WHEELWAYS -CAR RENTAL MANAGEMENT SYSTEM

Submitted by: Scrum Master:

Abdul Raoof V A   Mrs. Gloriya Mathew

S3 RMCA-A   Assistant Professor

Roll No:01   Amal Jyothi College of Engineering

<u>ABSTRACT</u>

The Car Rental Management System (CRMS) is a comprehensive software solution designed to streamline and enhance the operations of car rental businesses. This system comprises three core modules: User, Admin, and Owner, each serving specific roles to ensure seamless interaction and efficient management within the car rental ecosystem.

A car rental management system is an autonomous system that will preserve the records of all the cars available, cars rented, etc. The user can rent a car based on its efficiency, performance, effort, or cost. The owner can make a lot of use of this system by providing the cars. The system also provides a market place for accessories.

The System also provides Drivers for the car if the User wishes

Key Features

- Easy Access to buyers
- Chart and Graph analysis of Car
- Multi-User Account System
- Invoice Management
- Monitoring the whole Car Management System
- Responsive User Interface
- Management of all type of users account
- Car report management
- Profile System
- Provides various accessories for cars

Modules:

User Module:

The User module is the front-facing component of the system, catering to customers looking to rent vehicles.

- **Vehicle Browsing**: Users can browse through a comprehensive list of available vehicles. They can filter the search based on criteria like vehicle type, brand, model, seating capacity, and more.

- **Vehicle Details**: Each vehicle listing includes detailed information such as vehicle specifications, images, rental rates, and availability status.

- **Reservation**: Users can initiate a reservation by selecting their desired vehicle, rental dates, and any additional services. The module checks availability in real-time and confirms the reservation if the vehicle is available.

- **Accessories**: Users can add their own car and purchase accessories that are suitable to their vehicle

- **Cancellation**: Users can Cancel the Reserved cars

- **Online Payment**: Users can securely make online payments using various payment methods. The system integrates with payment gateways to ensure seamless transactions.

- **Booking Management**: Users can view and manage their reservations, including modifying dates, cancelling bookings (subject to cancellation policies), and checking reservation status.

- **User Profiles**: Users can create and manage their profiles, which may include personal information, preferences, and past rental history.

- **Complaint Registration**: Users can complaint about the difficulties they have faced.

Admin Module:

The Admin module serves as the backbone of the system, offering robust tools for the car rental company's administrators to manage operations effectively. It provides a centralized control panel with comprehensive features, including:

- **Owner Management**: Administrator can add, edit, and remove vehicles and owners from the inventory. They can update vehicle details, specifications, and images.

- **Reporting and Analytics**: The module generates reports on rental statistics, revenue, occupancy rates, and more. These insights aid in making informed business decisions.

- **User Management**: Administrators can manage user accounts, including registrations, login credentials, and access permissions. They can also assist users with any issues they encounter.

- **Add Accessories**: Administrator can also add accessories or parts of a vehicle that are for sale. Administrator manages the payment done for accessories

Owner Module:

The Owner module are the ones who contribute vehicles to the rental fleet. It streamlines communication and coordination while maintaining accurate inventory records. Key features of the Owner module include:

- **Inventory Contribution**: Owners can list their vehicles on the platform, including vehicle specifications, availability, and rental rates. This expands the variety of vehicles available for customers.

- **Performance Metrics**: The module provides owners with insights into how their vehicles are performing in terms of bookings, revenue generation, and customer feedback.

- **Pricing and Policies**: owners can set and adjust rental rates based on factors such as vehicle type, rental duration, and seasonal variations. They can also configure rental policies, including insurance options, mileage limits, and security deposits.

- **Communication**: Users can interact with the car rental company through the system, addressing inquiries, discussing terms, and coordinating vehicle maintenance and servicing.

- **Inventory Management:** Dealers can arrange their cars on different basis like premium, budget, etc and offer different prices depending on the brand.

Driver Module:

Driver Profile Management:

The module allows car rental companies to maintain a database of registered drivers. Each driver has a dedicated profile with personal details, contact information, licensing credentials, and employment history.

Driver Ratings and Reviews:

Customers can provide feedback and ratings for the drivers they have used.

Driver Documents Verification:

Car rental companies can use the module to verify the validity of drivers' licenses, background checks, and other necessary documents. This ensures that only qualified and reliable drivers are engaged with customers.

Communication:

The module provides a platform for communication between customers, drivers, and car rental administrators.

Mini Project: Car Rental Management System

Modules:

User Module:

The User module is the front-facing component of the system, catering to customers looking to rent vehicles. Users can Register their profiles or login to the system using their credentials. Some of the features that can be used by the users are

- **Vehicle Browsing**: Users can browse through a comprehensive list of available vehicles. They can filter the search based on criteria like vehicle type, brand, model, seating capacity, and more.

- **Vehicle Details**: Each vehicle listing includes detailed information such as vehicle specifications, images, rental rates, and availability status.

- **Reservation**: Users can initiate a reservation by selecting their desired vehicle, rental dates, and any additional services. The module checks availability in real-time and confirms the reservation if the vehicle is available.

- **Cancellation**: Users can Cancel the Reserved cars

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- **User Profiles**: Users can create and manage their profiles, which may include personal information, preferences, and past rental history

- **Complaint Registration**: Users can complaint about the difficulties they have faced

Admin Module:

- **Vehicle Management**: Administrators can add, edit, and remove vehicles from the inventory. They can update vehicle details, specifications.

- **User Management**: Administrators can manage user accounts, including registrations, login credentials, and access permissions. They can also assist users with any issues they encounter.

Owner Module:

The Owner module are the ones who contribute vehicles to the rental fleet. It streamlines communication and coordination while maintaining accurate inventory records.The owner registers and submit the license and legal permit of rental to the admin, Key features of the Owner module include:

- **Inventory Contribution**: Owners can list their vehicles on the platform, including vehicle specifications, availability, and rental rates. This expands the variety of vehicles available for customers.

- **Pricing and Policies**: owners can set and adjust rental rates based on factors such as vehicle type, rental duration, and seasonal variations. They can also configure rental policies, including insurance options, mileage limits, and security deposits.

- **Communication:** Users can interact with the car rental company through the system, addressing inquiries, discussing terms, and coordinating vehicle maintenance and servicing

- **Special Requirements:** Provides a section where users can mention special requests or requirements, such as a child seat or wheelchair accessibility.

Main Project: Car Rental Management System

User Module:

- User can add drivers if they wish, based on their ratings.

Accessories section :

- Users can also add their own car so that they can buy accessories available on the store.
- User can buy certain accessories according to their preference using suggestive functionalities given by the website.

Admin Module:

- Reporting and Analytics: The module generates reports on rental statistics, revenue, occupancy rates, and more. These insights aid in making informed business decisions.
- It also generates the reports on the accessories that are sold on the system.

Owner Module:

- **Performance Metrics**: The module provides owners with insights into how their vehicles are performing in terms of bookings, revenue generation, and customer feedback

Driver Module:

Driver Profile Management:

The module allows car rental companies to maintain a database of registered drivers. Each driver has a dedicated profile with personal details, contact information, licensing credentials, and employment history.

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Driver Documents Verification:

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Communication:

The module provides a platform for communication between customers, drivers, and car rental administrators.

Technologies to be implemented:

- 360 panorama view (A R) of cars and Accessories
- Chatbot
- Analysing the performance of car using ratings provided by the users (ML)
- Suitable Accessories for the car provided by the user

SOFTWARE SPECIFICATIONS:

Front End: React

Back end: Python

REFERENCES:

https://www.avis.co.in/

https://www.rentalcars.com/us/