Kidus Zekarias
Kidus Adugna
Elias Desalegn
Yabsera Degu
Lidetu Fikadu

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Haramaya Univerisity
Harar, Ethiopia

OOP JAVA PROJECT: CAR RENTAL MANAGEMENT SYSTEM

Problem: Inefficiency and Lack of Automation in Manual Car Rental Systems

Manual car rental systems often face challenges related to inefficiency, time-consuming processes, and a lack of automation. These issues can lead to suboptimal customer experiences and operational inefficiencies for the rental service providers.

How the Project Would Solve Them:

1. **Reservation and Booking Automation:**
    - **Problem:** Manual systems may require customers to visit the rental office in person or make reservations over the phone, leading to delays and inconvenience.
    - **Solution:** The project could implement an online reservation and booking system. Customers can browse available cars, check availability, and make reservations through a user-friendly web interface. This reduces the need for in-person visits and streamlines the booking process.
2. **Automated Check-In/Check-Out Processes:**
    - **Problem:** Manual paperwork during the check-in and check-out processes can be time-consuming and prone to errors.
    - **Solution:** Implement automated check-in and check-out processes using technology such as RFID tags or mobile apps. Customers can use self-service kiosks or mobile apps to complete these processes, reducing waiting times and minimizing the likelihood of errors.
3. **Integrated Payment Systems:**
    - **Problem:** Manual systems may involve manual handling of payments, which can lead to delays and potential errors.
    - **Solution:** Integrate secure online payment systems into the project. Customers can make payments online during the reservation process or at the rental counter, enhancing the efficiency of financial transactions and providing a more convenient experience.
4. **Customer Relationship Management (CRM):**
    - **Problem:** Manual systems may lack a centralized customer database, making it challenging to manage customer information and preferences.
    - **Solution:** Implement a CRM system to centralize customer data. This allows the rental service to maintain customer profiles, track rental histories, and provide personalized services, enhancing customer satisfaction and loyalty.

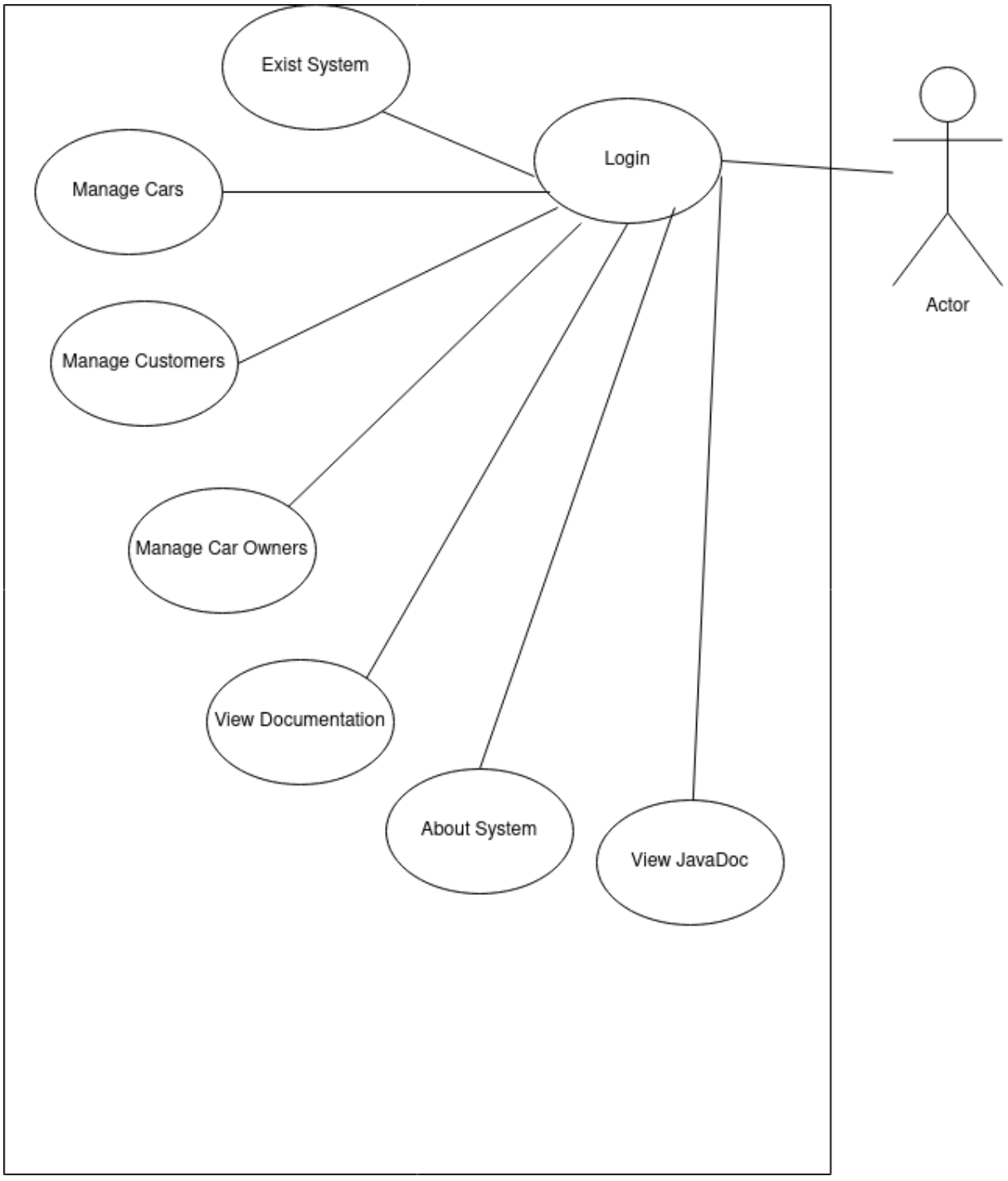
5. **Real-Time Reporting and Analytics:**
    - **Problem:** Manual systems may lack the ability to generate real-time reports on business performance and customer trends.
    - **Solution:** Integrate reporting and analytics tools into the project to provide insights into rental patterns, popular vehicle choices, and overall business performance. This enables data-driven decision-making and strategy optimization.

Entities:

1. **User (Actor):** Represents the user interacting with the system.
2. **CarRentalSystem:** Represents the main system.

Use Case Relationships:

1. **Exit System:**
    - **Actor:** User
    - **Use Case:** Exit
2. **Manage Cars:**
    - **Actor:** User
    - **Use Cases:**
        - Add Car
        - Update Car
        - Remove Car
        - View Booked Cars
        - View Unbooked Cars
3. **Manage Customers:**
    - **Actor:** User
    - **Use Cases:**
        - Add Customer
        - Update Customer
        - Remove Customer
4. **Manage Car Owners:**
    - **Actor:** User
    - **Use Cases:**
        - Add Car Owner
        - Update Car Owner
        - Remove Car Owner
5. **View Documentation:**
    - **Actor:** User
    - **Use Case:** View Documentation
6. **About System:**
    - **Actor:** User
    - **Use Case:** About
7. **View JavaDoc:**
    - **Actor:** User
    - **Use Case:** View JavaDoc



General Use Case of the system.