YOOBEE

COLLEGE OF CREATIVE INNOVATION

Course

Professional Software Engineering

MSE800

Assessment 1

Object-Oriented Programming Assignment

Content

Design and Architecture

By

Carolyn Lau Yee Jie

270557243

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Introduction

This document provides an overview of the design and architecture of the Car Rental System. It includes UML diagrams that illustrate the structure and behaviour of the system.
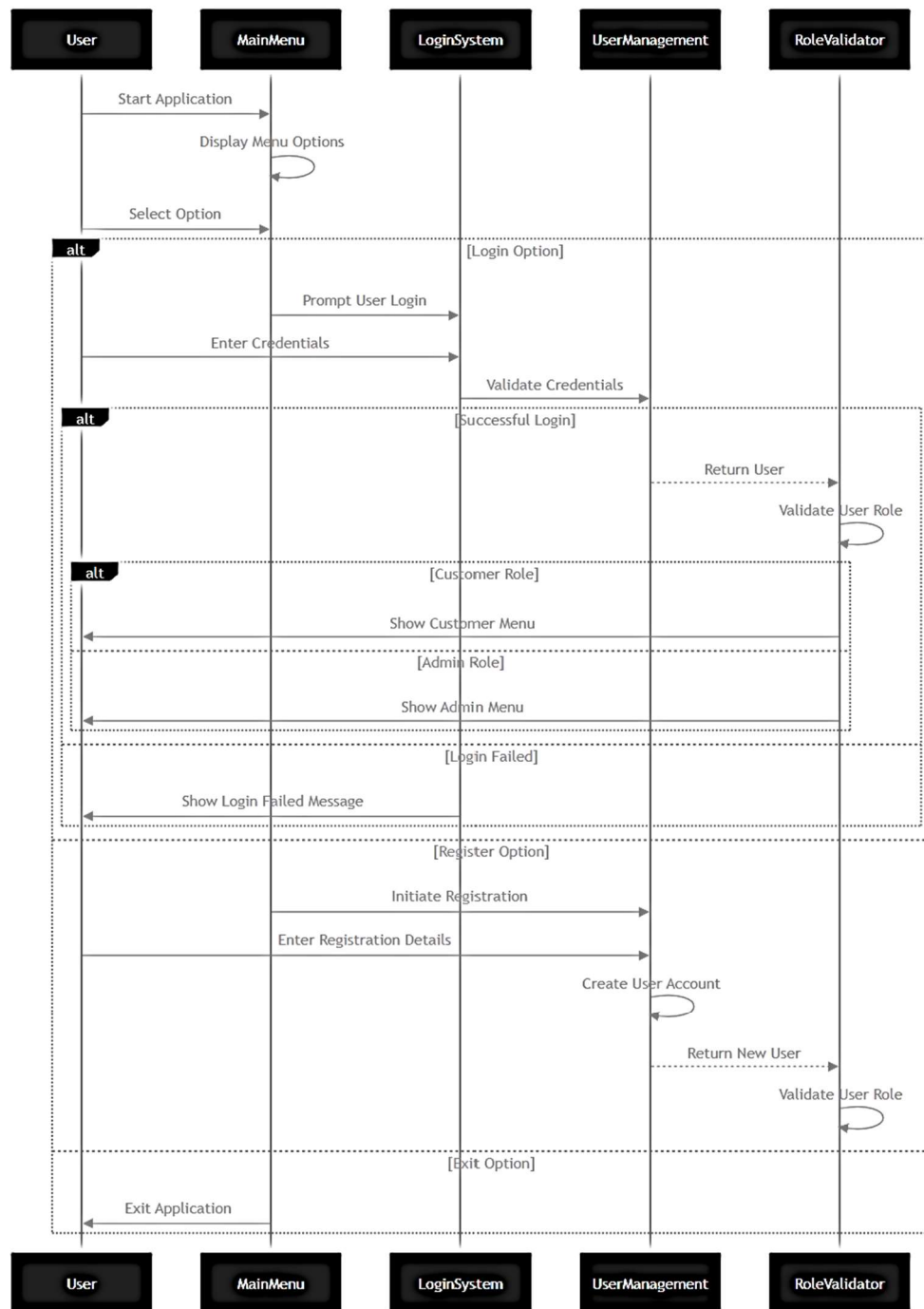
Class Diagram

The class diagram provides a static view of the system, showing the system's classes, their attributes, methods, and the relationships between the classes.
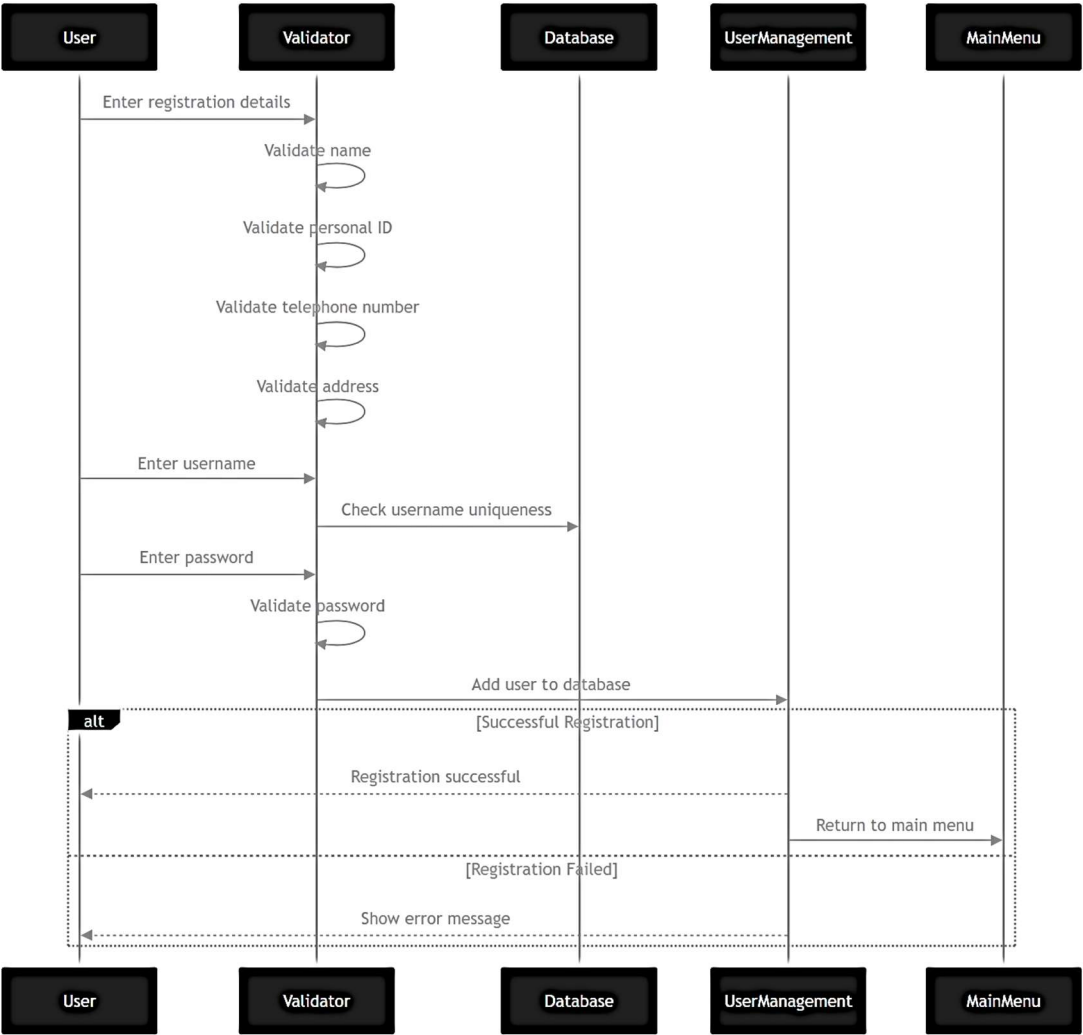
Sequence Diagram

The sequence diagram provides a dynamic view of the system, showing the interactions between objects in a particular scenario. Choose the functions or processes that are most important for understanding the system's behaviour from a user's or administrator's perspective.
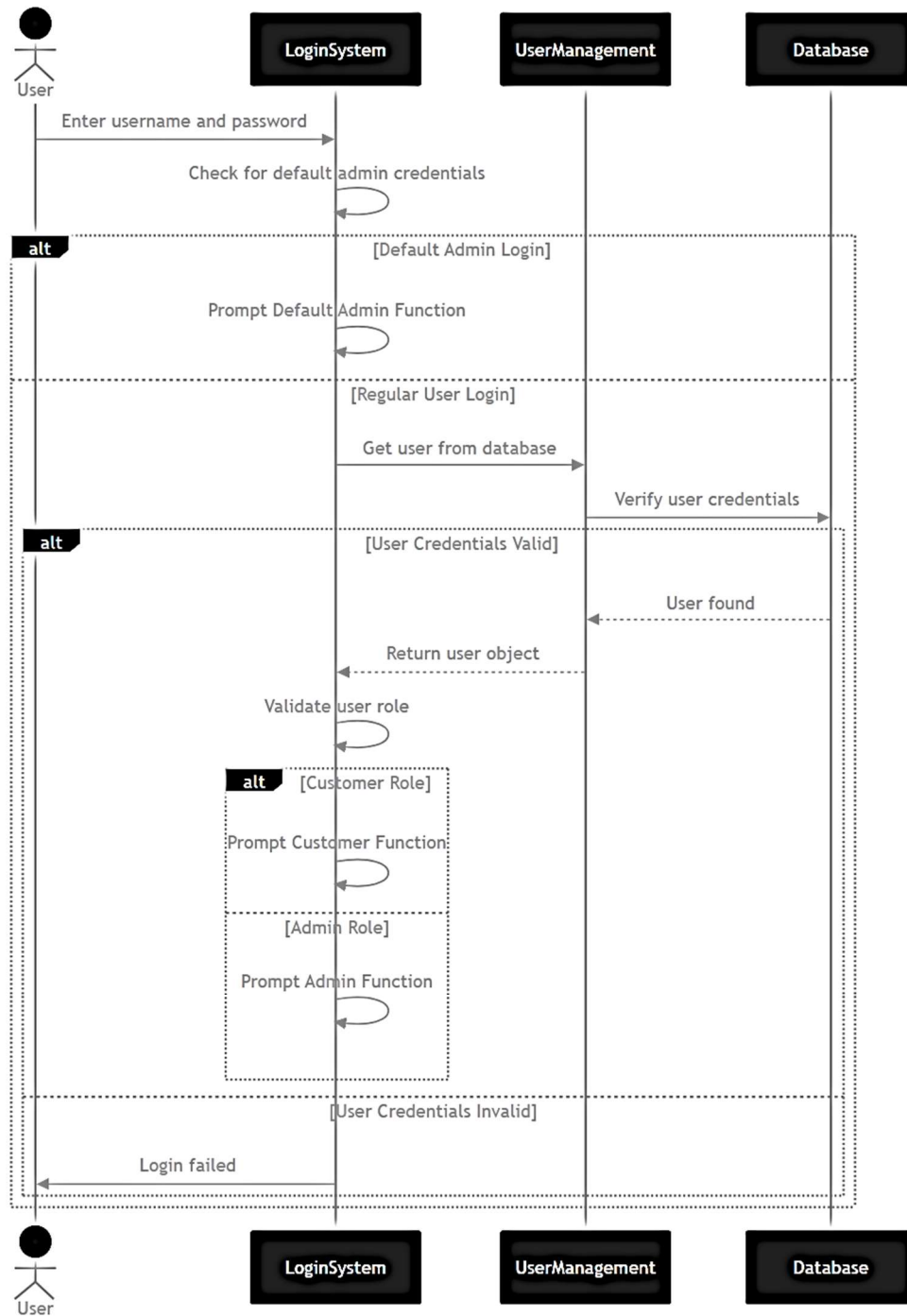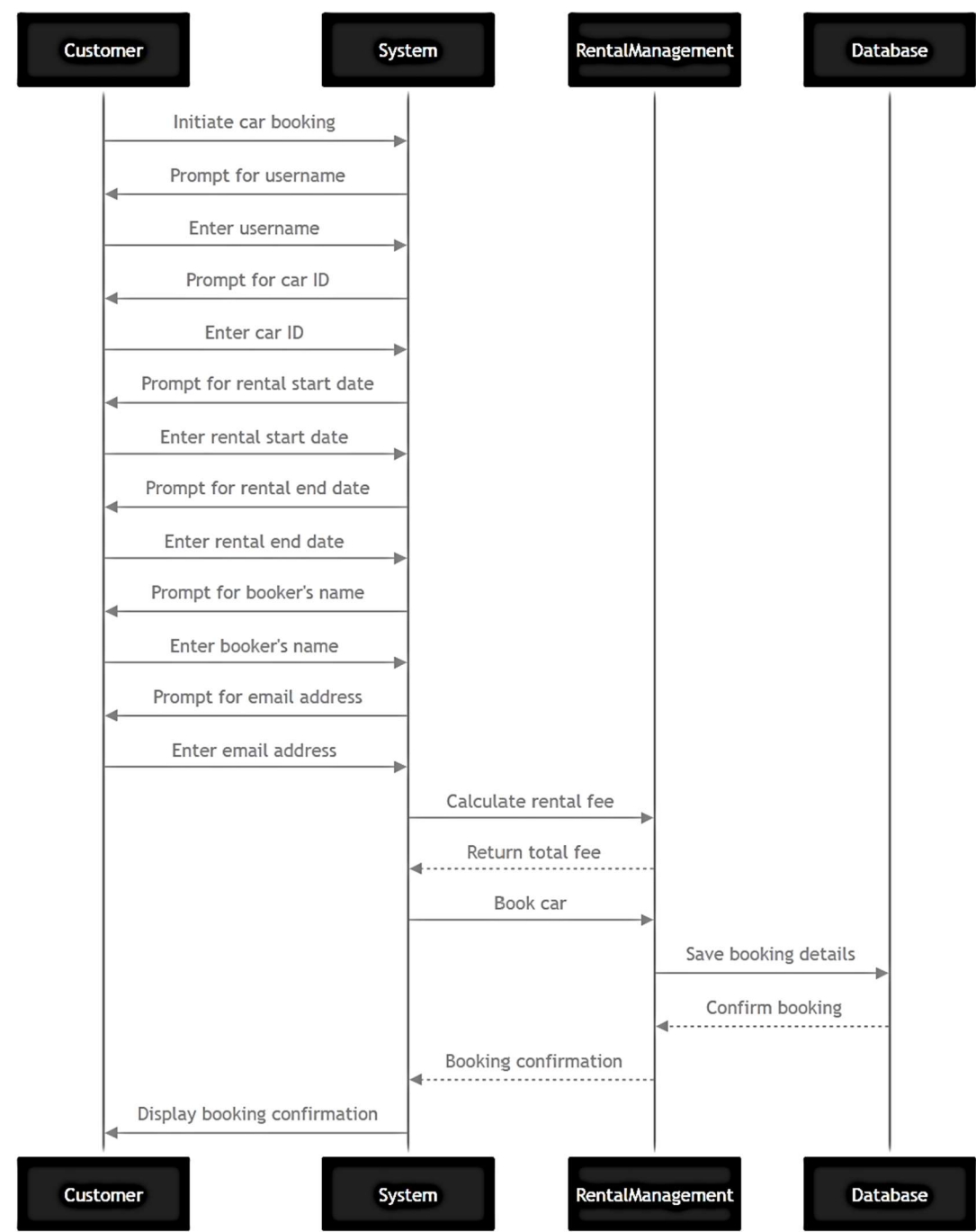
Sequence Diagram for Car Rental Service Main Menu Flow:
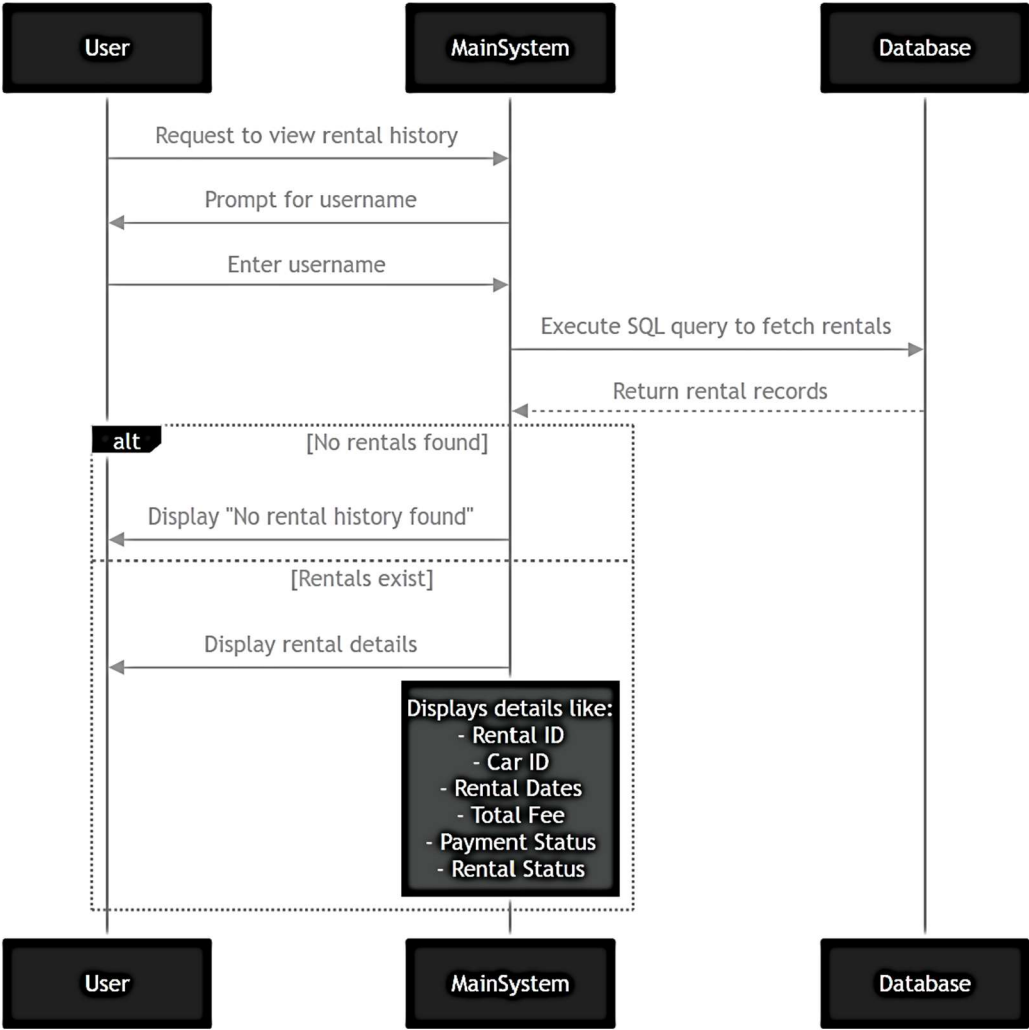
User Registration Sequence Diagram:
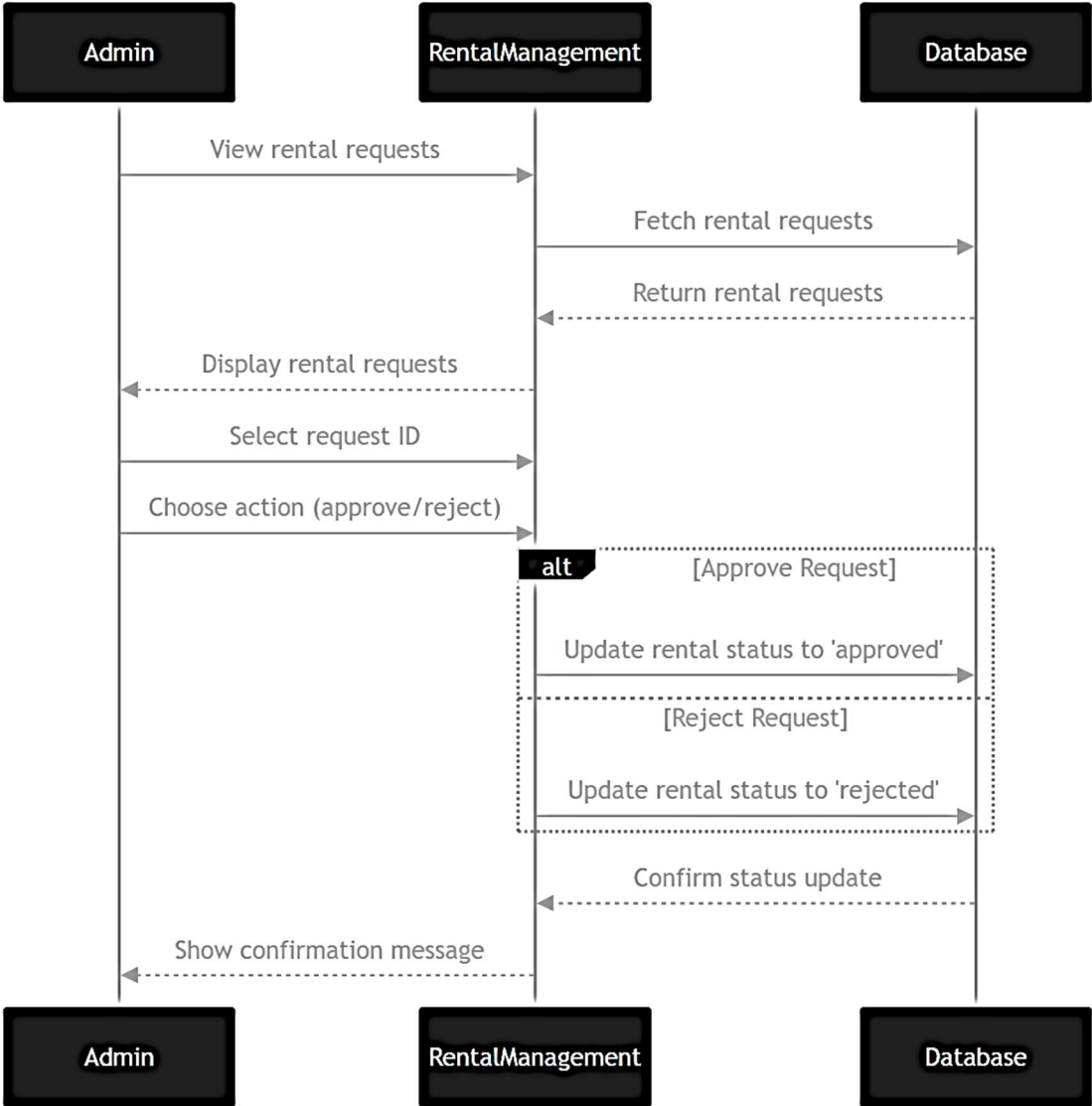
User Login Process Sequence Diagram:

Sequence Diagram for Car Booking Process:

Customer	System	RentalManagement	Database

Initiate car booking →

← Prompt for username

Enter username →

← Prompt for car ID

Enter car ID →

← Prompt for rental start date

Enter rental start date →

← Prompt for rental end date

Enter rental end date →

← Prompt for booker's name

Enter booker's name →

← Prompt for email address

Enter email address →

Calculate rental fee →

← Return total fee

Book car →

Save booking details →

← Confirm booking

← Booking confirmation

← Display booking confirmation

Customer	System	RentalManagement	Database

Sequence Diagram for Rental History Retrieval Process:

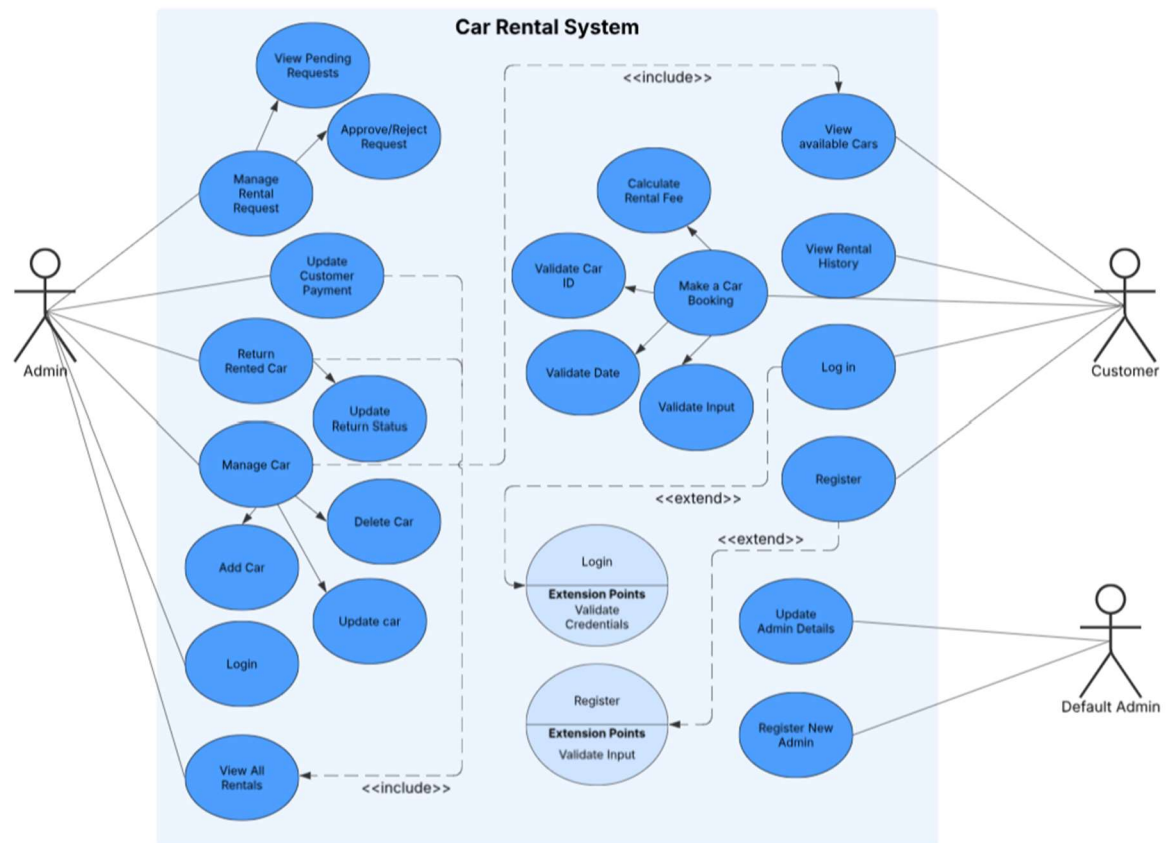# Sequence Diagram for Rental Request Management Process:

Use Case Diagram

The use case diagram provides a high-level view of the system, showing the interactions between users and the system's functionalities. The use case diagram represents the key functionalities of the car rental system from the user's perspective. Here's a breakdown:

- **Actors:**

  - Customer: Interacts with customer-related functions.

  - Admin: Performs administrative tasks.

  - DefaultAdmin: The initial admin account with specific privileges.

- **Use Cases (Customer):**

  - View Available Cars: Allows customers to see available cars.

  - View Rental History: Lets customers view their past rentals.

  - Make a Car Booking: Enables customers to book a car.

  - Login: For customer authentication.

  - Register: Allows new customers to register.

- **Use Cases (Admin):**

  - Manage Rental Requests: Allows admins to manage pending rental requests, including approving or rejecting them (Approve/Reject Request).

  - Update Customer Payment: Enables admins to update payment status for rentals.

  - Return Rented Car: Allows admins to process returned cars and update their status (Update Return Status).

  - Manage Cars: Includes adding, deleting, and updating car details (Add Car, Delete Car, Update Car Details).

  - Login: For admin authentication.

  - View All Rentals: Allows admins to view all rental records.

- **Use Cases (Default Admin):**

  - Update Admin Details: Allows the default admin to update their own details.

  - Register New Admin: Enables the default admin to register new admin accounts.

This diagram provides a high-level overview of the system's functionality without delving into implementation details. It focuses on *what* the system does from the user's point of view, making it useful for requirements gathering and communication with stakeholders.

Activity Diagram