

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“Jnana Sangama”, Belgavi-590018



A Mini Project

Report On

“ONLINE CAR RENTAL SYSTEM”

*Submitted in the partial fulfilment for the award of the Bachelor of Engineering degree in
Computer Science and Design*

Submitted By

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Under the guidance of

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A T M E

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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CERTIFICATE

This is to certify that the Mini Project Work entitled “**ONLINE CAR RENAL SYSTEM**” is the Bonafide work carried out by **MEGHANA R S (4AD22CG023)** in partial fulfillment for the award of degree of Bachelor of Engineering in Computer Science and Design from Visvesvaraya Technological University, Belgavi during the year 2024-2025. The report has been approved and satisfies the academic requirement with respect to Project Work prescribed for Bachelor of Engineering degree.

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ACKNOWLEDGEMENT

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ABSTRACT

The online car rental system is a web-based platform that allows users to browse, rent, and manage car rentals with ease. The system streamlines the process by offering features like car availability checking, booking, and payment options. It is designed to be user-friendly for both customers and rental companies, automating manual processes, improving customer experience, and offering a seamless solution for car rentals. This system enhances transparency by providing detailed vehicle information, rental terms, pricing, and customer reviews, ensuring informed decision-making. It also includes features like order management, fleet tracking, and reporting for car rental businesses.

This project presents an innovative online car rental system to enhance customer experience, operational efficiency, and security. The system allows users to search, book, and rent vehicles online. Key features include user registration, vehicle search, rental agreement, payment gateway, and maintenance alerts. This project aims to improve customer satisfaction, reduce costs, and increase operational efficiency for car rental companies.

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CHAPTER-1

INTRODUCTION

Every project begins with a clear understanding of its purpose and objectives. This chapter introduces the Online Car Rental System, explaining its significance, scope, and the problem it aims to solve in the car rental industry.

1.1 Introduction to online car rental system

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. Here, User has to Login To book a car. The user can search for cars easily and book. For bookings, the user must provide information such as Booking Dates and Text Message. All car details are provided and it also includes Car's feature and Overview. The user can also post their Testimonials and the user can update their Profile as well as passwords anytime they want from the site. Admin can Add/Manage car brands, manage cars, bookings, testimonial, pages and many more. It is easy to operate and understand by users. This site makes customers easy for car rental. The design is pretty simple, and the user won't find it difficult to understand, use and navigate.

1.2 Reason for the Project

- 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 Car Reservation: A tools through which customers can Booking 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.
- Group Booking/Event Management: Allows the customer to book space for a group in the case of weddings or corporate meetings.

1.3 Problem Statement

Traditional car rental services often involve time-consuming processes such as visiting physical offices, dealing with limited availability, and enduring manual paperwork. Customers face inconvenience due to a lack of flexibility, difficulty in comparing prices and options, and inadequate transparency around availability. Rental companies also struggle with inefficient fleet management, customer service issues, and limited online presence, leading to lower customer satisfaction and missed business opportunities.

Problem Statement: There is a need for an efficient, user-friendly, and automated online car rental system that simplifies the car rental process for both customers and rental companies.

1.4 Aims & Objective

- To produce a web-based system that allow customer to register and Booking car online and for the company to effectively manage their car rental business.
- To ease customer's task whenever they need to rent a car

The objectives of an online car rental system typically include:

1. Real-Time Availability: Ensure users can see real-time availability of cars, including details like pricing and features.
2. User-Friendly Interface: Provide an intuitive platform for users to easily browse, select, and book vehicles.
3. Secure Transactions: Implement secure payment methods to protect users' financial information during transactions.
4. Flexible Booking Options: Allow users to choose different rental durations, vehicle types, and pick-up/drop-off locations.
5. Customer Support: Offer responsive customer service to assist users with inquiries and issues.
6. Data Management: Efficiently manage customer data, rental history, and vehicle inventory for better service and analytics.
7. Mobile Accessibility: Ensure the system is accessible on various devices, including smartphones and tablets.
8. User Reviews and Ratings: Provide a platform for customers to review their rental experiences, enhancing trust and service quality.

CHAPTER-2

LITERATURE SURVEY

A thorough understanding of existing research and developments in the field is essential for designing an effective system.

2.1 Overview of Existing Systems

Numerous online car rental systems have been developed to meet the growing demand for easy and efficient vehicle rental services. Some notable examples include:

Enterprise Rent-A-Car: Offers a comprehensive booking platform with options for long-term rentals.

Zoom car: A self-drive car rental service that integrates GPS tracking and mobile app functionality.

Turo: Peer-to-peer car rental platform focusing on vehicle sharing.

2.2 Key Features in Current Systems

User Interface:

Most systems prioritize a simple, intuitive design to enhance usability.

Mobile-responsive designs allow seamless access across devices.

Vehicle Availability:

Dynamic inventory management ensures real-time updates of available vehicles.

Secure Payments:

Integration with secure payment gateways for credit cards, e-wallets, and digital banking.

Real-Time Tracking:

GPS-based tracking systems provide transparency in vehicle location and route monitoring.

2.3 Challenges in Existing Systems

Scalability:

Difficulty in handling a growing number of users and transactions.

Cybersecurity Threats:

Online platforms are vulnerable to data breaches and fraud.

System Downtime:

Ensuring 24/7 availability requires robust infrastructure and maintenance.

2.4 Advancements in Technology

Artificial Intelligence (AI):

AI-driven chatbots and recommendation engines enhance user engagement.

Internet of Things (IoT):

IoT devices in vehicles provide real-time diagnostic data and alerts.

Blockchain:

Ensures secure and transparent transactions by eliminating intermediaries.

Mobile Applications:

Dedicated apps offer enhanced accessibility and user experience.

2.5 Research Gaps

While existing systems provide a range of features, several areas need improvement:

Limited integration of emerging technologies like AI and IoT.

Inadequate focus on user personalization and recommendation systems.

Challenges in ensuring system scalability and reliability.

CHAPTER-3

SYSTEM REQUIREMENTS AND SPECIFICATIONS

To ensure the successful development and deployment of the Online Car Rental System, it is vital to define its technical and functional requirements.

3.1 Introduction

Here, the requirements of making online car rental system applications are discussed and desired response is done through the thinking of the developer as well as the vision collected. The platform on which the application is running and on which it is being developed is understood.

3.2 Feasibility Study

Preliminary investigation examines project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

Technical Feasibility

Operation Feasibility

Economic Feasibility

3.3 System Implementation

During the implementation stage in physically stage in physically created. Necessary program is coded, debugged, and documented. A new hardware is selected, ordered, and installed.

3.4 Functional Requirements

Requirement analysis is a software engineering technique that is composed of the various tasks that determine the needs or conditions that are to be met for a new or altered product, taking into consideration the possible conflicting requirements of the various users. Functional requirements are those requirements that are used to illustrate the internal working nature of the system, the description of the system, and explanation of each subsystem. It consists of what task the system should perform, the processes involved, which data should the system holds and the interfaces with the user. The functional requirements identified are:

- Customer's registration: The system should allow new users to register online and generate membership card
- Online reservation of cars: Customers should be able to use the system to make booking and online reservation.
- Automatic update to database once reservation is made or new customer registered: Whenever there's new reservation or new registration, the system should be able update the database without any additional efforts from the admin.

3.5 Non-Functional Requirements

It describes aspects of the system that are concerned with how the system provides the functional requirements. They are:

- Security: The system must implement strong authentication and authorization measures, ensuring that only authorized users can access sensitive data and functionalities. All data should be encrypted both in transit and at rest to protect it from unauthorized access.
- Availability: This system should always be available for access at 24 hours, 7 days a week. Also, in the occurrence of any major system malfunctioning, the system should be available in 1 to 2 working days, so that the business process is not severely affected.
- Ease of use: Considered the level of knowledge possessed by the users of this system, a simple but quality user interface should be developed to make it easy to understand and required less training.

3.6 Hardware and Software Requirement

In this section the hardware and the software requirements are discussed and is as follows.

3.6.1 Hardware Requirements:

Processor: Intel Pentium Dual Core

RAM: 512 MB

Hard Disk: 160 GB Space

3.6.2 Software Requirements:

Operating System: Windows /iOS/Unix

Web Browser: IE/Google Chrome/Firefox

Technology: PHP

Tools: XAMPP

Web Design: HTML, CSS, JAVASCRIPT

Back End: MYSQL

Scripting Language: PHP

CHAPTER – 4

EXISTING SYSTEM

To understand the need for an improved solution, it is essential to examine the current systems in place. This chapter outlines the challenges of the existing car rental systems, providing a foundation for identifying areas that require enhancement.

4.1 Introduction

Although many online portals have come into the picture for providing online car booking service. But most of the car renting companies are using traditional way to deal with the customer. Which are time and labor consuming?

An existing system can provide manually paperwork or excel sheet to track the booking and registered cars details.

The user must go in the office where the user can get the car on rent and book their car. Most of the time user does not get a sight of the car in which copy

4.2 Problem Statement

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 the online car rental systems nowadays has overcome the limitation of the business operation hour. There are some customers who faced a problem in choosing car to be rented which suitable with some of the important requirements.

- To rent a car a prospective renter must first go to the nearest office to register as a client.
- Cars that provide difficulties to rent out are normally advertised in local or national newspaper. It involves a lot of paperwork and consumes time
- Details are stored in papers
- Maintenance is a huge problem
- Performance is not achieved up to the requirements.

CHAPTER-5

PROPOSED SYSTEM

Having analyzed the limitations of the existing system, it is crucial to design a solution that addresses these challenges effectively. This chapter introduces the proposed Online Car Rental System, detailing its features, functionality, and the innovative approach it brings to streamline the car rental process.

5.1 Introduction

The proposed system facilitates the c yeah customers to fill up their details, and to give a brief description of a car they want to book. This new system is very helpful for customers who want to hire their cars through this site.

This Car Rental System project will enable the user to rent a car. The user shall login to the system and download check for availability of cars. The user specifies a type of car and the journey date and time. The Car Rental System shall check for the availability of the car and rent the car to the customer. All the data regarding the same diagram Google rental cars are stored in MySQL database. The user has to enter his name, address, phone details and check for the cars available for rent. The UI is very simple and the connectivity to back end is robust. The main advantage is that the user shall be able to choose a car depending on his budget.

5.2 Advantages

- First the customer must make a reservation and later on in the process has to do registration.
- Second if the customer had already registered himself then he can continue booking in his own account by giving his customer id or mail id.
- Thirdly, the customer can amend details or update his details.
- Maintenance is easy and performance is good
- It is easy to use and understand.
- It reduces the time complexity.

5.3 Specification of Proposed System

The specifications regarding modules, guest users and registered users etc. are discussed and is as follows.

5.3.1 Modules

Registered Users

- Admin
- Guest

5.3.2 Guest Users

Guest user can view the website and checkout the information about rental cars. Guest users can also inquiry through contact us page.

5.3.3 Register Users

Anyone can register through the registration page. After a successful registration user can log in with valid email and password. User can recover own password by providing some registered info.

After successful login user can do the following things: -

- Car Booking
- View Car booking history
- Update His/Her profile
- Update his/her password hello
- View details of car
- Logout

5.3.4 Admin

Admin is the super user of the website who can manage everything on the website.

5.3.5 Admin Features

- Admin can create car brands
- Manage Car Brands (Edit, Delete)
- Post Car

- Manage car (Edit, Delete) yeah
- Manage Booking (Admin can confirm and Cancel Booking)
- Manage Contact us Query
- Admin Can the details of registered users
- admin can also update the page content
- Admin can update the contact us details22
- Manage Subscribers
- Admin Dashboard (Admin can view the count of reg users, total booking, total subscribers, total queries etc.,)
- Change Password (admin can change own password)
- Logout

CHAPTER-6

SYSTEM ARCHITECTURE AND DESIGN

Designing an online rental car system involves creating a robust architecture that ensures scalability, reliability, and maintainability.

6.1 Data Flow Diagram (DFD)

A Data Flow Diagram (DFD) is a graphical representation that depicts the information flow and the transforms that are applied as data moves from input to output.

6.1.1 Zero Level Data Flow Diagram

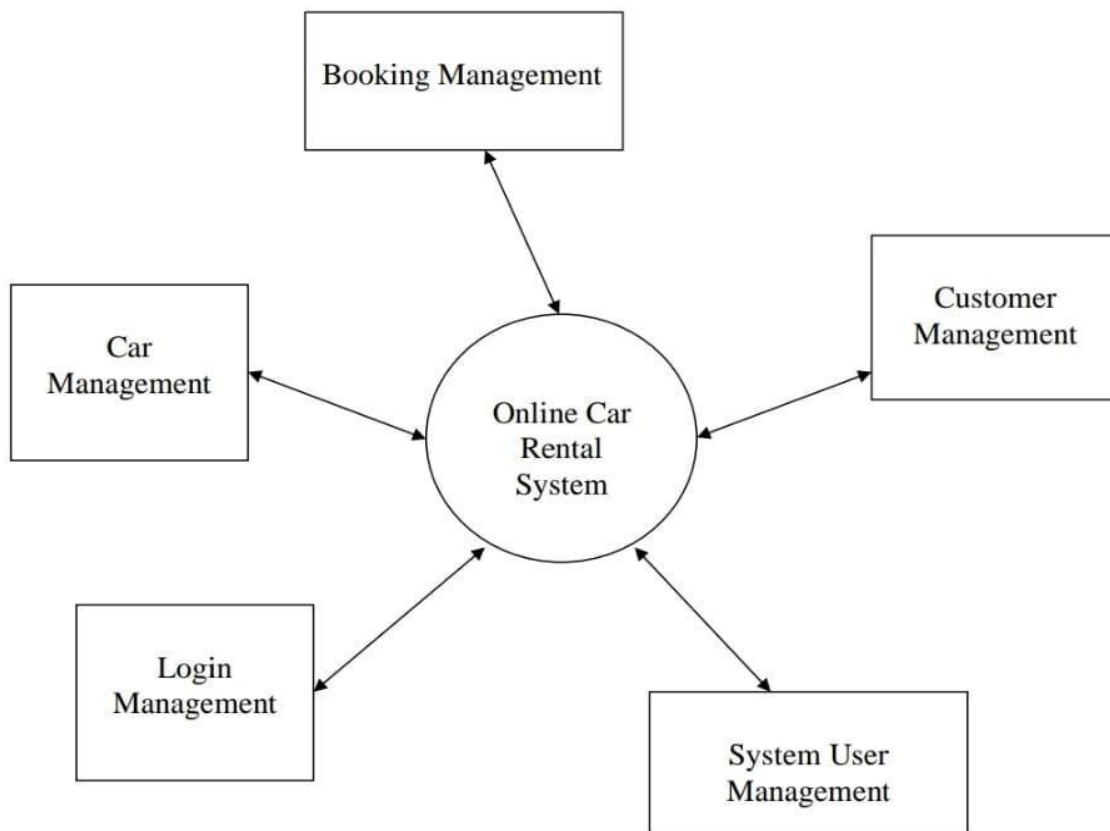


Figure 6.1: Zero level DFD

Zero Level DFD of online car rental system, it elaborates high level process of online car rental system. It is overview of whole online car rental system there are some high-level entities for the process of car rental system.

6.1.2 First Level Data Flow Diagram

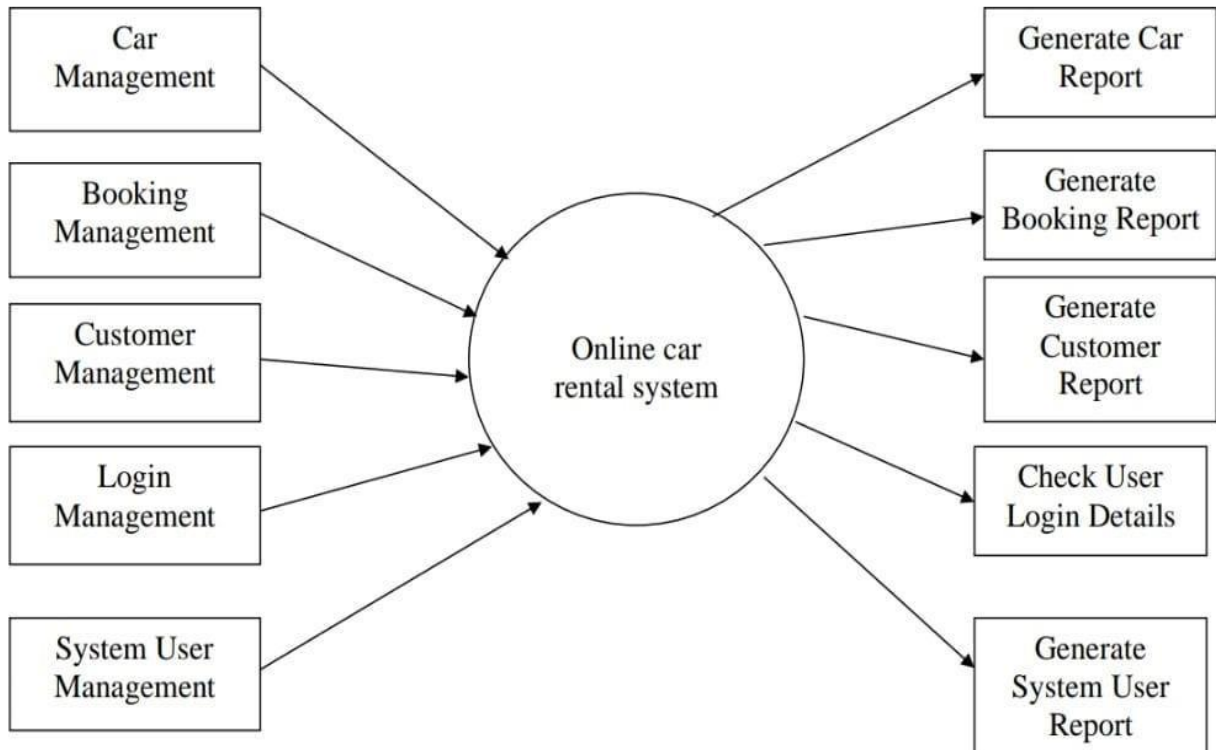


Figure 6.2: 1st level DFD

1st Level DFD of online car rental system shows how the system is divided into sub system, each of which deals with one or more of the data flows to or from an external agent which together provide all the functionality of online car rental system as whole, above are some given entities and output of 1st level.

6.1.3 Second Level Data Flow Diagram

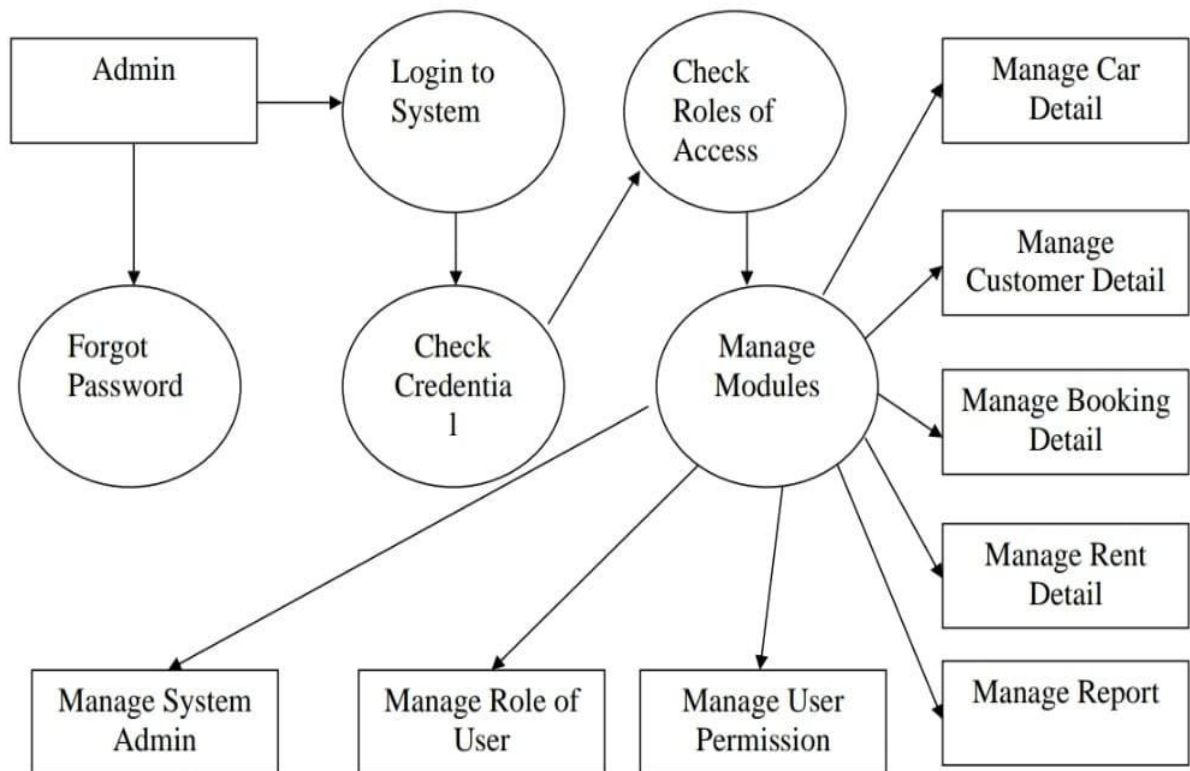
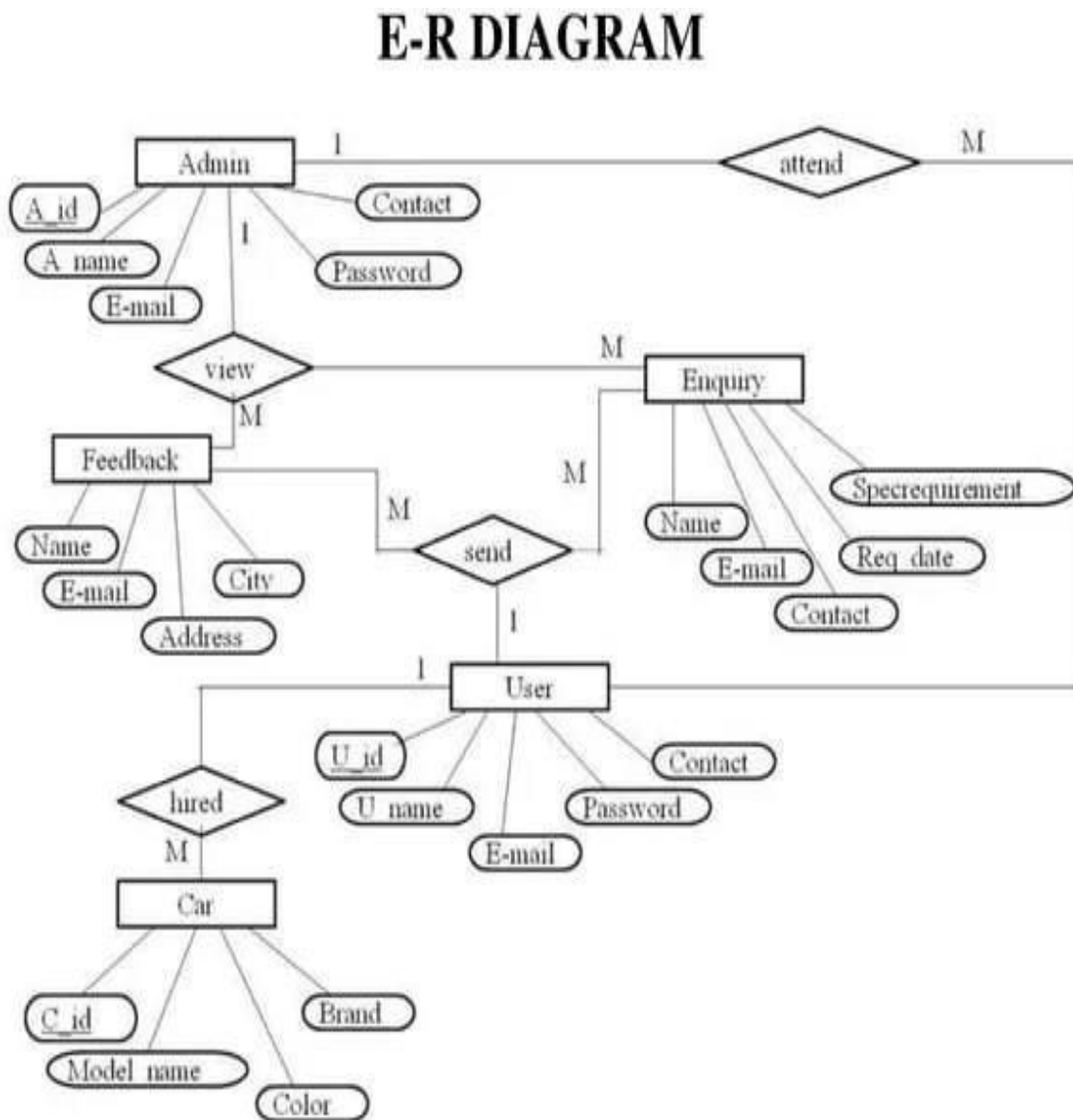


Figure 6.3: 2nd level DFD

A 2nd level DFD (Data Flow Diagram) provides a more detailed breakdown of a system's processes, showing how data moves between sub-processes and data stores. It refines the high-level processes from the 1st level DFD to illustrate the internal workings of the system.

6.2 ER-Diagram

An ER (Entity-Relationship) Diagram visually represents the entities within a system and the relationships between them. It helps in designing the database structure by outlining how data elements interact and are connected.



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Figure 6.4: ER Diagram

CHAPTER-7

USE CASE DIAGRAM

To better understand the interactions between users and the system, it is essential to visualize the functionalities through a use case diagram.

7.1 Use Case Description

Actor and use case description show the detail description of interaction between the actors and their use cases. The description enables to have a proper understanding of how actor interacts with the system through their use case.

Table 7.1: Actors and Use Case Description

Actor	Use-case	Use-case Description
Register as Member		This use case describes the activities of the customer to register online and become a member. Customer's details are required as part of the registration. Login detail is automatically sent to the customer after successful registration.
Customer	Booking Reservation	This use case enable customer to search and make reservation. Non-register customer will be directed to register before their reservation can be confirmed. Notification is automatically send to the customer after the task is completed.
	Return car	This use case describes the event of customer returning the car borrowed, the use case extends "process rental" use case from the staff actor.
	Give feedback	This use case is used by the customer to provide feedbacks/comment to the company; a confirmation notification will be send to the customer once a feedback has been submitted.

Admin	Add a new car	This use case is used by the staff to add new car to the company's fleet database. Staff will need to login to activate this use case.
	Update car details	This use case is used by the staff to edit and modify car details whenever there is new renewal (insurance, road tax). It allows the company to keep up-to-date record of their fleet.
	Reply to customer's feedback	This use case described the event by which staff updates the system when customer pick up or when returning car.

7.2 Use-case Login

Table 7.2: Use case - Login

Use-case Number	UC-01	
Use-case Name	Login	
Actor	Customer	
Description	This use case describe how user login into this online car rental system.	
Precondition	None	
Post condition	If the use case was successful, the actor is now logged into the application.	
Basic course of Action	User Action	System Response
	1. The user is on the home page to login to the system 3.The user enters username and on login button.	2.The system promotes the user to enter Username,Password. Password,click 4.The system verifies that all the Filled have been filled out and valid 5.The system successfully logged in The system. 6. Use case exit.

7.3 Use-case Booking Car

Table 7.3: Use Case Booking Car

Use-case Number	UC-02	
Use-Case Name	Booking car	
Customer Description	This use case permits customers to Booking and make schedule for renting car, based on the availability of the car	
Precondition	Customer wants to Booking a car and reservation details about customer have to be entered	
Post-condition	Customers Booking successfully	
Basic Course of	User Action	System Response
Action	1. The customer wants to Booking a car. 2. The customer clicks booking page. 4. The customer enters the following information customer (full name, email address, password, Pickup date & return date) 5. The customer clicks Booking button to Booking. 8. The customer accepts the reservation and clicks Accept.	3. The system prompts the customer to fill a reservation form. 6. The system checks all required information had been filled and the date entered dates are valid 7. The system presents information to accept or decline the rental Agreement. 9. The system shows the customer that the reservation has been completed, and presents the customer a reservation confirmation number. 10. Use case ends.

7.4 Use Case View My booking

Table 7.4: Use Case View My booking

Use-Case Number	UC-03	
Use-Case Name	My booking	
Actor	User	
Description	These use case allow staff to view or display customer reservation.	
Precondition	UC-1	
Post Condition	Display All Bookings	
Basic Course of Action	1. The staff wants to view reservation. 2. The staff requests the reservation Page. 4. Then on reservation page the employee clicks view button	3. The system responds the requested page. 5. The system puts on view or displays all reservation information to the employee. 6. Use case ends

Use-Case Number	UC-03	
Use-Case Name	My booking	
Actor	User	
Description	These use case allow staff to view or display customer reservation.	
Precondition	UC-1	
Post Condition	Display All Bookings	
Basic Course of Action	1. The staff wants to view reservation. 2. The staff requests the reservation Page. 4. Then on reservation page the employee clicks view button	3. The system responds the requested page. 5. The system puts on view or displays all reservation information to the employee. 6. Use case ends

7.5 Use Case Diagram

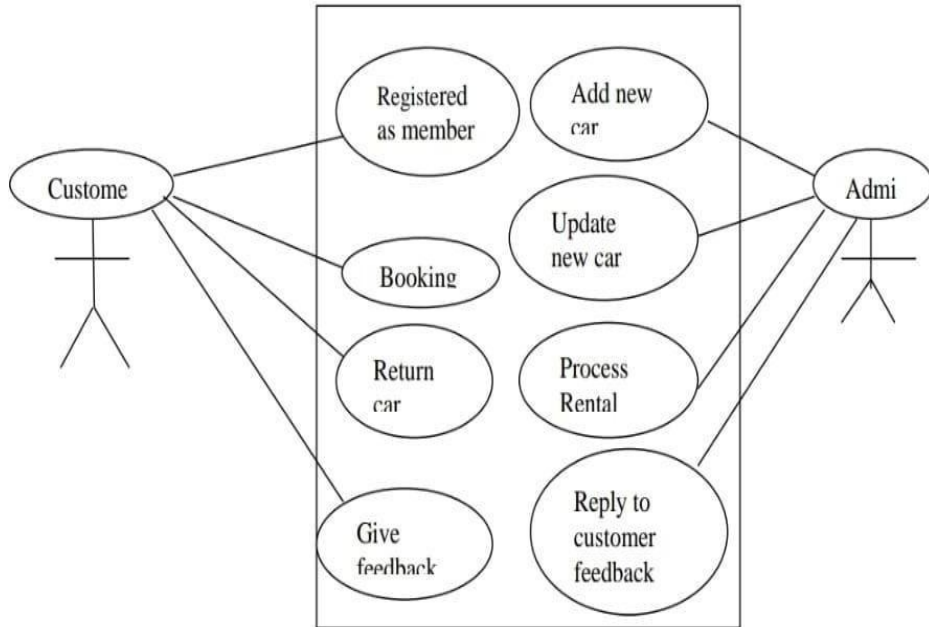


Figure 7.1: Online Car Rental System [use case]

CHAPTER-8

RESULTS AND DISCUSSION

The "Online Car Rental System" project successfully implemented a user-friendly platform for booking rental cars online. Users could view available cars, make reservations, and manage bookings, while administrators efficiently managed car inventory, customer details, and booking records. The system performed seamlessly, ensuring data accuracy and smooth interaction between users and the database.

8.1 Screenshot

The screenshot of result on “Online car rental system” are as follows:

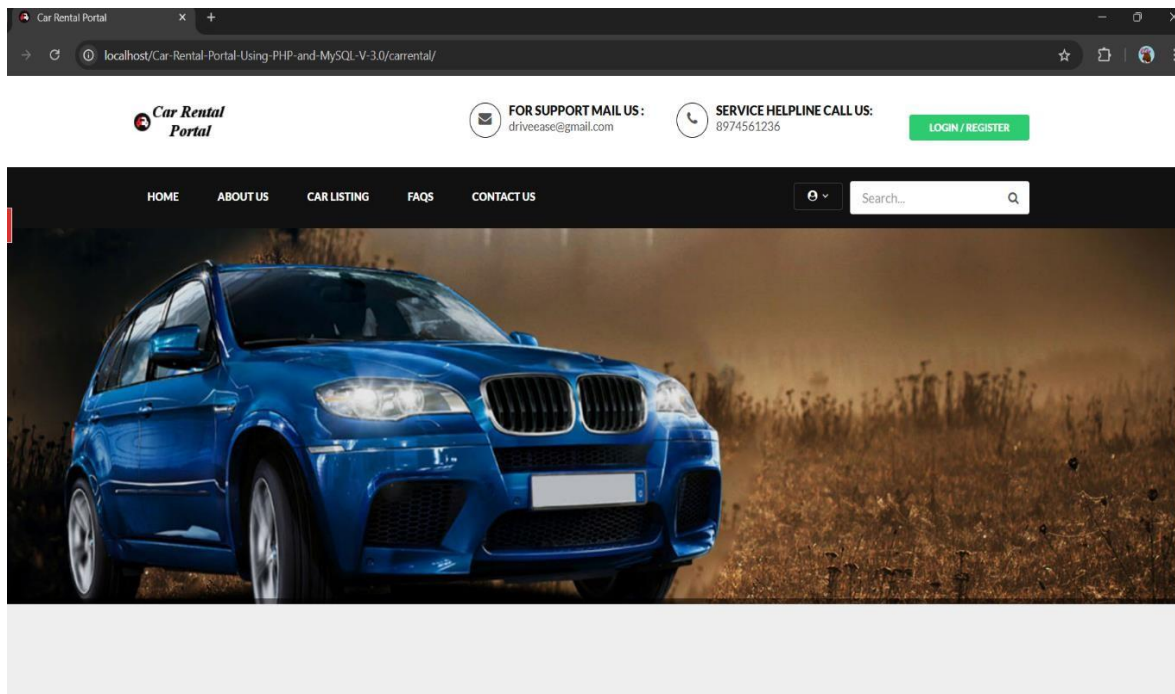


Figure 8.1: Home Page

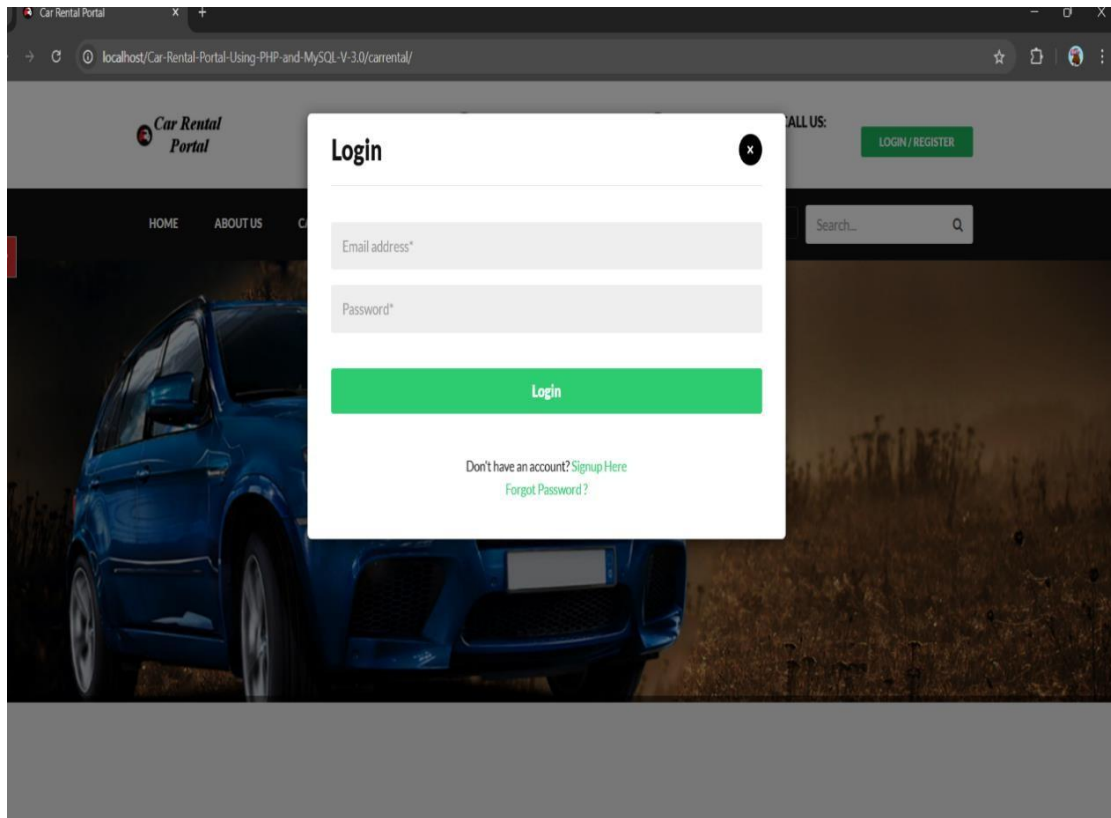


Figure 8.2: Login Page

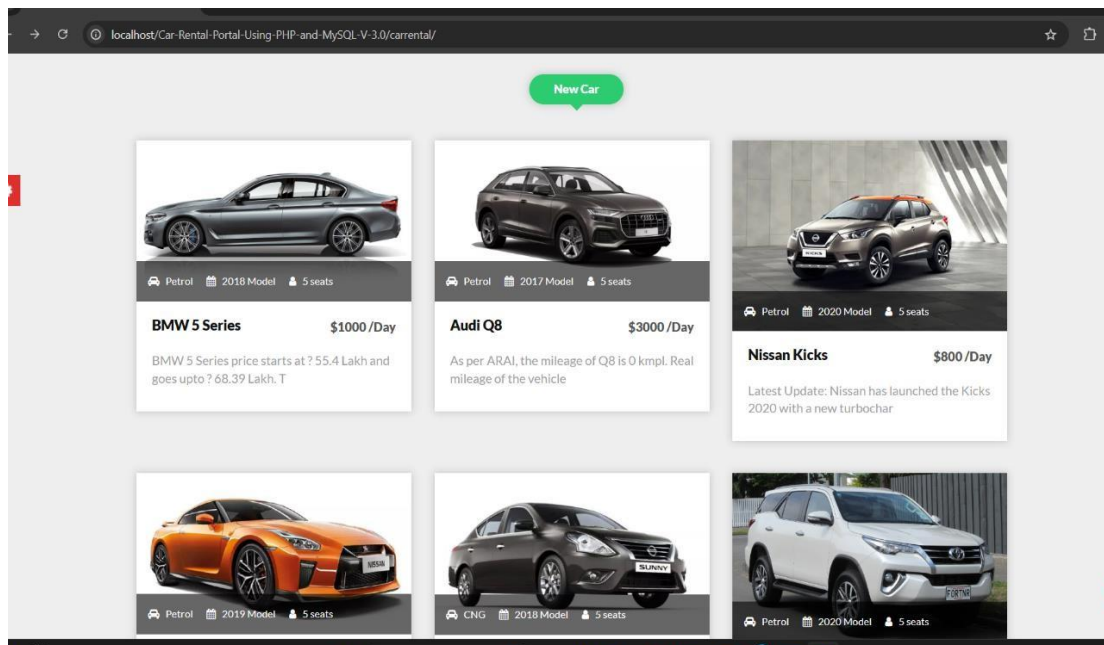


Figure 8.3: Car Listing Pricing Page

localhost/Car-Rental-Portal-Using-PHP-and-MySQL-V-3.0/carrental/contact-us.php

HOME ABOUT US CAR LISTING FAQs CONTACT US

Search...

Contact Us

Home > Contact Us

Get in touch using the form below

Full Name *

Email Address *

Phone Number *

Contact Info

123 Main Street, J P Nagar, Mysore

driveease@gmail.com

8974561236

Figure 8.4: Contact Us Page

localhost/Car-Rental-Portal-Using-PHP-and-MySQL-V-3.0/carrental/vehical-details.php/vhid=2

Per Day

2018 Reg Year

Petrol Fuel Type

5 Seats

Book Now

From Date: dd-mm-yyyy

To Date: dd-mm-yyyy

Drop-off Location: Drop-off Location

LOGIN FOR BOOK

Vehicle Overview Accessories

BMW 5 Series price starts at ? 55.4 Lakh and goes upto ? 68.39 Lakh. The price of Petrol version for 5 Series ranges between ? 55.4 Lakh - ? 60.89 Lakh and the price of Diesel version for 5 Series ranges between ? 60.89 Lakh - ? 68.39 Lakh.

Figure 8.5: Booking Page

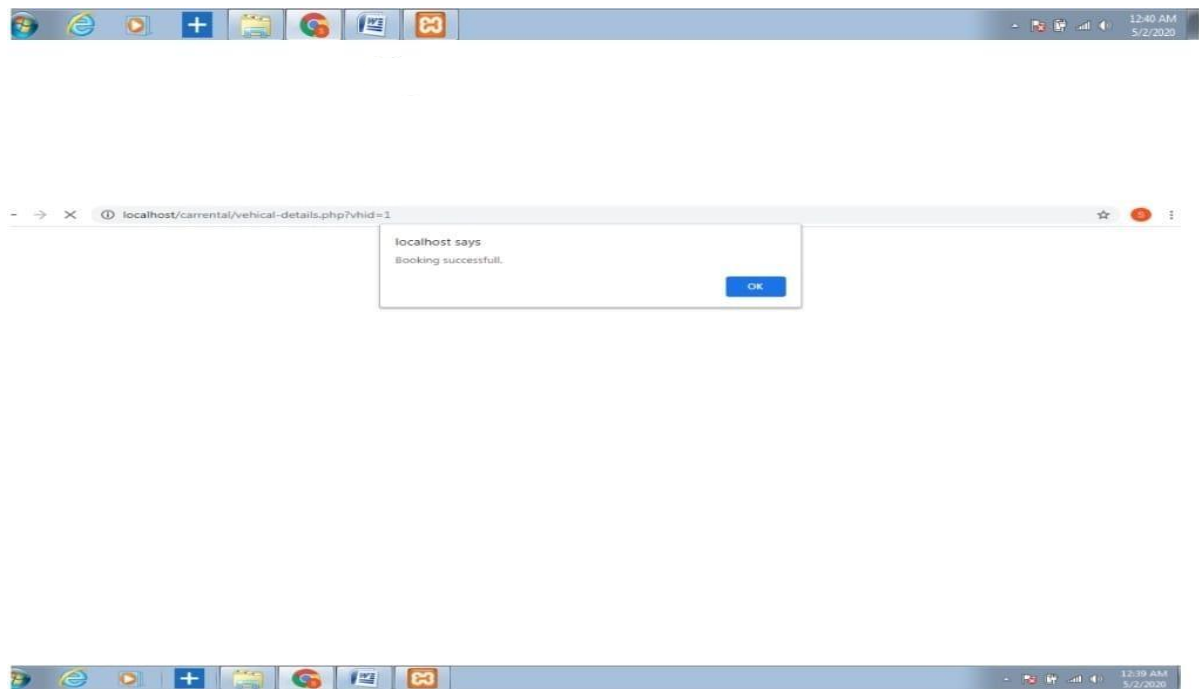


Figure 8.6: Booking Successful Page

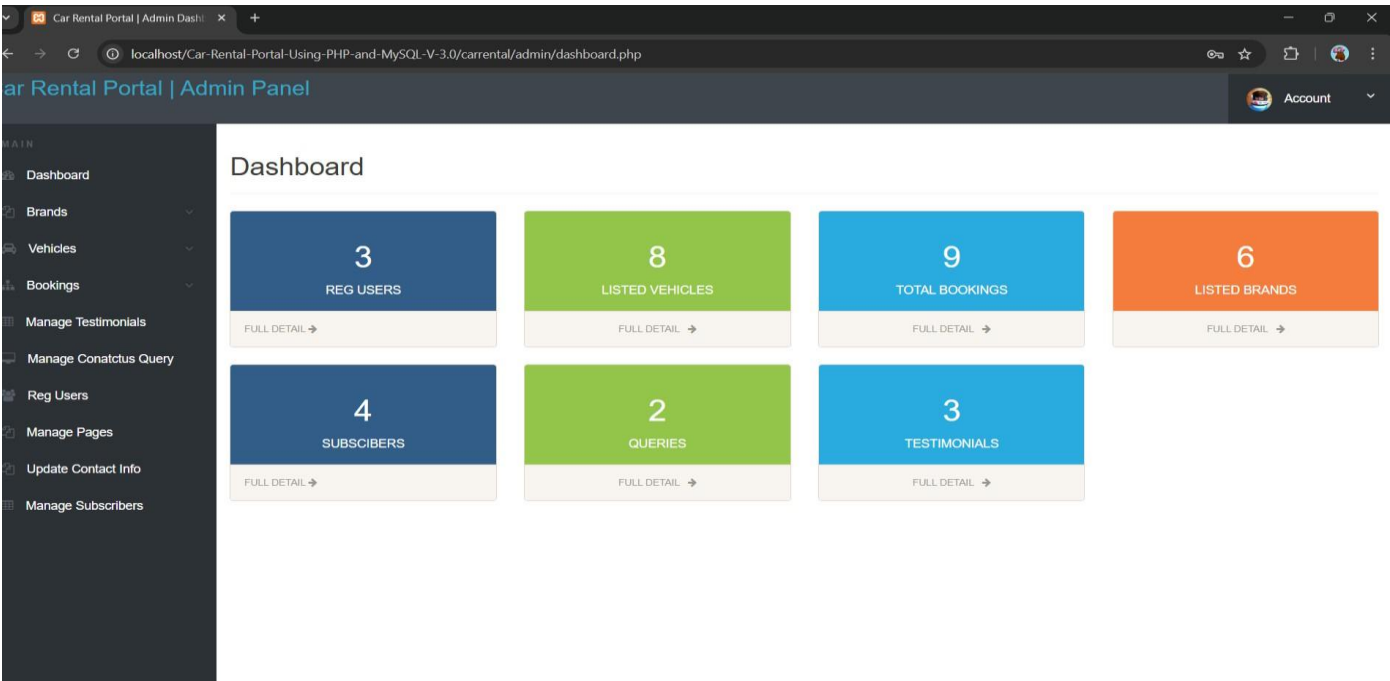


Figure 8.7: Admin Dashboard

8.2 Summary

The user interface is design keeping the guidelines a good and easy to learn interface to mind. The interface provides proper guidelines for operation, success and error messages to keep user aware of result and operation the interface uses tabular navigations panel to provide links to commonly accessible tasks, proper menus and sub-menus are used wherever required for effective navigation

CHAPTER-9

CONCLUSION AND SCOPE OF FUTURE WORK

As the development of the Online Car Rental System reaches its final stages, it is essential to reflect on the outcomes achieved and the potential avenues for further enhancement. This chapter provides a summary of the project, highlighting its key contributions, along with suggestions for future improvements and expansions.

9.1 Conclusion

Car rental business has emerged with a new goody compared to the past experience where every activity concerning car rental business is limited to a physical location only. Even though the physical location has not been totally eradicated; the nature of functions and how these functions are achieved has been reshaped by the power of internet. Nowadays, customers can Booking cars online, rent car online, and have the car brought to their doorstep once the customer is a registered member or go to the office to pick the car. The web-based car rental system has offered an advantage to both customers as well as Car Rental Company to manage the business and satisfies customers' need at the click of a button efficiently and effectively.

9.2 Future Enhancement

Online Payment Gateway Integration: Securely handle transactions by incorporating popular payment gateways like PayPal, Stripe, or Razor pay.

Mobile Application Development: Create dedicated iOS and Android apps to enhance accessibility and usability for users on the go.

GPS Tracking System: Enable real-time vehicle tracking for security and better monitoring.

Multi-Language Support: Add support for multiple languages to cater to a diverse user base.

Customer Review and Rating System: Enable users to rate their experience and provide feedback for transparency.

Subscription Plans: Introduce subscription-based services for frequent users to offer discounts and benefits.

Chatbot Integration: Provide instant assistance and FAQs using an AI-powered chatbot for customer support.

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