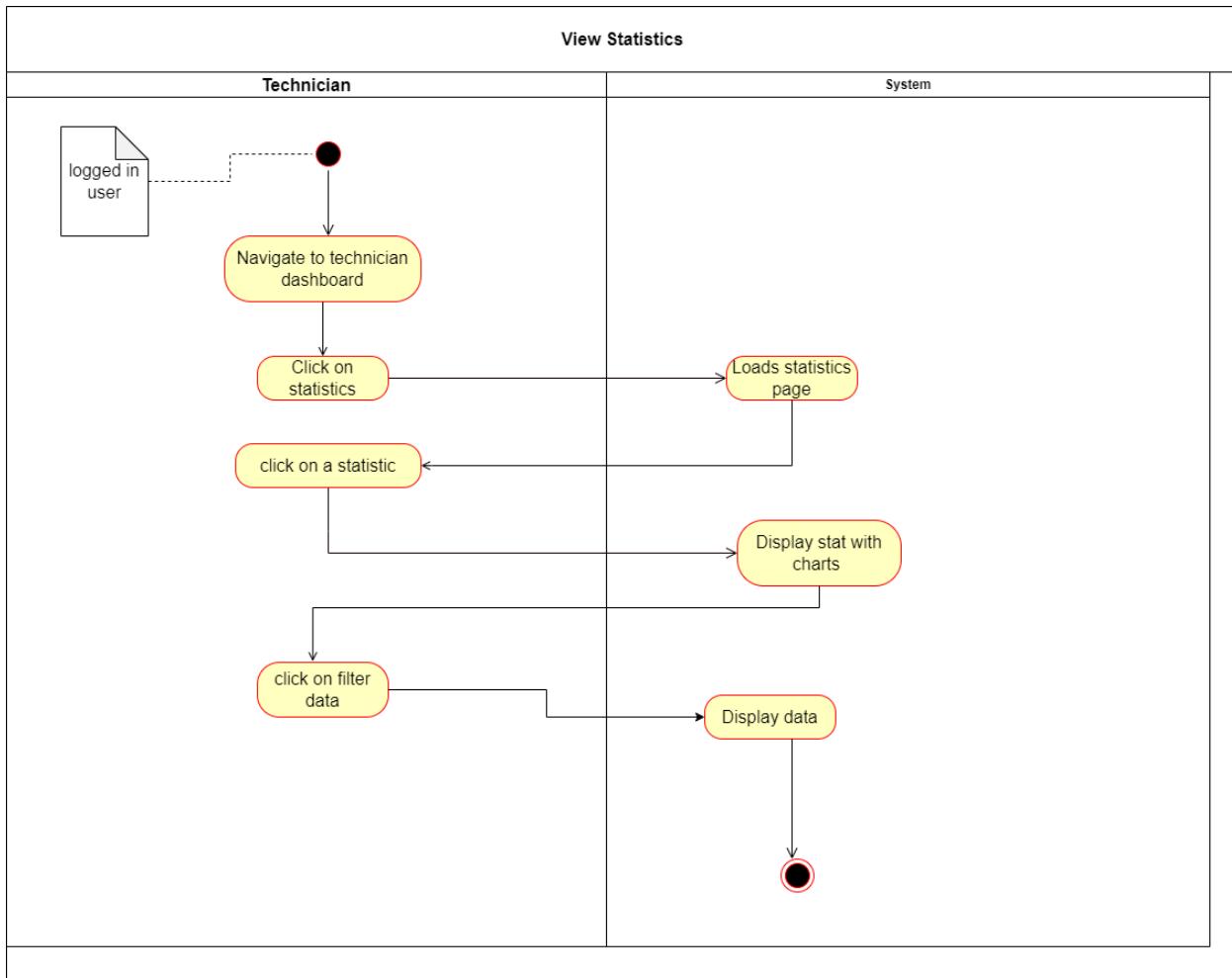


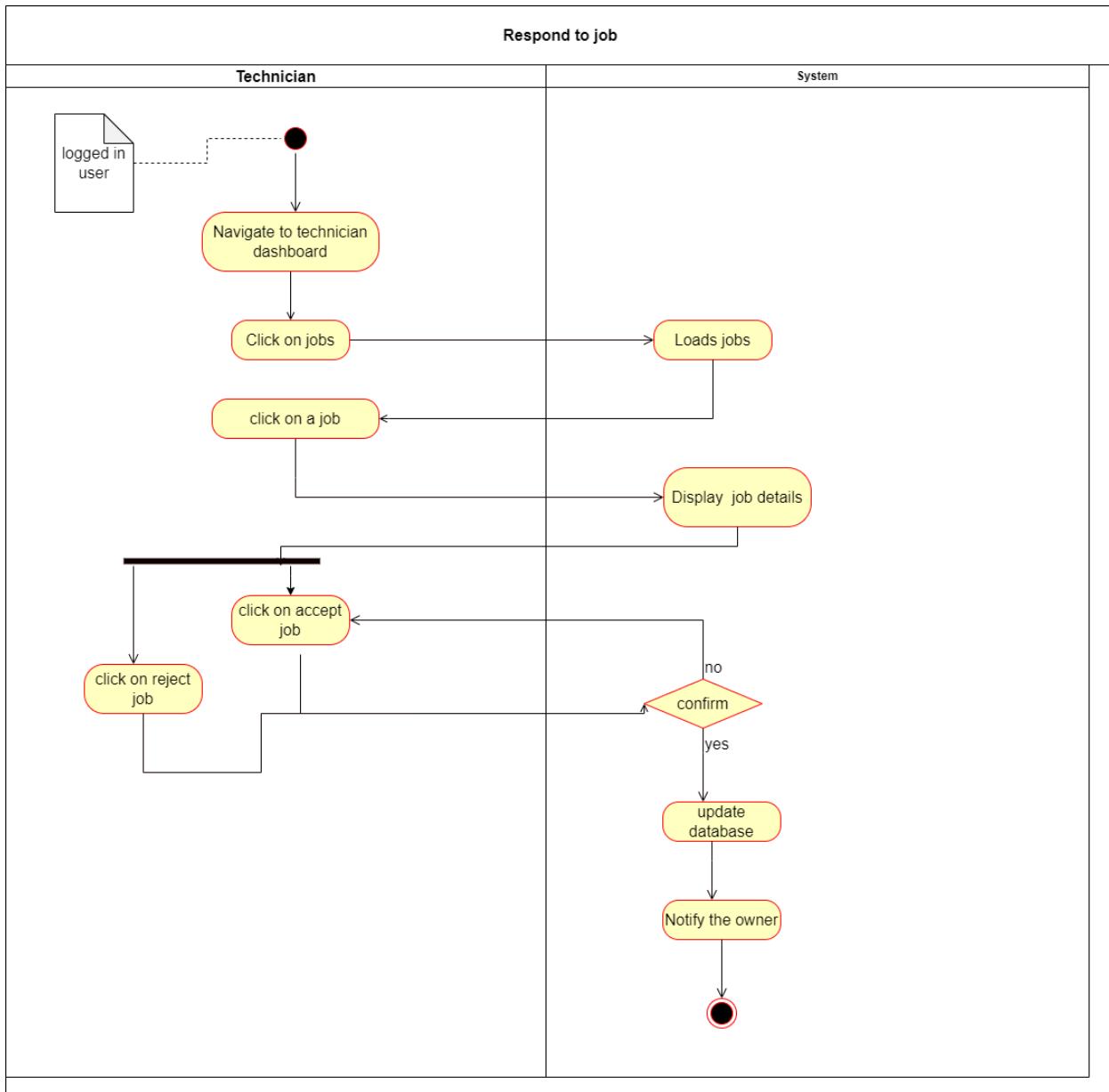


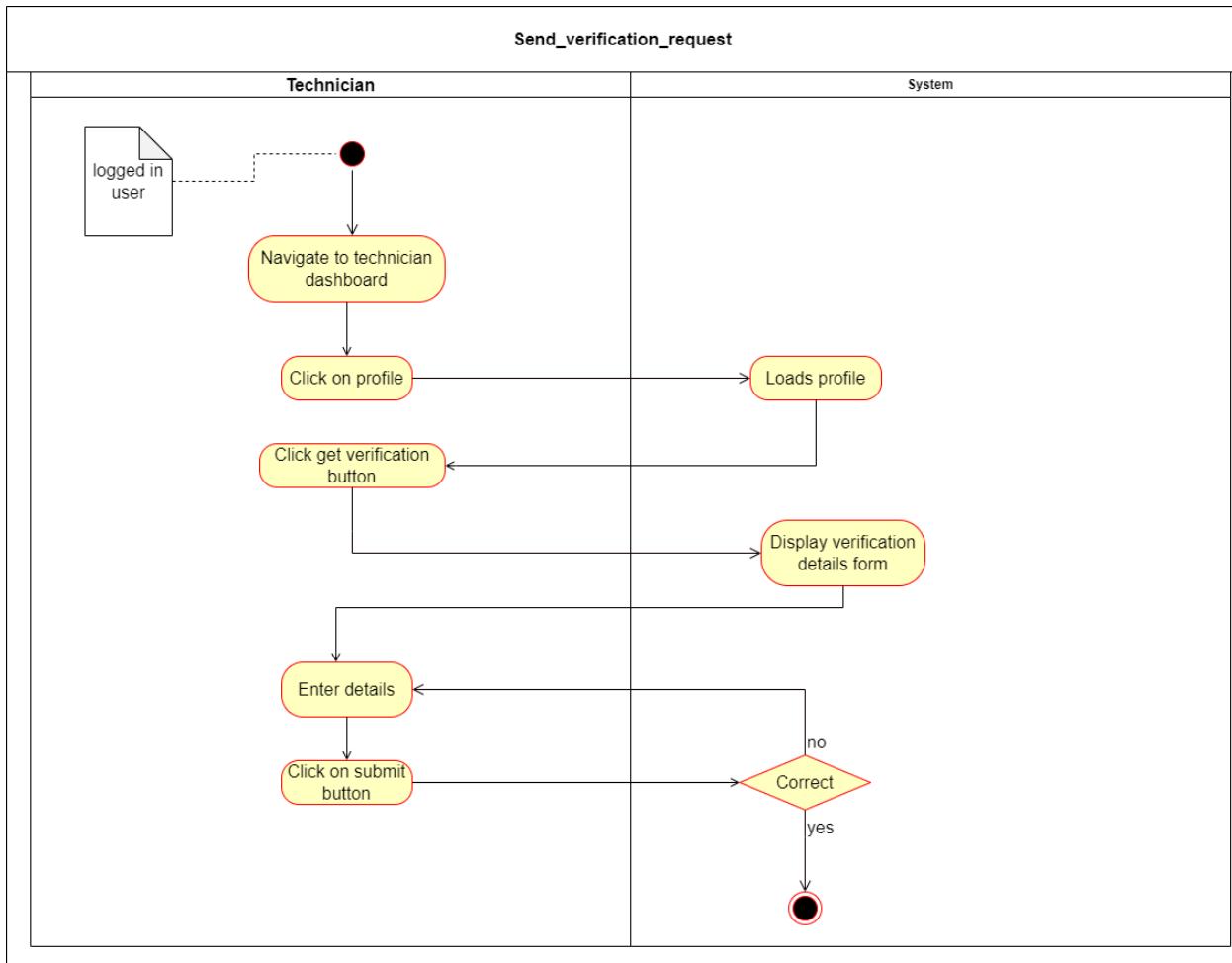


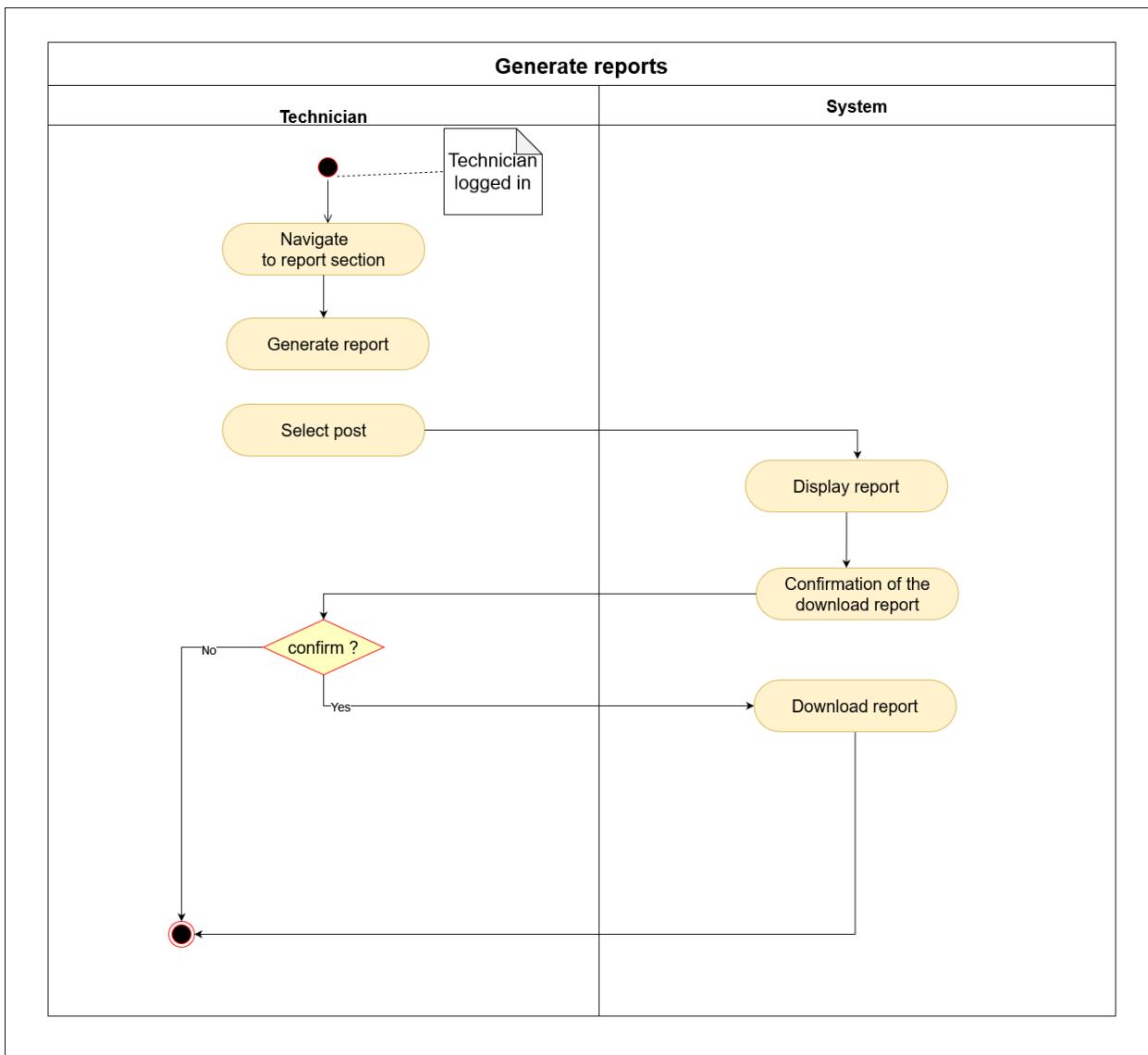
## Technician

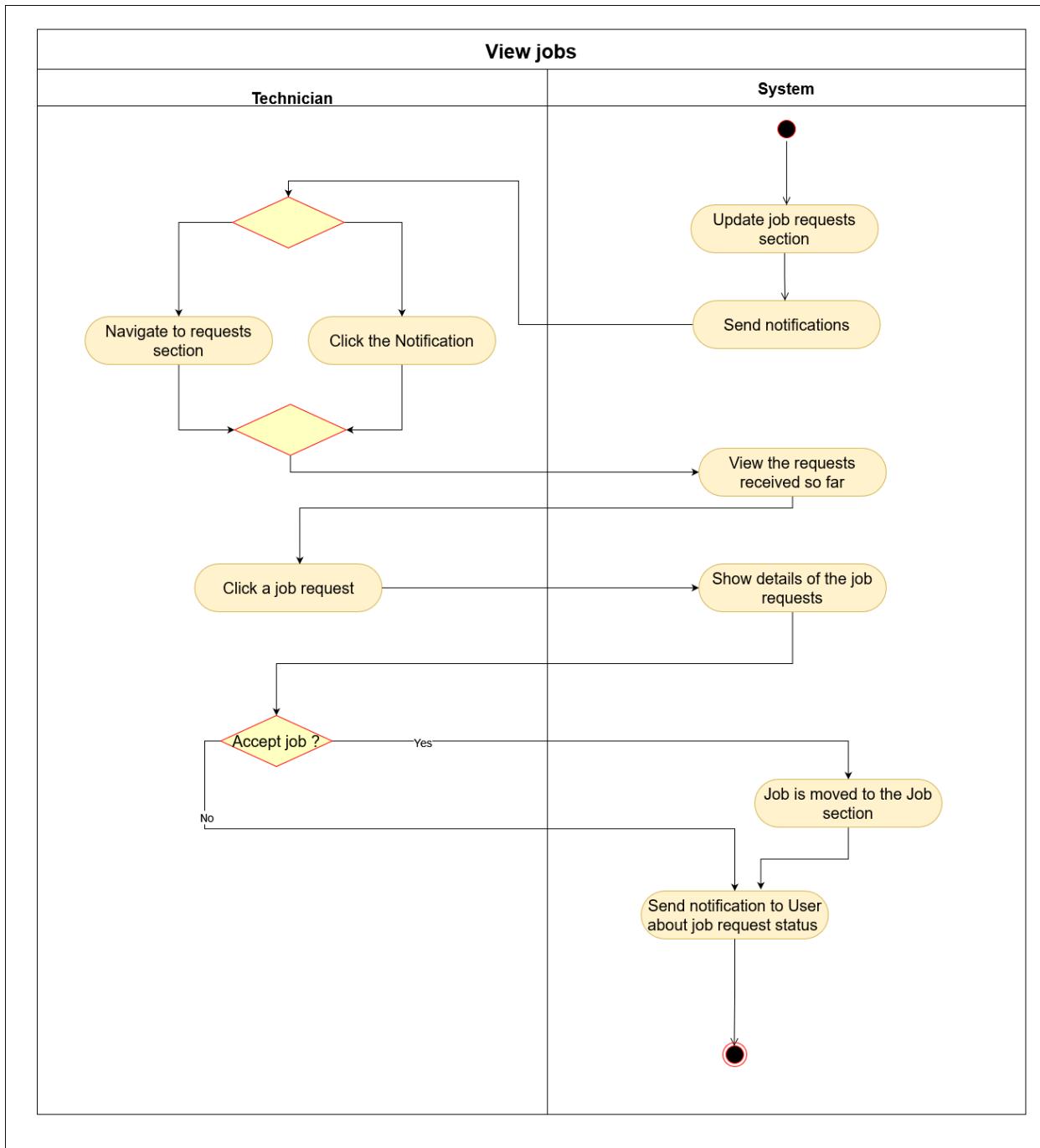




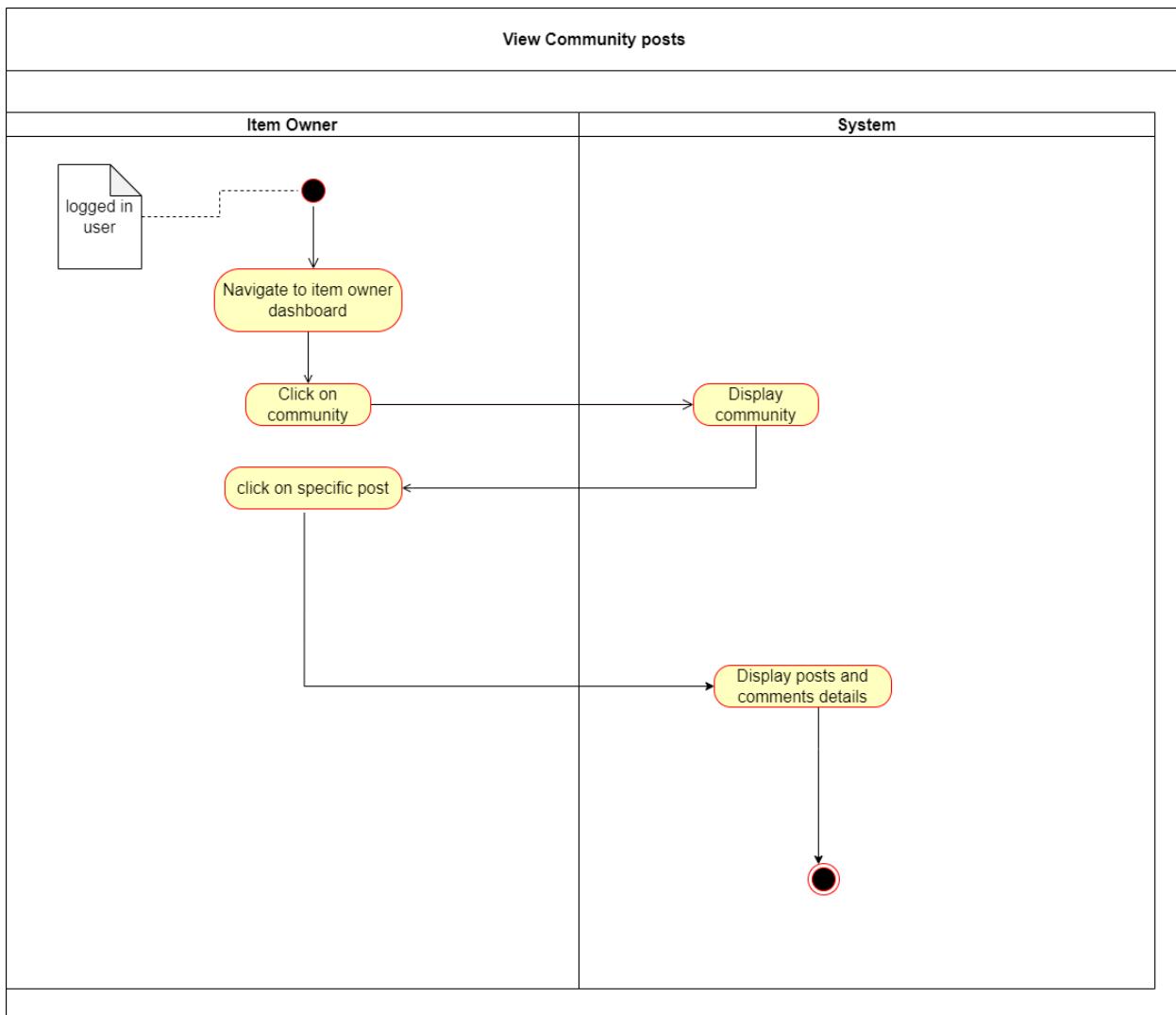


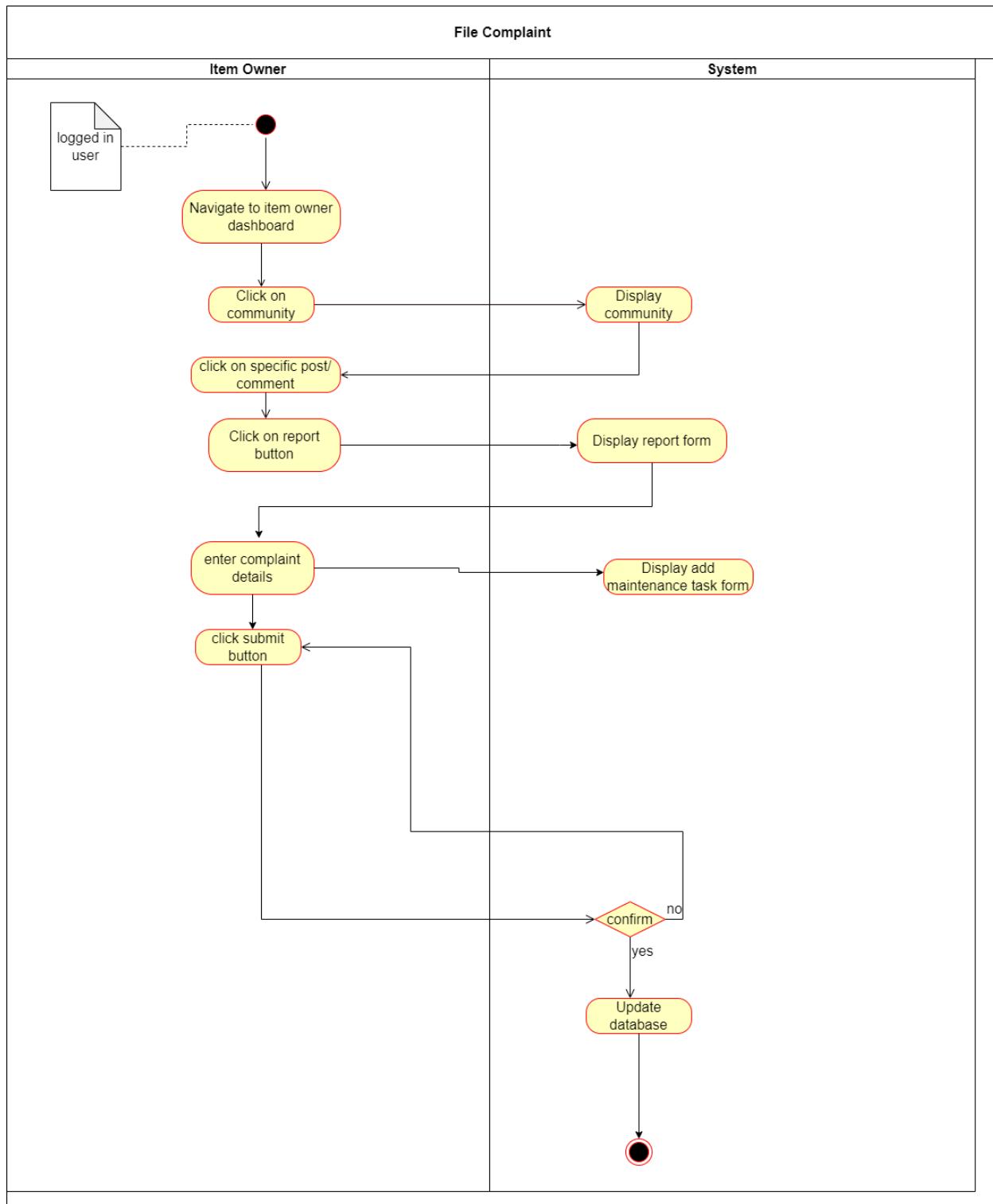


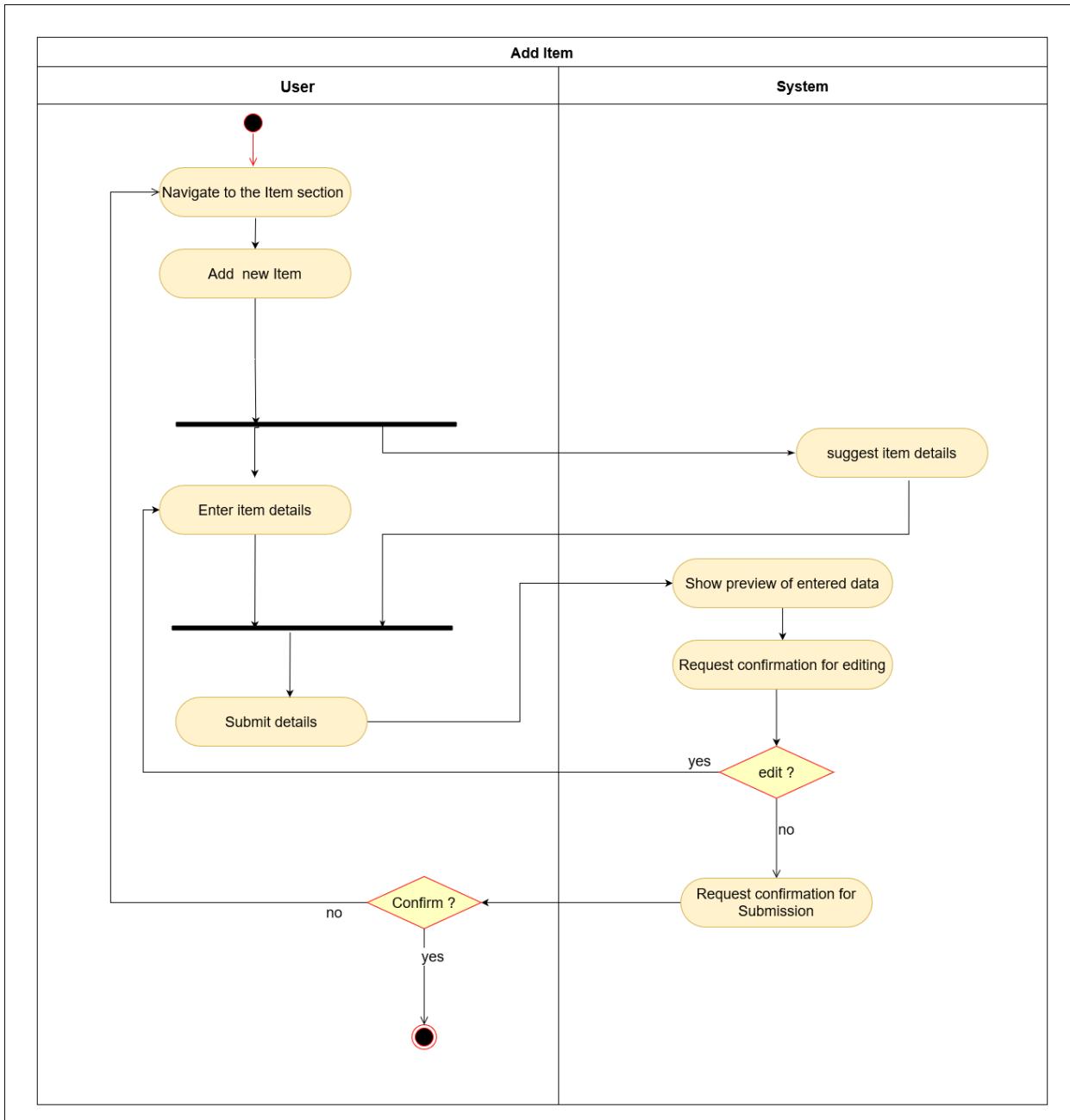


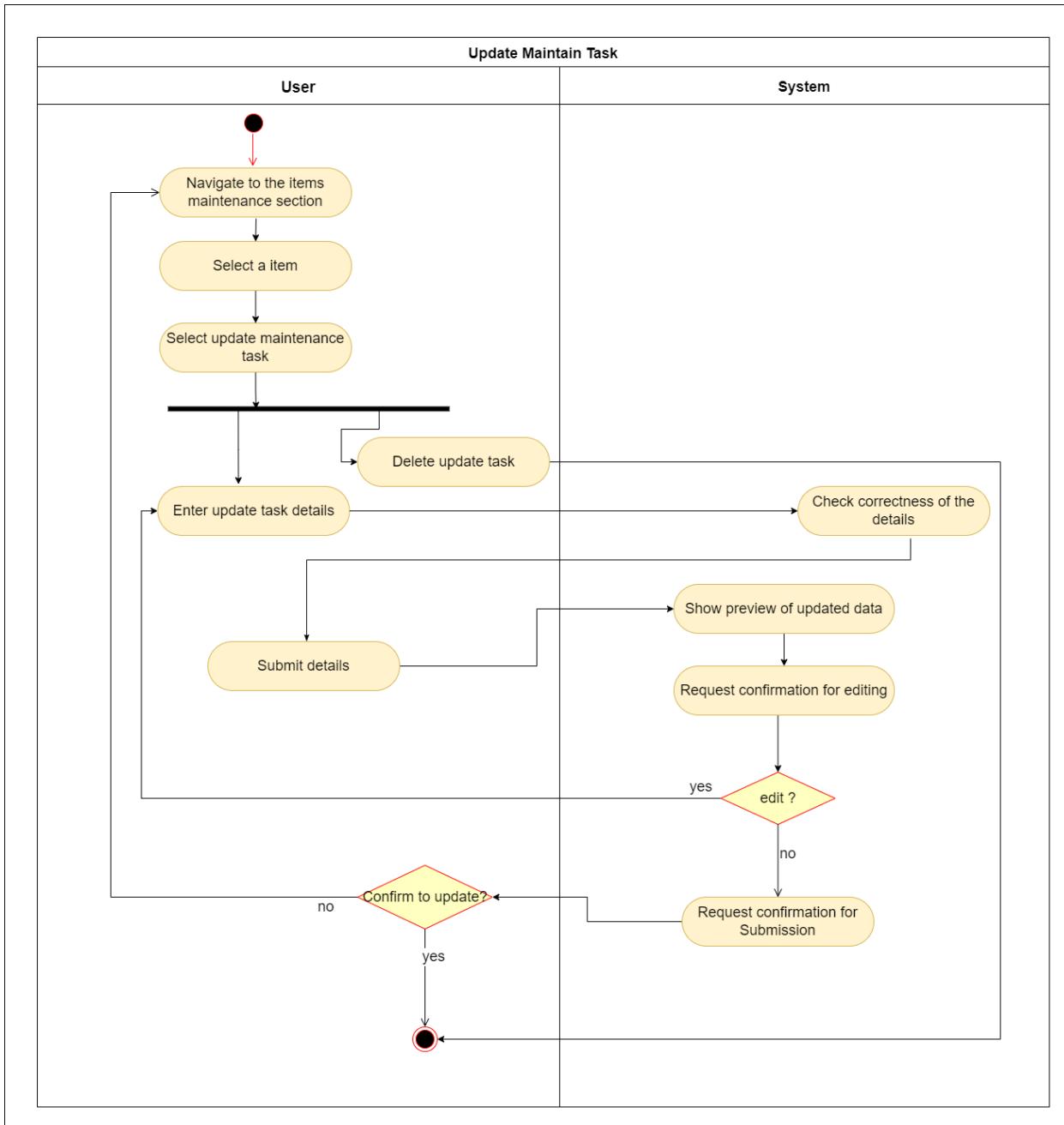


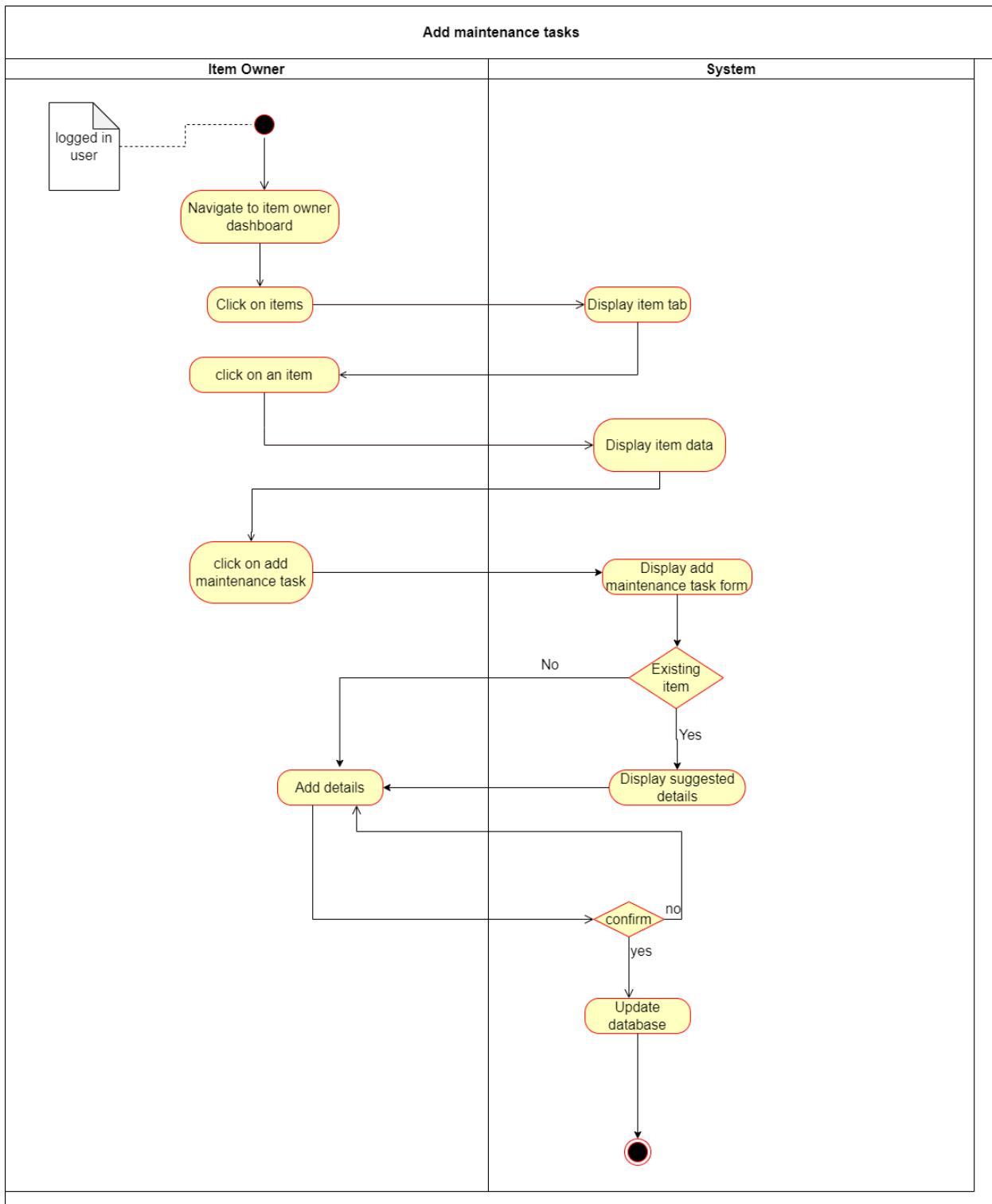
Item Owner

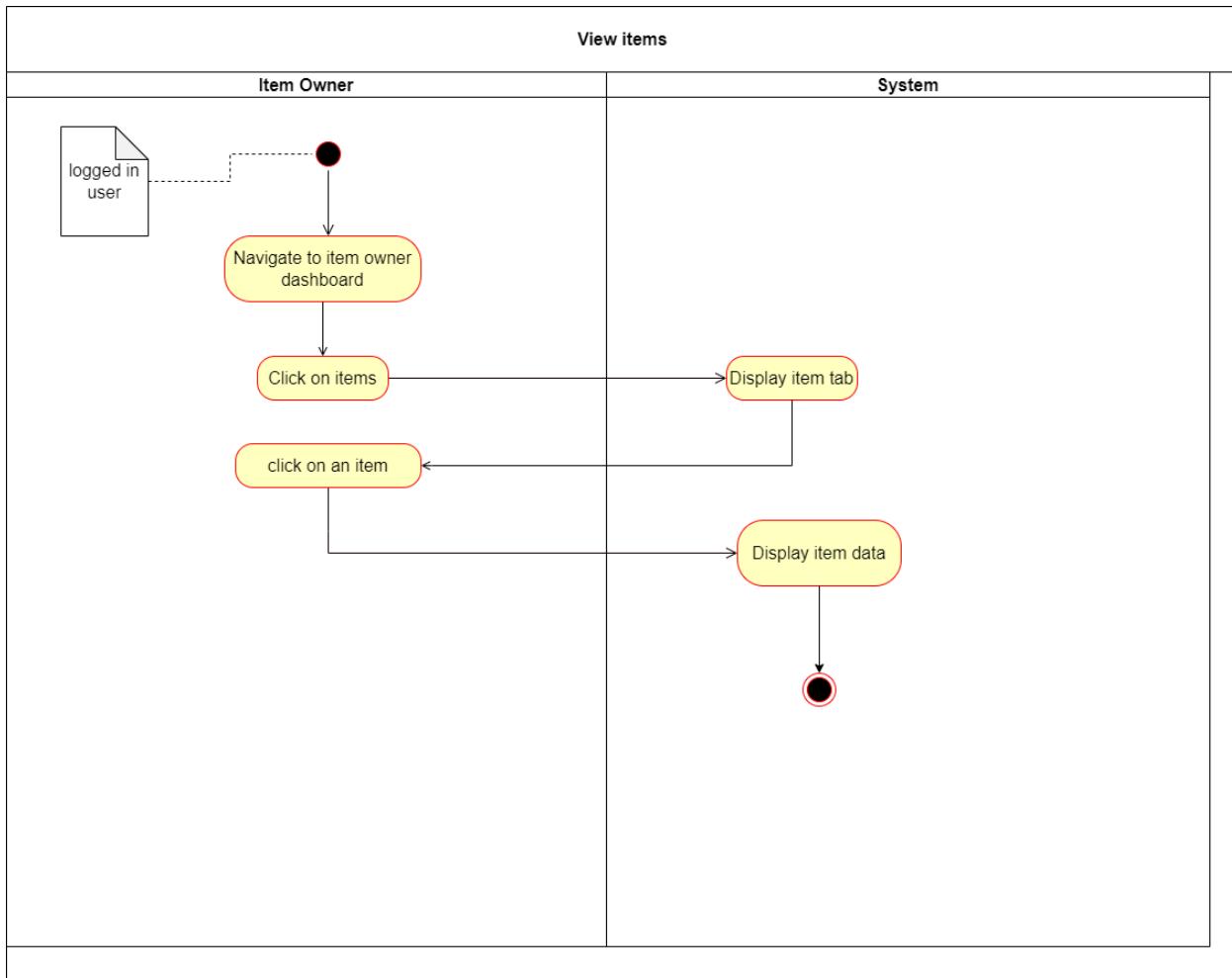


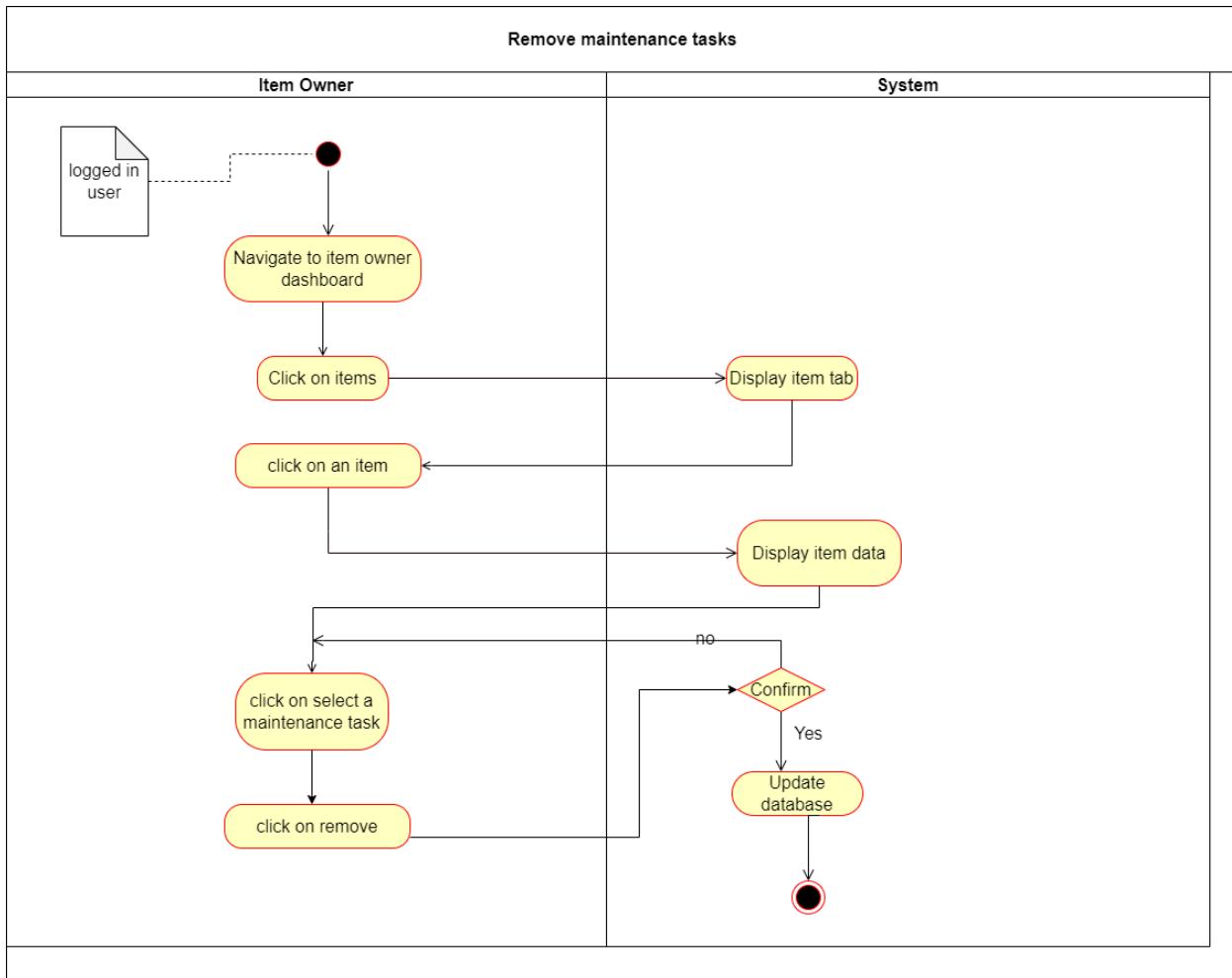


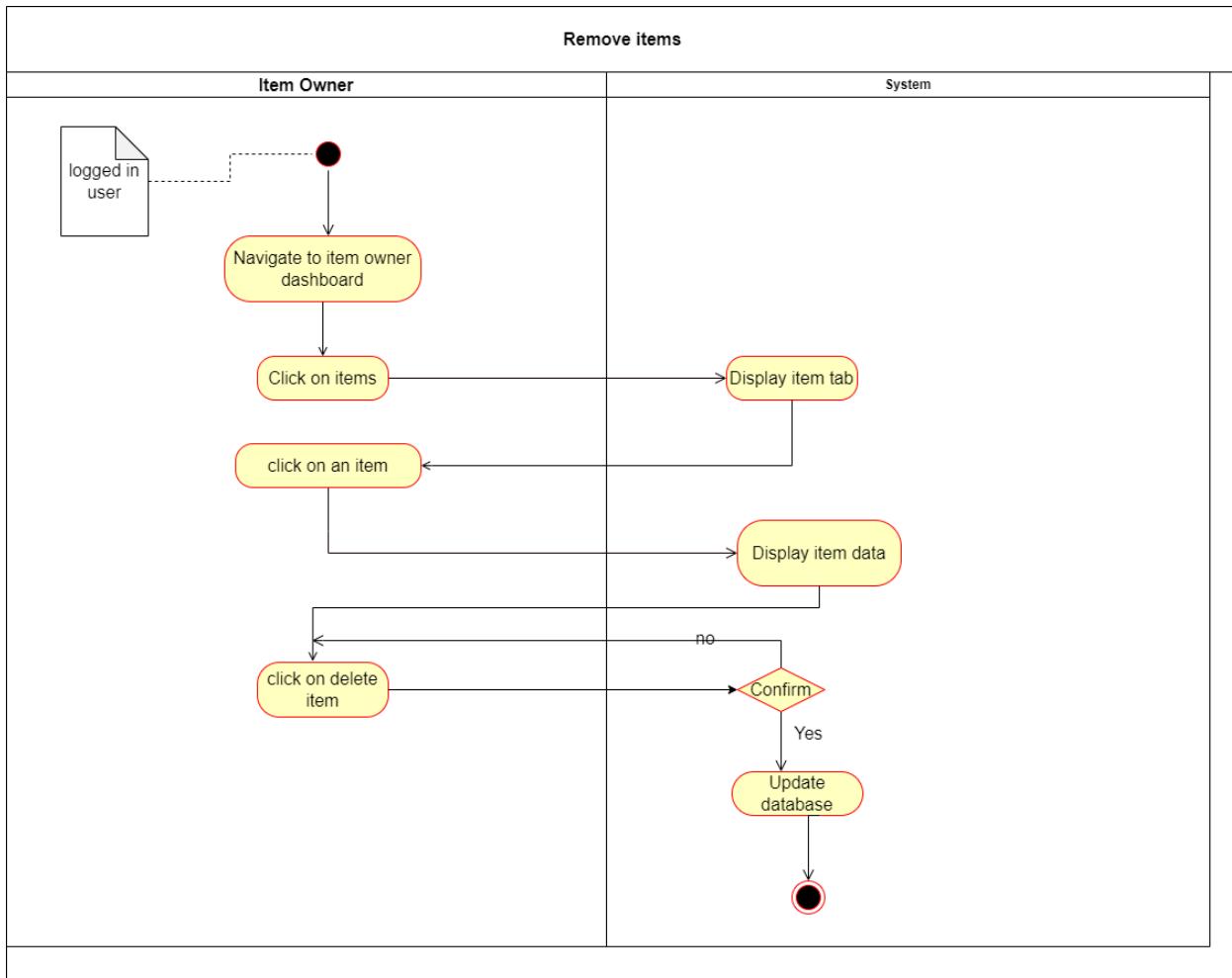


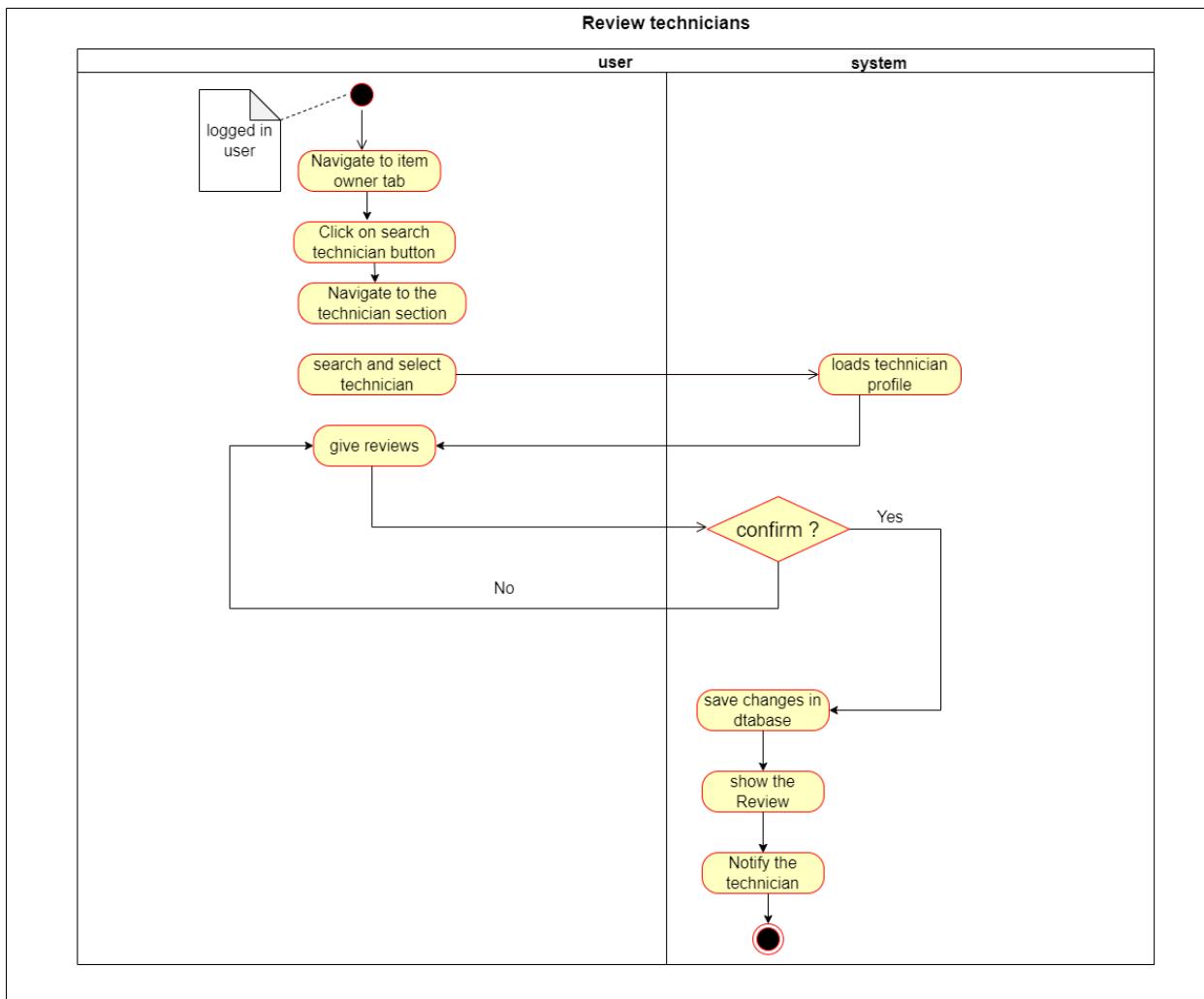


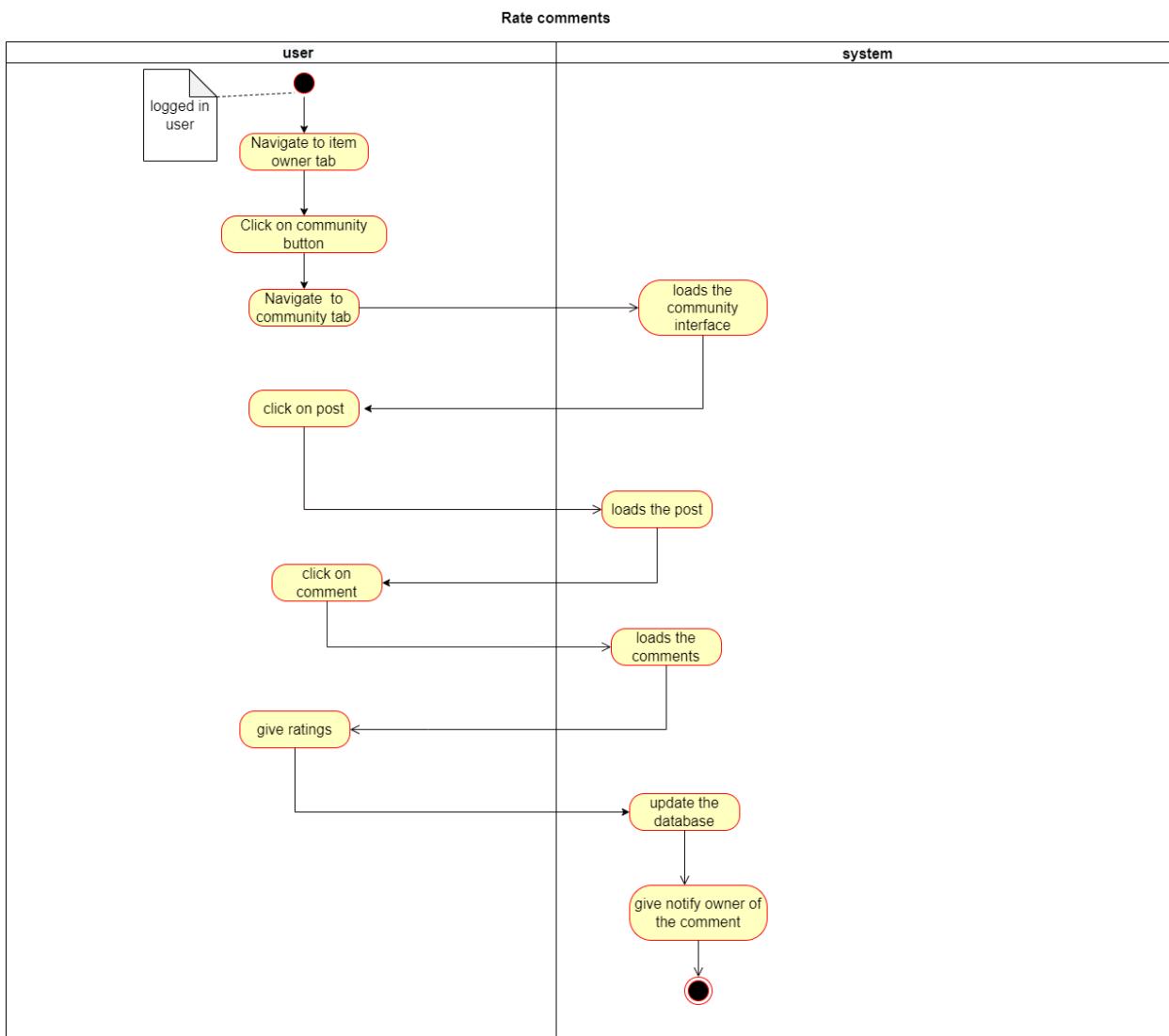


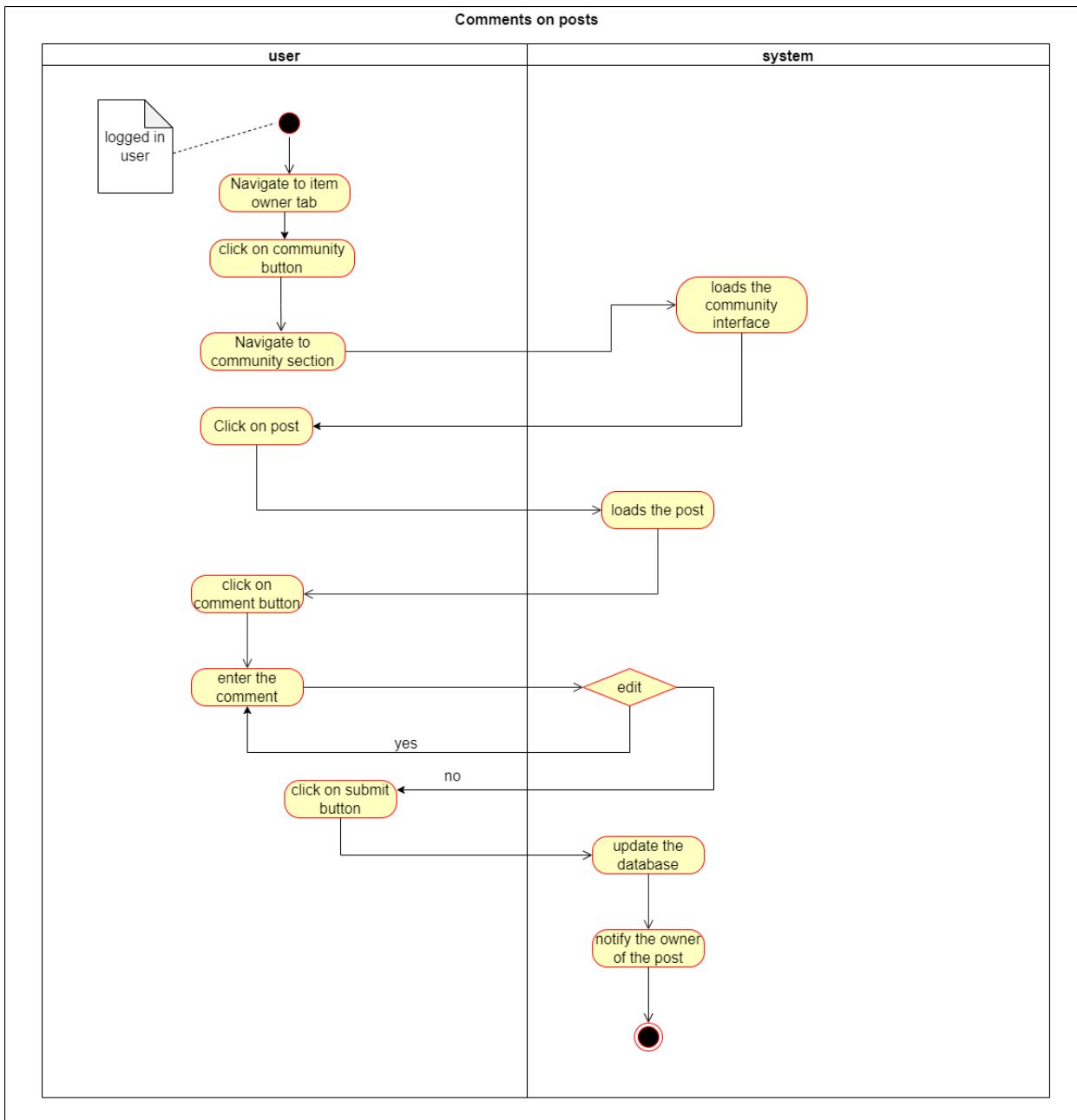


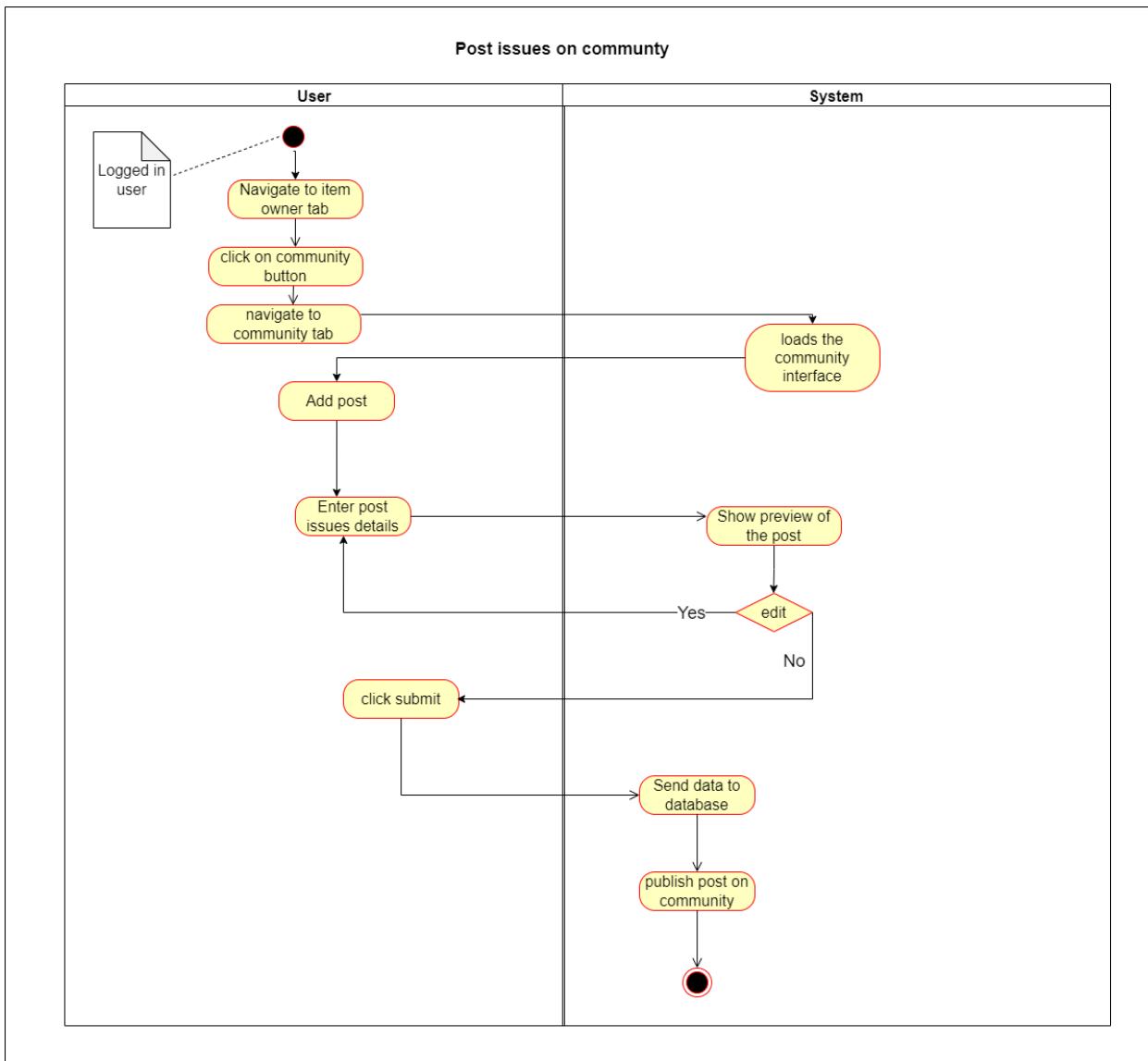


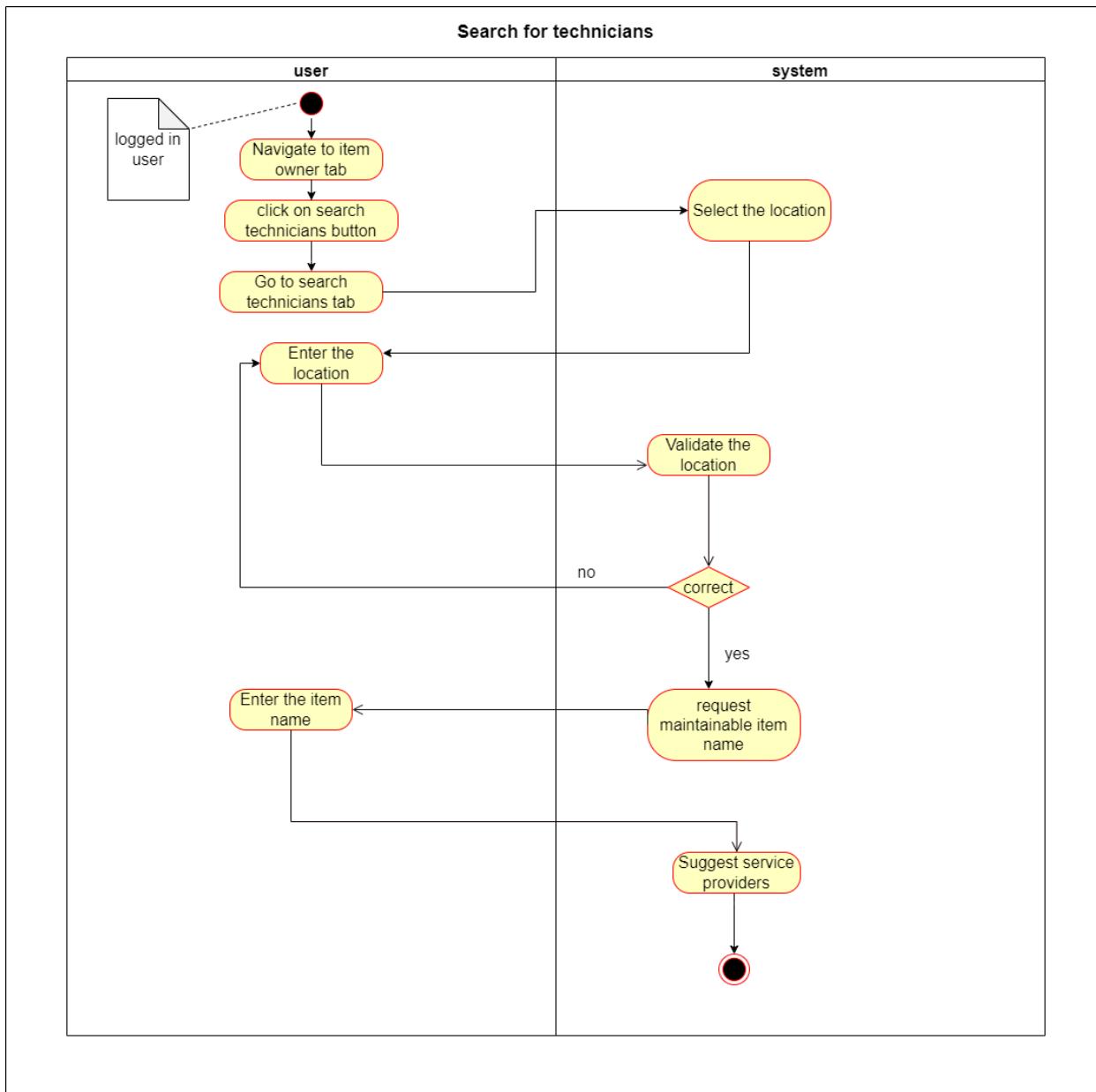


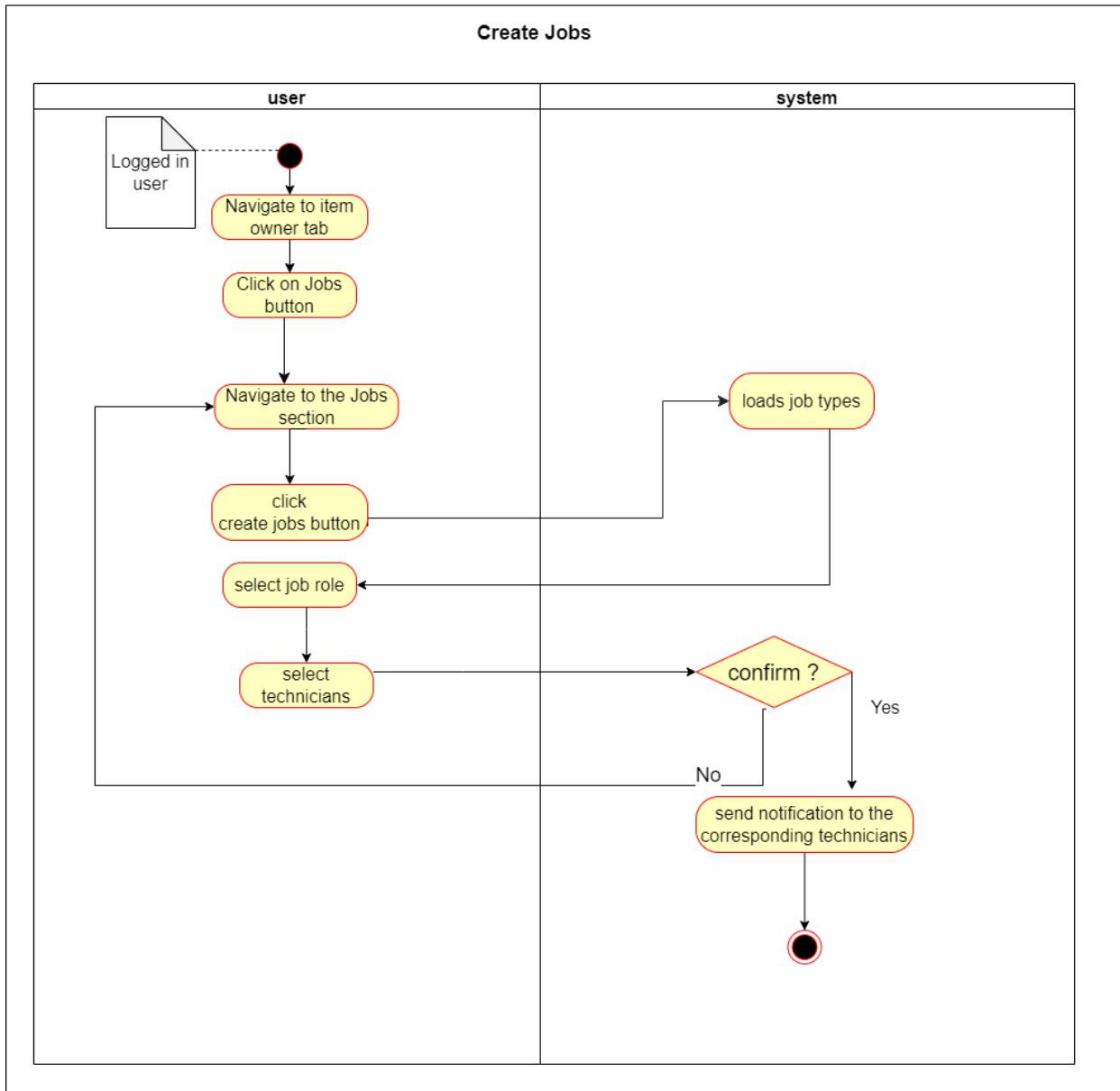


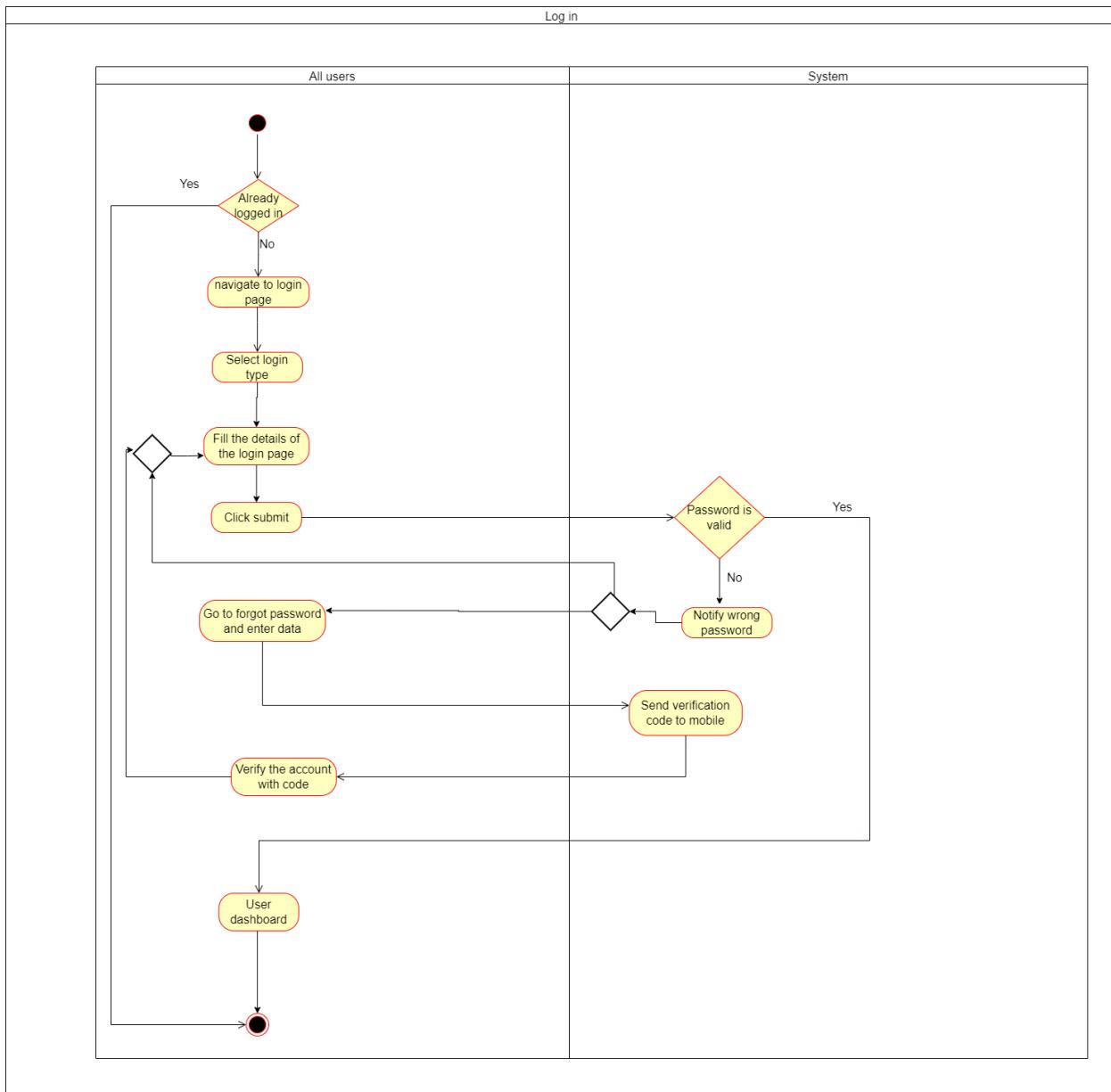


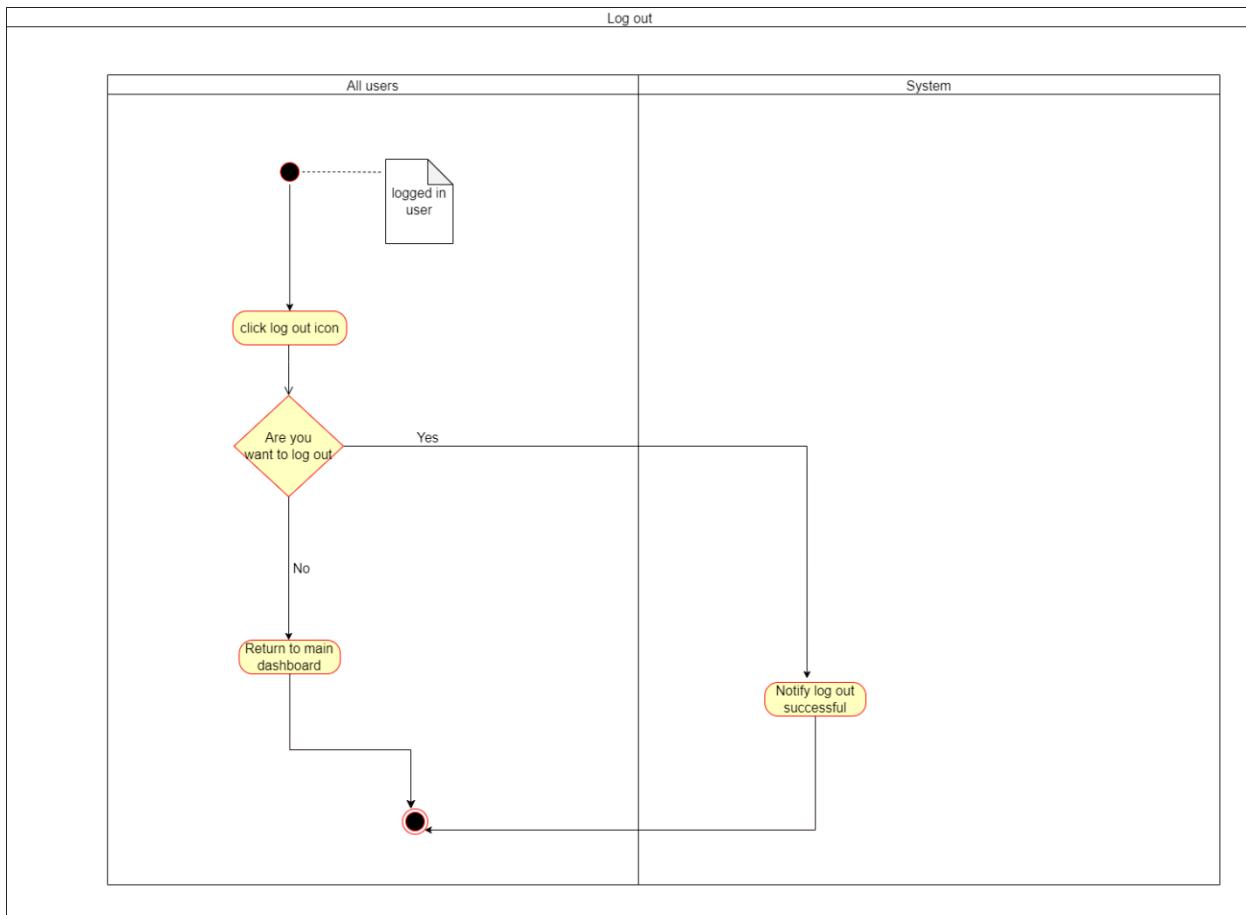




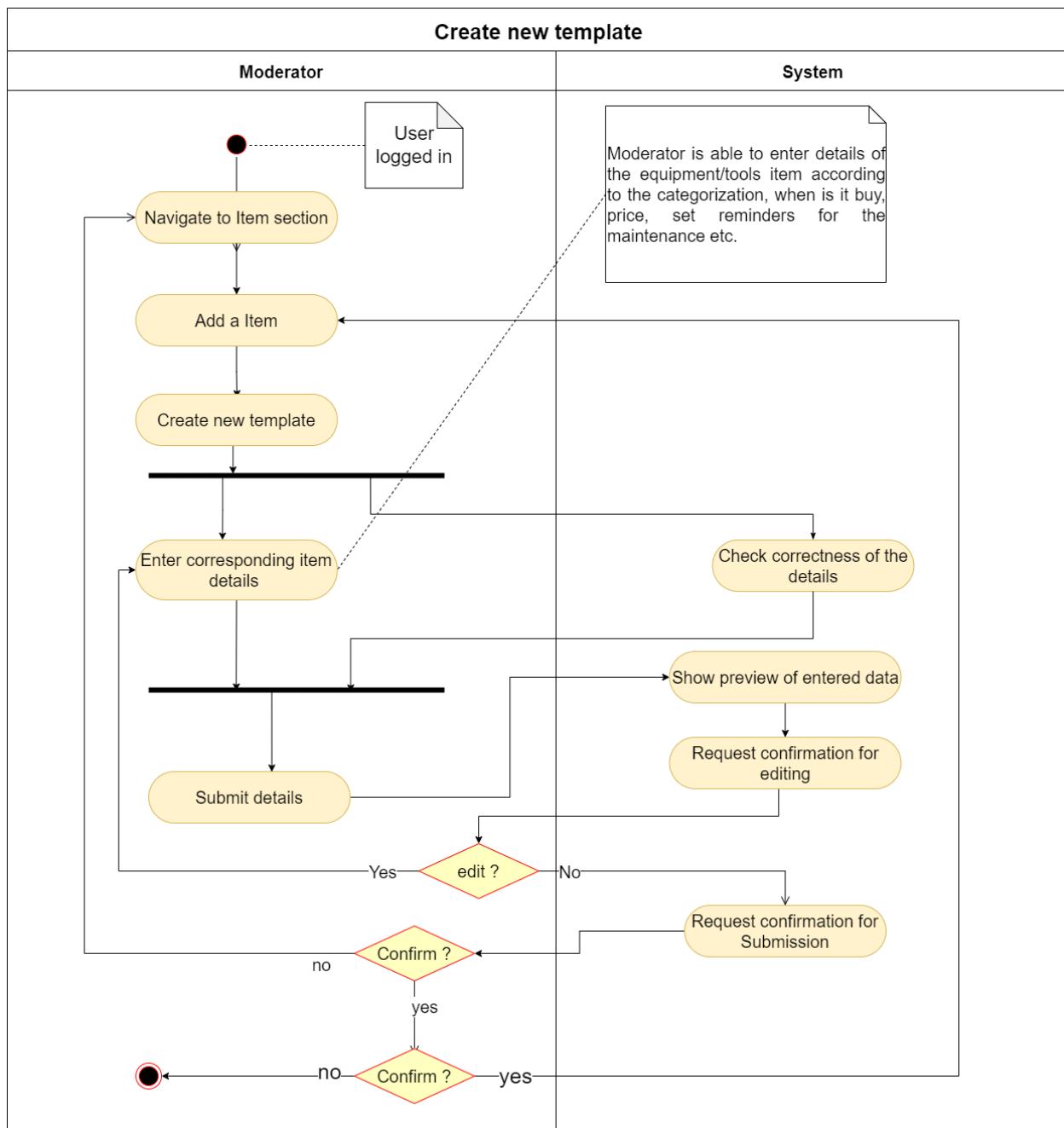


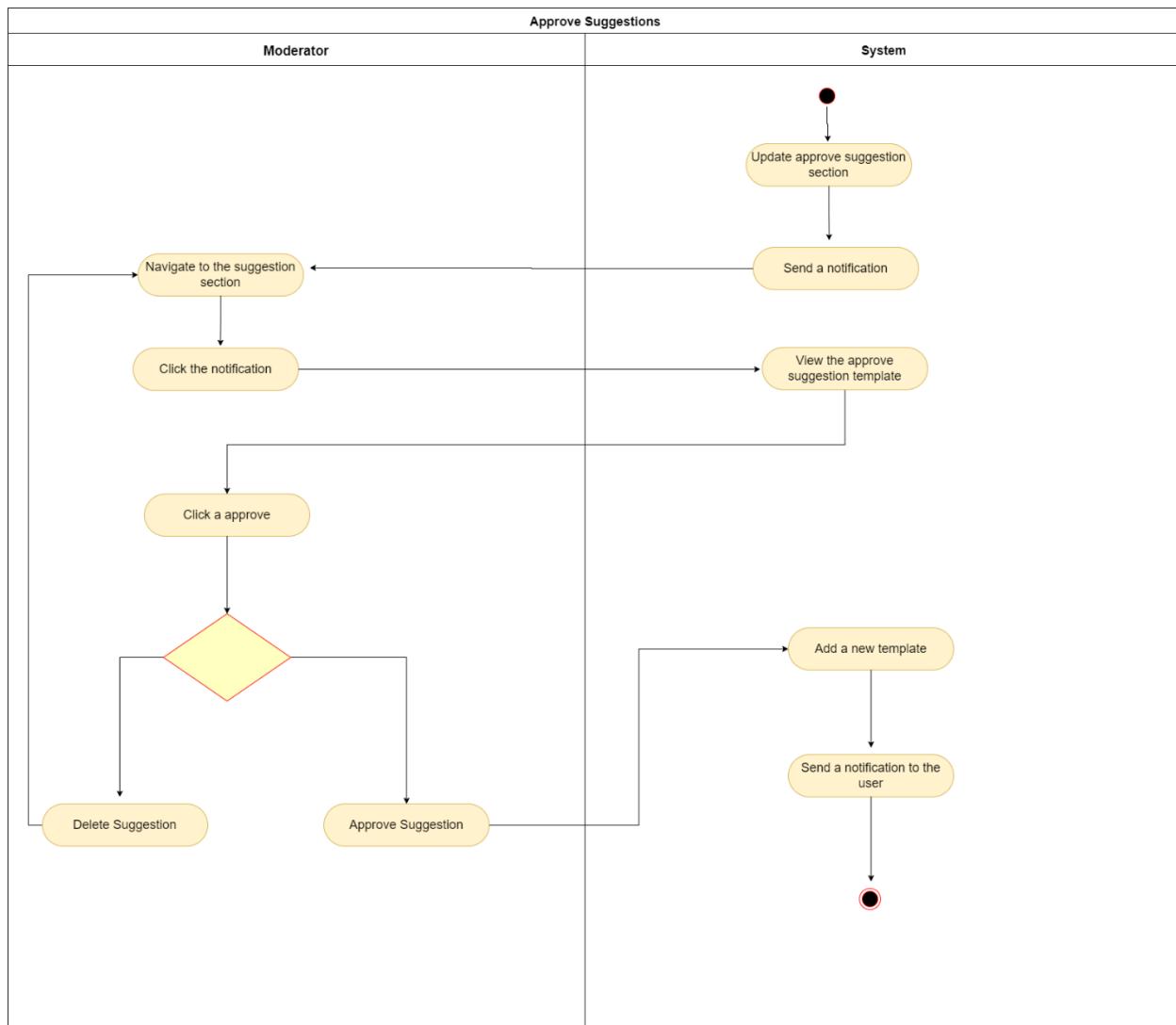


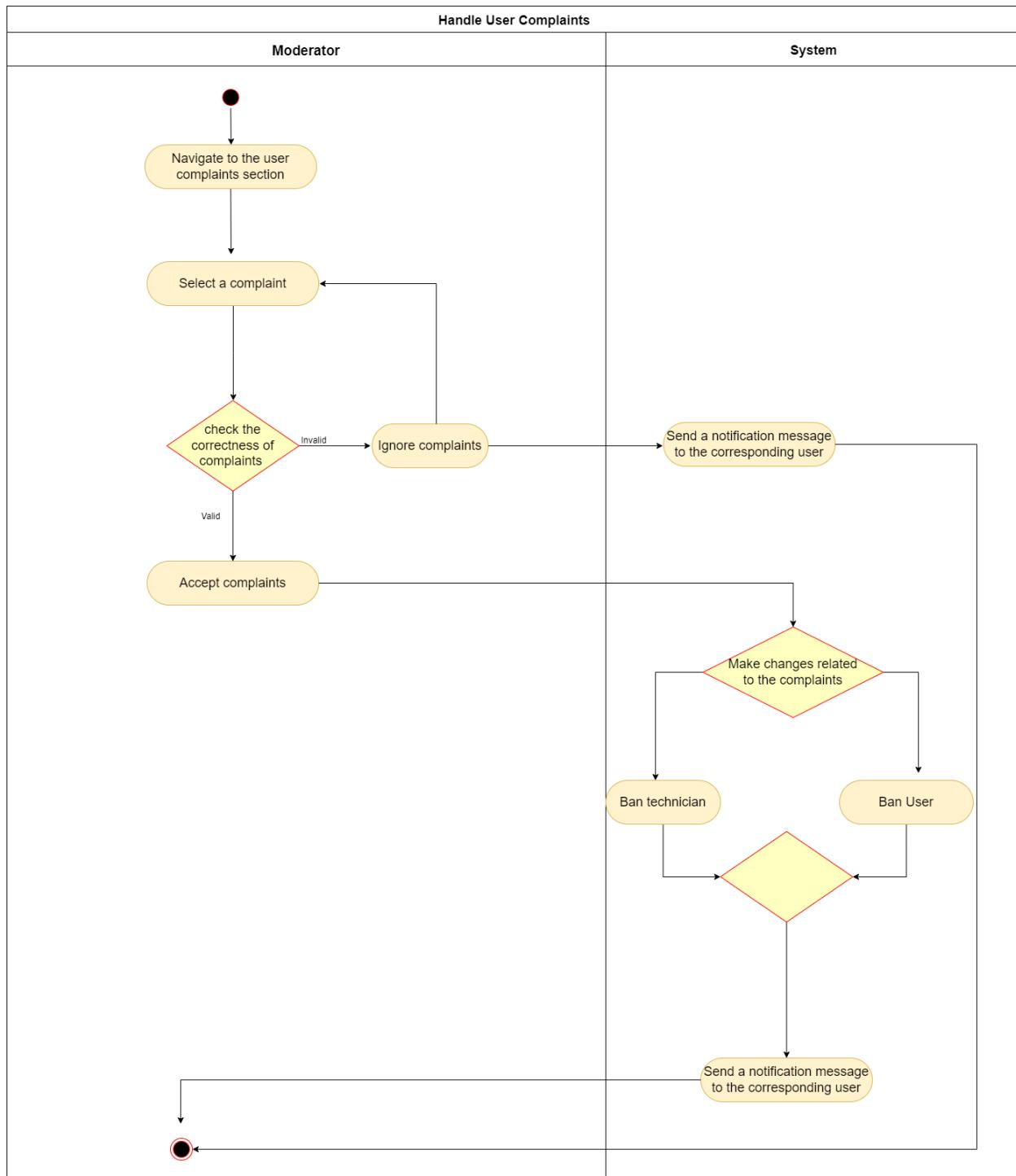


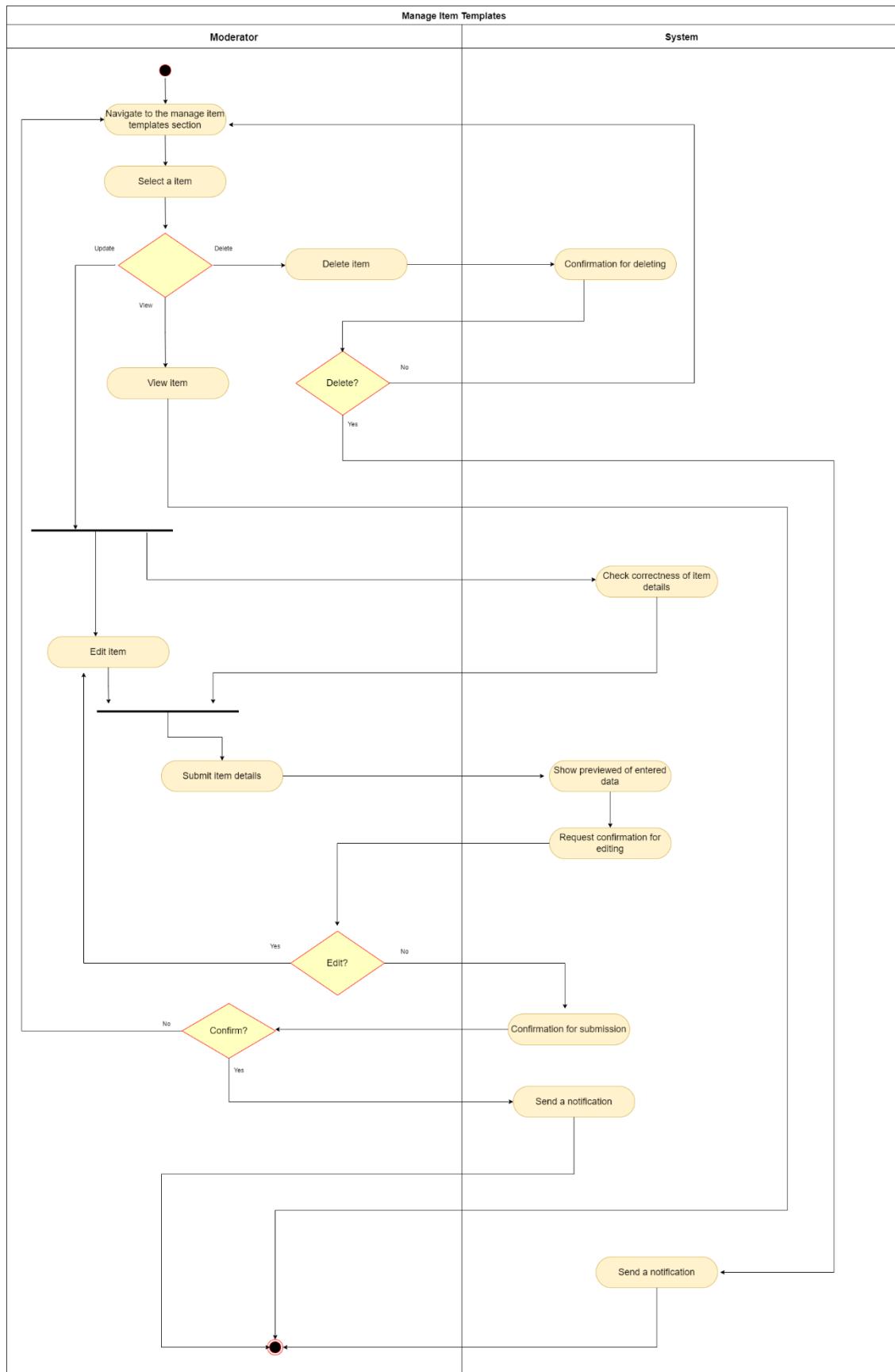


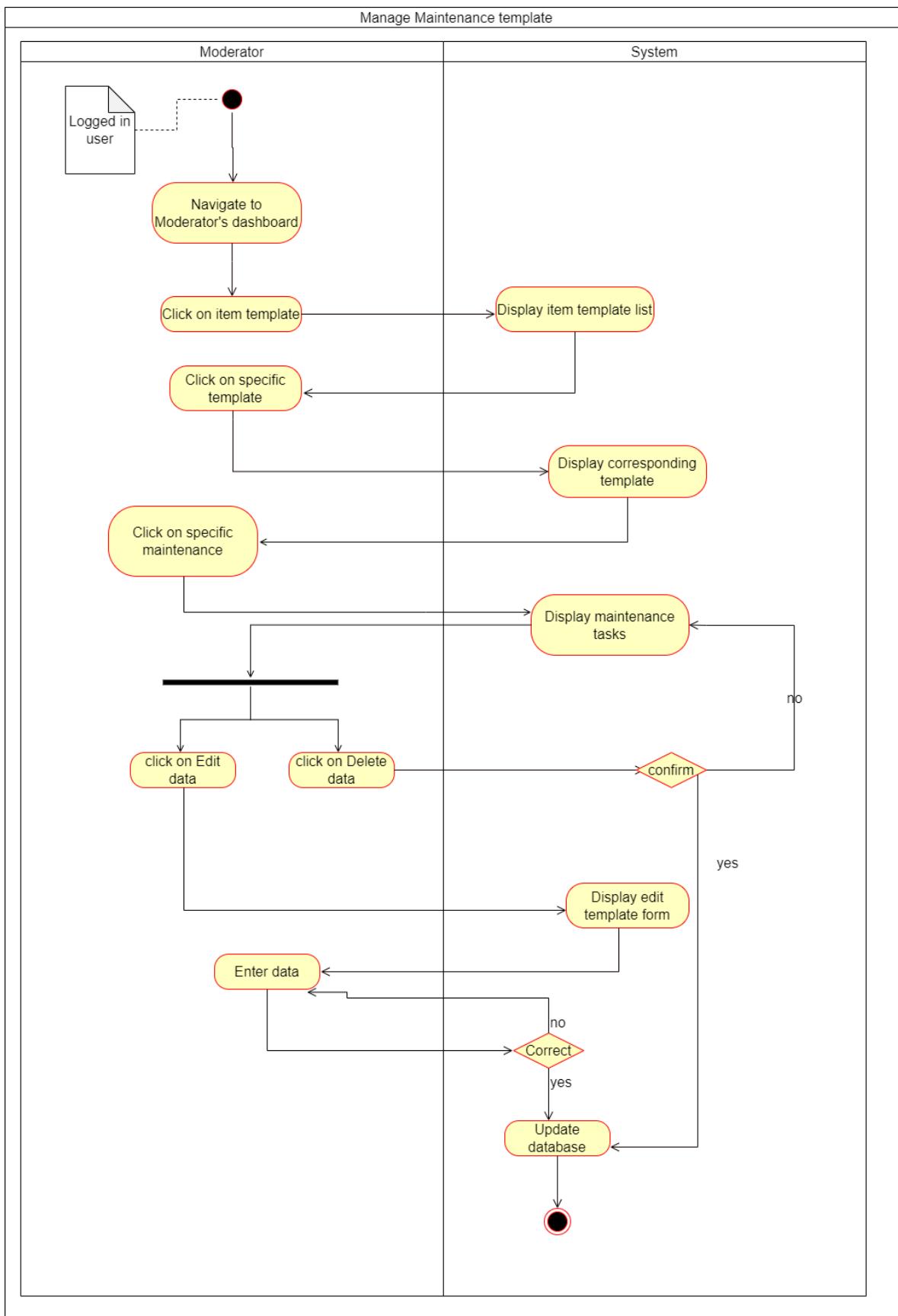
## Moderator





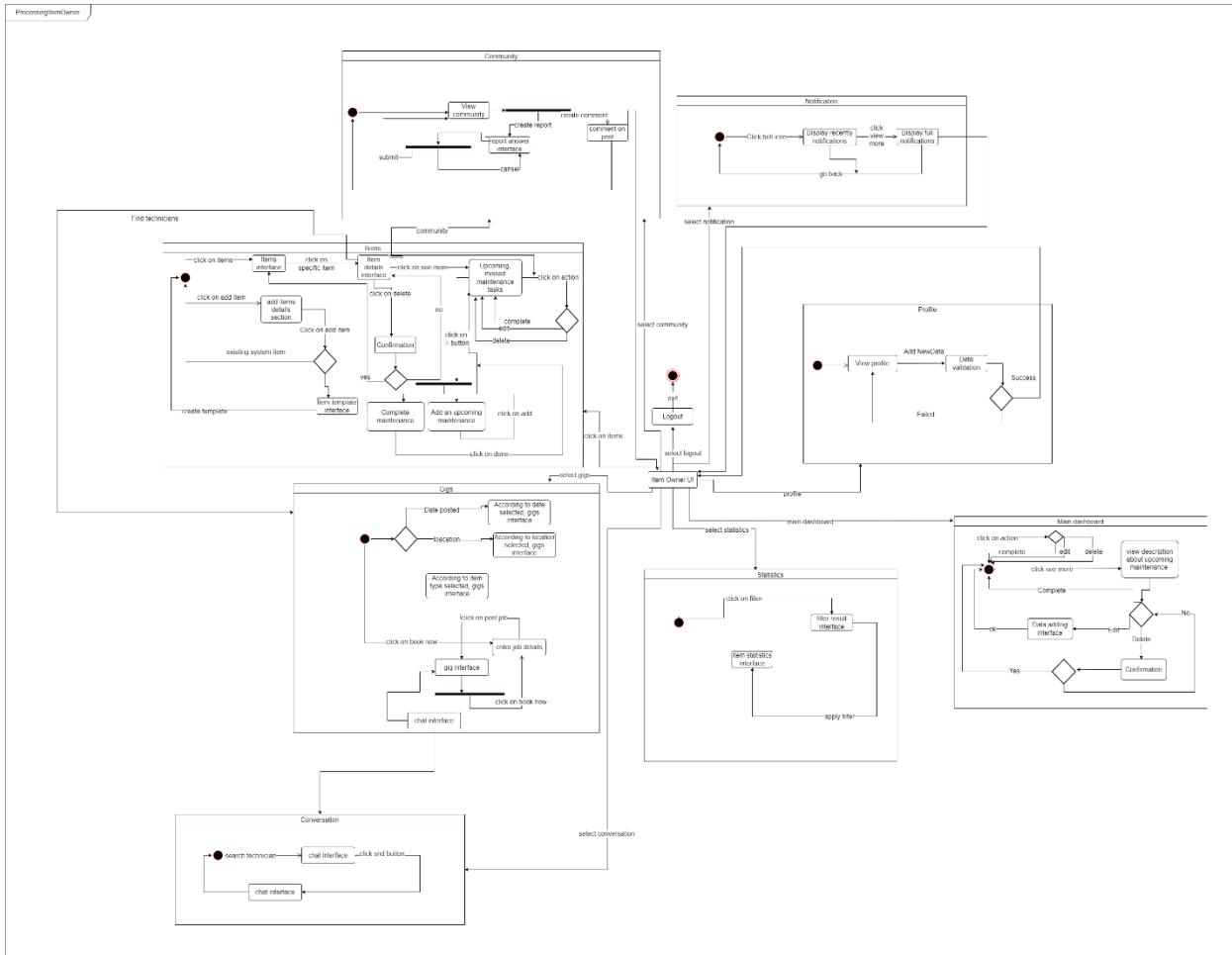




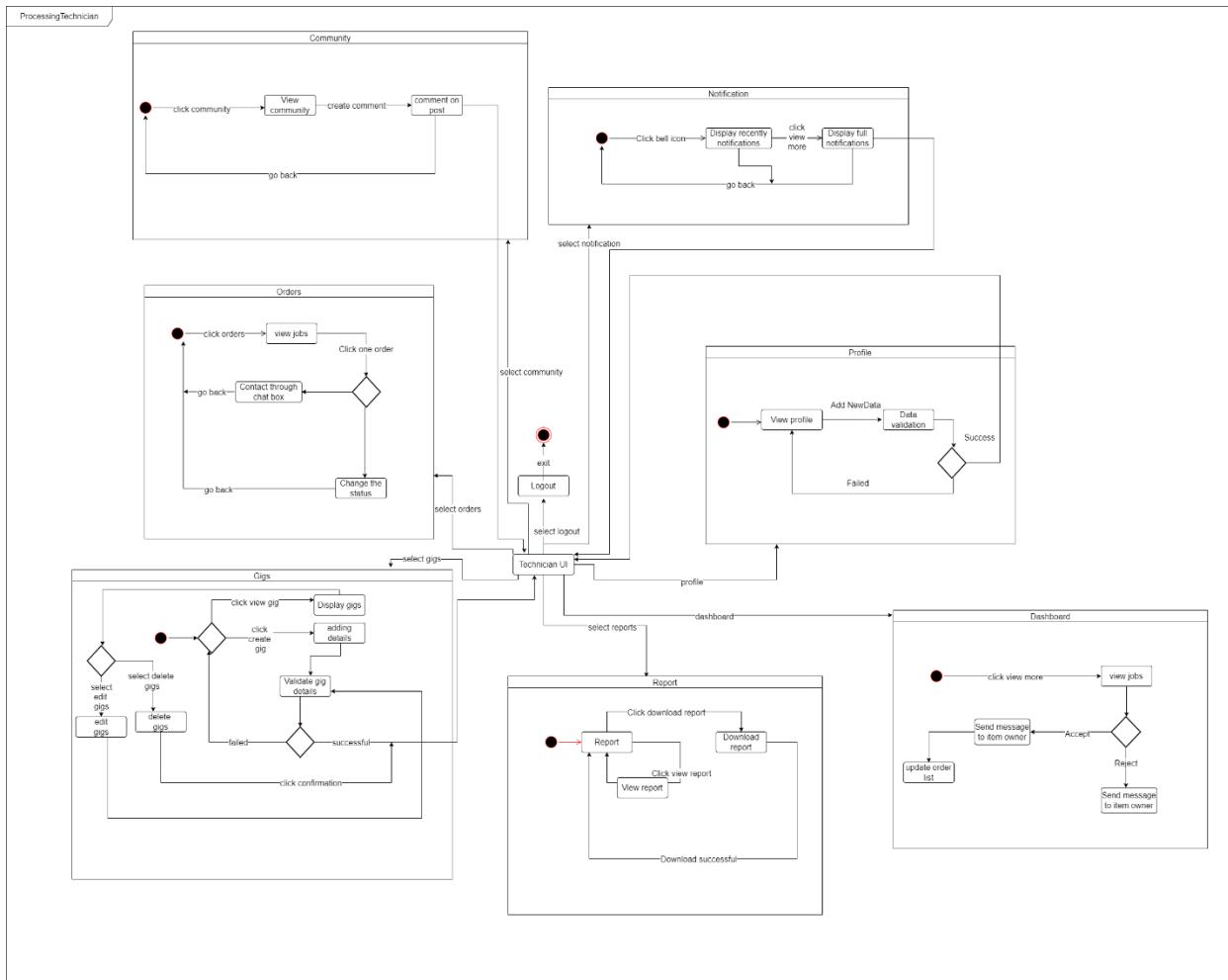


## 5.5. State Transition Diagrams

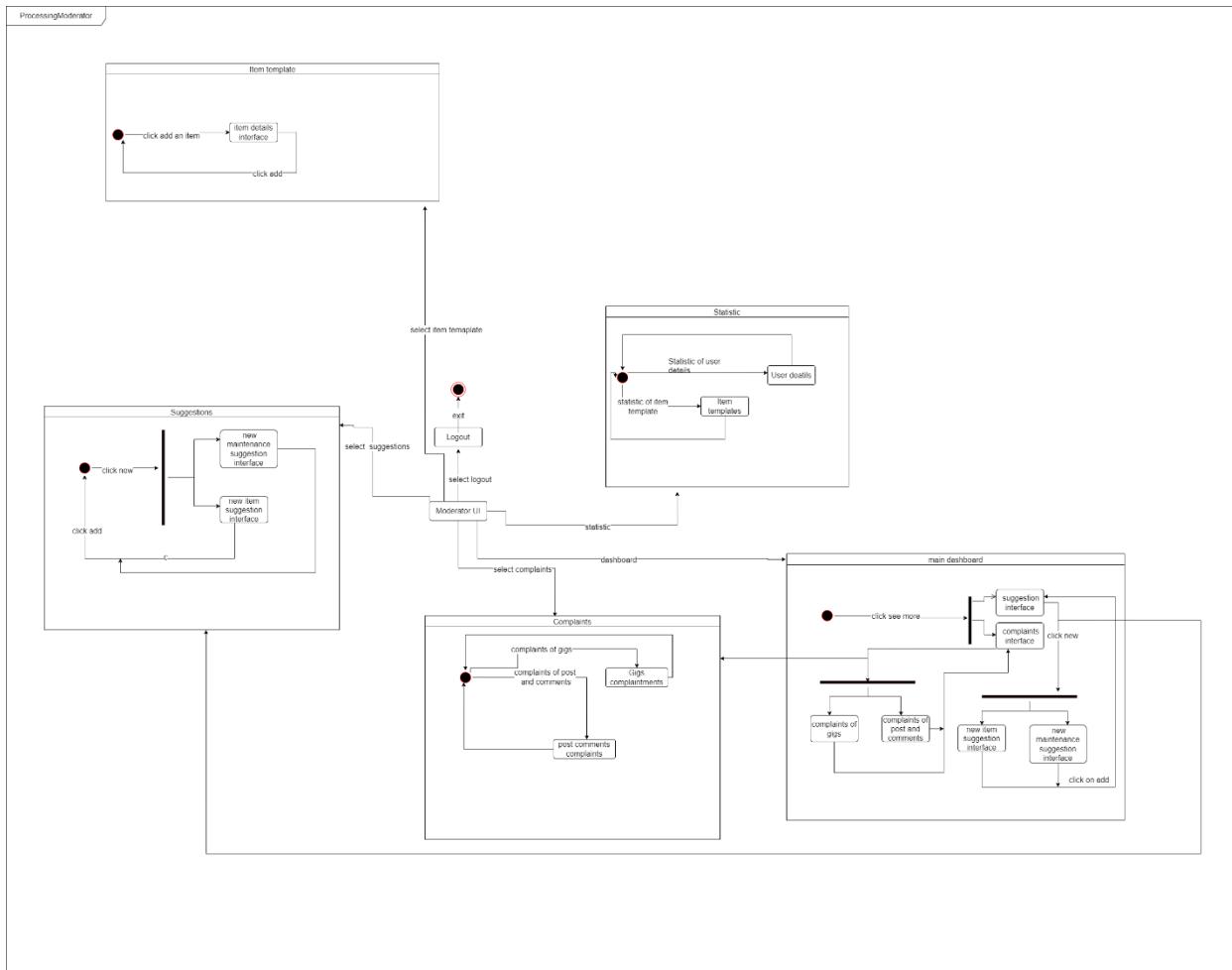
## Item Owner State Transition



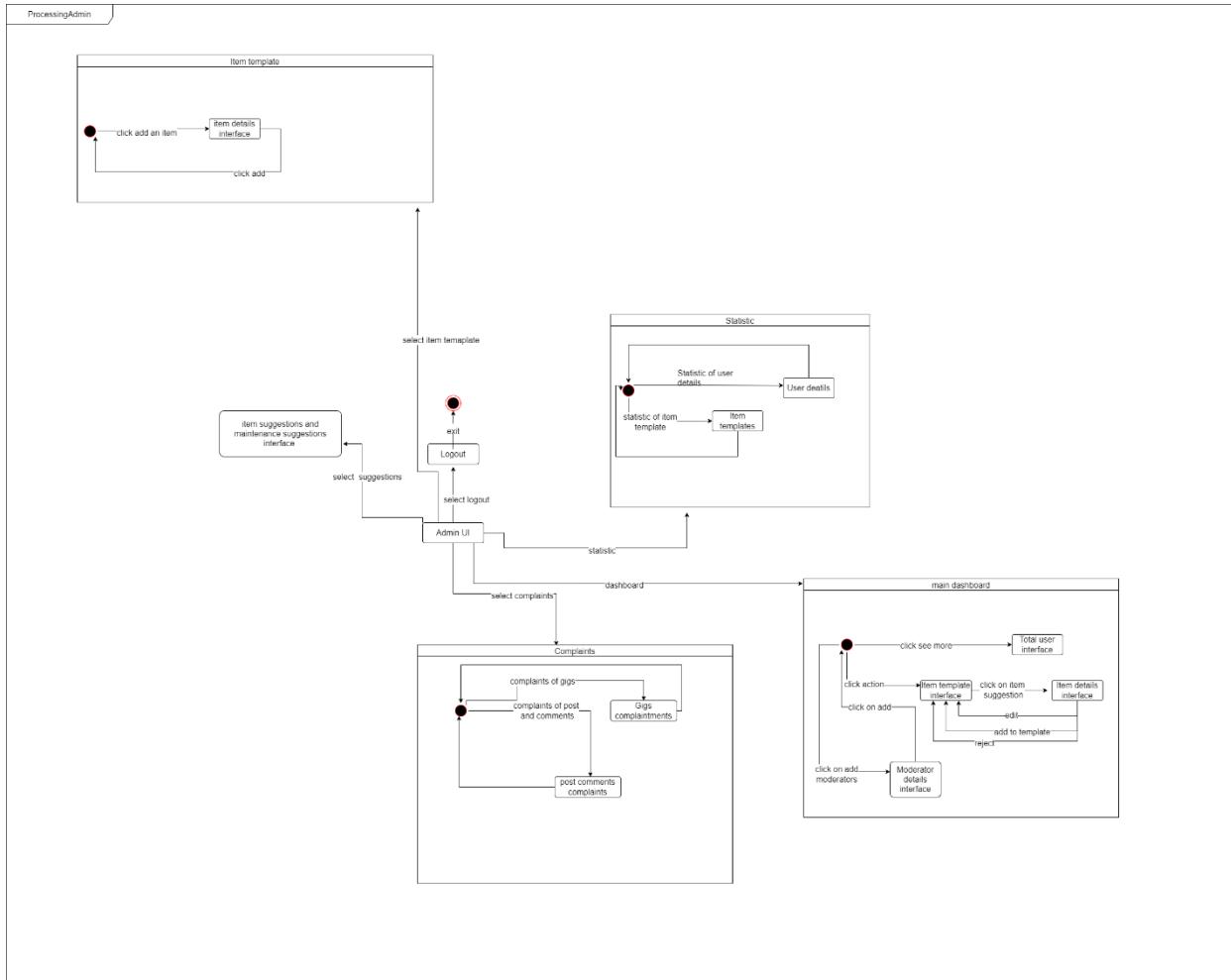
## Technician State Transition



## Moderator State Transition

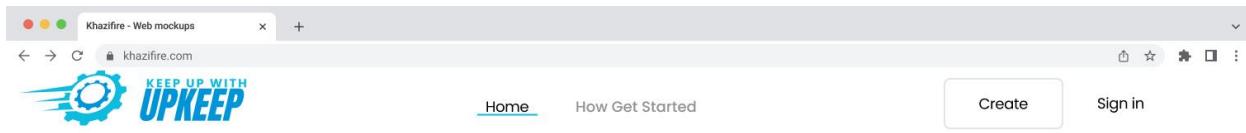


## Admin state transition



## 6. User Interfaces

Landing page



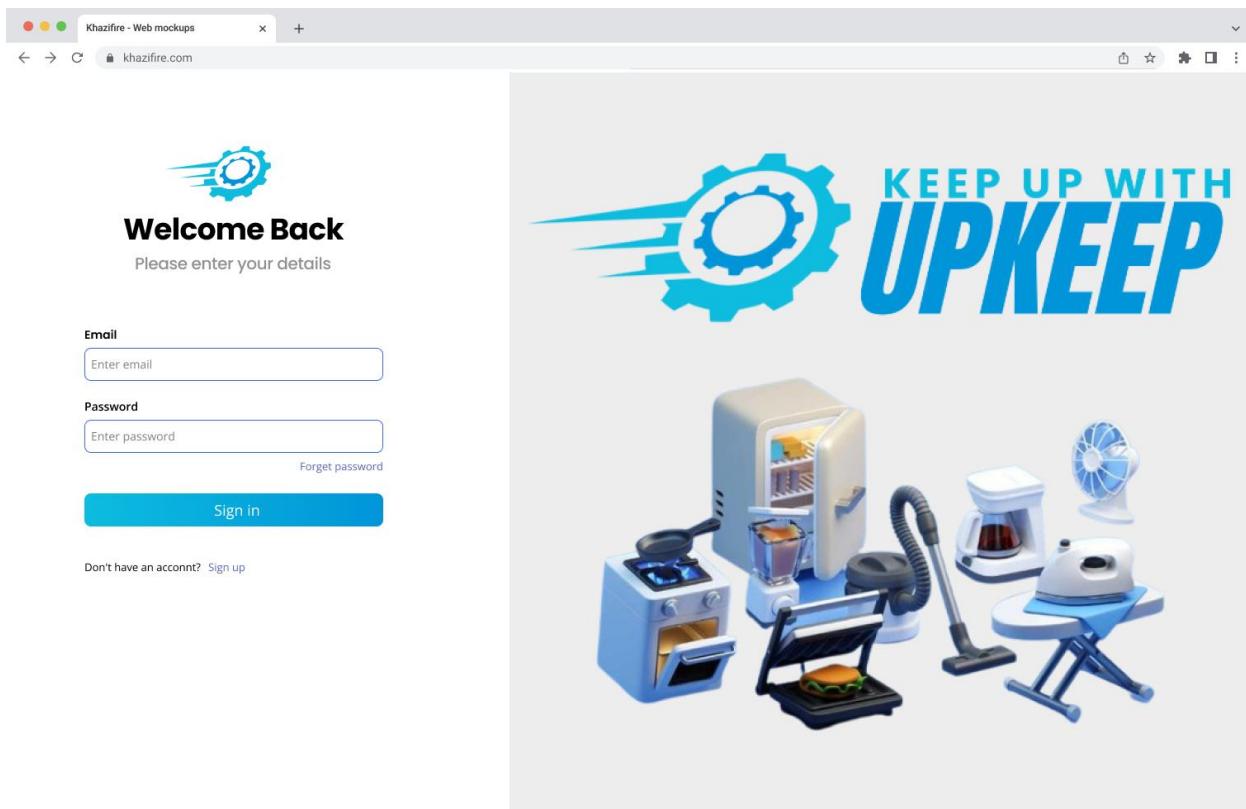
# From out of sight , To done right

UpKeep makes it simple to see where everything stands, all in one place. That means less guess works for you and more time to focus on what matters.

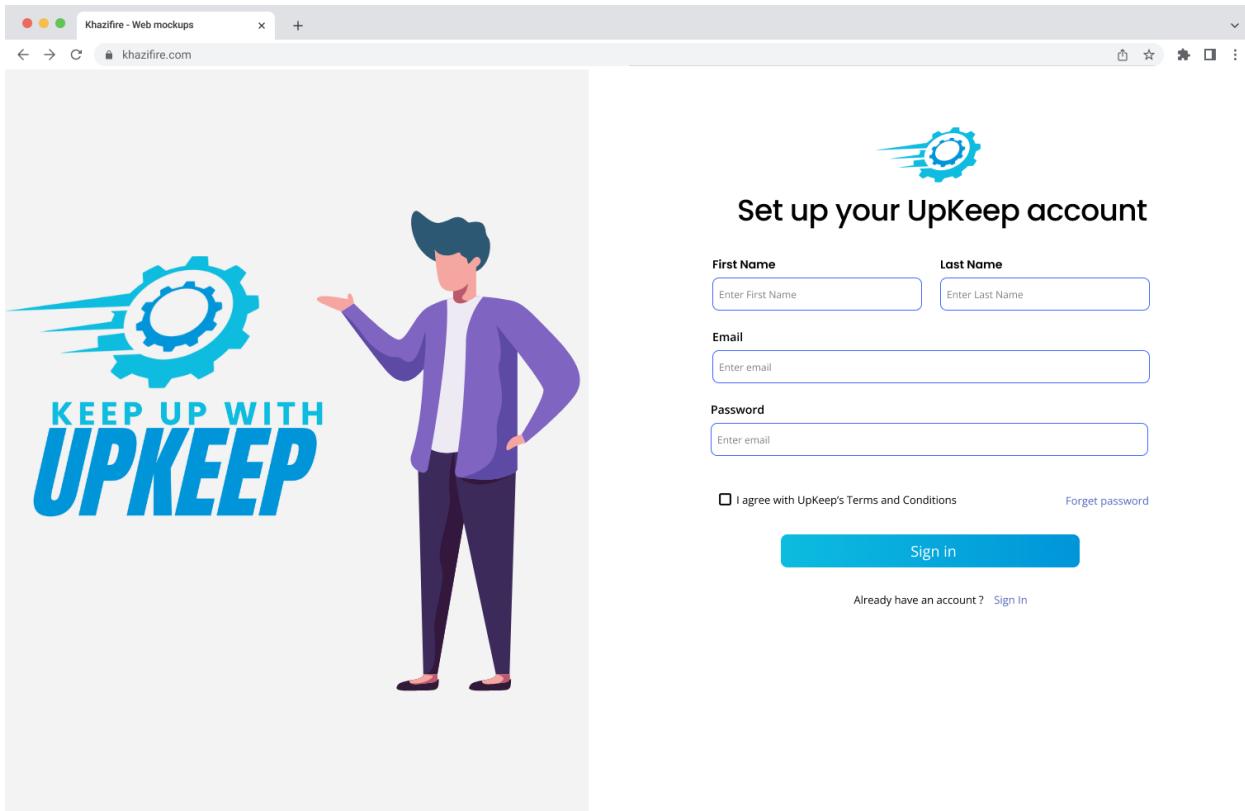
[→ Create](#)

[Community](#)

Sign In page



**Sign Up page**



## Item Owner UIs

### Dashboard

The screenshot shows the UPKEEP Dashboard interface. On the left, there's a sidebar with navigation links: Dashboard, Items, Technician, Community, Conversation, Statistics, Setting, and Log out. The main area has three cards: one for '12 Days More' maintenance tasks, one for '25 Items' added, and one for '12 Days Left' tasks. Below these are four 'Maintenance Schedule' boxes. To the right is a 'Recent Notifications' section with messages from Piyumi Hewage and Nimal Perera, and a calendar view.

### View a maintenance task

This screenshot shows a detailed view of a maintenance task. A modal window is open, displaying the following information:

- Item Name: Samsung Inverter Windfree AC
- Maintenance task: Replace HVAC air filters
- Due date: 21/25/2022
- Sub component: Air filter
- Status: Pending

At the bottom of the modal are three buttons: 'Complete', 'Edit', and 'Delete'. The background shows the same dashboard layout as the previous screenshot.

View all maintenance task by clicking see more

The screenshot shows the 'Dashboard' page of the UPKEEP software. On the left, there is a sidebar with icons for Dashboard, Items (selected), Add item, Technician, Community, Notification, Reports, Setting, and Log out. The main area is titled 'Dashboard' and contains three sections: 'Upcomming Maintenance', 'Missed Maintenance Tasks', and 'Maintenance Tasks'. Each section has a table with columns for Description, Due date, status, and Action (a blue button). A large blue '+' button is located at the top right of each table.

**Upcomming Maintenance**

Description	Due date	status	Action
Description	Due date	status	Action
Description	Due date	status	Action
Description	Due date	status	Action
Description	Due date	status	Action

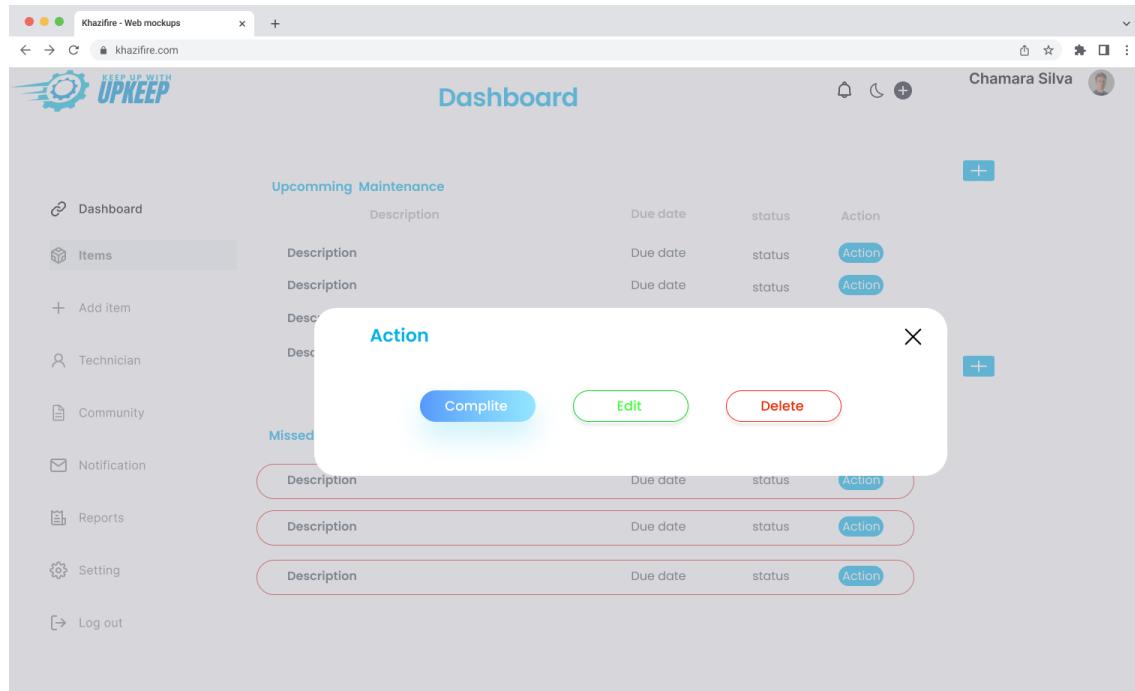
**Missed Maintenance Tasks**

Description	Due date	status	Action
Description	Due date	status	Action
Description	Due date	status	Action
Description	Due date	status	Action

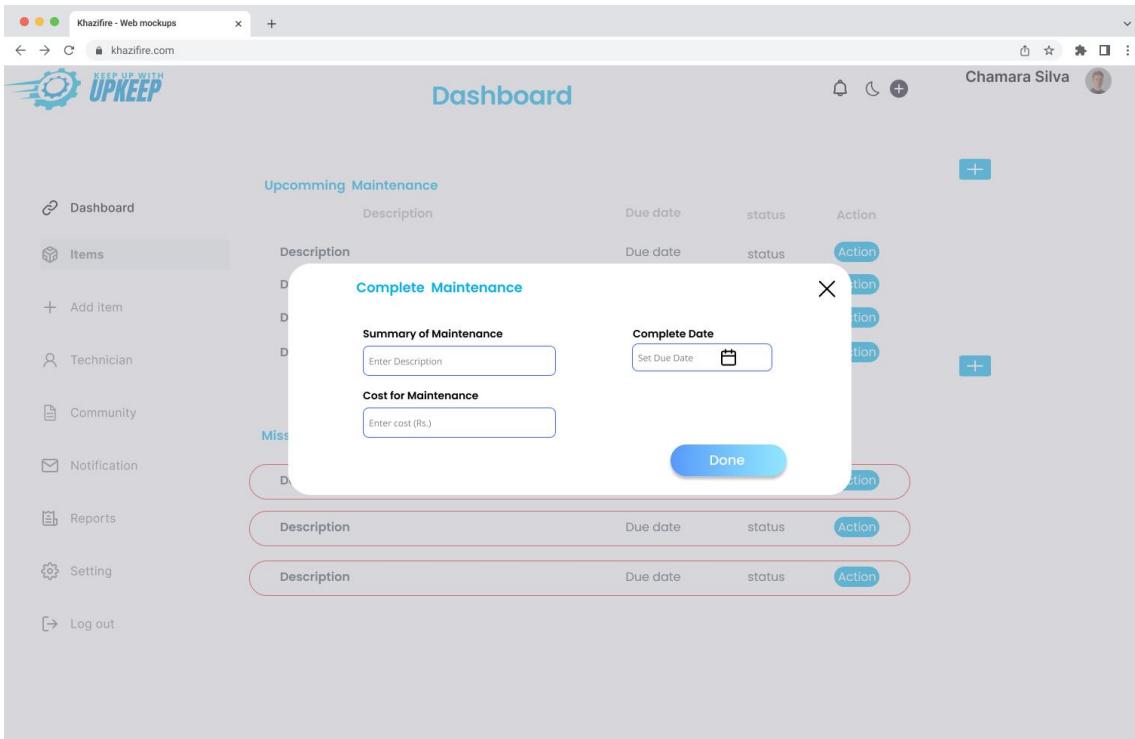
**Maintenance Tasks**

Description	Time Frame	Start date	Action
Description	Due 3 Months	01/11/2022	Action
Description	Due 3 Months	01/11/2022	Action
Description	Due 3 Months	01/11/2022	Action

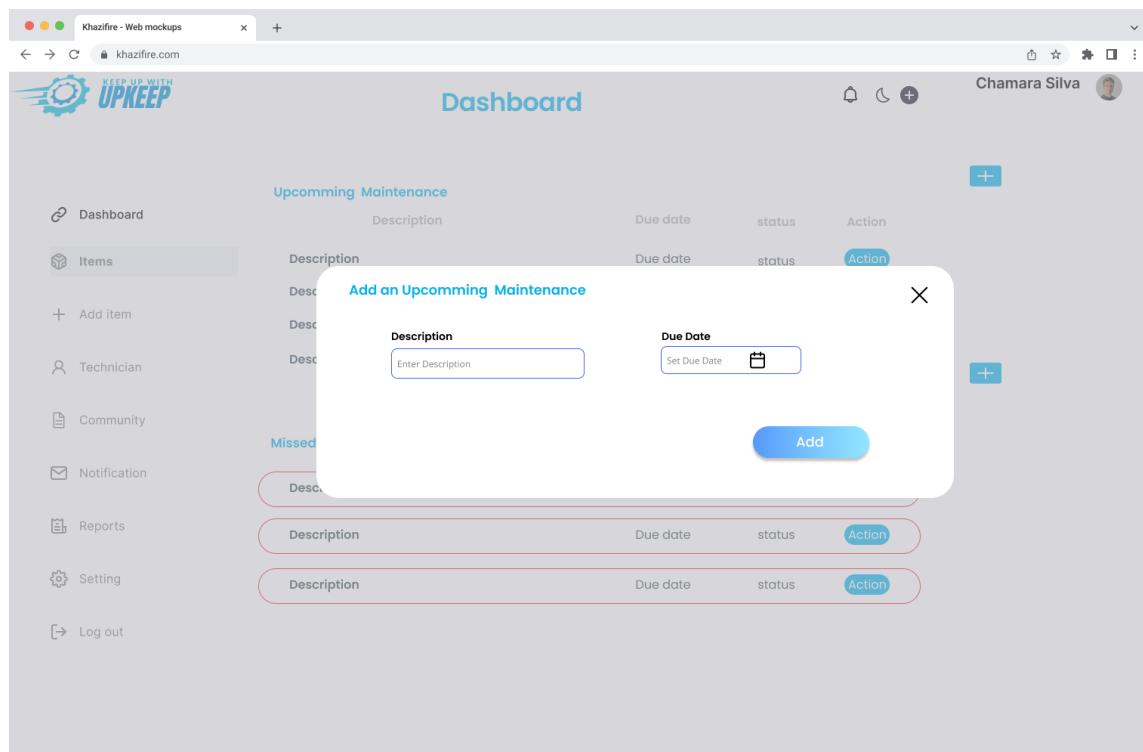
### Actions on a maintenance task



### Complete a maintenance task



## Add a maintenance task



## View Items

The screenshot shows the UPKEEP software interface. The sidebar includes icons for Dashboard, Items (which is selected), Add item, Technician, Community, Notification, Reports, Setting, and Log out. The main dashboard area displays cards for various items: Television, AC, Refrigerator, Washing machine, Data Analysis, Gass Cooker, Multi cooker, and Multi cooker. To the right, there's a 'Recent Notifications' section with messages from 'Nimal Perera' and an 'Upcomming Maintenace' section with entries for 'Refrigerator' and 'Solar Panel'.

## Add items form

**Add Item**

Item Name: Enter Item Name

Item Type: Select an item type

Would you like to suggest this item to system?

Brand: Enter Item Brand

Model: Placeholder text

Purchase Price: Placeholder text

Description: Placeholder text

Purchase date: Placeholder text

Warranty date: Placeholder text

**Add Item**

## View an Item

**Dashboard**

Items

+ Add item

Maintenance Schedule

- 12 Days More Replace or clean Air Conditioner filters
- 254 Days More Warranty Date: 01/03/2024
- 12 Days left Replace or clean Air Conditioner filters

**Air Conditioner**

Samsung

Item Name	Samsung Inverter Windfree AC		
Item Type	AC		
Brand	Samsung	Model	AR24ASCAFWK/J0
Purchase Price	Rs.65000	Warranty date	01/03/2024
Used Date	175 Days	Maintenance Cost	Rs.12554

**Suggestions maintenance for your device**

Description	Sub component	Due date	Status	Action
Description	Sub component	Due date	Status	Action
Description	Sub component	Due date	Status	Action
Description	Sub component	Due date	Status	Action
Description	Sub component	Due date	Status	Action

**Find Technician** **Delete**

**Community**

## Search for technician

## Filter technicians

## View a gig of technician

The screenshot shows a web browser window for 'Khazifire - Web mockups' at 'khazifire.com'. The main content area is titled 'Technician' and features a large image of a technician in a yellow hard hat working on an air conditioning unit. To the left is a sidebar with navigation links: Dashboard, Items (which is selected), Add item, Technician, Community, Notification, Reports, Setting, and Log out. In the center, under 'About This Gig', there is a brief description and reviews from two clients: Nimal Perera and Kaveesha Dias, both giving 5 stars. To the right, there is a profile card for 'Sarah Silva' with details: 1012 reviews from Maharagama, 4.9 ratings, 5 years experience, full-time job, location Maharagama, and skills in A/C Repairing. Buttons for 'Book Now' and 'Contact' are present.

## Contact a technician

The screenshot shows a web browser window for 'Khazifire - Web mockups' at 'khazifire.com'. The main content area is titled 'Technician' and features a message box for 'Sarah Silva'. The message box contains a placeholder text 'Ask about the any question about hiring me or problems about the particular item' and a 'Send Message' button. To the left is a sidebar with the same navigation links as the previous screenshot. On the right, the same profile card for 'Sarah Silva' is shown, including her average response time of 1 day. Below the profile card, there are 'Book Now' and 'Contact' buttons.

## Post a job to a technician

The screenshot shows the 'Technician' section of the UPKEEP platform. On the left, a sidebar lists navigation options: Dashboard, Items, Add item, Technician, Community, Notification, Reports, Setting, and Log out. The main area is titled 'Technician' and contains a form for posting a job. The form fields are: Item Name (placeholder: Enter item type), Job Type (placeholder: Enter job type), Description (placeholder: Enter item type), Contact Number (placeholder: Enter number), and a radio button group for Schedule Job (selected) or Urgent Job, with a date picker for Set Due Date. Below the form is a blue 'Post Job' button. To the right, a profile card for 'Sarah Silva' is displayed, showing her photo, name, review count (1012 reviews), location (Maharagama), and rating (4.9 RATINGS). Below the profile are sections for Details (Creation Date: March 1, 2022, Job Type: Full time), Experience (5 Years +), and Location (Maharagama). Buttons for 'Book Now' and 'Contact' are present. At the bottom, a message from 'Kaveesha Dias' is shown.

## View statistics of item owner

The screenshot shows the 'Dashboard' section of the UPKEEP platform. The sidebar includes: Dashboard, Items, Technician, Community, Conversation, Statistics (selected), and Setting. The main area features three circular stats: 'Rs. 12250 Total Cost of this month', '25 Maintenance are done', and 'Example Examples'. Below these is a table titled 'This Month's Maintenance History' with four rows of data. Further down is a table titled 'Technician Hiring History' with four rows of data. A large overlay on the right is titled 'Filter Result' and contains dropdown menus for Item Name (Item Name), Year (Year), and Month (Month), along with an 'Apply filter' button.

Item Name	Description	Sub component	Finished date	Cost
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250

Description	Item Type	Technician	Date	Service cost
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500

## View Statistic of specific Item

The screenshot shows the UPKEEP dashboard. On the left, there's a sidebar with links for Dashboard, Items, Technician, Community, Conversation, Statistics (which is selected), and Setting. The main area has three cards: 'Total Cost of this month' (Rs. 12250), 'Maintenance are done' (25), and 'Examples'. A detailed view of an 'Air Conditioner' item is shown on the right, with a thumbnail, item name ('Samsung Inverter Windfree AC'), and summary table.

Item Name	Description	Sub component	Finished date	Cost	Summary of Maintenance
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician

Description	Item Type	Technician	Date	Service cost	Summary of Maintenance
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas

## View community

The screenshot shows the UPKEEP community page. The sidebar includes links for Dashboard, Items, Add item, Technician, Community (selected), Conversation, Statistics, and Setting. The main area features a search bar, a post from 'Vishwa Kolabage' about unfreezing AC pipes, and a post from 'Shashika Janith' about rolling brown-outs. On the right, there are sections for 'Popular posts' and 'Notification'.

**Popular posts**

- Namal Eranga: It seems like it. All my relatives and friends have one, some even have the new refrigerators that have a built in kimchi department. [\(more\)](#)
- Amali Piris: Both of those should have their own breaker in the electric panel I would open the panel and take... [\(more\)](#)
- Suranga Nadun: The compressor can still turn but without refrigerant it won't do anything. That's just one common issue.. [\(more\)](#)

**Notification**

- Namal Eranga commented on your post : Hello David, Your questions and answers seems interesting, I like...(more)
- Namali Eranga reacted on your post.
- Nimna Induwara commented on your post : The fridge is a common household appliance that is ... [\(more\)](#)

## Report a post

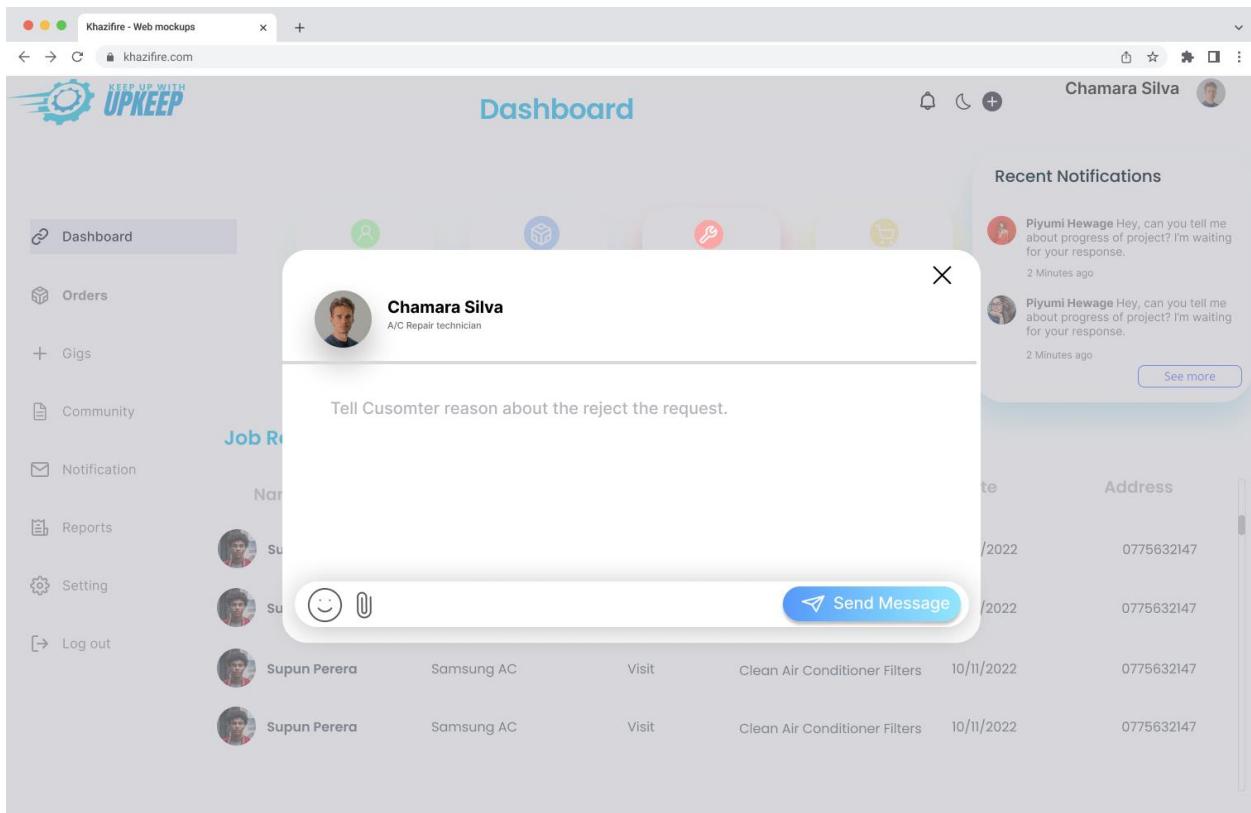
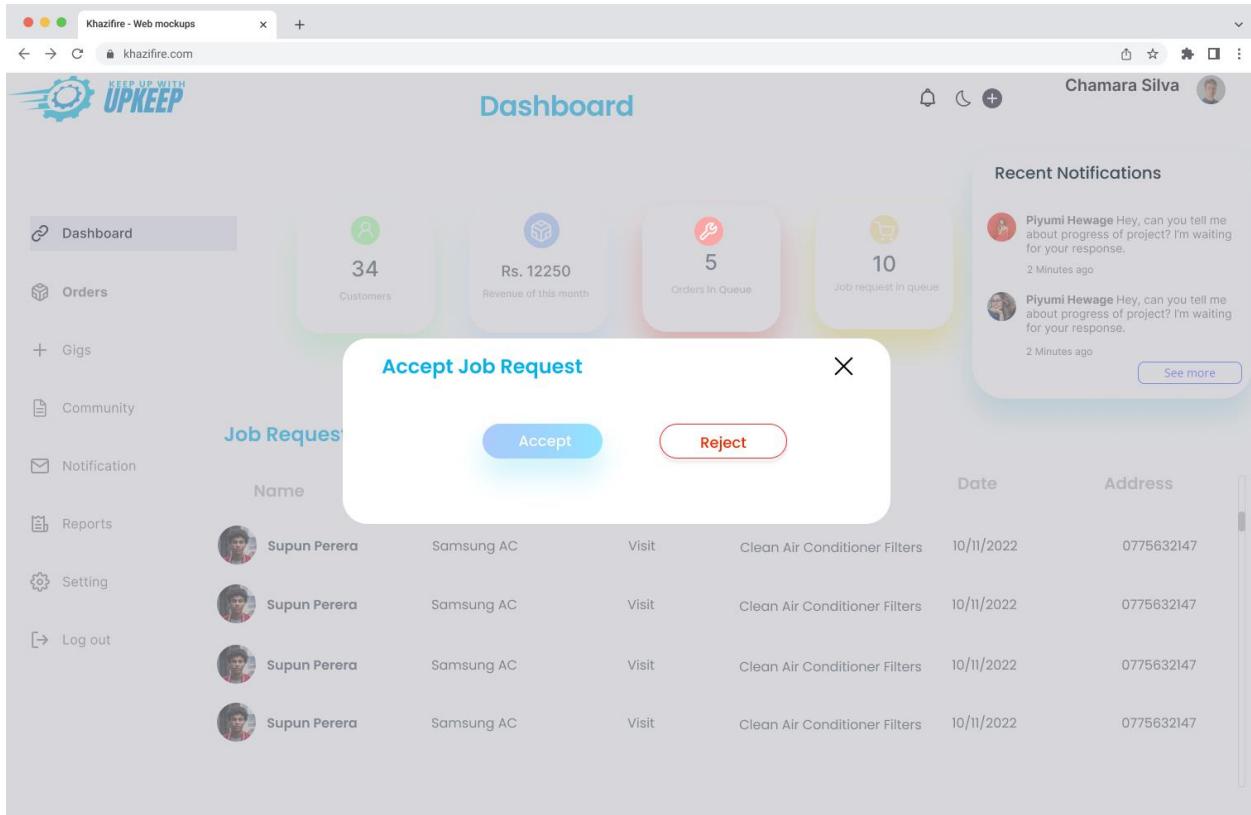
The screenshot shows a web browser window for 'Khazifire - Web mockups' at 'khazifire.com'. The main header says 'Community'. On the left is a sidebar with navigation links: Dashboard, Items, Add item, Technician, Community (which is selected), Conversation, Statistics, Setting, and Log out. A central modal window titled 'Report answer' lists various reporting categories with descriptions and 'Learn more' links. The categories include: Spam (Selling illegal goods, money scams etc.), Hate Speech (Serious attack on a group), Harassment and bullying (Harassing or threatening an individual), Harmful activities (Glorifying violence including self-harm or intent to seriously harm others), Adult content (Consensual) (Nudity/Sexual content), Sexual exploitation and abuse (child safety) (Sexually explicit or suggestive imagery or writing involving minors), and Sexual exploitation and abuse (adults and animals) (Sexually explicit or suggestive imagery or writing involving non-consenting adults or non-humans). At the bottom of the modal are 'Cancel' and 'Submit' buttons. To the right of the modal is a 'Popular posts' section showing three posts from users Namal Eranga, Amali Piris, and Suranga Nadun, each with a snippet of their message and a 'See more' link. Below that is a 'Notification' section showing comments from Namal Eranga and Nimna Induwara, also with 'See more' links. The footer of the page has icons for search, filter, and help.

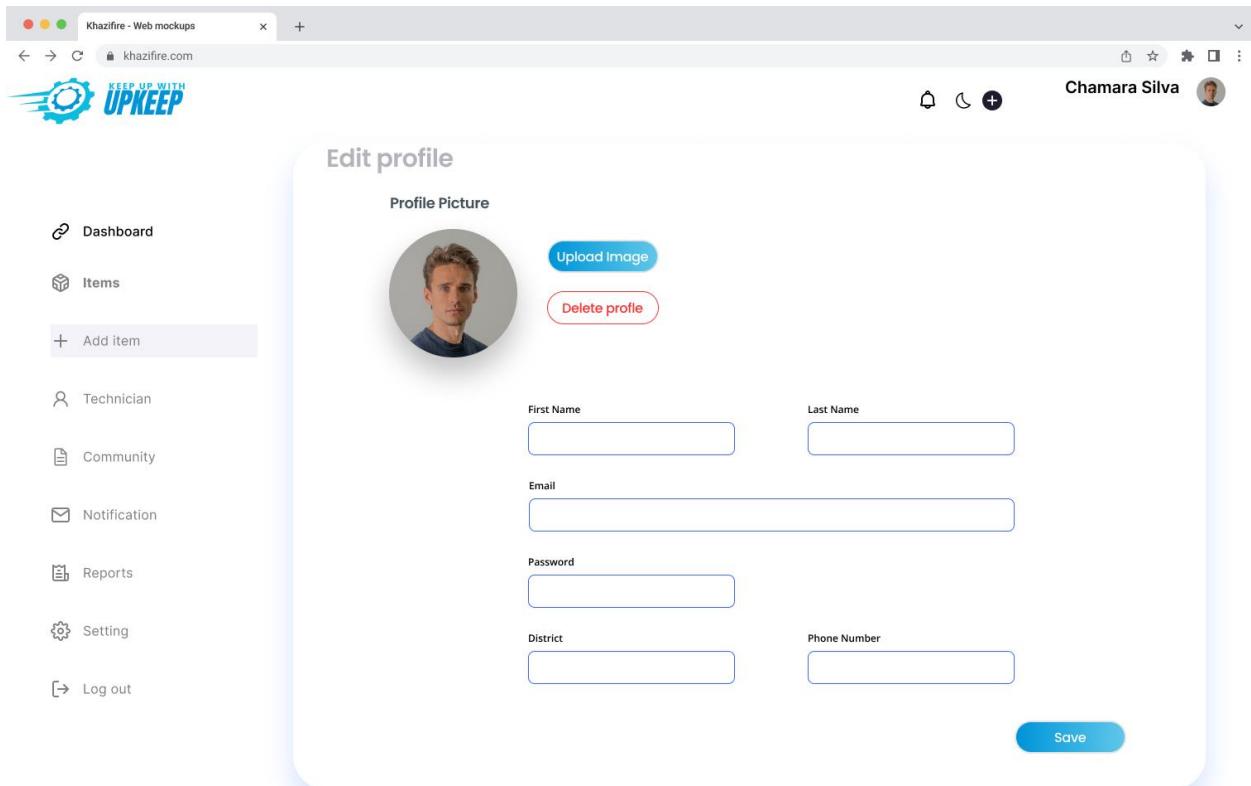
## Technician UIs

The screenshot shows the 'Gigs' section of the technician interface. On the left, a sidebar menu includes 'Dashboard', 'Orders', '+ Gigs' (which is selected and highlighted in grey), 'Find Jobs', 'Community', 'Reports', and 'Log out'. The main area displays two job listings for 'A/C repair' with the same image of a technician working on an air conditioner. Each listing includes a welcome message, service categories ('A/C repair', 'Refrigerator repair', 'A/C Gas filling'), and a small profile picture.

The screenshot shows the 'Dashboard' section of the technician interface. The sidebar menu is identical to the previous screenshot. The main area features a 'Job Request' table and a 'Recent Notifications' sidebar. The 'Job Request' table has columns for Name, Item, Job Type, Description, Date, and Contact Number. It lists four entries for Supun Perera regarding Samsung AC units. The 'Recent Notifications' sidebar shows two messages from Piyumi Hewage asking about project progress, each timestamped '2 Minutes ago'. A 'See more' button is at the bottom right of the notifications.

Name	Item	Job Type	Description	Date	Contact Number
Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147





**Community**

Item type

Vishwa Kolabage 1 hour ago

**What is the best way to unfreeze frozen AC pipes?**

Turn the unit off and let it sit but the iced piping is evidence of an under lying problem such as a plugged air filter, low refrigerant charge or running in cool night time conditions which lowers the indoor cooling coils temperature. Any air flow conditions such as too many supply registers closed, blocked off return air grilles or possibly a dirty cooling coil (evaporator) which will restrict air flow and result in a freeze up.mthing to everyone

A 10 | V D

Shashika Janith 1 hour ago

**What effect do rolling brown-outs have on home A/C and refrigerators?**

Brownouts cause a drop in voltage. Low voltage conditions can cause the compressor, especially, to fail to start and damage the internal motor. In cases where brownouts are likely, sometimes it's appropriate to install a hard start kit to provide a boost to the compressor on startup.

A 15 | V D

Popular posts

- Namal Eranga It seems like it. All my relatives and friends have one, some even have the new refrigerators that have a built in kimchi department.(more)
- Amali Piris Both of those should have their own breaker in the electric panel. I would open the panel and take... (more)
- Suranga Nadun The compressor can still turn but without refrigerant it won't do anything. That's just one common issue.. (more)

See more

Notification

- Namal Eranga commented on your post : "Hello David, Your questions and answers seems interesting, I like...(more)
- Namali Eranga reacted on your post.
- Nimna Induwara commented on your post :"The fridge is a common household appliance that is ..(more)

See more

**Dashboard**

Order ID	Name	Item	Job Type	Description	Date	Contact Number
ORD-001	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
ORD-002	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
ORD-003	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147

Community

Reports

**Orders History**

Year Month Search

Name	Item	Job Type	Description	Date	Contact Number
Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147

The screenshot shows the 'Public Orders' section of the UPKEEP software. At the top, there are two dropdown menus: 'District' and 'Item'. Below this is a table with the following columns: Name, Item, Job Type, Description, Date, and Contact Number. The table contains 10 rows, each representing a public order for 'Supun Perera' involving a 'Samsung AC' item, job type 'Visit', and description 'Clean Air Conditioner Filters'. All orders are dated 10/11/2022 and have the contact number 0775632147.

	Name	Item	Job Type	Description	Date	Contact Number
+ Gigs	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Find Jobs	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Community	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Reports	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
Log out	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147
	Supun Perera	Samsung AC	Visit	Clean Air Conditioner Filters	10/11/2022	0775632147

The screenshot shows the 'Gigs' section of the UPKEEP software. On the left, there's a sidebar with navigation links: Dashboard, Orders, + Gigs (which is selected), Find Jobs, Community, Reports, and Log out. The main area has a heading 'Gigs' and two buttons: 'Add a Gig' (blue) and 'Available Items' (grey). Below these are two cards: one for 'A/C repair' showing a technician working on an air conditioner, and another for 'Refrigerator repair' showing a technician working on a refrigerator. At the bottom of the main area, there are three categories: A/C repair, Refrigerator repair, and A/C Gas filling.

The screenshot shows the 'Technician' gig creation form. The left sidebar includes links for Dashboard, Items, Add item, Technician (selected), Community, Notification, Reports, Setting, and Log out. The main form has a title 'Gig Description' with a text input field labeled 'Enter Gig description'. Below it are sections for 'Item type' (with a placeholder 'select item type'), 'Roles' (with four input fields labeled 'Enter Roles 1' through 'Enter Roles 4'), and 'Image' (with a placeholder 'Upload an Image'). To the right, there's a profile card for 'Chamara Silva' showing a photo, name, views (123), rating (★★★★★), job type (Full time), location (Maharagama), and services (A/C Repairing). At the bottom right of the form is a 'Create' button. At the very bottom, there's a testimonial from 'Kaveesha Dias' with a 5-star rating and a note about失望.

The screenshot shows a web browser window titled "Khazifire - Web mockups" with the URL "khazifire.com". The main content area displays a technician profile for "Technician". The profile picture is a man with short brown hair, identified as "Sarah Silva". Below the picture, it says "Sarah Silva" with "1012 reviews | Maharagama" and a "4.9 RATINGS" badge. To the right, there are sections for "Creation Date" (March 1, 2022), "Job Type" (Full time), "Experiences" (5 Years +), and "Location" (Maharagama). There are also buttons for "Edit" and "Delete".

**Technician**

**Sarah Silva**  
1012 reviews | Maharagama  
4.9 RATINGS ★★★★☆

**Dashboard**

**Items** (highlighted)

+ Add item

Technician

Community

Notification

Reports

Setting

Log out

**About This Gig**

Welcome to The World of Creative Logo Design.  
Are You Looking For Creative And Minimalist Logo Design?  
You Are At The Perfect Place For All Types Of Creative Logo Design.  
We Understand The Value Of Your Logo And Surely Create A Unique Design.

**Reviews**

**Nimal Perera** ★★★★★  
Piliyandala  
My band chose to work with Mount Design due to the creative, striking designs in his portfolio. The first drafts were generic and we were disappointed, but he reassured us that we were to pick one and refine from there.

**Kaveesha Dias** ★★★★★  
Piliyandala  
My band chose to work with Mount Design due to the creative, striking designs in his portfolio. The first drafts were generic and we were disappointed, but he reassured us that we were to pick one and refine from there.

[See more](#)

A/C Repairing      A/C Repairing

[Edit](#)      [Delete](#)

## Moderator UIs

The screenshot shows the Moderator Dashboard interface. At the top right, there is a user profile for Chamara Silva. On the left, a sidebar menu includes links for Dashboard, Suggestions, Item Templates, Complaints, Statistics, and Log out. The main area features three summary cards: "Total Templates" (25), "Pending Approvals" (25), and "Unhandled Complaints" (25). Below these are two sections: "Recent Suggestions" and "Recent Complaints", each with a table of items.

Category	Description
Item	Item cleaning robot is suggested to the system
Maintenance	Maintenance for cleaning robot clean dust inside is suggested to the system
Item	Item Vacuum cleaner is suggested to the system
Item	Item cleaning robot is suggested to the system

Date	Category	Description
Date	Community	Description
Date	Gig	Description
Date	Gig	Description
Date	Community	Description
Date	Community	Description

The screenshot shows the Moderator Item Templates page. The sidebar menu is identical to the dashboard. The main area displays a grid of item templates, each with a thumbnail image, name, and brand information. A blue "Add An Item" button is located at the top right of the grid.

Name	Brand
Television	Brand
Refrigerator	Brand
Refrigerator	Brand
Washing machine	Brand
Gass Cooker	Brand
Multi cooker	Brand
Data Analysis	Brand
AC	Brand

**Complaints**

Gigs complaints					
	Technician	Item type	Description	Date	Number of Complaints
🔗 Dashboard	Supun Perera	A/C	Harmful Activities	10/11/2022	10
❓ Suggestions	Supun Perera	A/C	Harmful Activities	10/11/2022	10
📦 Item Templates	Supun Perera	A/C	Harmful Activities	10/11/2022	10
❗ Complaints	Supun Perera	A/C	Harmful Activities	10/11/2022	10

Gigs complaints					
	User	Post ID	Description	Date	Number of Complaints
➡ Log out	Supun Perera	0121	Harmful Activities	10/11/2022	10
	Supun Perera	0121	Harmful Activities	10/11/2022	10
	Supun Perera	0121	Harmful Activities	10/11/2022	10
	Supun Perera	0121	Harmful Activities	10/11/2022	10

**Suggestions**

Item Suggestions						
	Item Name	Description	Sub component	Finished date	Cost	Summary of Maintenance
🔗 Dashboard	Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
❓ Suggestions	Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
📦 Item Templates	Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
❗ Complaints	Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician

Maintenance Suggestions						
	Description	Item Type	Technician	Date	Service cost	Summary of Maintenance
➡ Log out	A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
	A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
	A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
	A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas

**Recent Notifications**

- Piyumi Hewage Hey, can you tell me about progress of project? I'm waiting for your response.  
2 Minutes ago
- Piyumi Hewage Hey, can you tell me about progress of project? I'm waiting for your response.  
2 Minutes ago
- Nimal Perera Hey, can you tell me about progress of project? I'm waiting for your response.  
2 Minutes ago

**Suggestions maintenance for your device**

Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action

**Maintenance**

Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action

**Usage**

**Users**

- 50 user are using
- 124 posts
- 25 suggested task

The screenshot shows the 'Statistics' page of the UPKEEP software. At the top, there are two pie charts: one for 'Total Users' (250) and one for 'Total Templates' (66). Below these are sections for 'Suggestions', 'Item Templates', 'Complaints', and 'Statistics'. The 'Statistics' section is currently active, displaying a table of complaints history for Supun Perera.

Technician	Item type	Account Status	Description	Date	Number of Complaints
Supun Perera	A/C	Banned	Harmful Activities	10/11/2022	10
Supun Perera	A/C	Banned	Harmful Activities	10/11/2022	10
Supun Perera	A/C	Permitted	Harmful Activities	10/11/2022	10
Supun Perera	A/C	Banned	Harmful Activities	10/11/2022	10

## Admin UIs

The screenshot shows the Admin Dashboard. On the left, there's a sidebar with links: Dashboard, Suggestions, Item Templates, Complaints, Statistics, Log out, and a placeholder for Moderator Details. The main area has two cards: 'Total Users' (Item owners: 120 Accounts, Technician: 120 Accounts, Banned accounts: 10 Accounts) and 'Item Templates' (Total items: 55 Items, Pending templates: 11 Items). Below these is a table for 'Moderator Details' with three rows of data. The table columns are Name, Email, NIC, Password, Join Date, and Address.

Name	Email	NIC	Password	Join Date	Address
Thilina Sameera	thilinasameera12@gmail.com	991452668V	#@2524%\$FMM^#\$\$F	10/11/2022	Benthota, Aluthgama
Thilina Sameera	thilinasameera12@gmail.com	991452668V	#@2524%\$FMM^#\$\$F	10/11/2022	Benthota, Aluthgama
Thilina Sameera	thilinasameera12@gmail.com	991452668V	#@2524%\$FMM^#\$\$F	10/11/2022	Benthota, Aluthgama

The screenshot shows the Admin Dashboard. The sidebar includes links for Items, Technician, Community, Conversation, Statistics, Setting, and Log out. A central modal window displays a maintenance task for a Samsung Inverter Windfree AC, listing the item name, maintenance task (Replace HVAC air filters), due date (21/25/2022), and sub component (Air filter). Below the modal are buttons for 'Add to template', 'Edit', and 'Reject'. To the right, there's a 'Recent Notifications' section with messages from Piyumi Hewage and Nimal Perera, both received 2 minutes ago. At the bottom, there's a calendar view for the month of November 2022.

**Item Templates**

Dashboard	Television Brand	Refrigerator Brand	Refrigerator Brand	Washing machine Brand
Suggestions	Gass Cooker Brand	Gass Cooker Brand	Gass Cooker Brand	Gass Cooker Brand
Item Templates	Multi cooker Brand	Data Analysis Brand	AC Brand	
Complaints				
Statistics				
Log out				

**Dashboard**

Usage	
Users	50 user are using
	124 posts
	25 suggested task
	<a href="#">See more</a>

**Maintenance**

Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action
Description	Sub component	Due date	status	Action

**Suggestions**

Item Name	Description	Sub component	Finished date	Cost	Summary of Maintenance
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician
Air conditioner	Add a filter	Air Filter	30/10/2022	Rs. 1250	Add new filter and hire a technician

**Maintenance Suggestions**

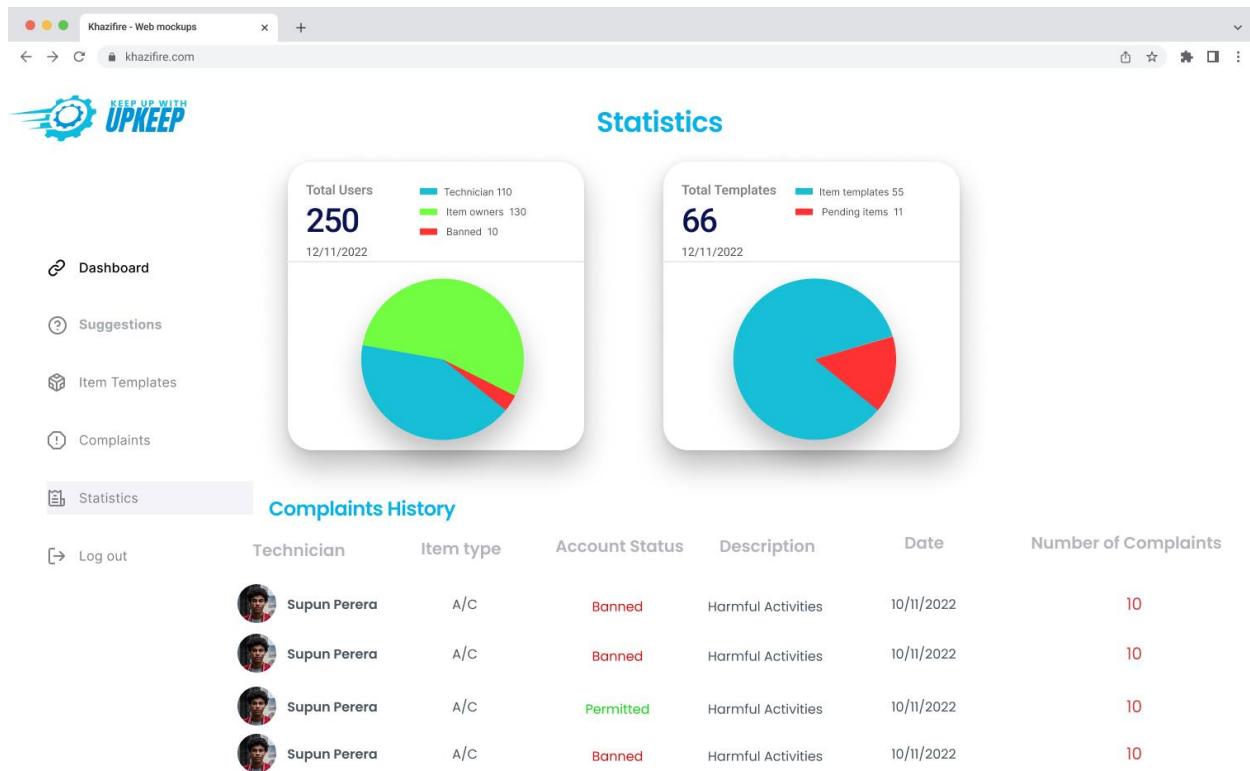
Description	Item Type	Technician	Date	Service cost	Summary of Maintenance
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas
A/C Repair	A/C	Saman Kumara	30/10/2022	Rs. 5500	Clear the A/C and Added the A/C Gas

**Complaints**

Technician	Item type	Description	Date	Number of Complaints
Supun Perera	A/C	Harmful Activities	10/11/2022	10
Supun Perera	A/C	Harmful Activities	10/11/2022	10
Supun Perera	A/C	Harmful Activities	10/11/2022	10
Supun Perera	A/C	Harmful Activities	10/11/2022	10

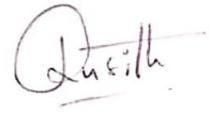
**Gigs complaints**

User	Post ID	Description	Date	Number of Complaints
Supun Perera	0121	Harmful Activities	10/11/2022	10
Supun Perera	0121	Harmful Activities	10/11/2022	10
Supun Perera	0121	Harmful Activities	10/11/2022	10
Supun Perera	0121	Harmful Activities	10/11/2022	10



## Declaration

We as members of the project titled **UPKEEP**, Certify that we will carry out this project according to the guidelines provided by the coordinators and supervisors of the course as well as we will not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university. To the best of our knowledge and brief, the project work will not contain any material previously published or written by another person or ourselves except where due reference is made in the text of appropriate places.

Student Name	Index No.	Signature
1) M.K. Pramod	20001371	
2) P.G.N.R. Balangoda	20000197	
3) M.R.D. Siriwardhana	20001802	
4) H.G.S. Hasinika	20000731	