Use Case: JP008 – Car Rental System

1. Introduction

This document contains the prerequisites for **CarLo**, which is a car rental system. The application operates through a website and aims to modernize the car rental process for customers while efficiently managing rentals for the car rental company's administrative tasks.

2. System Overview

The system consists of two main user categories:

- **Admin:** Manages the car inventory, approves customer rental requests, and performs CRUD (Create, Read, Update, Delete) operations on car details.

- **Customer:** Registers with the system, searches for available cars based on location and dates, books cars, and views booking details.

3. Functional Requirements

3.1 Admin Section:

- **Login:**
  - User login using username and password.
  - Secure password storage (SHA-12 encryption).

- **Car Management:**
  - Add car details (name, colour, plate number, price per day, location).
  - View a list of all cars with details.
  - Edit existing car details.
  - Delete car information from the system.

- **Booking Management:**
  - View a list of all pending customer booking requests.
  - Approve or reject individual booking requests.
  - View details of approved bookings.
  - View Payment History

3.2 Customer Section:

- **Registration:**
  - User registration with basic information (name, email, phone number).
  - Password creation with password strength requirements. (Minimum 8 characters)
  - Account confirmation through email verification.

- **Car Search:**
  - Search for available cars based on pickup location, preferred dates (from and to).
  - Search results should display car details like name, colour, price per day, and location.
  - Filter search results by car attributes (name, model, location, price range)
  - Provide option for hiring a driver.

- **Booking:**
  - Book a car by selecting it from the search results.
  - System generates a unique booking ID upon successful booking.
  - Option to modify or cancel booking before admin approval.

- **Booking Status:**
  - View booking details using the unique booking ID.
  - View booking status (pending, approved, rejected, cancelled).

3.3 Payment:

- Calculate the total rental cost based on the selected car and rental duration.
- Integrate with a secure online payment gateway for secure payment processing (UPI, Debit Card).
- Allow alternative payment methods like cash or inbuilt wallet.

3.4 Liability:

- Customers are liable for any damage caused for the vehicle unless they opt for insurance upon booking.

4. Non-Functional Requirements

- **Security:**
  - Secure user authentication and authorization.
  - Regular security checks and vulnerability assessments.

- **Performance:**
  - The system should be responsive and handle user requests efficiently.
  - Search results should be displayed quickly.

- **Scalability:**
  - The system should be able to accommodate future growth in user base and data volume. (MySQL)

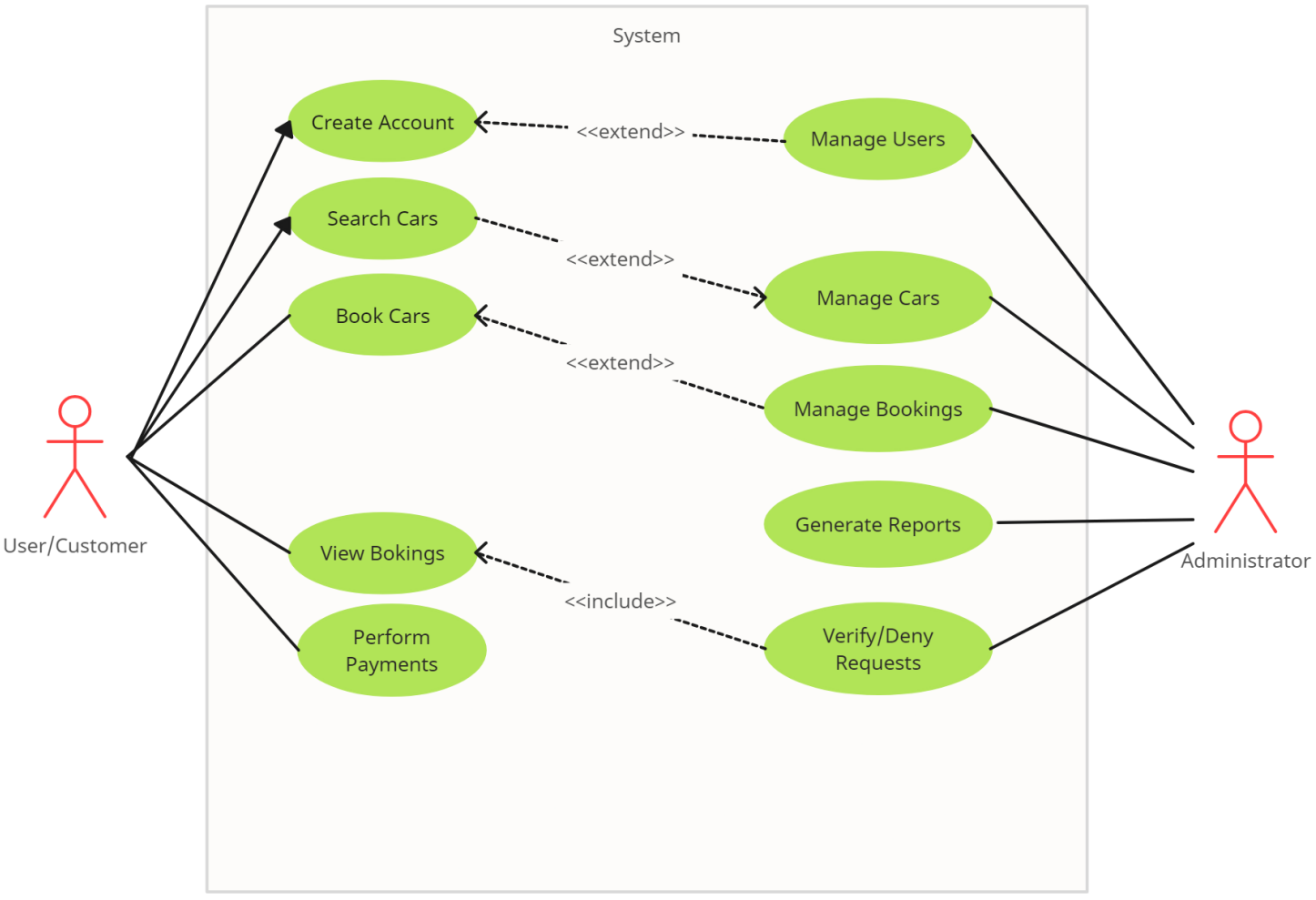
- **Usability:**
  - User-friendly interface with clear navigation and intuitive functionalities.
  - Responsive design for optimal viewing across different devices (desktop, mobile, tablet).

5. Additional Considerations

- **Notifications:** Send email or SMS notifications to users regarding booking status, payment confirmation, etc.
- **Customer Service:** Allow customers to report any issues or provide feedback regarding service.

6. Design and Ideate

6.1 Use Case Diagram:



6.2 Application Flow:

Admin

1. Login:

- Admin enters username and password on the special admin login page.
- System validates credentials against the user database.
- Upon successful login, the system redirects the admin to the **Admin Dashboard**.

2. Admin Dashboard:

- **User Management:**
  - View a list of existing users.
  - Create new user accounts with appropriate roles (admin, customer)
  - Edit existing user information.
  - Ban or delete user accounts.

- **Car Management:**
  - Add new cars to the system, including details like name, colour, plate number, price per day, location, and images (optional).
  - Edit existing car information (e.g., update price, add/remove images).
  - Deactivate or delete cars from the system if necessary.

- **Booking Management:**
  - View a list of all pending booking requests from customers.
  - Review each booking request, including car selection, rental dates, and customer details.
  - Approve or reject booking requests based on car availability and other criteria.
  - View details of approved and completed bookings, including cancellations.
- **Reporting (Optional):**
  - Generate reports on various aspects of the system, such as car rentals, revenue, user activity, and booking trends.

3. Logout: Admin logs Out

Customer

1. Home Page:

- Customers arrive at the homepage, showcasing the car rental service and potentially featuring key features.

2. Login/Register:

- Existing users:
  - Click on "Login" and enter their credentials (username/password) to access the system.
- New users:
  - Click on "Register" and create an account by providing basic information like name, email address, and password.

3. Customer Interface:

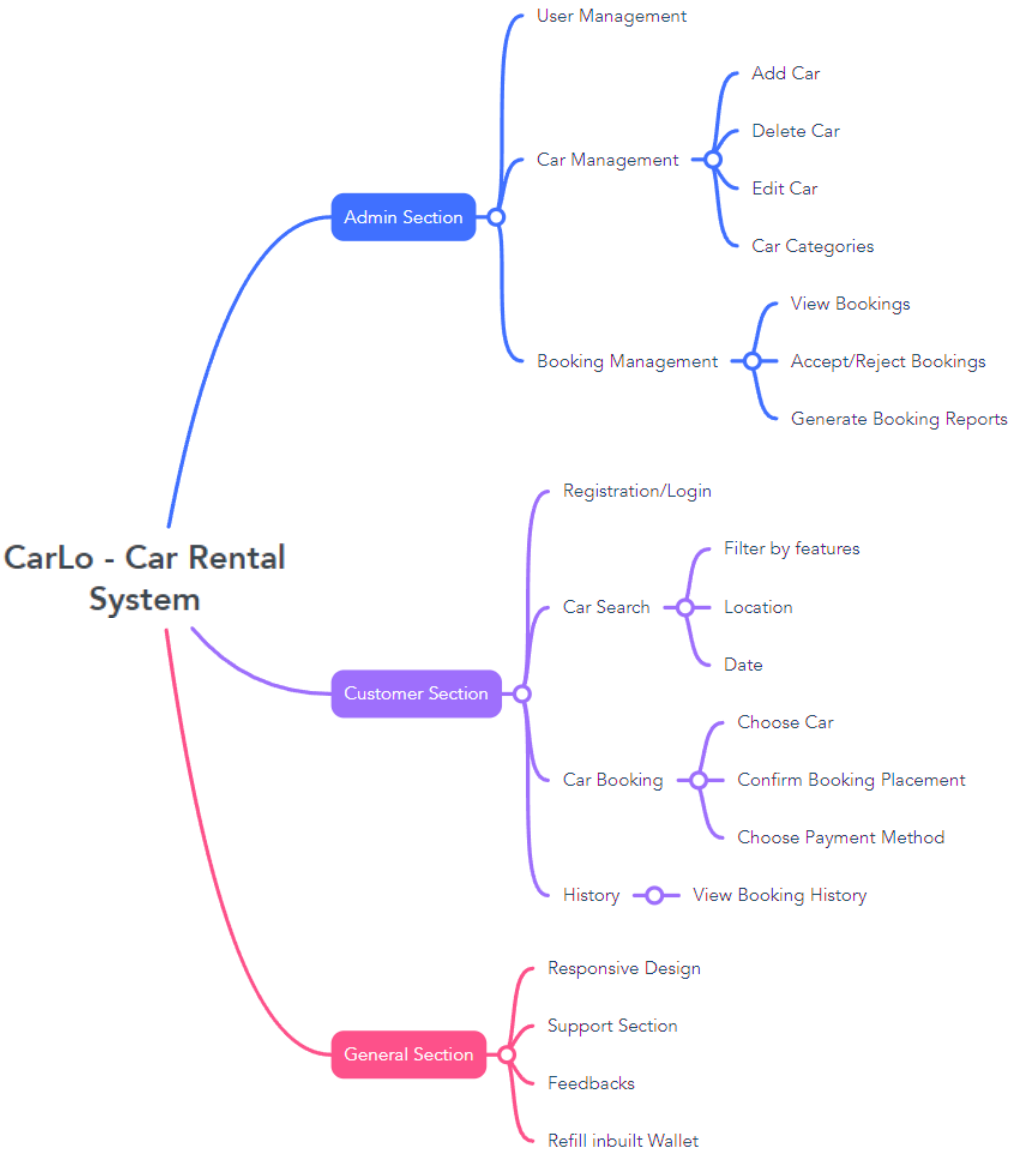
- **Search Cars:**
  - Enter preferred location and rental dates (from and to).
  - Optionally filter search results by car type, price range, etc.
  - View available cars with details like name, image, price per day, and location.
- **My Bookings:**
  - View a list of their current and past bookings, including:
    - Car information
    - Rental dates
    - Booking status (pending, approved, rejected, cancelled)
    - Total cost

4. Booking Process (Optional):

- Select a desired car from the search results.
- Review booking details and total estimated cost.
- The system may redirect the customer to a secure payment gateway or display alternative payment methods offered.
- Upon successful payment, the system confirms the reservation, generates a unique booking ID, and updates the "My Bookings" section.
- Customer receives notification of successful booking.

5. Logout: User logs out

6.3 Mind Map:


CarLo - Car Rental System
Admin Section
User Management
Car Management
Add Car
Delete Car
Edit Car
Car Categories
Booking Management
View Bookings
Accept/Reject Bookings
Generate Booking Reports
Customer Section
Registration/Login
Car Search
Filter by features
Location
Date
Car Booking
Choose Car
Confirm Booking Placement
Choose Payment Method
History
View Booking History
General Section
Responsive Design
Support Section
Feedbacks
Refill inbuilt Wallet