# Car Rental System Report.docx

**Submission date:** 01-Jun-2025 01:09PM (UTC+1200)

**Submission ID:** 2687954369

File name: Car\_Rental\_System\_Report.docx (2.05M)

Word count: 500

**Character count: 2795** 

### Car Rental System Report

When I first designed this car rental system, my goal was to create something simple yet practical - something that would actually work in real-world situations. It might not be the biggest or most complex system out there, but it has all the essential features a basic car rental service needs.

After checking out real car rental websites, I noticed two main ways people rent cars:

- 1. Book online and pay when you pick up the car
- 2. Book and pay completely online
  I went with the first option because implementing real payment systems would require bank integrations, so I used mock data for this part instead.

The system has six key components:

• User Manager - The brain behind user accounts. It handles:

Registration and login

Profile updates (like adding driver's license info)

Order management

Personal details storage

• Car Manager - Keeps track of our vehicle fleet. It's responsible for:

Adding/removing cars from the system

Updating car details (pricing, availability, specs)

Tracking which cars are currently rented

• Admin Manager - The control panel for staff. It enables:

Viewing all user accounts

Managing car listings

Moderating reviews

Processing special requests

• Order Manager - Handles the rental process end-to-end:

Creating new reservations

Calculating rental durations and costs

Managing pickup/return times

· Review Manager - Deals with customer feedback:

Posting new reviews

Calculating average ratings

Moderating inappropriate content

Showing/hiding reviews based on admin settings

• Database Handler - The foundation that keeps everything running:

Safely stores all system data

Handles connections between components

Uses singleton pattern to prevent multiple connections

Manages transactions and data integrity

I broke the project into three phases (with maybe an extra one if time allowed). Here's how it went:

#### Phase 1:

- Built the core database
- Created test data in main.py
- Made sure all five main components could access the database
- Implemented basic create/update functions

Then came a tough choice - should I use a framework for the frontend or stick with command line? After researching frameworks (which seemed too complex for this project), I decided on simple HTML/CSS/JS with Flask handling the backend. Frontend work definitely took some getting used to!

#### Phase 2:

Added login, registration, and car search

- Started building actual web pages (not my strongest skill, I'll admit)
- Implemented ordering, user profiles, order details, etc.
- As features piled up, the workload grew much bigger than expected some planned features had to be cut

#### **Final Phase:**

- Implemented singleton pattern for the database class
- Added admin functions
- Shifted focus to testing, bug fixes, and frontend tweaks rather than new features
- After submitting the first version, I had some additional time, so I added the admin manager frontend and the review functionality.

#### How to run it:

- 1. Install Flask (just run pip install flask in VS Code terminal)
- 2. Start the server with python app.py
- 3. Open your browser to: <a href="http://localhost:5000">http://localhost:5000</a>

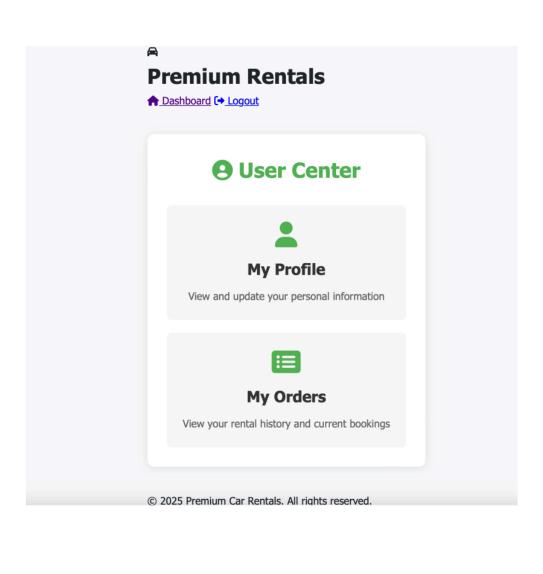
#### Test account:

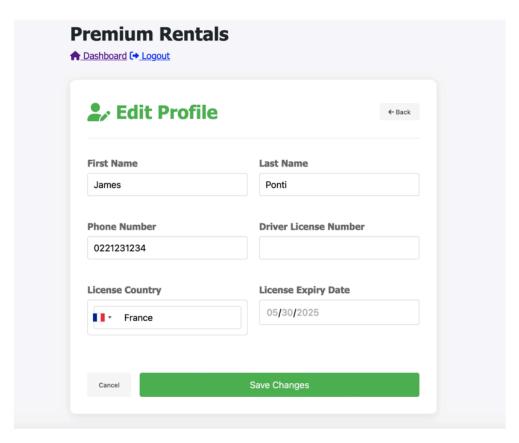
- Email: <u>test13@example.com</u>
- Password: test123 (Or register a new account)

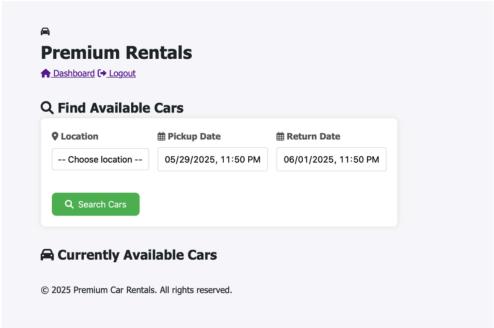
#### Admin login:

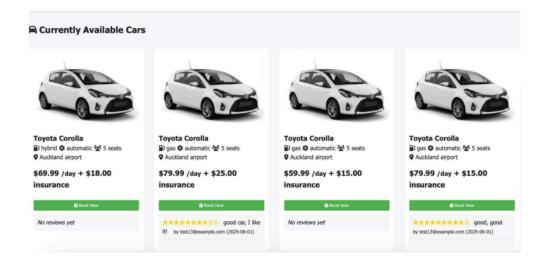
- Email: admin@premiumrentals.com
- Password: securepassword123

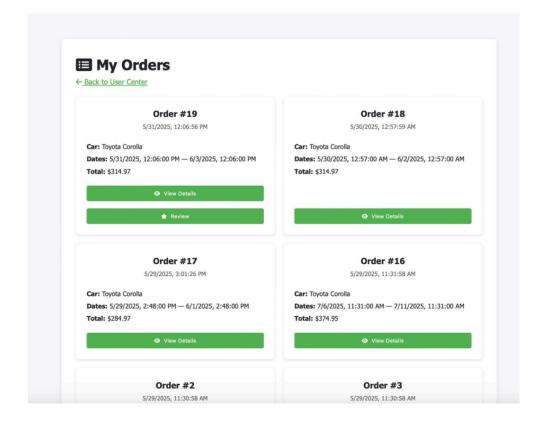
Below are screenshots of the main features' interfaces

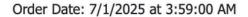














**Toyota Corolla** 







**Rental Details** 

Pickup Location: Auckland airport Pickup Date: 7/1/2025, 3:59:00 AM Return Date: 7/5/2025, 3:59:00 AM

**Duration:** 4 days

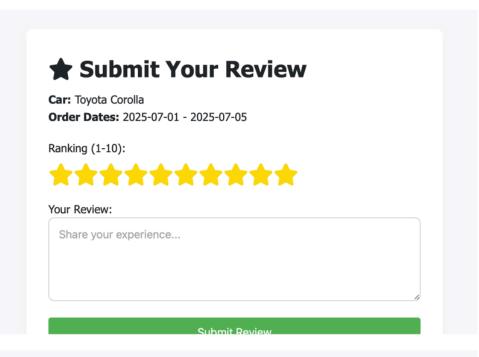
**Price Breakdown** 

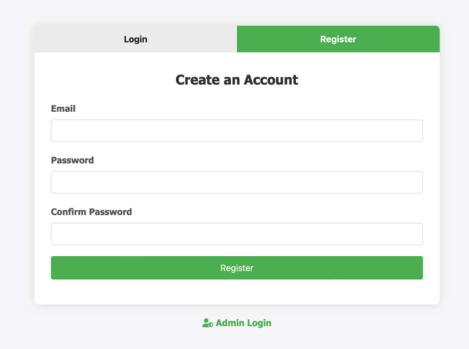
Base Rate: \$319.96 Insurance: \$60.00 Taxes & Fees: \$32.00

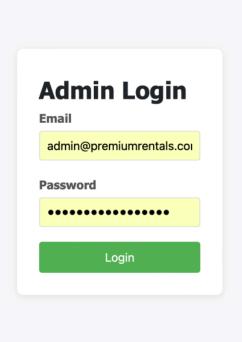
Total: \$417.96

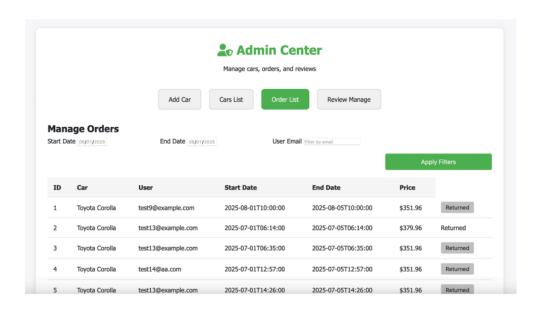


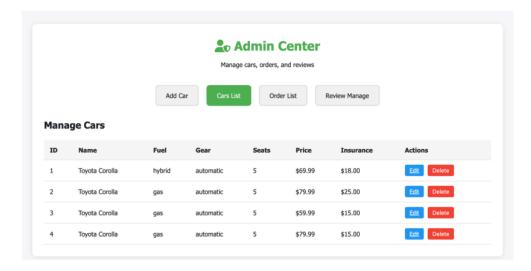
Back to User Center

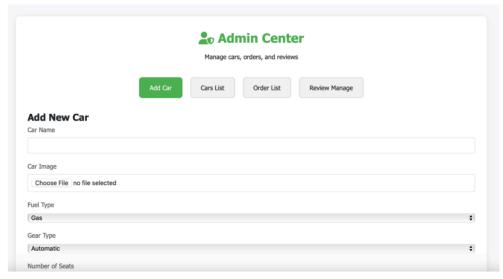


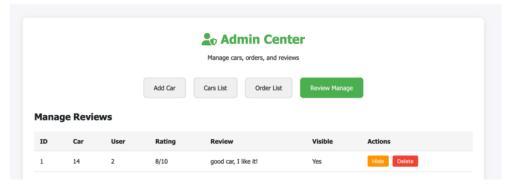












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