CAR RENTAL PORTAL
ONLINE CAR RENTAL SYSTEM

A PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE AWARD OF THE DEGREE

MASTER OF COMPUTER APPLICATIONS (MCA)

OF

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

BY

AMALA ROSE SEBASTIAN
Reg No: 22PMC109

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Under the guidance of

Mr SATHEESH KUMAR S
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PG DEPARTMENT OF COMPUTER APPLICATIONS

Marian College Kuttikkanam Autonomous

MAHATMA GANDHI UNIVERSITY, KOTTAYAM

KUTTIKKANAM – 685 531, KERALA.

CERTIFICATE

This is to certify that the project work entitled

CAR RENTAL PORTAL

is a bonafide record of work done by

AMALA ROSE SEBASTIAN

Reg. No. 22PMC109

In partial fulfillment of the requirements for the award of Degree of

MASTER OF COMPUTER APPLICATIONS [MCA]

During the academic year 2022-2023

Mr. Satheesh Kumar S
Assistant Professor
PG Department of Computer Applications
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External Examiner

External Examiner

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AMALA ROSE SEBASTIAN

ABSTRACT OF CAR RENTAL PORTAL

This project is designed so as to be used by Car Rental Company specializing in renting cars to customers. It is an online system through which customers can view available cars, register, view profile and book car. The advancement in Information Technology and internet penetration has greatly enhanced various business processes and communication between companies (services provider) and their customers of which car rental industry is not left out.

Customers will be able to reserve their vehicles from anywhere in the world due to the Car Rental System. Consumers provide information to this application by filling in their personal information. When a consumer creates an account on the website, he or she can reserve a car. The proposed system is an online system that is fully integrated. It effectively and efficiently automates manual procedures. Customers are aided by this automated method, which allows them to fill in the specifics according to their needs. It contains information on the sort of car they want to hire as well as the location. The goal of this system is to create a website where customers can book their automobiles and request services from anywhere in the world.

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1. INTRODUCTION

1.1 Problem Statements

The Manual car rental system provides services only during office hours.So customers have limited time to make any transactions or reservation of the cars. The existence of online car rental systems nowadays has overcome the limitation of the business operation hour. However there is still a few numbers of these online car rental systems in Malaysia and most of the systems offered reservation service for tourists or traveler. Besides that, there are some customers who faced a problem in choosing car to be rented which suitable with some of the important requirementsts.

1. To rent a car a prospective renter must first go to the nearest office to register as a client.

2. Cars that provide difficulties to rent out are normally advertised in local or national newspaper. Itt involves a lot of paper work and consumes time.

1.2 Proposed System

Online Car Rental System project is designed to aid the car rental company to enable renting of cars through an online system. It helps the users to search for available cars view profile and book the cars for the time period. It has a user-friendly interface which helps the user to check for cars and rent them for the period specified. They could also make payment online. The rental cars shall be categorized into economy, premium etc. Based on the type of car required by the customer, the user shall be able to make bookings. The use of internet technology has made it easy for the customers to rent a car any time. This Car Rental System makes the bookings easy. It saves time and labor. The tool shall ask the user for information such as the date and time of journey, type of car etc. Also, it will need an identification number. Using these details, the tool shall help the customer to book a car for the journey.

1.3 Features of the Project

1. The car rental system is simple, user-friendly, and can be easily integrated with the existing system.
2. Highly Secure, Scalable & Reliable**.**
3. Provides high level of security with different level of authentication
4. Time for appoints and booking will be reduced.

2. FUNCTIONAL REQUIREMENTS

FUNCTIONAL REQUIREMENTS

Car rental system is divided into two modules:

1. User Module
2. Admin Module

User Module details:

1. View and book Available Cars

It is a system design especially for large, premium and small car rental business. The user can view available cars and book the car for rent according to their wish. All the features of the car along with rent per day is provided.

2. View car Booking details

The user can view available cars and can book the car desired from the list of available cars.

3. Give query

The customer could give feedback and necessary queries to the admin.

Admin Module details:

1. Dashboard

In this section, admin can view the overview of the car rental(Like total vehicles, total booking, brands enquiry)

2. Vehicle brand

Admin can add/edit/delete vehicle brands

3. Vehicle

Admin can add the car so that the user could see the available cars and book them.Admin can also edit and delete the car.

4. Bookings

Admin can manage the bookings(confirm and cancel the booking)

5. Manage query

Admin could view, solve and delete the contact query sent by the customers

6. Registered users

Admin can view the registered users.

3. NON-FUNCTIONAL REQUIREMENTS

NON-FUNCTIONAL REQUIREMENTS

a. Reliability

The reliability of the overall project depends on the reliability of the separate components. The main pillar of reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes, Also the system will be functioning inside a container. Thus, the overall stability of the system depends on the stability of container and its underlying operating system.

b. Availability

The system should be available at all times, meaning the user can access it using a web browser, only restricted by the down time of the server on which the system runs. A customer friendly system which is accessible for peoplearound the world should work 24 hours. In case of a hardware failure or database corruption, a replacement page will be shown. Also, in case of a hardware failure or database corruption, backup of the database shouldbe retrieved from the server and saved by the Organizer. Then the services will be restarted. It means 24 X 7 availability.

c. Maintainability

A commercial database is used for maintaining the database and the application server takes care of the site. In case of a failure, a re-initialization of the project will be done. Also, the software design is being done withmodularity in mind so that maintainability can be done efficiently.

d. Supportability

The code and supporting modules of the system will be well-documented and easy to understand. Online documentation can in help system requirements.

4. FEATURES AND HIGHLIGHTS

4.1 Features

1. Easy Booking

This is, obviously, the most basic and the most important of the core requirements. The booking system is the heart and soul of the car rental website; that it should have a user-friendly booking interface is a given. This includes a clear descriptions of various car types available, separate pricing plans for members, special offers, the corresponding fare, easy date and time picking options.

2. Recommendations and User Feedback

Adding a personal touch over and above the dry, factual content of the available cars and fares can be done using recommendations. Set up templates and featured displays for first-time and recurring users that highlight recommended travel booking plans. This can be generalized for newbies based on their requirements, such as long distance journeys, local attractions, and so on.

3. Communication and Updates

As a part of the service industry, ensuring regular communication and vehicle updates on the car rental website is necessary. Customers appreciate being kept in the loop from the moment they book the cab to the final drop-off. Auto-responders can be set up to this end that inform users about the status of their car and provide tracking options for the same. Alternatively, personalized emails can also be sent, as and when necessary.

4. Reservations Management

One of the top functions of vehicle booking software is that it helps you manage all your reservations. There is nothing worse than renting a car to a customer and finding out that you don't have a vehicle when that person arrives at your shop. If a customer makes a reservation and you cannot honor it, that individual will likely never take a chance on you again. You also risk that customer writing negative reviews about your company online, which can keep other customers from booking with you.

There is always a need of a system that will provide a way to getting a rental car that can be used temporarily for a specified period.

Getting a rental car helps people get around despite the fact they do not have access to their own personal vehicle or don't own a vehicle at all. The individual who needs a car must contact a rental car company and contract out for a vehicle. This system increases customer retention and simplify vehicle and staff management.

Thus, there is a big need of developing online car rental system is to computerized the traditional way of getting car on rent. Another need for developing this application is to generate the report automatically.

- The new system is totally computerized system.
- A new system provides features like time efficiency to show car details, user profiles and whatever the customer will give the feedback to the admin.
- An inquiry is easily done by user in the system.
- It is the most software application for managing online car rental business.

The advancement in Information Technology and internet penetration has greatly enhanced various business processes and communication between companies (services provider) and their customers of which car rental industry is not left out. This Car Rental System is developed to provide the following services:

- Enhance Business Processes: To be able to use internet technology to project the rental company to the global world instead of limiting their services to their local domain alone, thus increase their return on investment (ROI).
- Online Vehicle Reservation: A tools through which customers can reserve available cars online prior to their expected pick-up date or time.
- Customer’s registration: A registration portal to hold customer’s details, monitor their transaction and used same to offer better and improve services to them.

Car Rental System project is developed as a web application and it will work over web. The project has a wide scope, as it is not intended to a particular organization. This project is going to develop generic software, which can be applied by any businesses organization. More over it provides facility to its users. Also the software is going to provide a huge amount of summary data.

5.TECHNICAL ASPECTS

Architecture of Project

1. Presentation Layer

Templates: HTML templates are used to define the structure and layout of the user interface. Django's template engine allows you to dynamically populate the templates with data.

2. Application Layer

Controllers: In Django, controllers are implemented as views, which handle the request/response flow and control the overall behavior of the application.

3. Business Logic Layer

Models: Django's models define the data structure and business logic of the application. Models represent entities like users, bookings, flights, hotels, etc. They handle database operations, such as querying, inserting, updating, and deleting data. Models can also include methods to perform complex business logic.

4. Jazmin

Django Jazmin is a customizable and modern admin interface for Django applications. It provides an alternative user interface for the Django admin site with a more visually appealing design and additional features. Jazmin aims to enhance the user experience and improve the productivity of developers working with Django.

By installing and configuring django-jazzmin in your Django project, you can customize the admin interface by changing themes, layouts, icons, and other visual elements. It offers features such as responsive design, drag-and-drop sorting, inline editing, and support for various third-party Django packages. To use Django Jazzmin, you typically need to install it using a package manager like pip, add it to your Django project's settings, and configure it according to your preferences.

Here's a basic example of how to install Django Jazzmin using pip:

pip install django-jazzmin

Once installed, you would need to add 'jazzmin' to the INSTALLED_APPS list in your Django project's settings.py file:

INSTALLED_APPS = [

…

'jazzmin',

…

]

Afterwards you can customize Django Jazzmin by modifying the settings in your Django project's settings.py file.

5. Data Access Layer

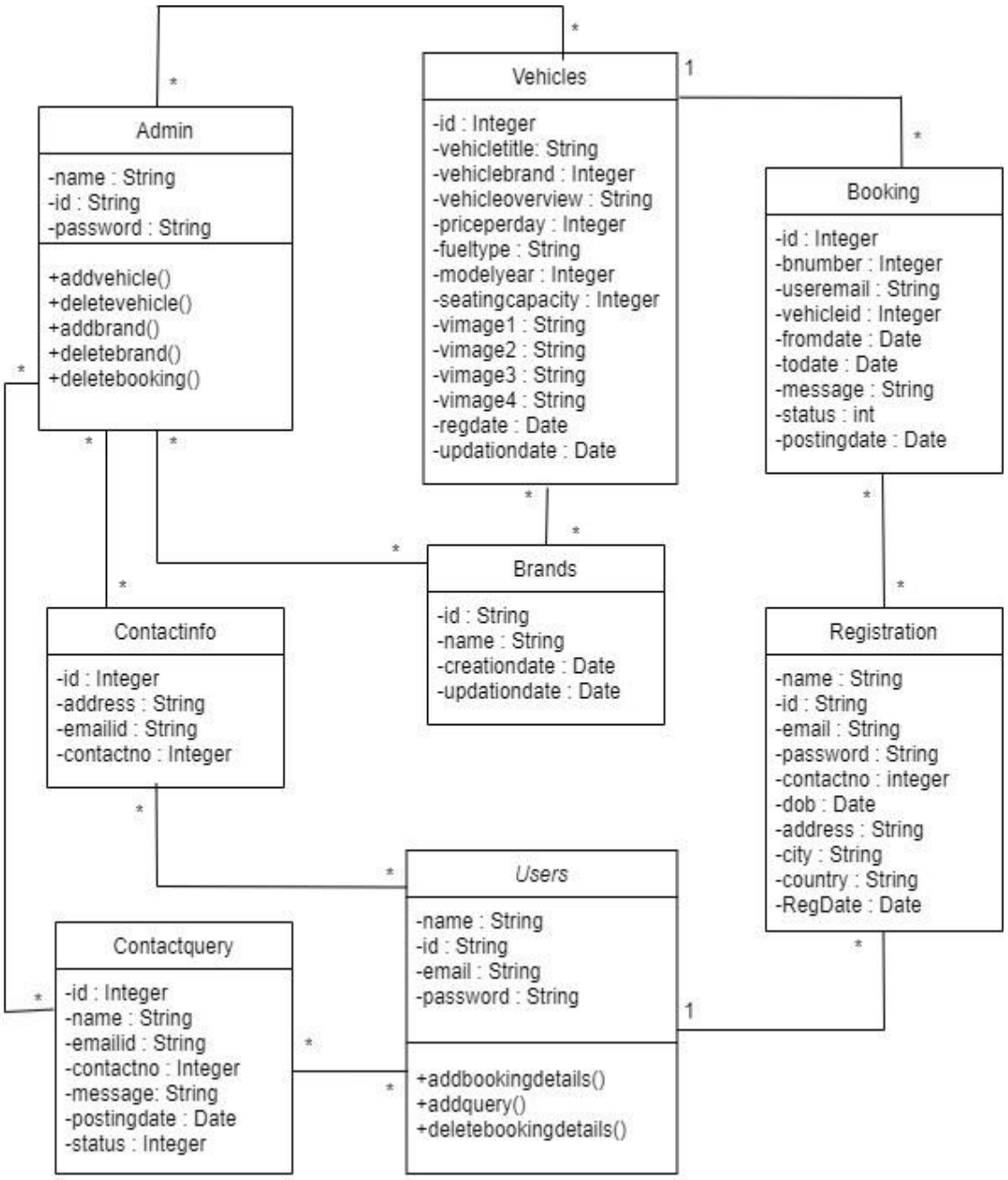
Database: Django integrates with various databases, allowing you to define and manage the application's data schema. You can use Django's Object-Relational Mapping(ORM) to interact with the database and perform CRUD operations.

6. Database Models

Django's models serve as both business logic entities and database models. They define the structure of the database tables and provide an abstraction layer for interacting with the database .

Database

Class Diagram



6 . CHALLEGES

1. User Experience and Design

Designing an intuitive and user-friendly interface for users and administrators is crucial. Ensuring a smooth user experience, from search and booking to manage details and submitting expenses, can be challenging, particularly dealing with complex workflows and large data sets.

2. Real-time Availability and Pricing

Fetching real-time availability and pricing information for rental services from external providers can be challenging. Dealing with rate limits, handling concurrency, and caching strategies are considerations for ensuring timely and accurate information.

3. User Authentication and Authorization

Car Rental Management software typically requires user registration, login, and role-based access control. Implementing secure authentication and authorization mechanisms can be complex, especially when dealing with user roles and permissions.

4. Validation Mechanisms

Implementing validation mechanisms helps ensure that user input is accurate and consistent. You need to validate user data at various stages, such as during registration, booking, or updating information. Validation can include for checking validation in email, phone number, password, pin number etc.

5. Database Management

Designing an efficient database schema and managing the database operations can be complex. You need to carefully plan the structure of your database, define relationships between entities handle data integrity, and optimize queries for performance.

7.FUTURE ENHANCEMENTS

1. Quick and Secure Payments

The website needs integrated, secure payment gateways that let users complete transactions quickly, in a hassle-free manner. For aggregator models, it is possible to offer optional cash collections, where the user pays the cab driver directly upon fulfilment of the journey; the company takes its cut as part of the commission from the driver.

2. Social Media Integration

The social media sites are one of the most popular means of sharing experiences for users; Facebook, Twitter, Instagram are literally global marketing platforms. Taking advantage of this, you can integrate your website with these social networking sites, which lets the users post their opinions here.

3. Location-based Rentals

A good quality software will allow the bookings based on the location of the fleet. This will help you save resources, time as well as maintain the vehicle.

4. Multi-language Support

When you reach out to customers in a language that they are comfortable, greater are chances for client satisfaction. Also more the language the greater is the audience base. Ensure that the software is compatible with at least a few of the languages that are more prevalent in the area. Basic information like car model, type, price range should be available in multiple languages.

8.CONCLUSION

The project is designed to help people utilize transport effectively. In recent times cars have become the most convenient modes of transportation. Our Car rental System helps in making this an easier, hassle-free and enjoyable experience to acquire and use a car as per ones needs. A person can book a car specifically for his travel time, co-travellers and the nature of travel. The rental system traverses from designing a database to understanding business concept and above all to make this an easy to adapt system for various travelling needs.

Car rental is a vehicle that can be used temporarily for a fee during a specified period. Getting a rental car helps people get around despite the fact they do not have access to their own personal vehicle or don't own a vehicle at all. The individual who needs a car must contact a rental car company and contract out for a vehicle. This system increases customer retention and simplify vehicle and staff management.

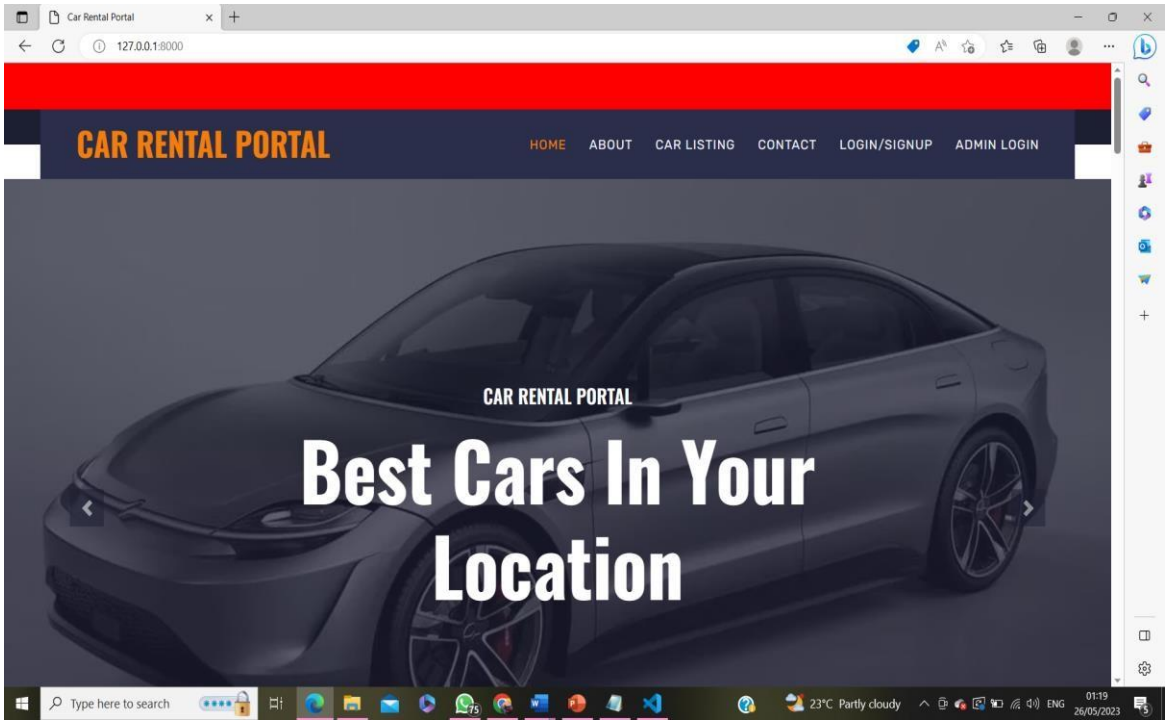
9.REFERENCES

- https://youtube.com/playlist?list=PL-51WBLyFTg2vW-_6XBoUpE7vpmoR3ztO
- https://docs.djangoproject.com/en/4.1/intro/tutorial01/
- getbootstrap.com

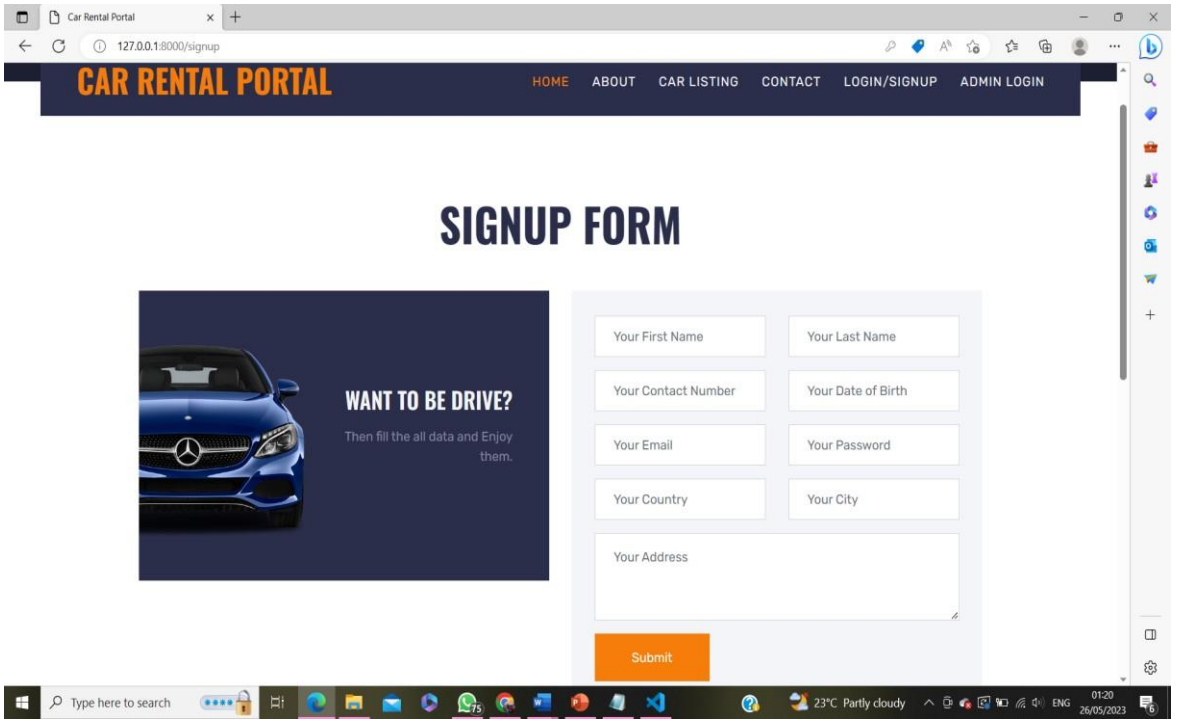
ANNEXURE

A. SCREENSHOTS

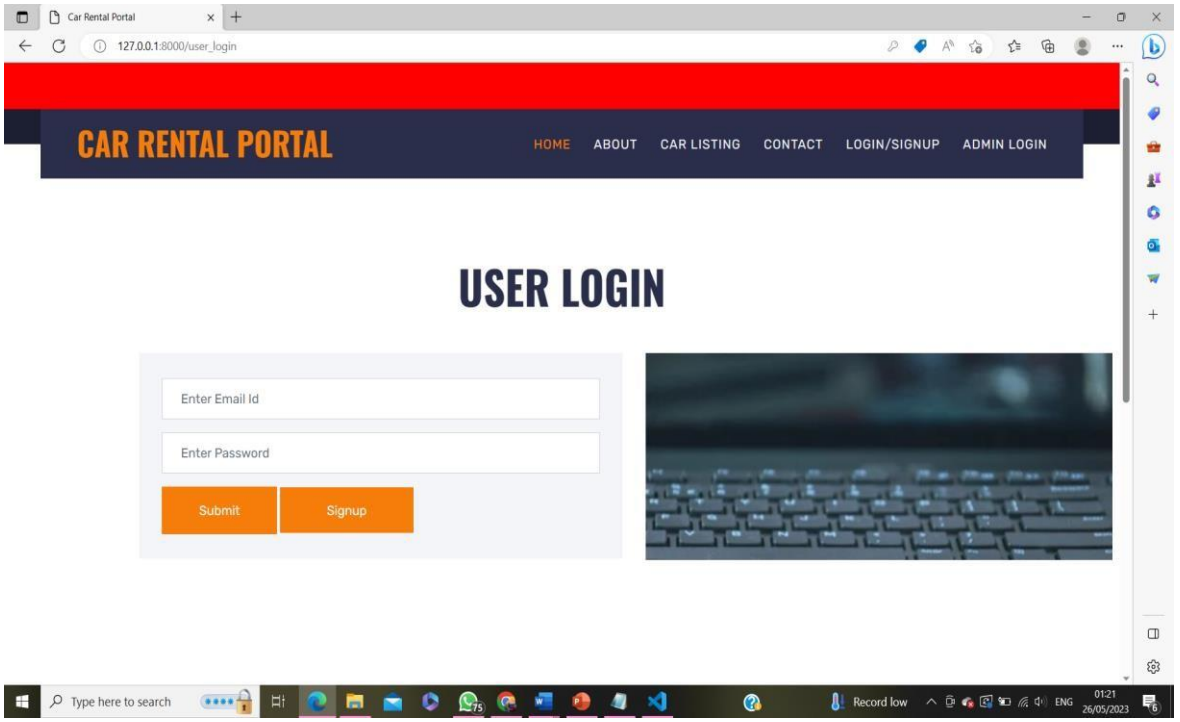
1. Home Page



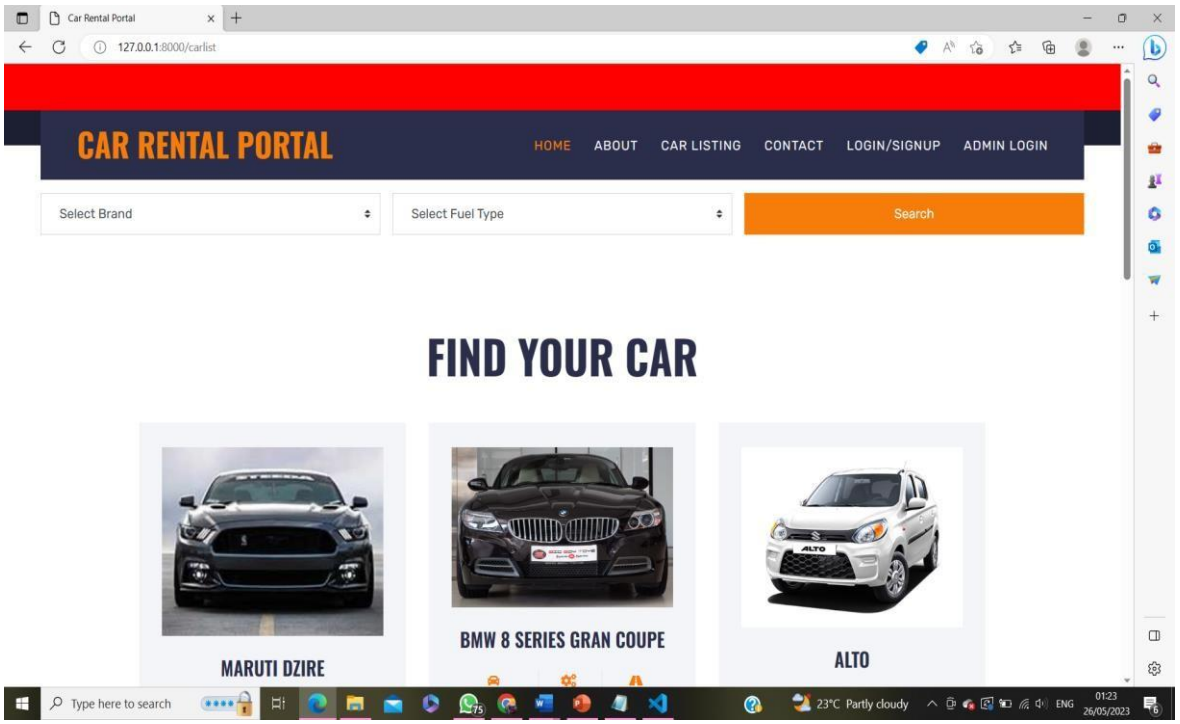
2. User Registration



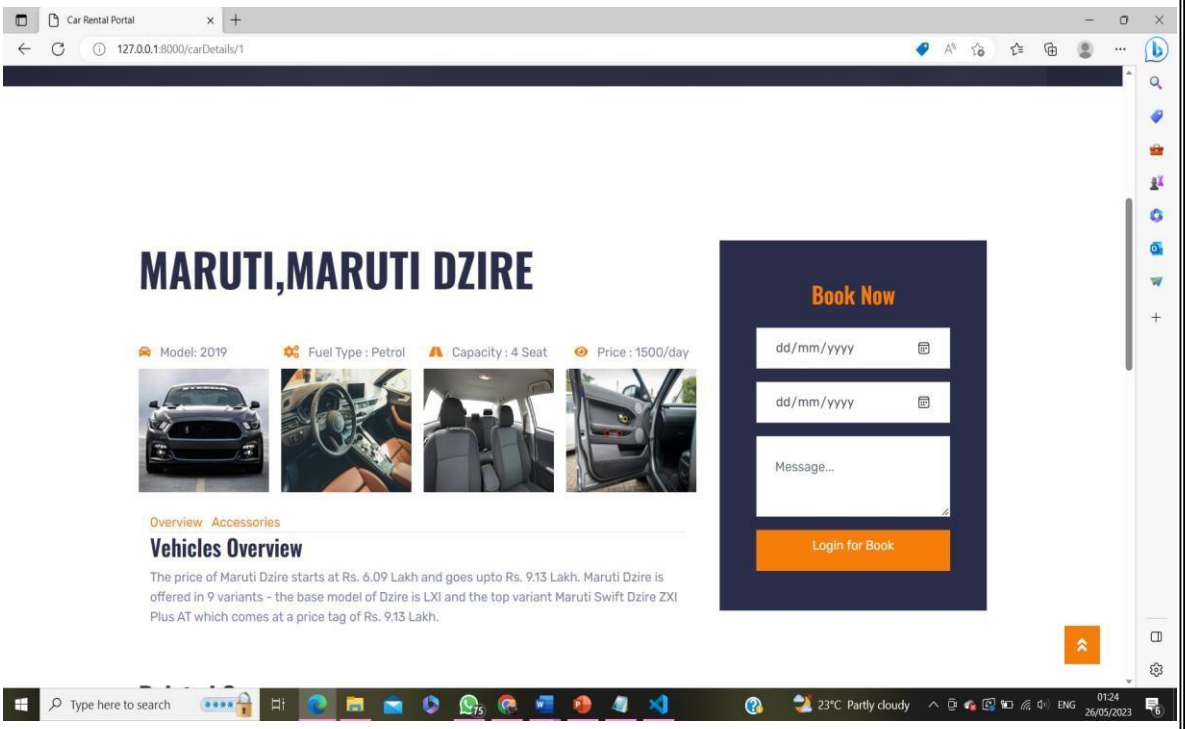
3. User login



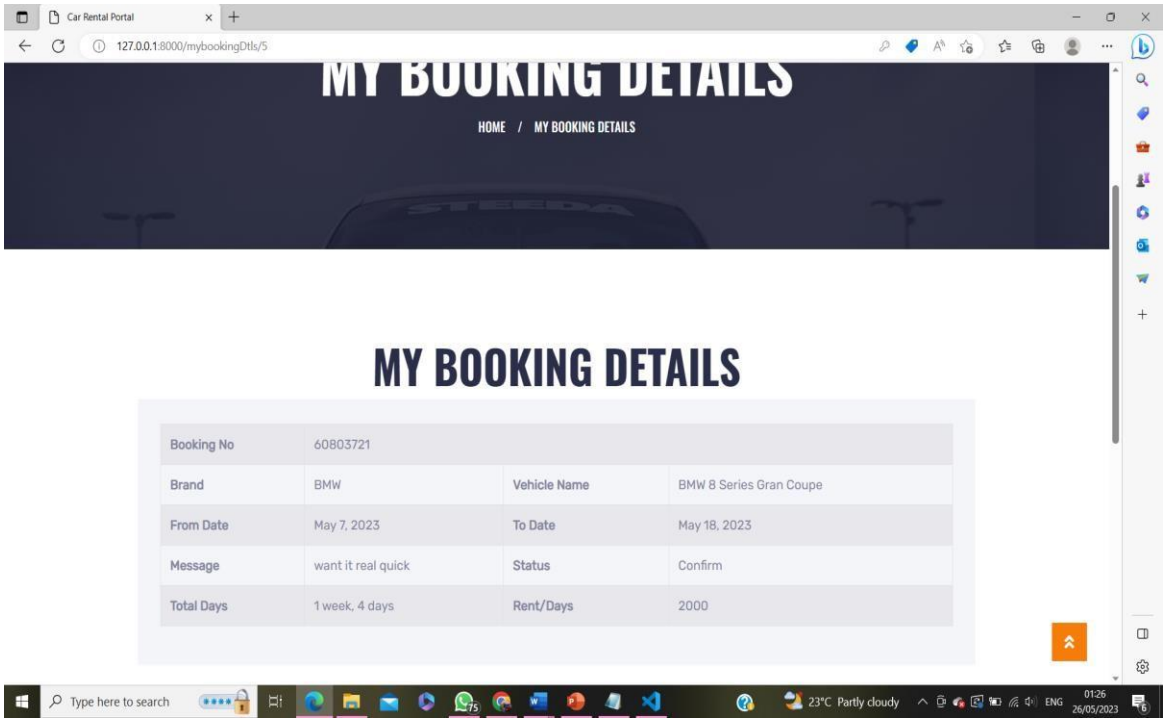
4. Car list page



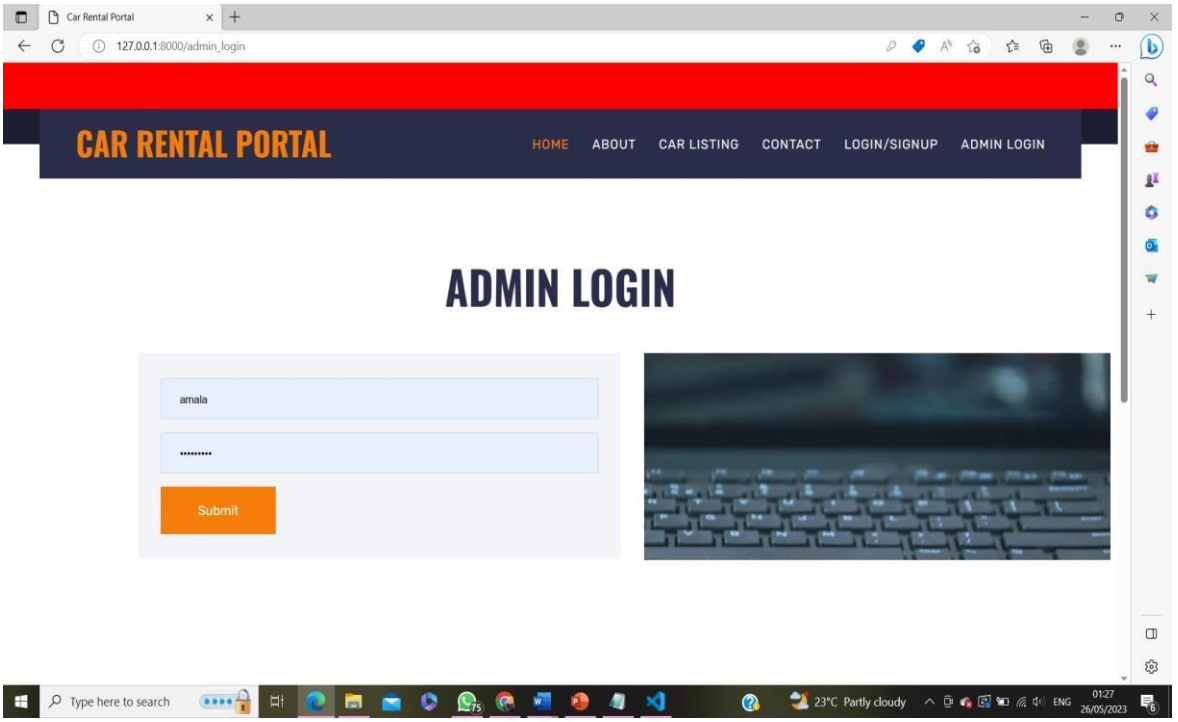
5. Car detail page



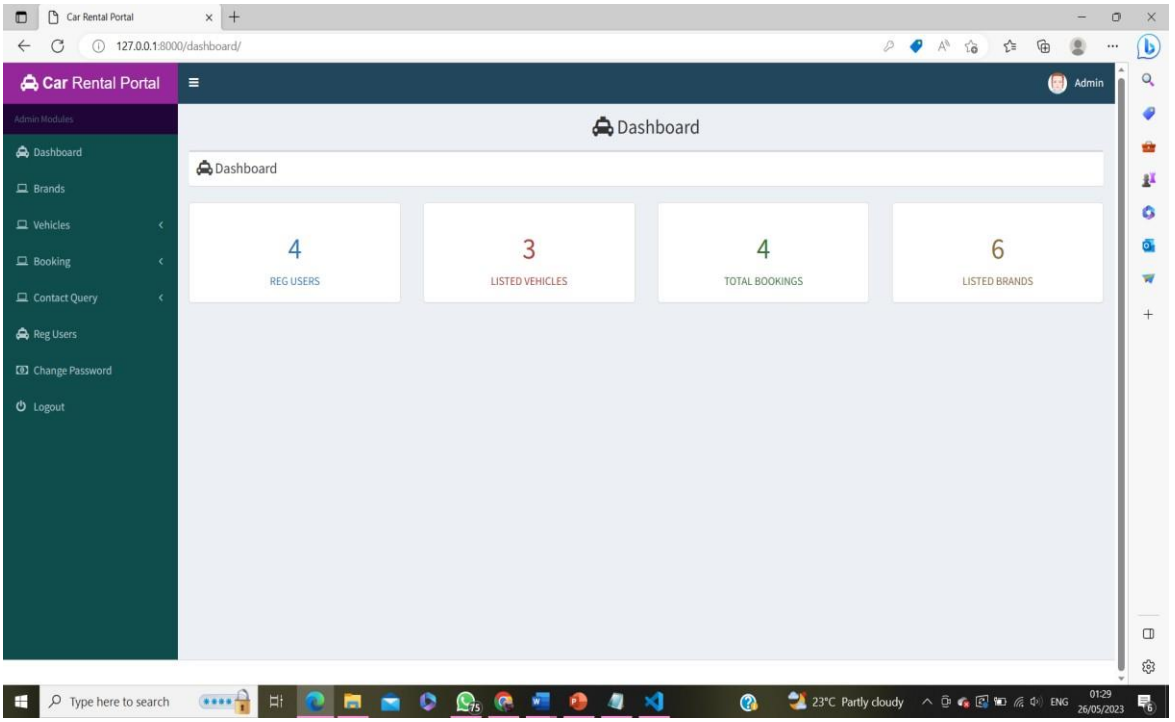
6. Bookings page



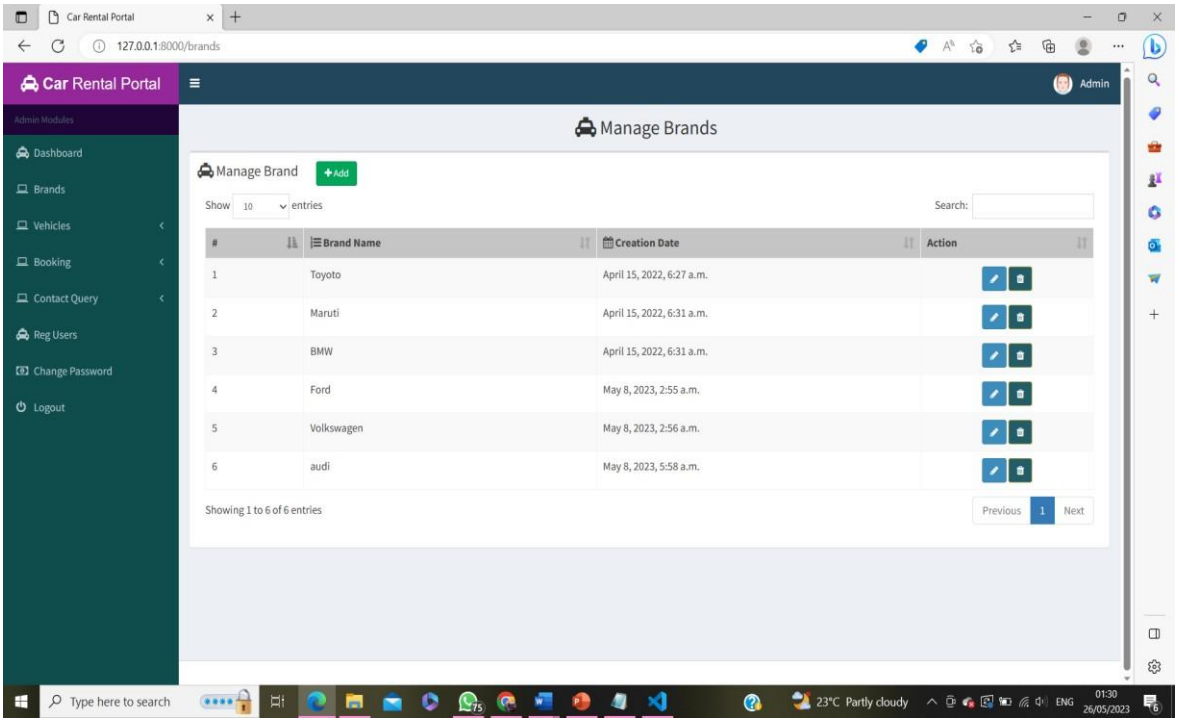
7. Admin Login



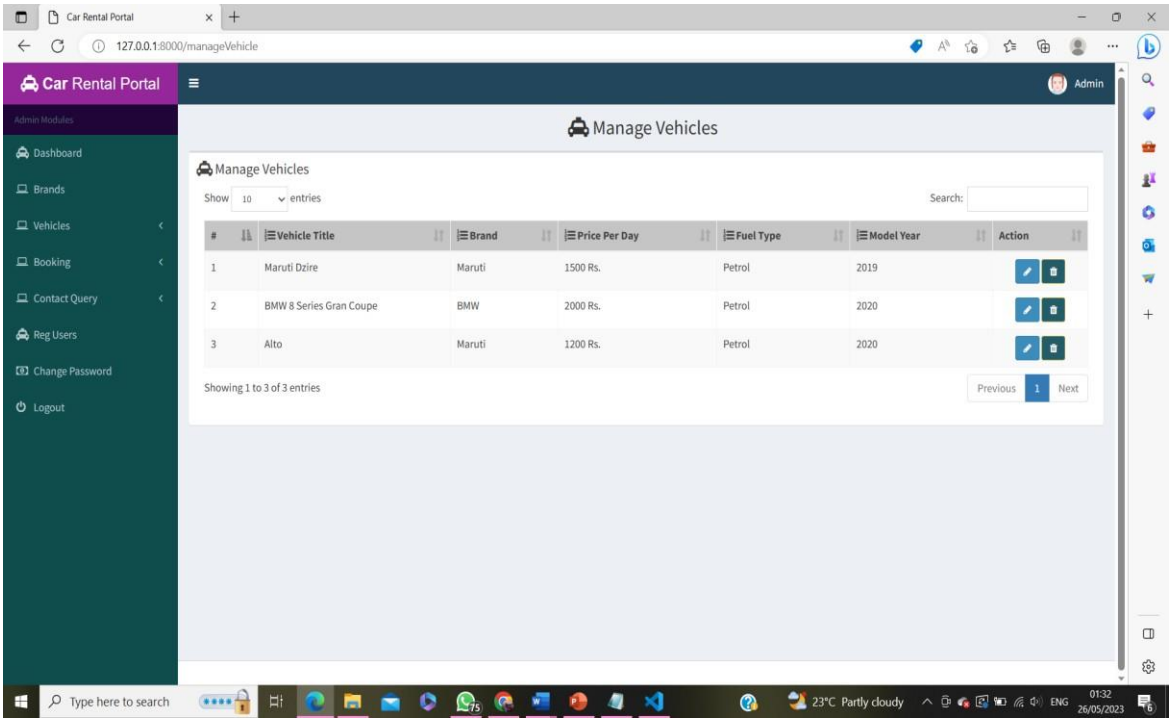
8. Admin home page



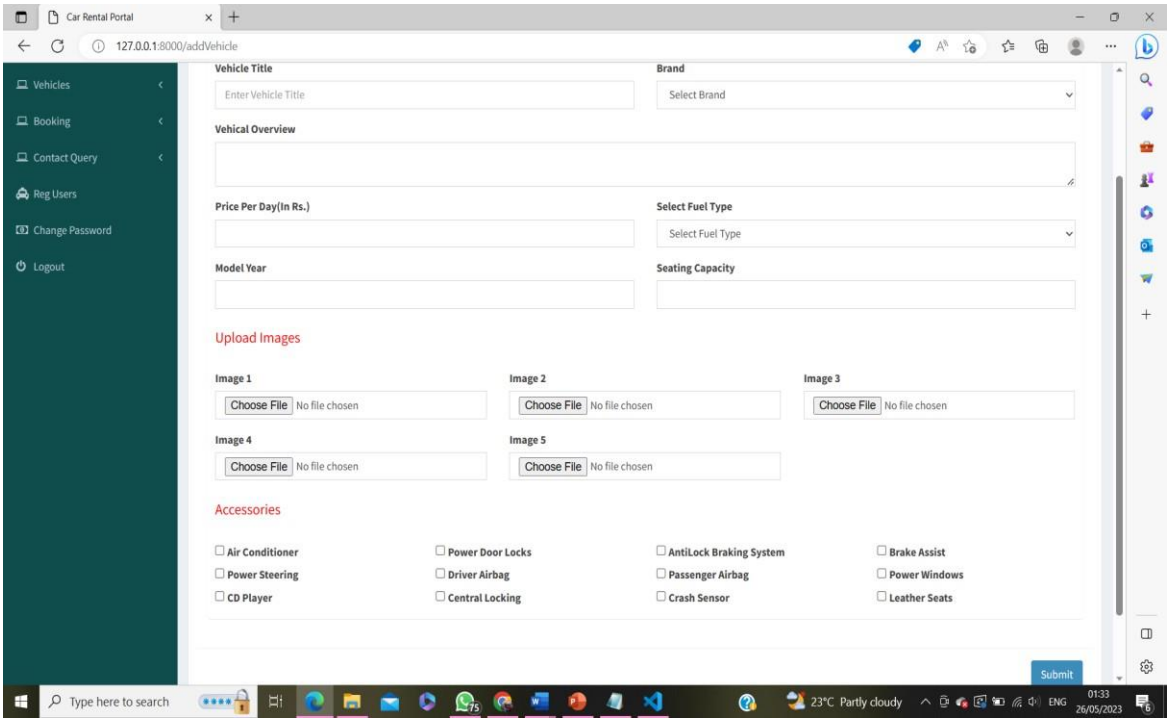
9. Brands page



10. Vehicle page



11. Add vehicle



12. View bookings