TEAM NAME : TEAM LOGISTICS
DOMAIN : LOGISTICS AND DELIVERY OPERATIONS
PROBLEM STATEMENT : FLEET AND DRIVER OPERATIONS MANAGEMENT SYSTEM

SUBMITTED BY :

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Problem Statement Overview: Fleet and Driver Operations Management System

Organizations that manage fleets and drivers face challenges in efficiently handling delivery requests, vehicle allocation, driver assignments, compliance tracking, and real-time monitoring. Manual or fragmented systems often lead to delays, poor visibility, SLA violations, and difficulties in ensuring regulatory compliance.

The Fleet and Driver Operations Management System aims to provide a centralized digital platform to streamline end-to-end fleet operations. The system enables efficient management of delivery requests, real-time tracking of vehicles and drivers, automated assignment processes, compliance monitoring, and timely notifications. By integrating operational workflows, automation, and monitoring mechanisms, the system improves operational efficiency, ensures compliance with service-level agreements, and enhances overall delivery reliability.

PURPOSE :
The purpose of this project is to design and model an end-to-end delivery and fleet management system that automates delivery requests, vehicle and driver assignment, trip execution, proof of delivery, and real-time notifications while ensuring compliance and SLA adherence.

SCOPE :
The scope includes customer delivery requests, fleet and user management, trip tracking, proof of delivery, automated notifications, and continuous compliance/SLA monitoring. It covers all key workflows, exceptions, and system interactions required to support efficient, reliable, and scalable delivery operations.

USER REQUIREMENTS

1. Customer(Business Client) User Requirements

- The customer should be able to create a delivery request(Single/Bulk) by providing delivery details.
- The customer should be able to view the status of their delivery.
- The customer should receive notifications about delivery progress and completion.
- The customer should be able to view estimated arrival time (ETA) updates.

2. Fleet Manager User Requirements

- The fleet manager should be able to view all incoming delivery requests.
- The fleet manager should be able to assign vehicles and drivers to delivery requests.
- The fleet manager should be able to view vehicle and driver availability.
- The fleet manager should be able to reassign or update deliveries when issues occur.
- The fleet manager should be able to add, update, or remove vehicles.
- The fleet manager should be able to monitor ongoing trips and delivery statuses.
- The fleet manager should receive alerts for delivery delays or SLA violations.
- The fleet manager should be able to view vehicle compliance and maintenance information.

3. Driver User Requirements

- The driver should be able to view assigned delivery tasks
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- The driver should receive notifications when a delivery is assigned.
- The driver should be able to start, pause, and update trip status.
- The driver should be able to share a live location during a trip.
- The driver should be able to upload proof of delivery.
- The driver should be notified in case of reassignment or cancellation.

4. Admin User Requirements

- The admin should be able to add new users.

- The admin should be able to modify user roles and permissions.
- The admin should be able to remove users from the system.
- The admin should be able to view all users and their assigned roles.
- The admin should be able to manage access control for different user types.

FUNCTIONAL REQUIREMENTS

1. User Management

- The system shall allow the admin to add new users.
- The system shall allow the admin to update user details.
- The system shall allow the admin to assign and modify user roles (Customer, Fleet Manager, Driver, Admin).
- The system shall allow the admin to remove users from the system.
- The system shall allow the admin to view all registered users.

2. Delivery Request Management

- The system shall allow customers to create delivery requests.
- The system shall validate delivery request details.
- The system shall store delivery request information.
- The system shall notify the fleet manager when a new delivery request is created.

3. Fleet Assignment Management

- The system shall allow the fleet manager to view pending delivery requests.
- The system shall allow the fleet manager to assign vehicles and drivers.
- The system shall check vehicle and driver availability before assignment.
- The system shall allow reassignment in case of issues.

4. Trip Execution & Tracking

- The system shall allow drivers to start a delivery trip.
- The system shall allow drivers to update trip status.
- The system shall track delivery progress in real time.
- The system shall share live ETA updates with customers.

5. Proof of Delivery (POD)

- The system shall allow drivers to upload proof of delivery.
- The system shall validate the uploaded POD.
- The system shall store valid POD records.
- The system shall notify customers upon successful delivery completion.

6. Notification Management

- The system shall send notifications for delivery assignments.
- The system shall send alerts for delivery status changes.
- The system shall notify users about delays, reassignment, or cancellations.

7. Compliance & SLA Monitoring

- The system shall monitor delivery timelines automatically.
- The system shall detect SLA violations.
- The system shall generate compliance alerts.
- The system shall maintain records of compliance checks and violations.

Non-Functional Requirements

1. Performance

- The system shall handle multiple delivery requests simultaneously.
- The system shall provide real-time updates with minimal delay.

2. Security

- The system shall restrict access based on user roles.
- The system shall protect sensitive user and delivery data.

3. Reliability

- The system shall ensure data consistency during failures.

- The system shall recover gracefully from system errors.

4. Scalability

- The system shall support an increasing number of users, vehicles, and deliveries.

5. Availability

- The system shall be available 24/7 except during maintenance.
- The system shall minimize downtime.

6. Usability

- The system shall provide an intuitive and user-friendly interface.
- The system shall be easy to use for all user roles.

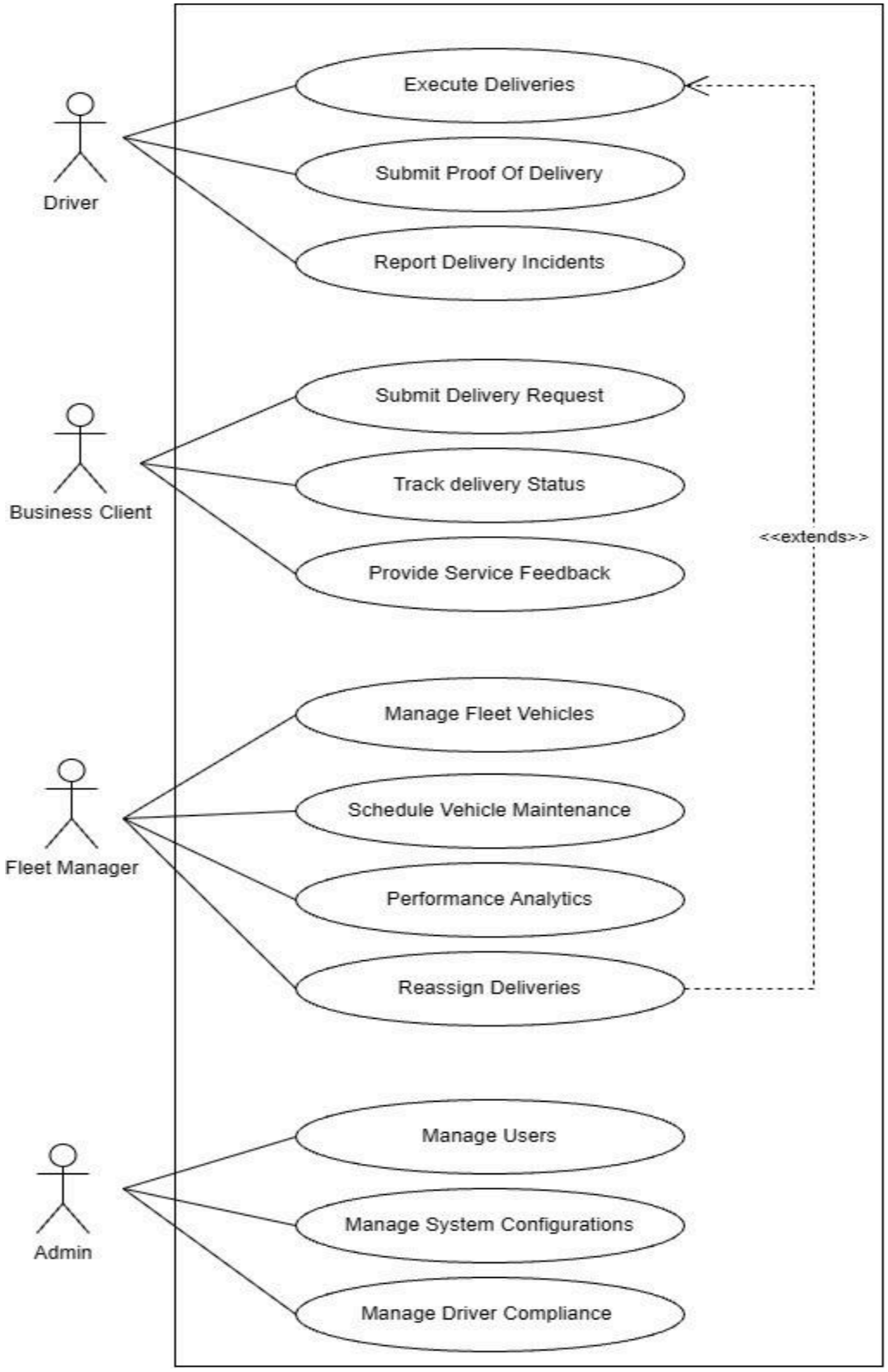
7. Maintainability

- The system shall be easy to update and maintain.
- The system shall support future enhancements.

8. Compatibility

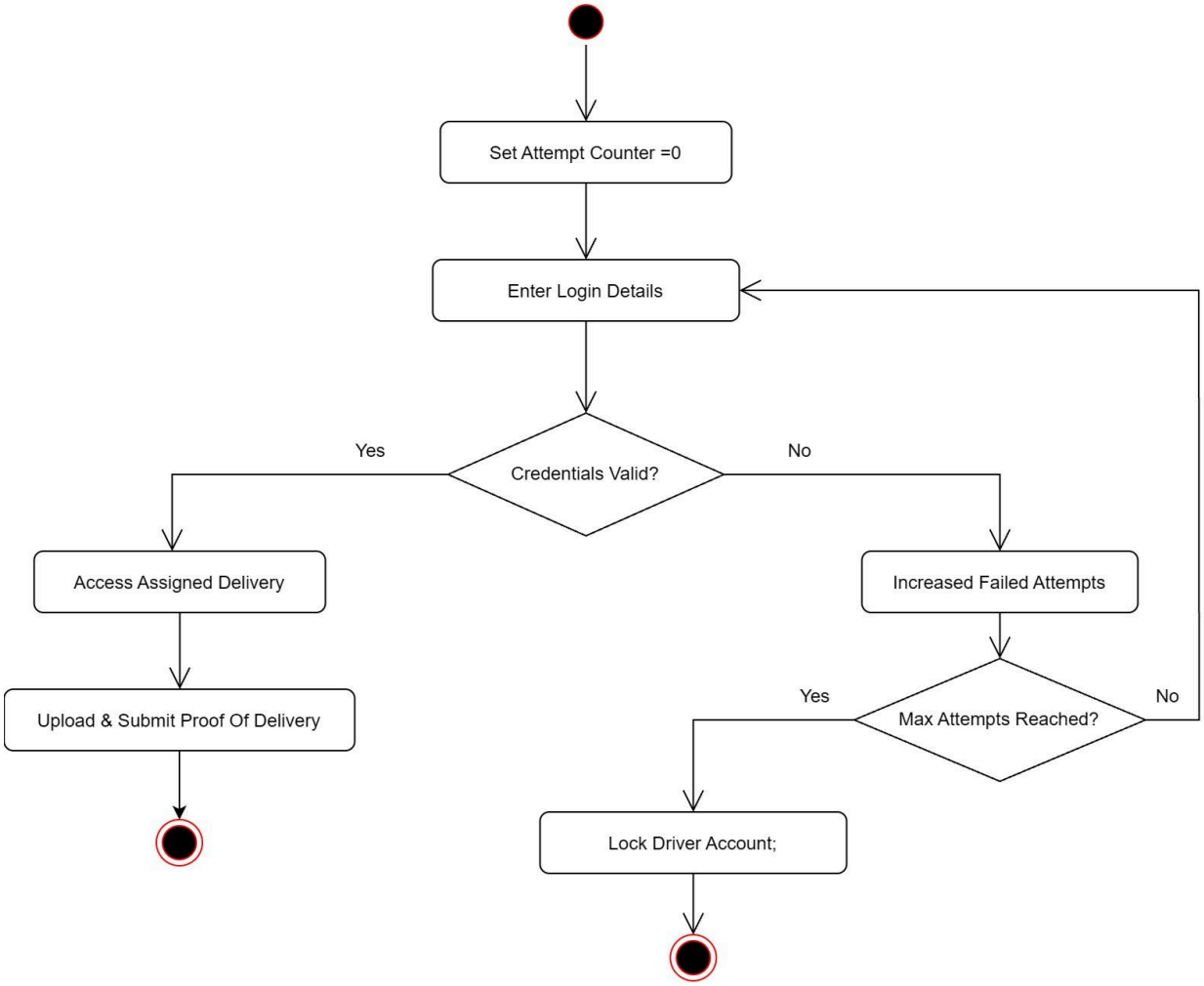
- The system shall work across multiple devices and platforms

USE CASE DIAGRAM :

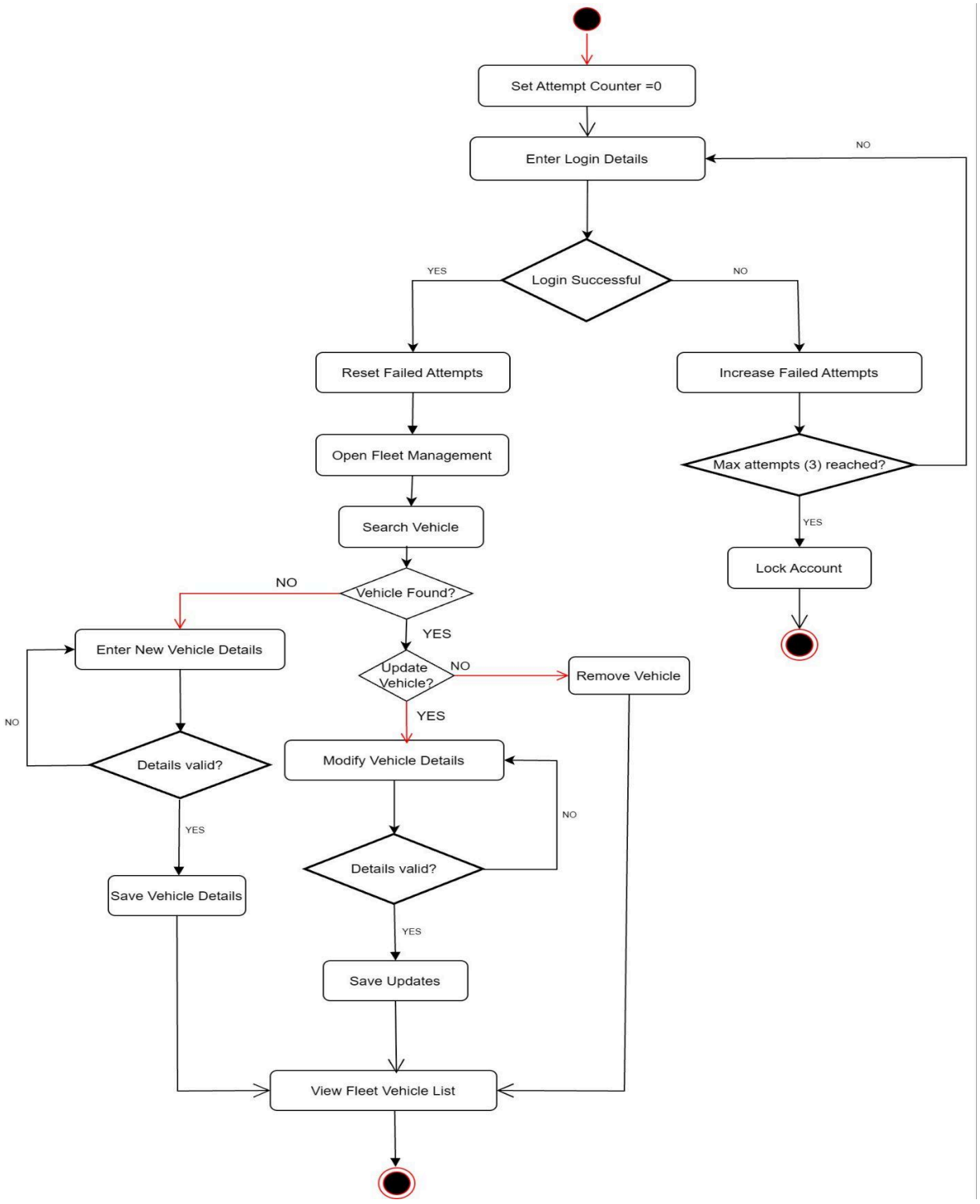


ACTIVITY DIAGRAMS

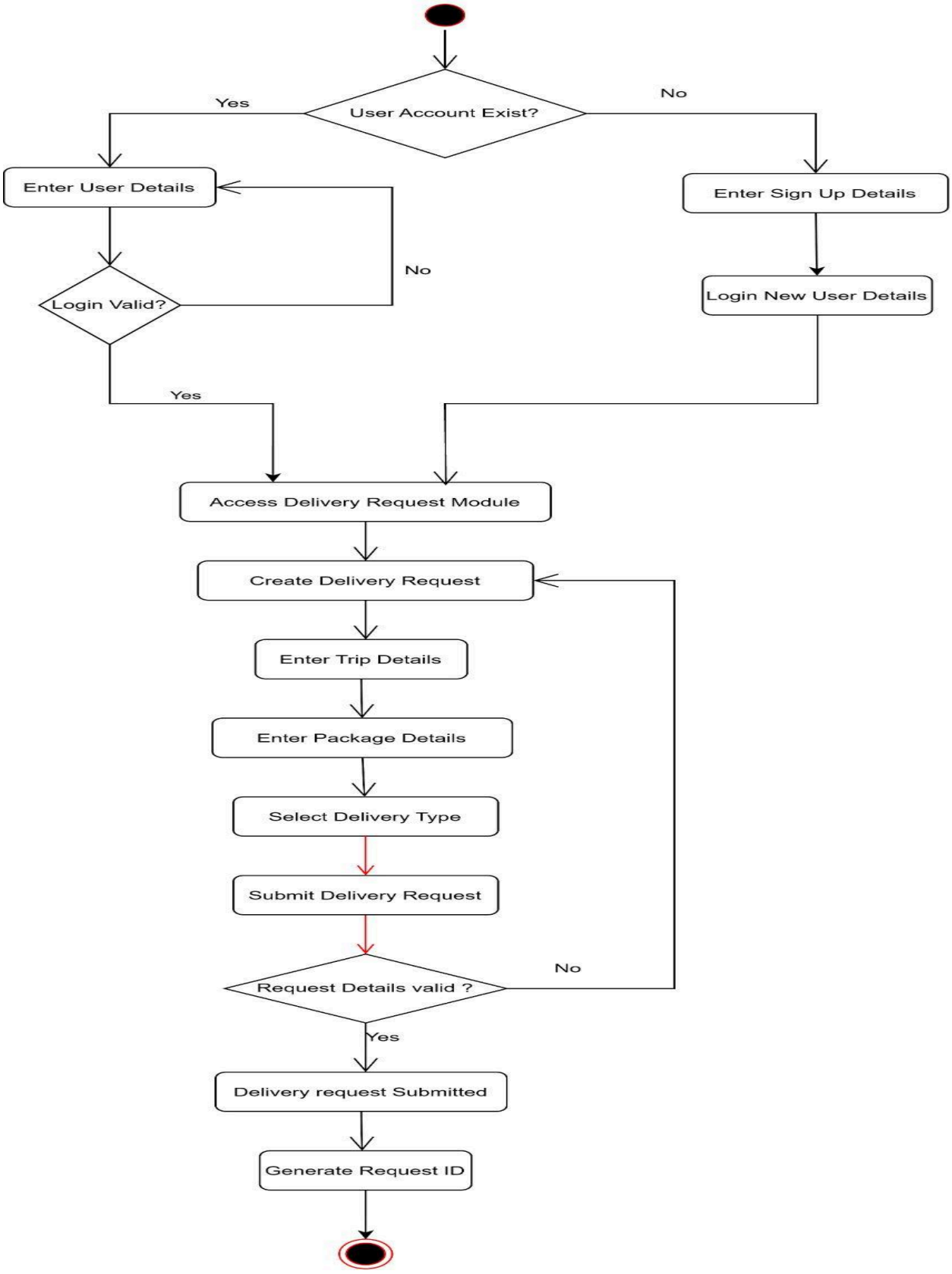
1.Proof of Delivery submission:



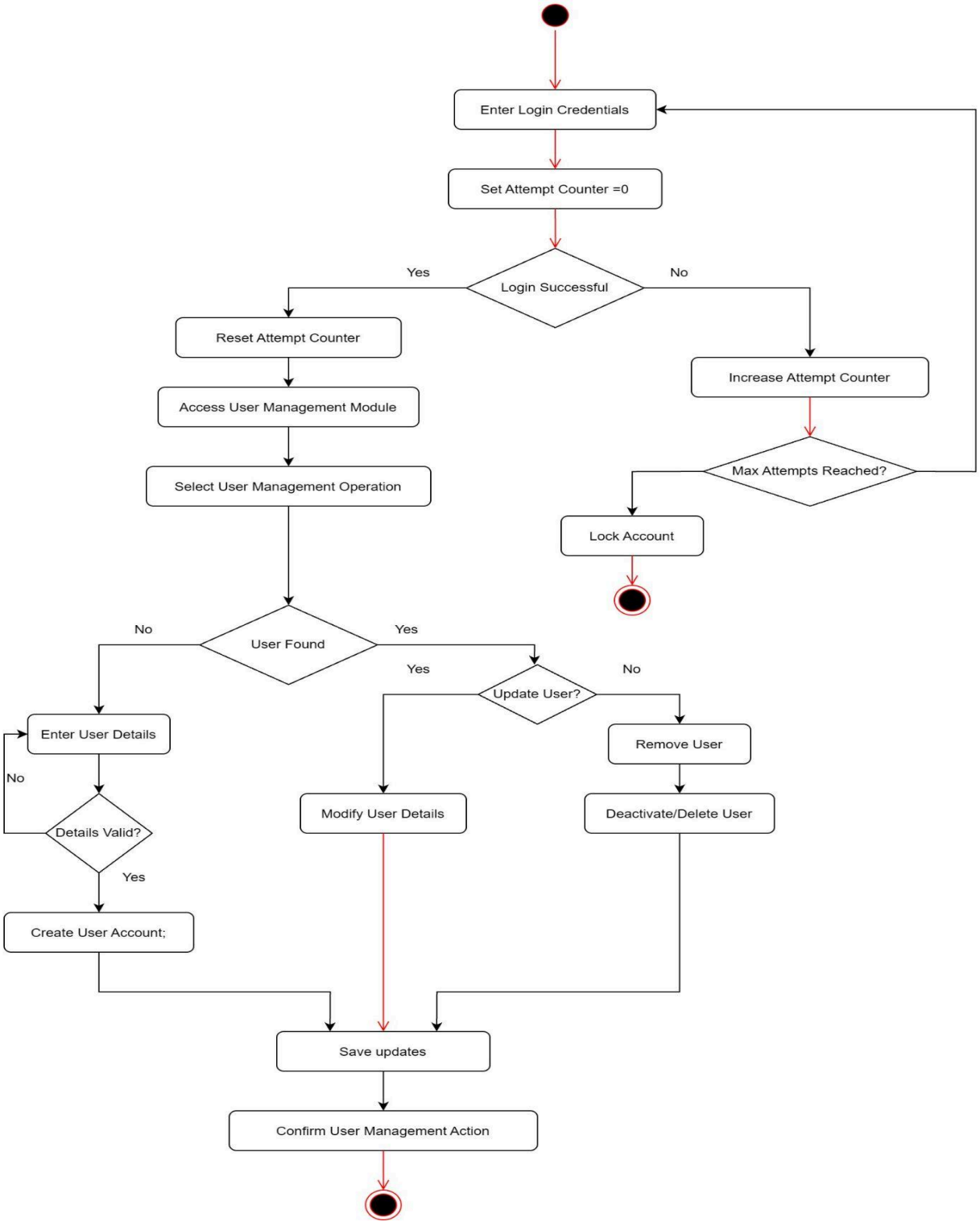
2.Manage Fleet Vehicles:



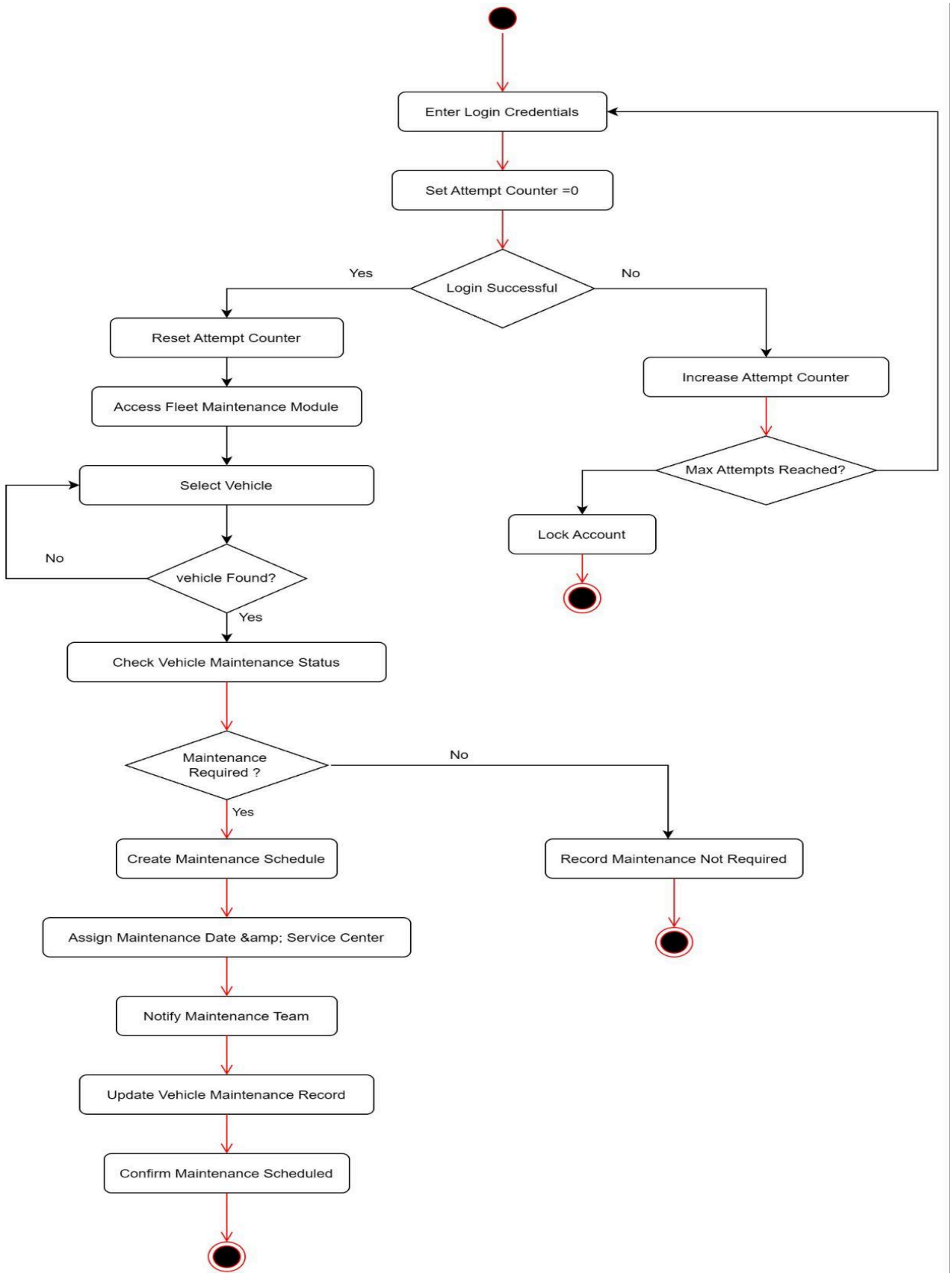
3.Delivery Request Submission:



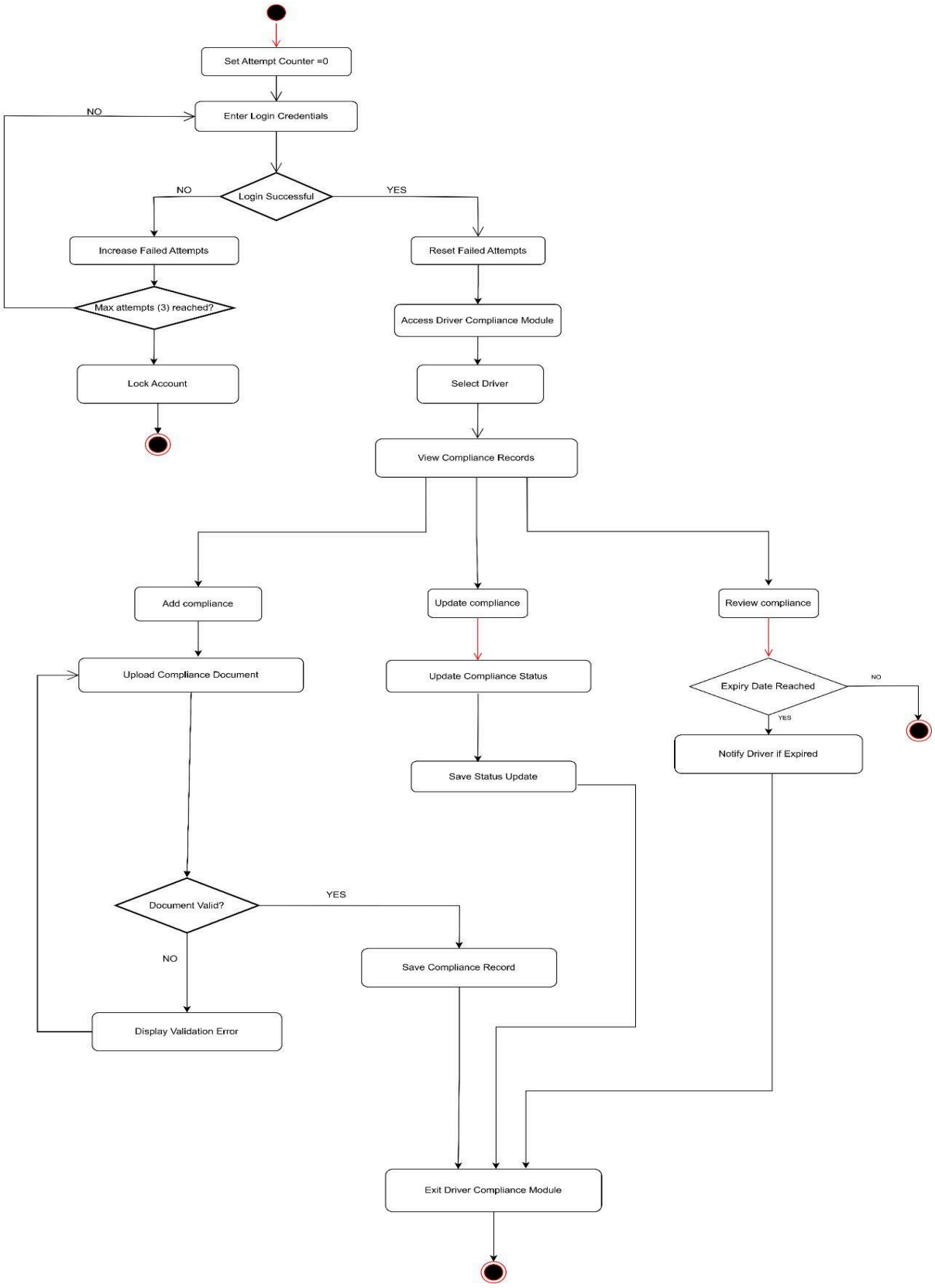
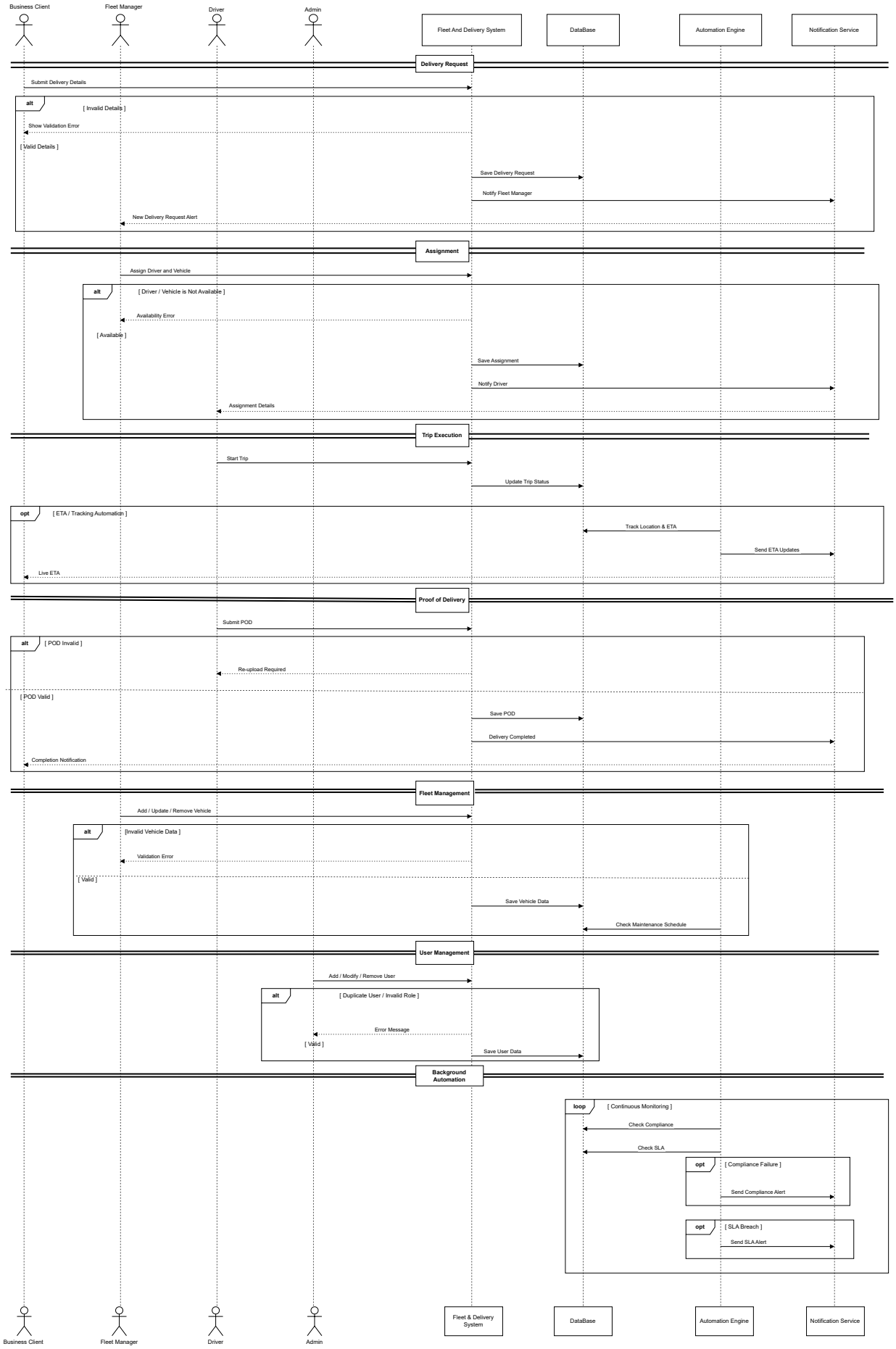
4.Manage Users:



5.Vehicle Maintenance Schedulling:



6.Manage Driver Compliance :



Sequence Diagram