

Software Requirements Specification (SRS)

Property Maintenance & Service Coordination System

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1. Preface

This Software Requirements Specification (SRS) document presents the detailed requirements for the Property Maintenance & Service Coordination System, developed under the domain of Real Estate and Property Management. The purpose of this document is to provide a clear and structured description of the system's intended functionality, constraints, and operational context.

The SRS serves as a reference for stakeholders including property owners, maintenance managers, service providers, and administrators. It defines the system requirements in a manner that supports analysis, design, implementation, and future enhancement. The requirements outlined in this document are derived from domain understanding, workflow analysis, and interactions with domain experts.

This document emphasizes real-world maintenance processes such as complaint handling, service coordination, cost estimation, billing, and payment management. By using consistent domain terminology and clearly defined roles, the SRS aims to ensure a shared understanding of system behaviour among all stakeholders.

2. Introduction

2.1 Purpose

The purpose of this Software Requirements Specification (SRS) document is to define the functional and non-functional requirements of the **Property Maintenance & Service Coordination System**. This document serves as a formal agreement between stakeholders and the development team regarding system behaviour, features, and constraints.

The SRS is intended to guide system analysis, design, development, testing, and validation. It provides a common understanding of the system requirements for property owners, maintenance managers, service providers, administrators, and academic evaluators. The document uses consistent domain terminology to avoid ambiguity and ensure clarity throughout the project lifecycle.

2.2 Scope

The **Property Maintenance & Service Coordination System** is a web-based application developed to address the need for structured and efficient handling of maintenance issues within residential properties. The system enables property owners to report maintenance complaints, track their progress, and receive updates, while allowing maintenance managers to coordinate services, assign service providers, and oversee issue resolution in an organized manner.

The platform promotes transparency, accountability, and timely service delivery by clearly defining roles and responsibilities among owners, maintenance managers, service providers,

and administrators. It supports improved maintenance operations through centralized complaint monitoring, controlled service execution, and systematic billing and payment handling.

The system may interact with external services such as notification systems for status updates, payment services for service bill settlement, and dashboard components for monitoring maintenance activities and service performance. It is designed to align with real-world residential maintenance workflows while remaining scalable to accommodate future enhancements.

3. Overall Description

3.1 Product Perspective

The **Property Maintenance & Service Coordination System** is a centralized software solution designed to support maintenance operations within residential properties. The system operates as an independent application that organizes maintenance-related activities through well-defined roles and workflows.

The platform structures interactions among property owners, maintenance managers, service providers, and administrators to ensure smooth coordination of maintenance services. It replaces fragmented and manual maintenance handling practices with a unified digital approach that improves visibility, accountability, and operational efficiency.

3.2 User Classes and Characteristics

The system supports multiple user classes with distinct responsibilities:

- **Owner:** Reports maintenance issues, tracks complaint progress, confirms service completion, and evaluates service quality.
- **Maintenance Manager:** Coordinates maintenance operations, assigns service providers, verifies completed work, and settles approved service bills.
- **Service Provider:** Performs assigned maintenance tasks and submits service charges after service completion.
- **Admin:** Governs system roles, permissions, and overall operational boundaries.

Each user class interacts with the system based on clearly defined responsibilities to maintain separation of concerns.

3.3 Operating Environment

The system is intended to operate as a web-based application accessible through standard web browsers on desktop and mobile devices. It is designed to function within typical residential property management environments and does not require specialized hardware.

3.4 Design and Implementation Constraints

- Internet connectivity is required to access the system

- The platform must comply with basic data security practices
- System performance depends on server and network availability

4. User Requirements

This section describes the requirements from the perspective of the users interacting with the **Property Maintenance & Service Coordination System**. These requirements define what each user expects the system to provide in order to effectively perform their responsibilities.

4.1 Owner Requirements

- The owner shall be able to report maintenance issues related to their property.
 - The owner shall be able to track the progress of reported maintenance complaints.
 - The owner shall be able to confirm whether the reported maintenance work has been completed.
 - The owner shall be able to rate the quality and feedback of service provided after completion of work.
 - The owner shall receive notifications about complaint status updates and service completion.
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4.2 Maintenance Manager Requirements

- The maintenance manager shall be able to review all reported maintenance complaints.
 - The maintenance manager shall be able to assign appropriate service providers to complaints.
 - The maintenance manager shall be able to reassign complaints in case of rejection or delay.
 - The maintenance manager shall be able to monitor the progress of ongoing maintenance work.
 - The maintenance manager shall be able to approve or reject service estimate submitted by service providers.
 - The maintenance manager shall be able to pay approved service bills.
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4.3 Service Provider Requirements

- The service provider shall be able to access assigned maintenance tasks.
- The service provider shall be able to accept or reject assigned tasks.
- The service provider shall be able to perform maintenance services for assigned tasks.
- The service provider shall be able to send service estimate of the maintenance work.
- The service provider shall be able to mark assigned tasks as completed.

- The service provider shall be able to submit service bills after completion of work.
- The service provider shall be able to review ratings and feedback received for completed services.

4.4 Admin Requirements

- The admin shall be able to manage system roles and responsibilities.
- The admin shall be able to update or delete participant access when required.
- The admin shall be able to define operational boundaries and permissions.

5. System Architecture

The Property Maintenance & Service Coordination System follows a modular, web-based architecture designed to support scalability, maintainability, and clear separation of responsibilities. The system is organized into distinct components, each responsible for a specific set of maintenance-related functions.

The frontend module provides the user interface for all system participants, including owners, maintenance managers, service providers, and administrators. It enables participants to interact with the system for activities such as raising maintenance complaints, tracking complaint progress, assigning service providers, submitting service bills, and monitoring maintenance operations through dashboards. The frontend is accessible through standard web browsers and emphasizes usability, clarity, and responsiveness.

The backend services manage the core application logic and maintenance workflows. These services process requests from different roles, enforce role-based responsibilities, coordinate complaint handling, manage service assignment, handle service estimation and billing approval by the maintenance manager.

The backend acts as the central coordination layer between the frontend interface, the data storage component, and external services.

The database component is responsible for persistent storage of domain-related records, including maintenance complaints, service assignments, service tasks, service estimates, service bills, payment records, ratings, and role mappings. It ensures consistency, integrity, and reliable retrieval of information required for maintenance coordination and reporting.

6. System Requirements

6.1 Functional Requirements:

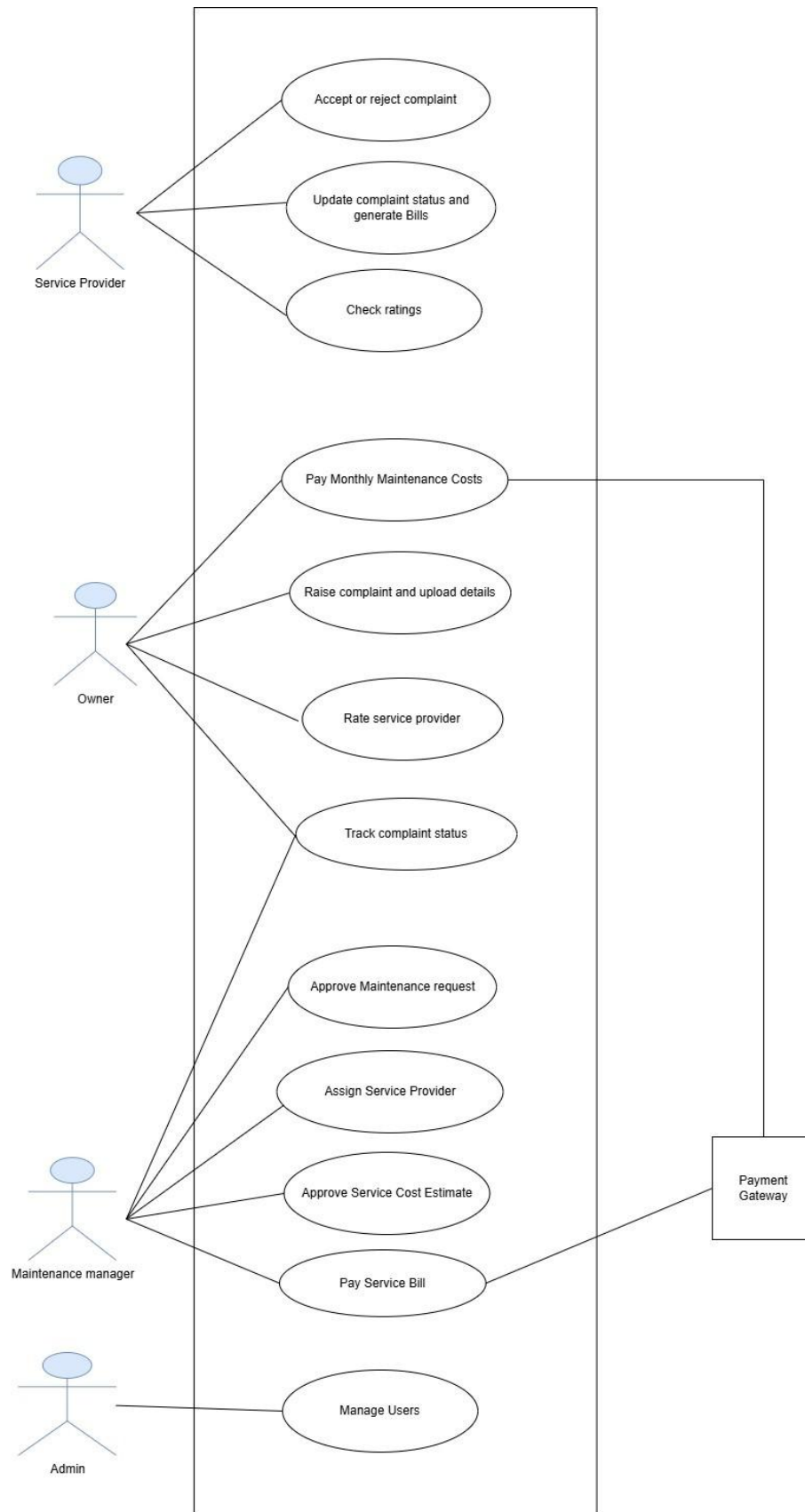
- The system shall allow the admin to manage roles.
- The system shall allow the owners to check history of maintenance cost payments per month.
- The system shall allow owners to raise general complaints by uploading a photo and a caption
- The system shall allow the maintenance manager to verify, fix a deadline and approve raised complaints
- The system shall display all complaints approved by the maintenance manager to registered service providers
- The system shall allow service providers to view and accept approved complaints.
- The system shall allow service providers to reject the complaints with a reason (no availability, etc)
- The system shall add all service providers who accept a complaint to a complaint queue.
- The system shall allow the maintenance manager to assign a complaint to a service provider from the complaint queue based on service provider ratings
- The system shall allow the service provider to generate an estimated service cost.
- The system shall allow maintenance manager to view and confirm the service provider based on estimated cost provided.
- The system shall allow the maintenance manager to reject service provider if estimated service cost is more and assign another service provider in the queue.
- The system shall allow the confirmed service provider to resolve the complaint and generate a bill
- The system shall allow all authorized users to track complaint status and to view generated bills to ensure transparency

- The system shall allow owners to give ratings to the service provider complaint resolved.
- The system shall allow maintenance manager to issue penalty if complaint is not resolved by service provider within deadline.
- The system shall allow the maintenance manager and admin to generate alerts and notifications for daily routine checks
- The system shall notify the service provider when the complaint resolution deadline is approaching or reached

6.2 Non-functional Requirements:

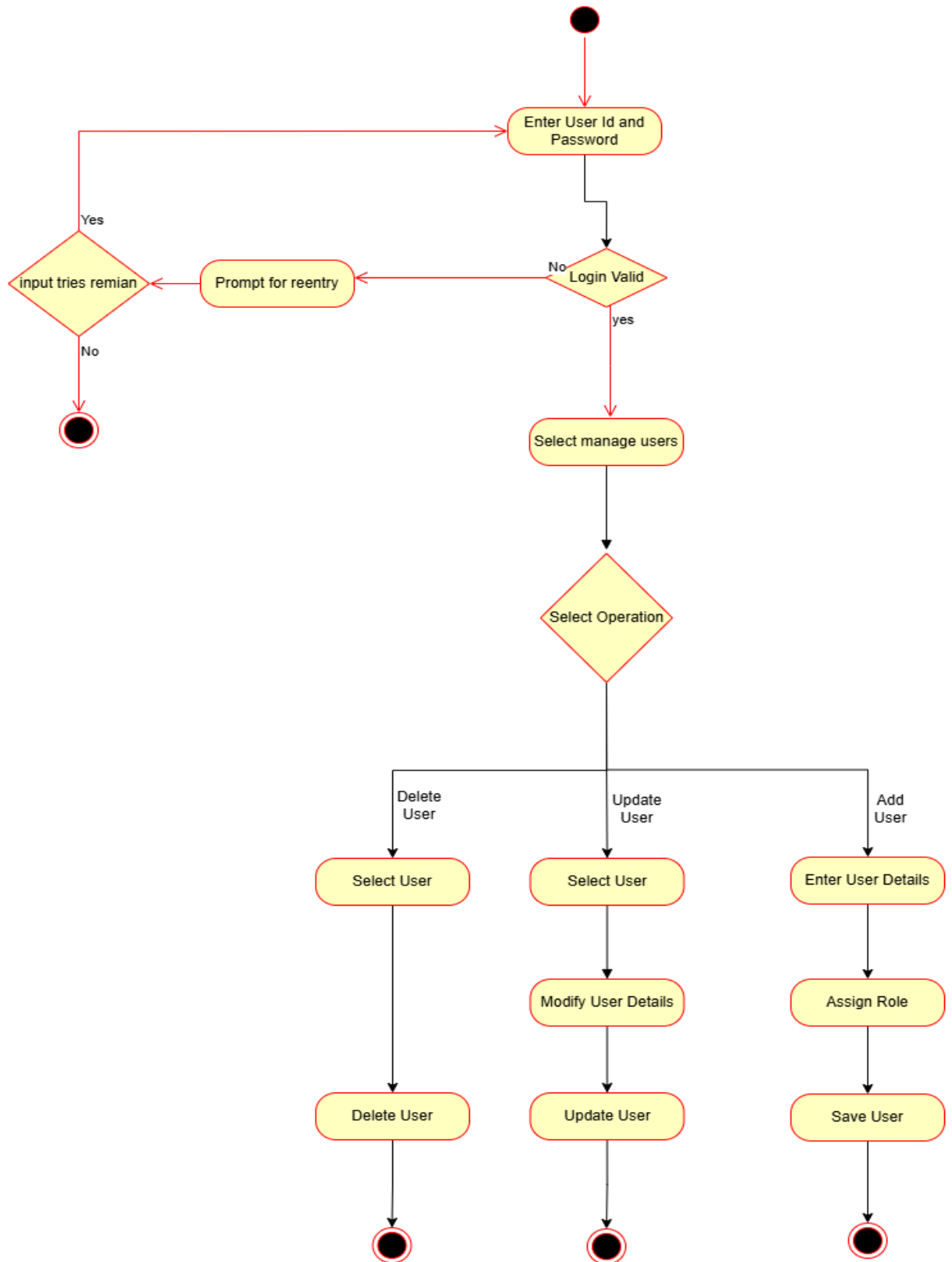
- The system shall respond to user actions within 3 seconds under normal operating conditions.
- The system shall be usable on both web and mobile browsers.
- The system shall ensure that all user passwords are stored in encrypted form.
- The system shall send notifications within 5 seconds of a triggering event.
- The system shall maintain a minimum availability of 99% uptime
- The system shall log all complaint status changes
- The system shall restrict system access based on user roles including Admin, Owner, Maintenance Manager, and Service Provider

USE CASE DIAGRAM:



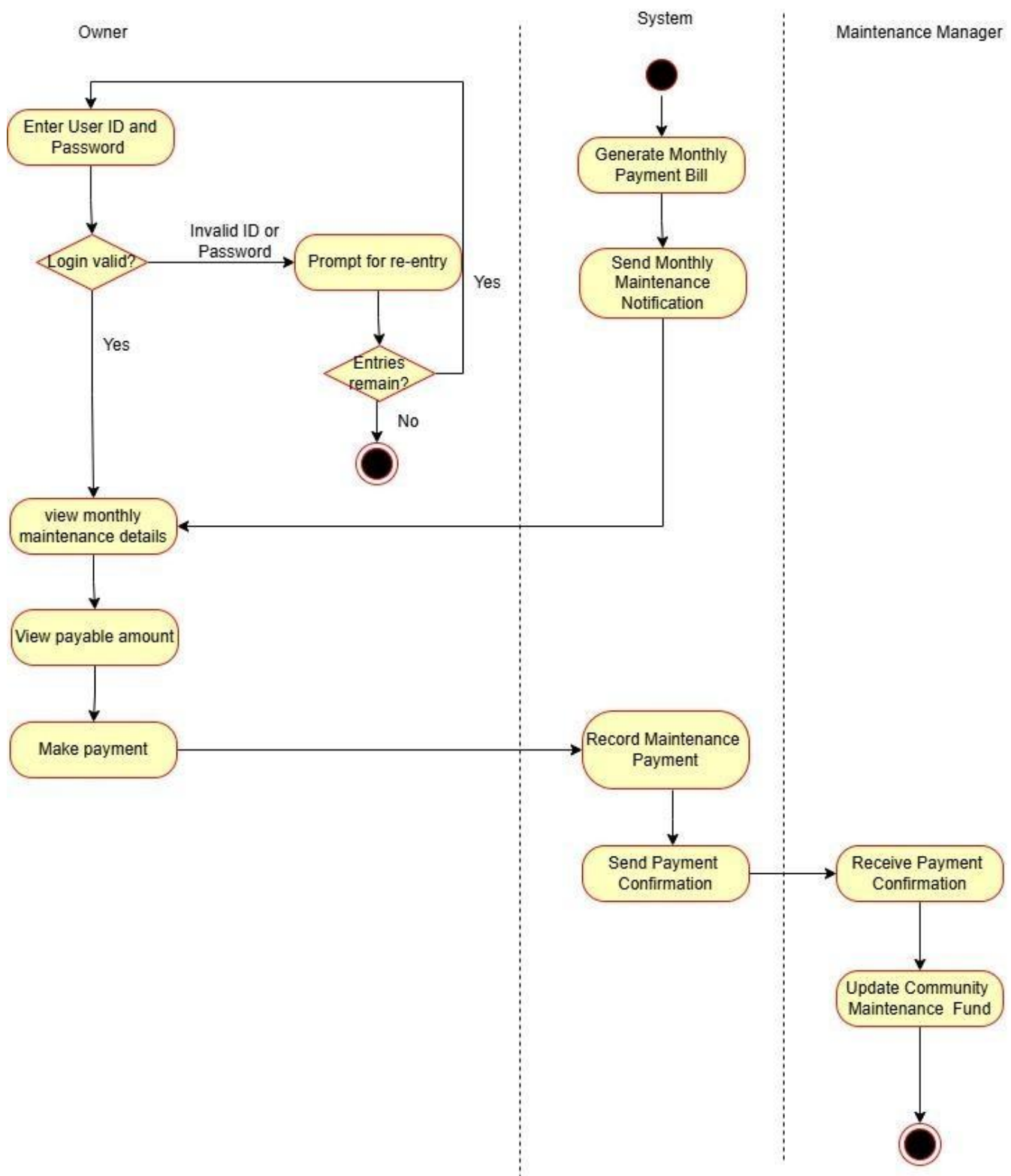
ACTIVITY DIAGRAMS:

1. Manage Users:

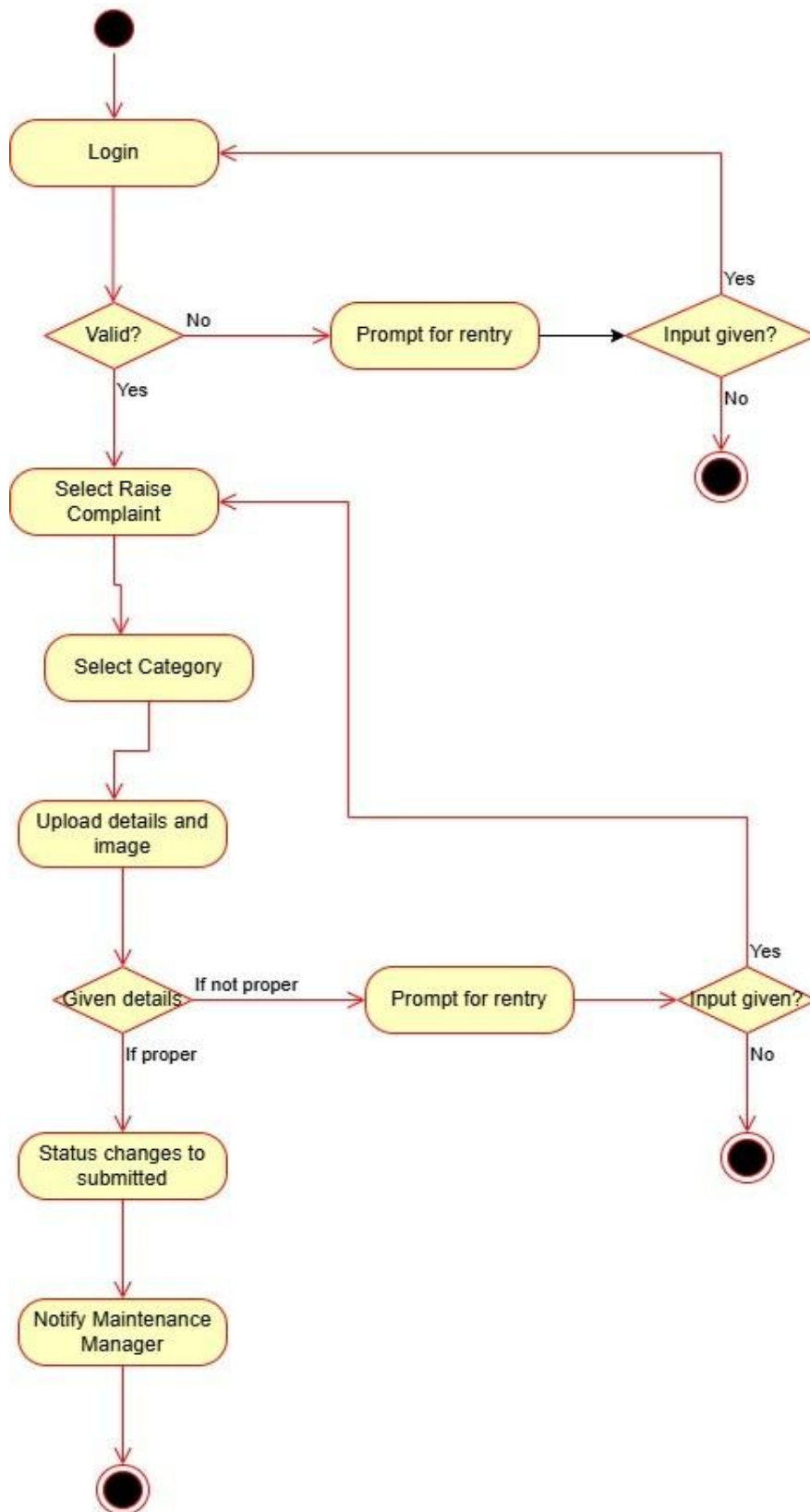


2.

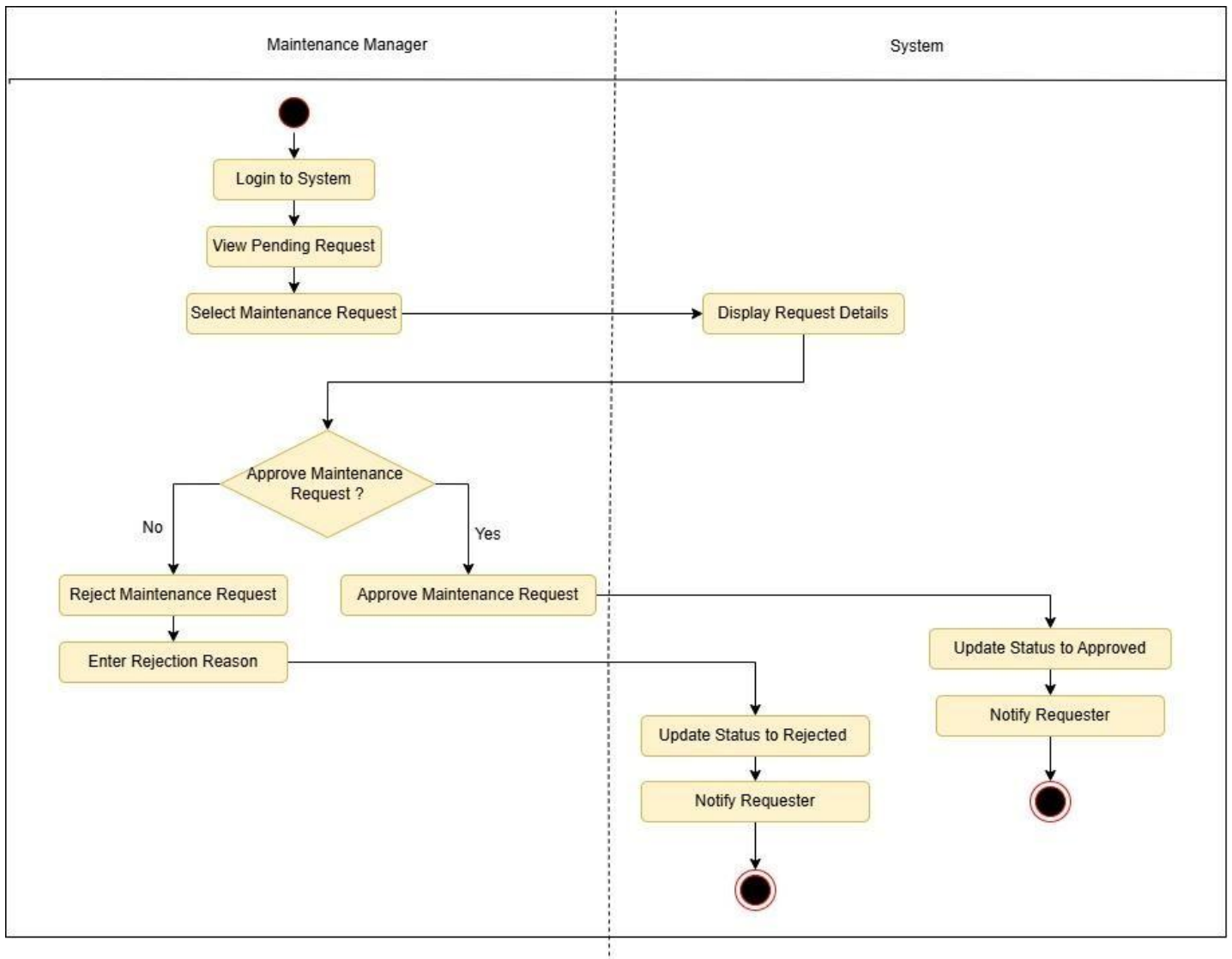
2. Pay Monthly Maintenance Cost:



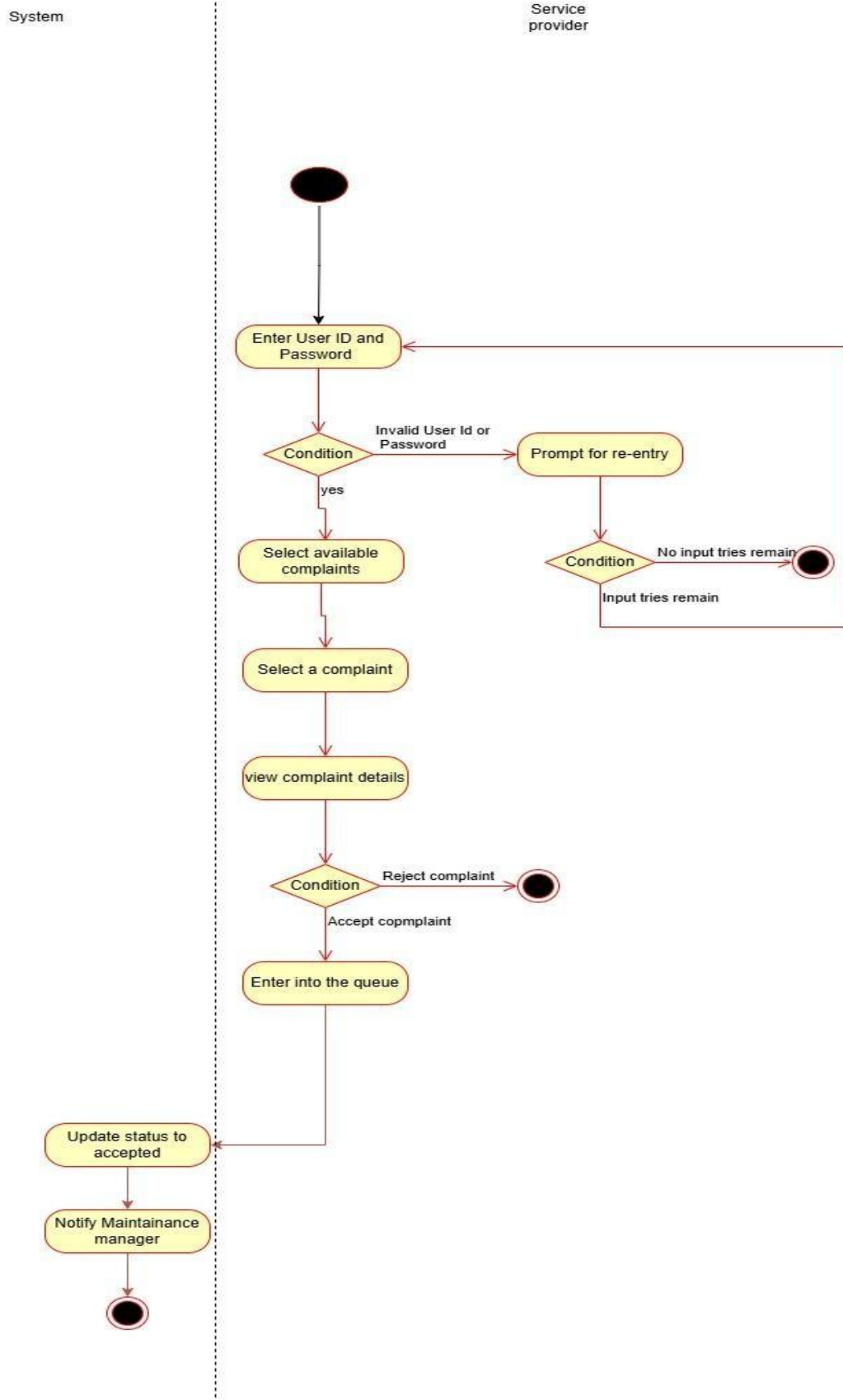
3.Raise Complaint and upload details:



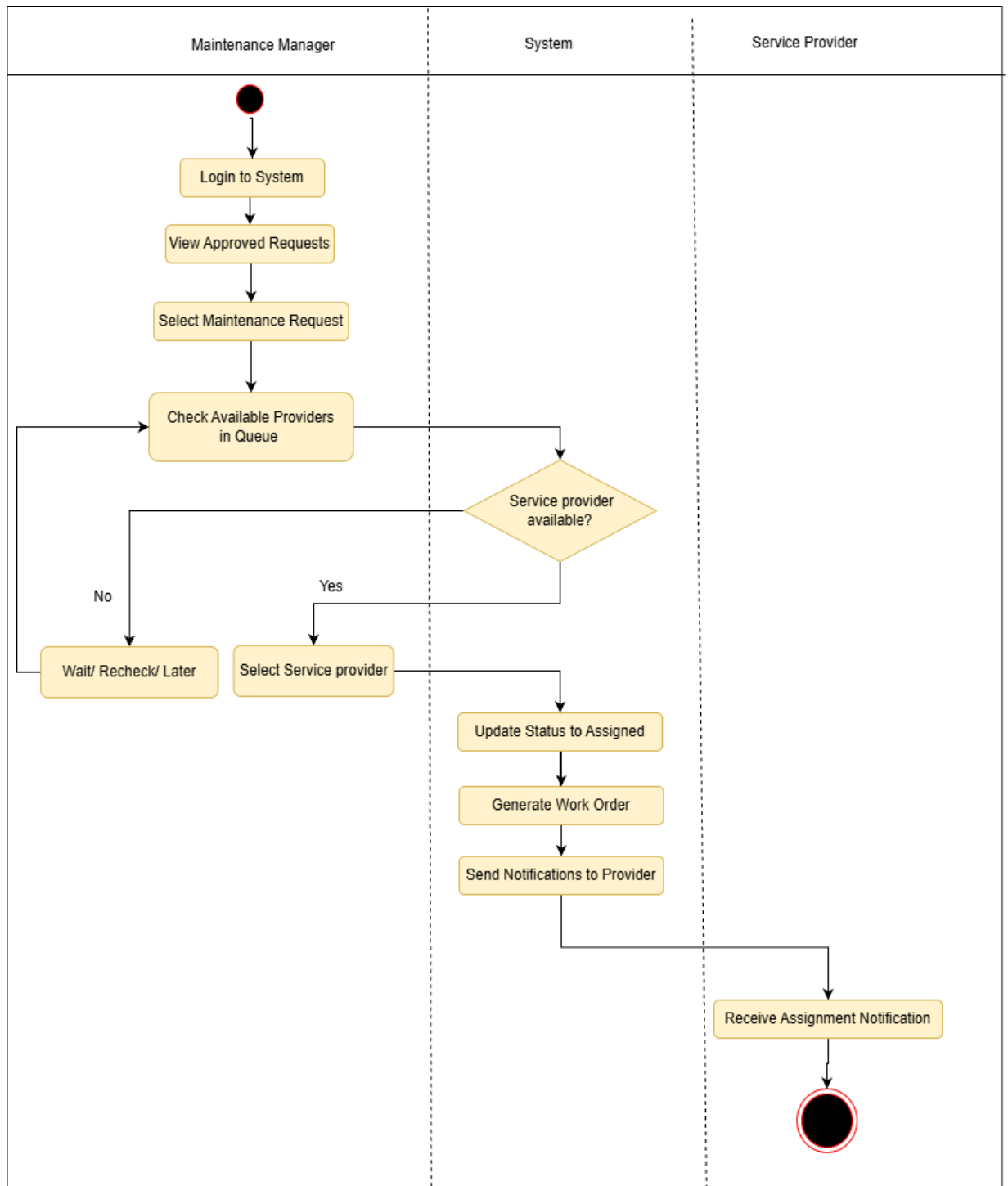
4.Approve Maintenance Request:



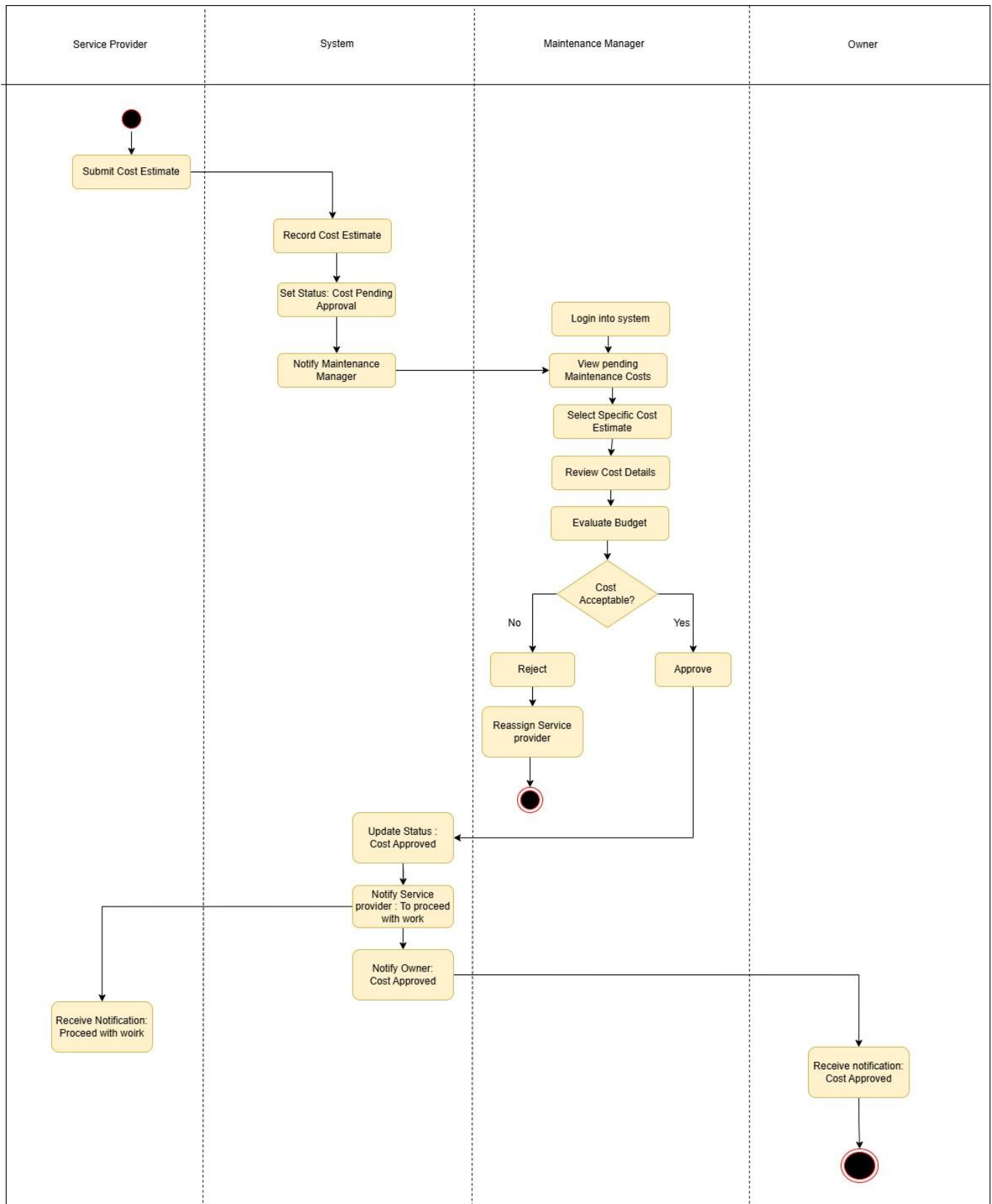
5.Approve or Reject Complaint:



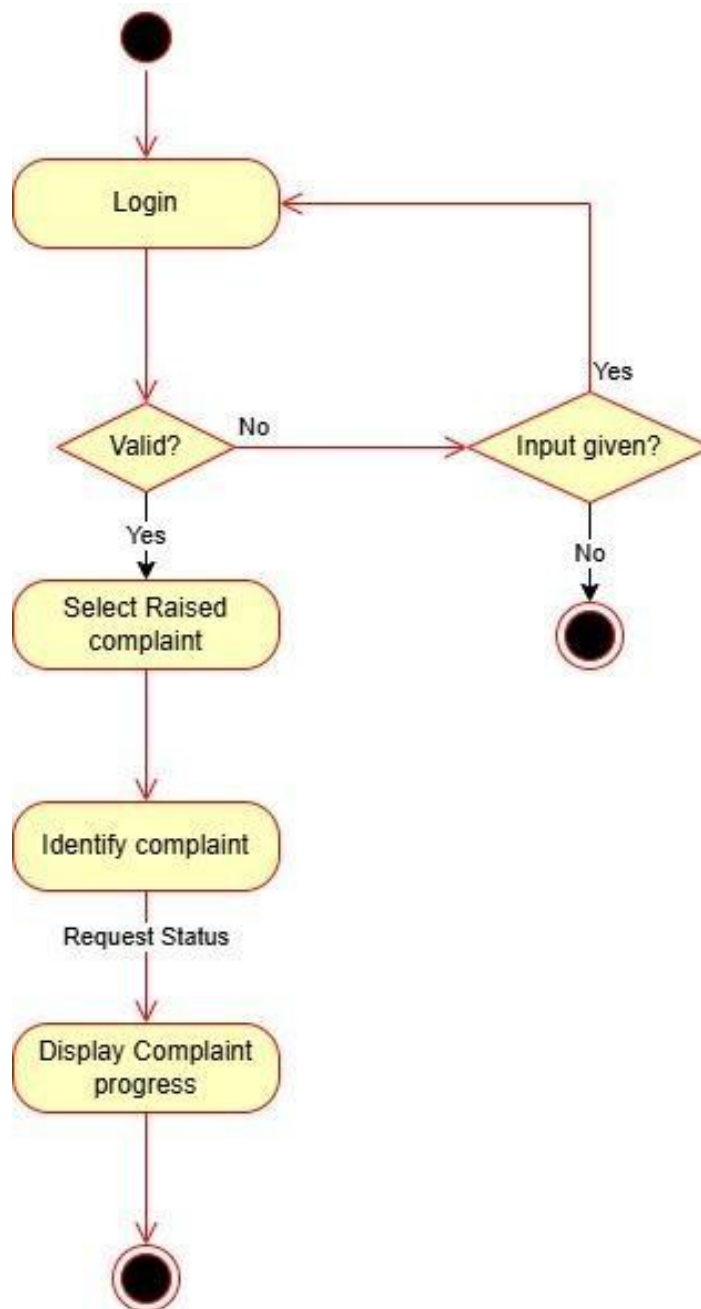
6.Assign Service Provider:



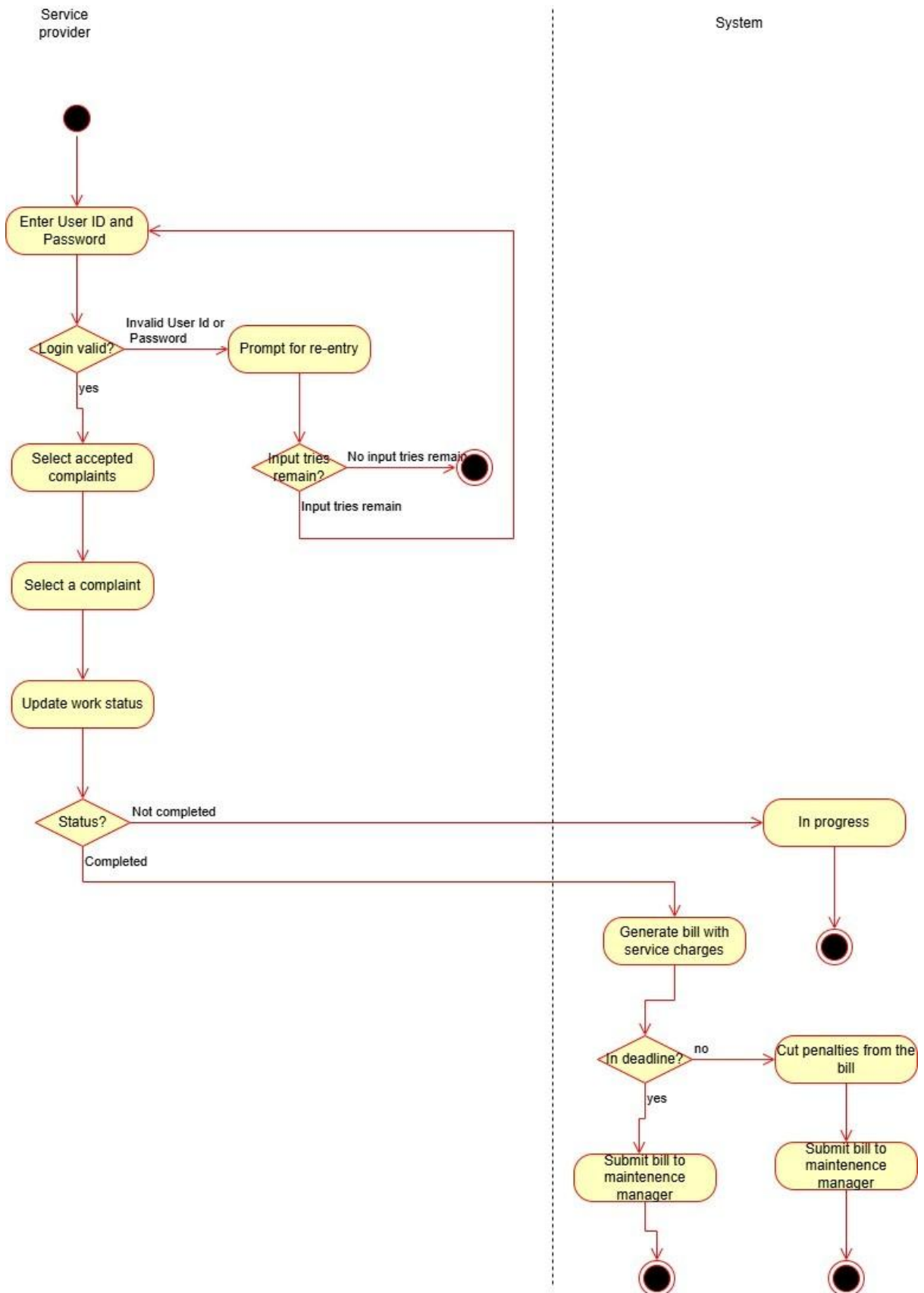
7.Approve Service Estimate:



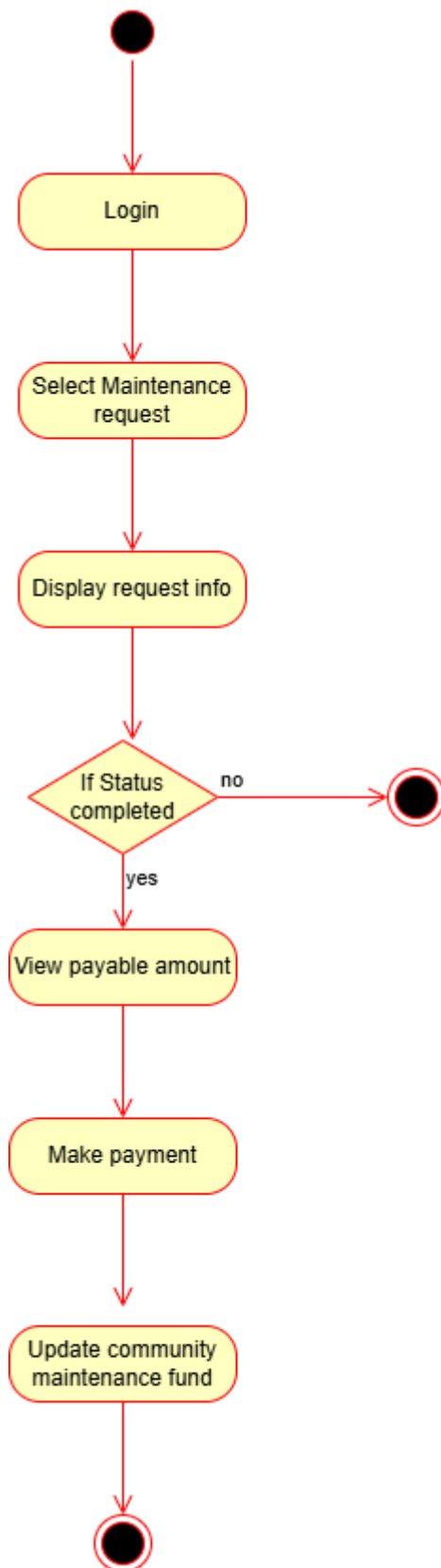
8.Track Complaint Status:



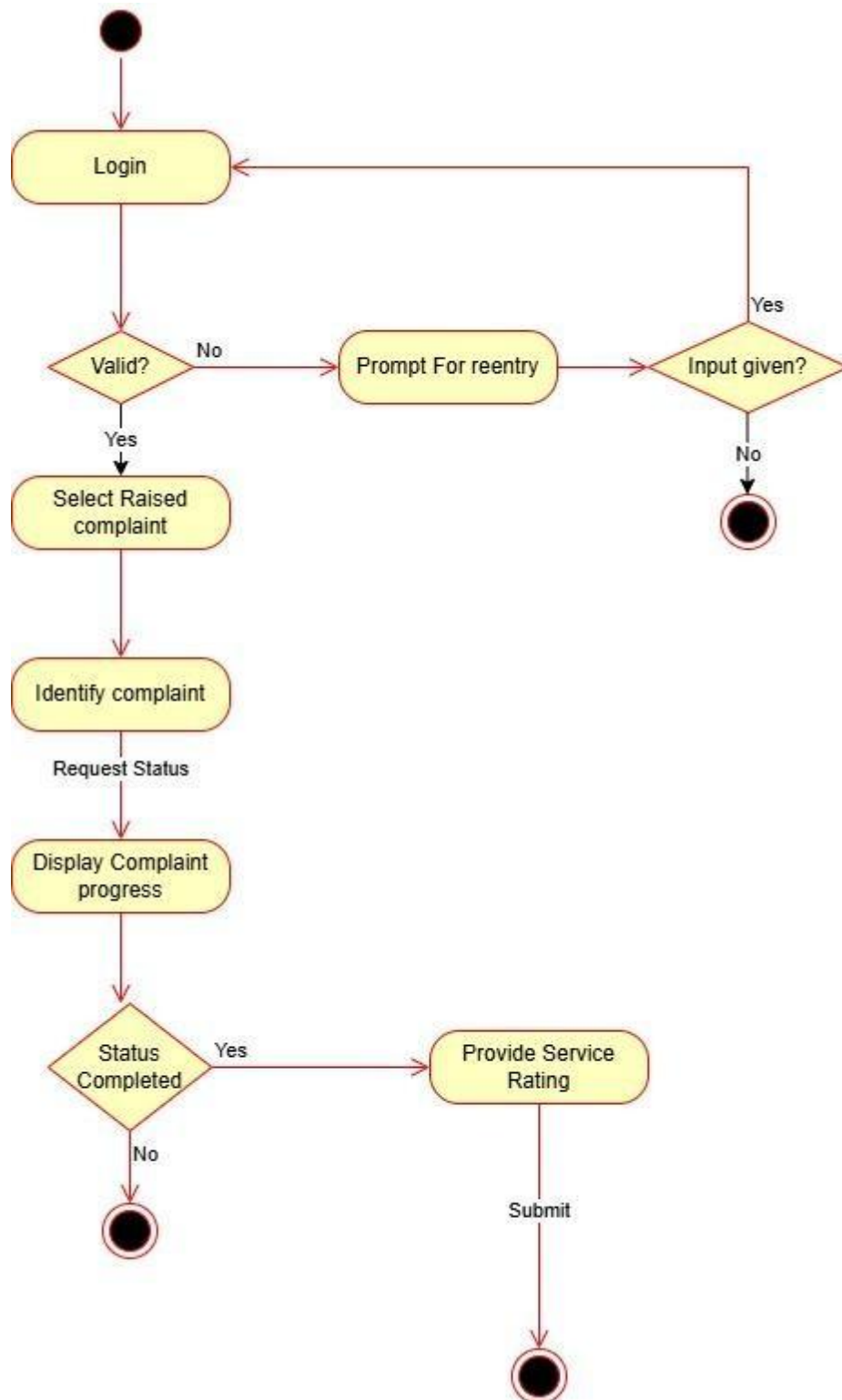
9. Update complaint status and generate bills:



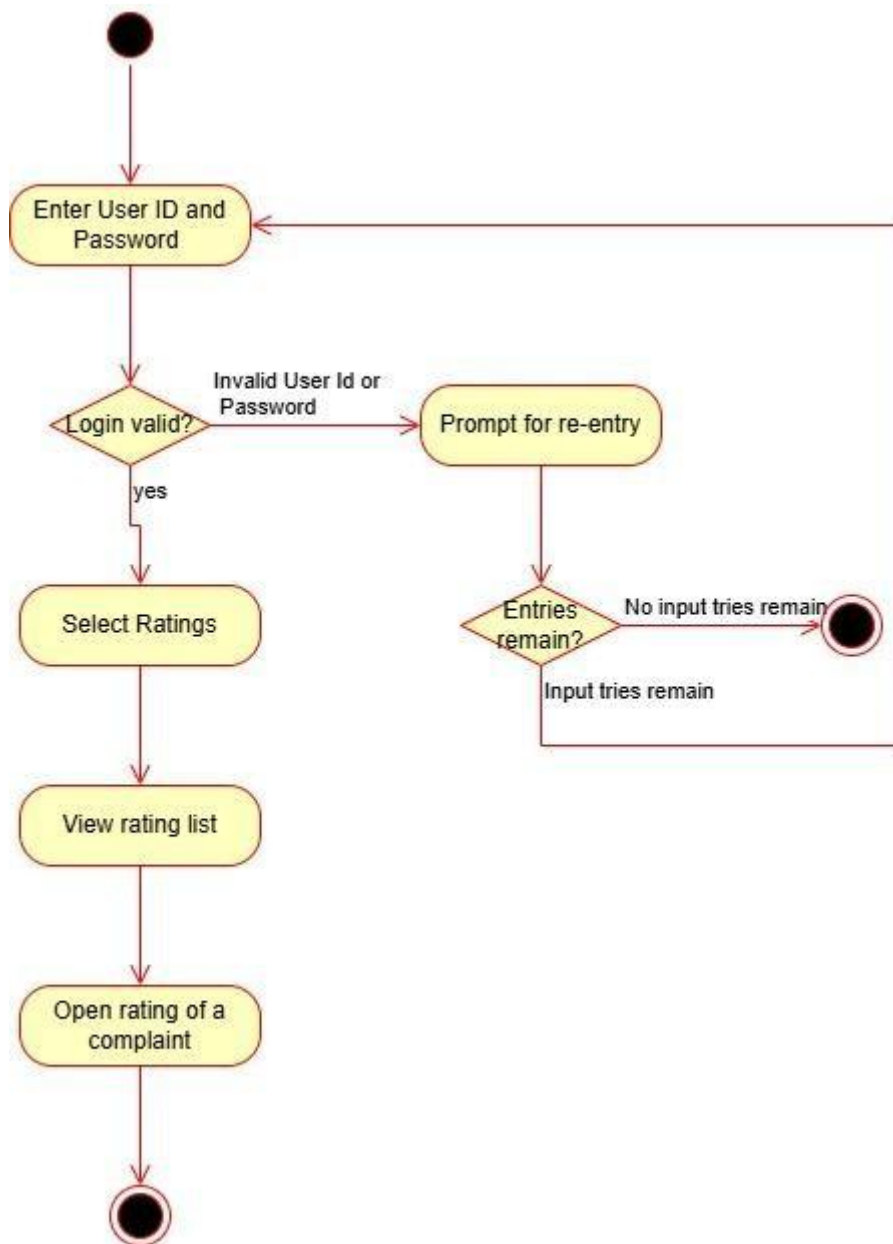
10. Pay service bill



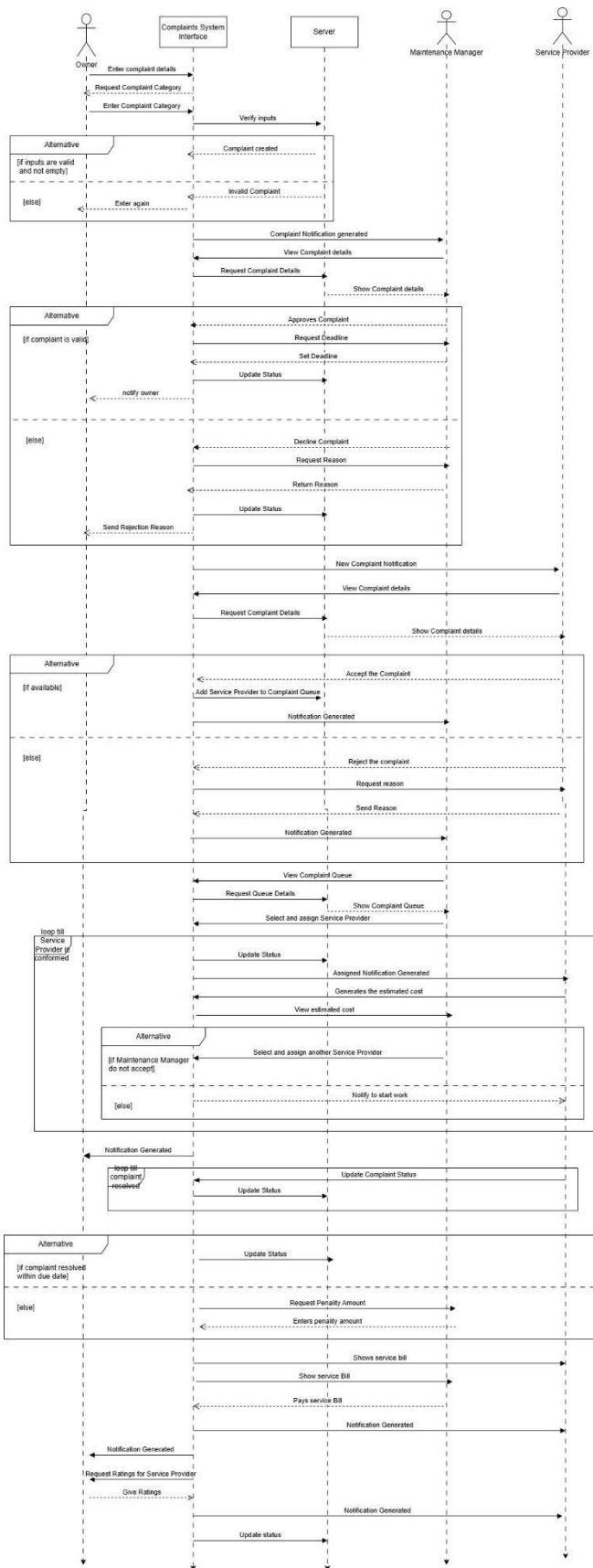
11. Rate Service Provider:



12.Check ratings:



SEQUENTIAL DIAGRAM:



<https://drive.google.com/file/d/1eJBh2ZLLHX5x4sgnQtQp65N2EwG6KKa/view?usp=sharing>