KARNATAK UNIVERSITY

DHARWAD

PROJECT REPORT ON

"CAR RENTAL MANAGEMENT SYSTEM"

SUBMITTED TO KARNATAKA UNIVERSITY DHARWAD IN PARTIAL FULFILLMENT FOR THE DEGREE OF

BACHELOR OF COMPUTER APPLICATIONS

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2024-25

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CERTIFICATE

This is to certify that project work entitled

"CAR RENTAL MANAGEMENT SYSTEM"

Submitted in partial fulfilment of the requirement for the award of degree of Bachelor of Computer Applications is a result of bonafide work carried out by

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During the academic year 2024-2025

Under the Guidance of Prof. KIRAN P.M

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DECLARATION

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Name: Name:

Signature: Signature:

ACKNOWLEDGMENT

"Task successful" makes everyone happy. But the happiness will be gold without glitter if we didn't state the persons who have supported us to make it a success.

Success will be crowned to people who made it a reality but the people whose constant guidance and encouragement made it possible will be crowned first on the eve of success.

This acknowledgeent transcends the reality of formality when we would like to express deep gratitude and respect to all those people behind the screen who guided, inspired and helped me for the completion of our project work.

I consider myself lucky enough to get such a good project. This project would add as an asset to my academic profile.

I would like to express my gratitude to **Prof.P.D REVANKAR** BCA Coordinator for his constant supervision, guidance and co-operation throughout the project.

I would like to express my thankfulness to my guide **Prof.KIRAN P.M** for constant motivation and valuable help through the project work.

Finally, I would like to thanks my friends for their co-operation to complete this project.

CHETAN KUMAR BENCHMATTII-[U02CS22S0046]
ANNANAGOUDA-[U02CS22S0048]

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ABSTRACT

The **Car Rental Management System** is being developed for customers so that they can book their vehicles from any part of the world. This application takes information from the customers through filling their details. A customer being registered in the website has the facility to book a vehicle which he requires. It is an online system through which customers can view available cars, register and book car. We developed this project to book a car on rent at the fare charges. In present system all booking work done manually and it takes very hard work to maintain the information of booking and cars. if you want to find which vehicle is available for booking then it takes a lot of time. It only makes the process more difficult and hard. This aim of the project is to automate the work performed in the car rental management system like records of cab, cabs available for booking, rental charges for cars, store records of the customer**. CaRs** is a car booking software that provides a complete solution to all your day-to-day car booking office running needs. This system helps you to keep the information of customer online. You can check your customer information any time by using this system. Online car rental management system is a unique and innovative product. Based on this information you can take decision regarding your business development.

CHAPTER 1

INTRODUCTION

This project report presents the development of a **Car Rental Management System**, designed as part of our academic curriculum to apply theoretical knowledge in a real-world scenario. The system is a web-based application aimed at automating the core functionalities of a car rental service, including vehicle listing, customer booking, rental tracking, and data management.

The primary objective of this project is to create an efficient, user-friendly, and responsive platform that simplifies the car rental process for both administrators and customers. The system allows users to search for cars, view details, and book vehicles based on availability, while administrators can manage inventory, monitor bookings, and generate reports.

Developed using technologies such as HTML, CSS, PHP, and MySQL, this project enhances our practical understanding of full-stack web development, database integration, and user interface design. It also demonstrates the importance of automation in reducing manual effort and increasing operational accuracy in business processes.

This Car Rental Management System project serves as a learning experience in software development, system analysis, and implementation, reflecting the application of academic concepts to solve real-world problems.

CHAPTER 2

LITERATURE SURVEY

2.1 Existing System

In traditional car rental businesses, most operations are carried out manually. The existing system typically relies on physical paperwork, spreadsheets, or basic software to record customer details, track vehicle availability, manage bookings, and handle billing. This approach is often inefficient and prone to human error.

Key Characteristics of the Existing System:

- **Manual Record-Keeping:** Customer data, rental history, and vehicle information are stored in paper files or Excel sheets, making it difficult to access or update records in real-time.
- **Limited Availability Tracking:** Staff must manually check vehicle availability, which can lead to double bookings or underutilization of cars.
- **Time-Consuming Processes:** Booking, returning, and updating records require significant time and human effort, resulting in longer customer wait times.
- **Lack of Real-Time Data:** There is no centralized system to provide real-time updates on vehicle status, customer reservations, or payment details.
- **Inefficient Communication:** Communication between customers and rental staff is usually done in person or over the phone, which can cause delays and miscommunication.
- **Security Risks:** Paper-based systems are vulnerable to loss, damage, and unauthorized access, putting customer and business data at risk.

2.2 Proposed System

The **Proposed Car Rental Management System** is a web-based application designed to overcome the limitations of the existing manual system. It provides an automated, user-friendly platform that efficiently manages all aspects of a car rental business — from car listings and availability tracking to customer bookings and payment management.

Key Features of the Proposed System:

- **Online Booking Interface**: Customers can browse available vehicles, view details such as model, price, and specifications, and make bookings directly through the system.
- **Real-Time Vehicle Availability**: The system tracks car availability in real time, preventing double bookings and ensuring optimal utilization of resources
- **Customer Management**: Secure registration and login system for customers, along with a dashboard to view their booking history and status.
- **Admin Dashboard**: A centralized control panel for administrators to add, update, or delete car entries, manage bookings, and generate reports.
- **Search and Filter Options**: Users can search for cars based on name, model, type, or price, making it easier to find suitable options quickly.
- **Billing and Payment Tracking:** Automatic calculation of rental charges and generation of digital invoices. (Optional: integration with payment gateways)
- **Database Integration:** All data is securely stored in a centralized MySQL database, ensuring quick access and easy maintenance.

CHAPTER 3

SYSTEM REQUIREMENTS SPECIFICATION

3.1 Software requirement

Software Component		Specification
Operating System	:	Windows 10 / Linux / macOS
Web Browser	:	Google Chrome, Mozilla Firefox, etc.
Web Server	:	XAMPP / WAMP (Apache, PHP, MySQL)
Programming Language	:	HTML, CSS, PHP, JavaScript
Database	:	MySQL
Text Editor / IDE	:	Visual Studio Code

3.2 Hardware requirement

Component		Minimum Requirement
Processor	:	Intel Core i3 or higher
RAM	:	4 GB or higher
Hard Disk	:	100 GB free space
Monitor	:	15-inch or higher display
Input Devices	:	Keyboard and Mouse

CHAPTER 4

SOFTWARE REQUIREMENTS SPECIFICATION

4.1 Introduction

The Car Rental Management System is a web-based application intended to automate the process of renting vehicles. It enables customers to view available cars, make bookings, and manage rentals, while administrators can manage car listings, customers, and transactions efficiently.

4.2 Purpose

The purpose of this document is to clearly define the functionality, constraints, and expectations of the **Car Rental Management System**. It serves as a guide for developers, testers, and users to ensure that the system meets its intended objectives and performs all required operations efficiently..

4.3 Scope

The Car Rental Management System is a web-based platform that automates the process of renting cars. It enables customers to:

- Register and log in to the system
- Search and book cars based on availability

Administrators can:

- Add, update, or delete car listings
- Monitor bookings and availability
- Generate reports for analysis

4.4 Specific requirements

4.4.1 Functional Requirements

- **User Registration and Login**: Users must be able to register and log in securely.
- **Search Functionality**: Users can search for cars by name, model, or price
- **Booking System**: Customers can book available cars by specifying rental dates
- **Admin Control Panel**: Admin can manage car inventory, bookings, and user data.
- **Real-Time Availability**: The system must prevent double bookings and show only available vehicles.
- **Invoice Generation**: Automatically calculates rental fees and generates invoices.
- **Booking History**: Users and admins can view past and current booking records

4.4.2 Non-Functional Requirements

- **Performance**: Pages should load quickly, ideally under 2 seconds.
- **Security**: User credentials should be securely stored; admin functions should be protected.
- **Scalability**: The system should support an increasing number of users and cars.
- **Usability**: The interface should be user-friendly and intuitive for non-technical users.
- **Maintainability**: The codebase should be modular and well-documented for future updates.
- **Compatibility**: The system should run on all modern web browsers (Chrome, Firefox, Edge).

CHAPTER 5

SYSTEM DESIGN

5.1 Architecture Diagram

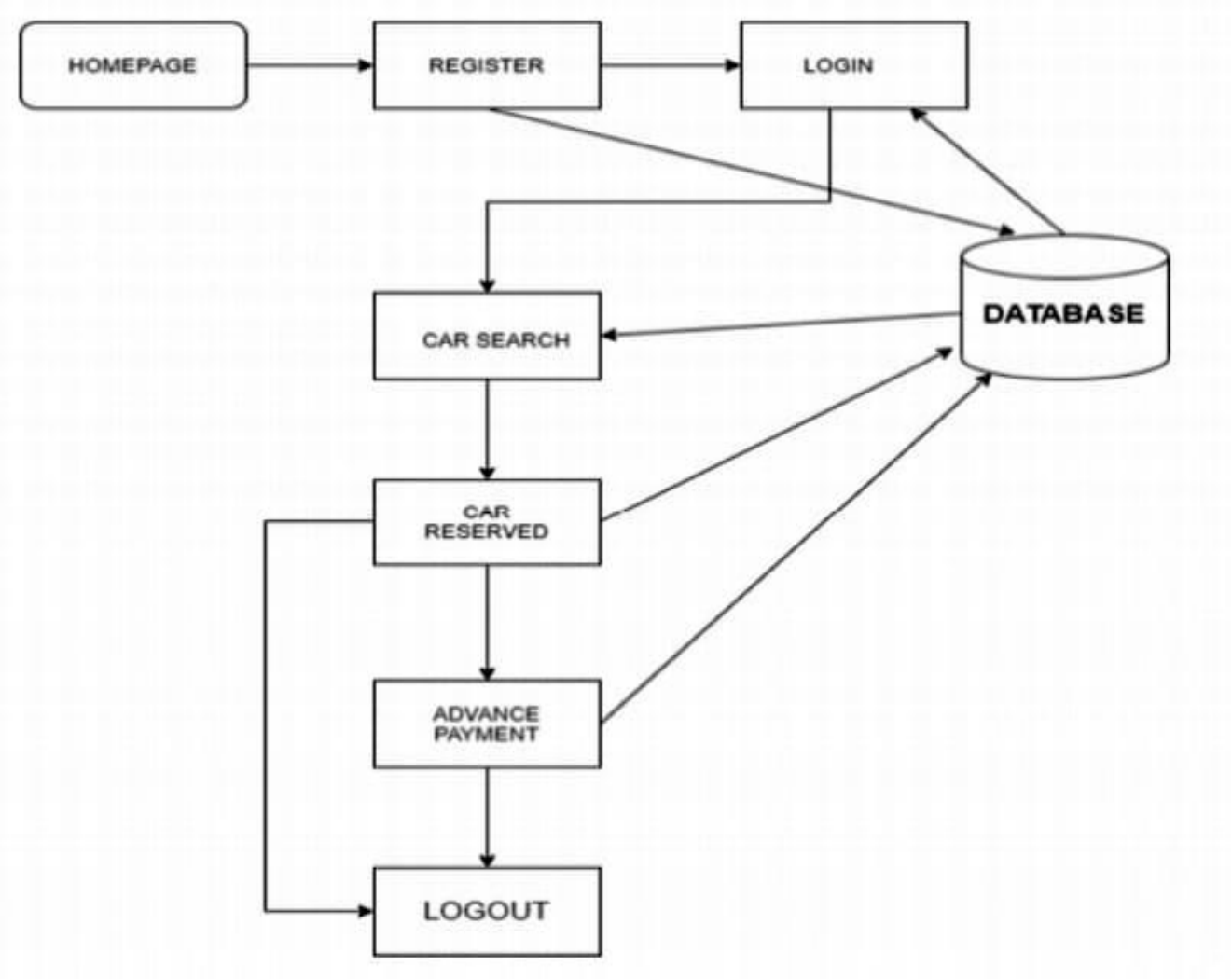

Fig 5.1 Architecture Diagram

5.2 Detailed Design

5.2.1 Use Case Diagram

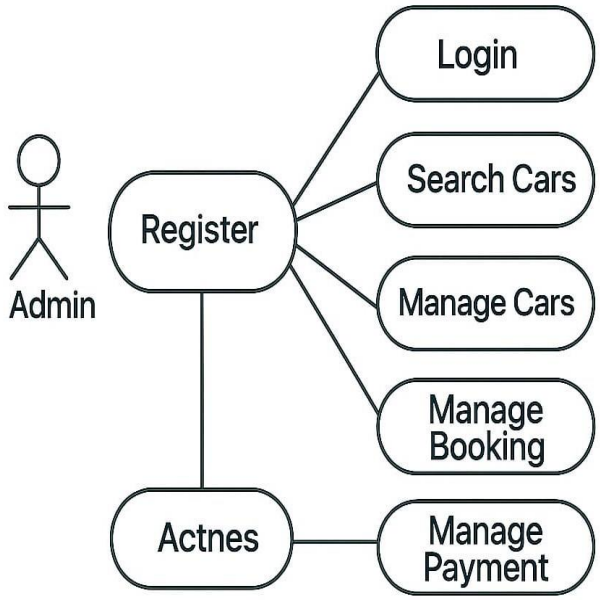

Fig 5.2.1 Use Case Diagram

5.2.2 Use Case Diagram

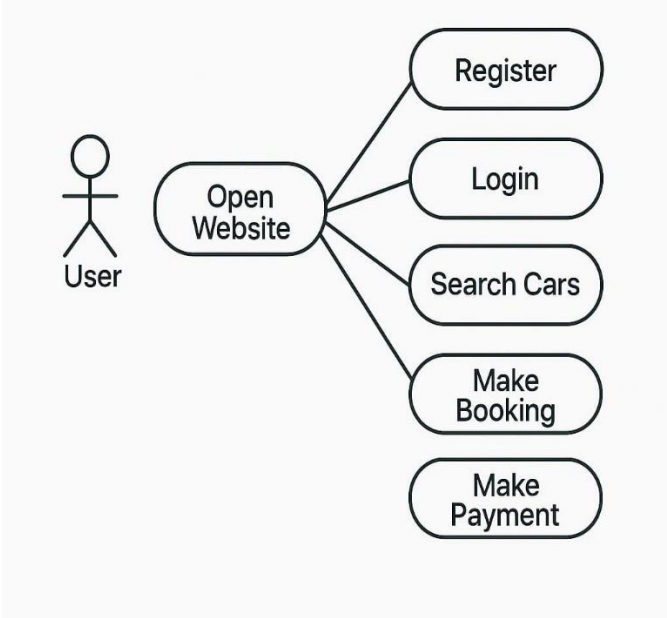

Fig 5.2.2 Use Case Diagram

5.3 Data Flow Diagram

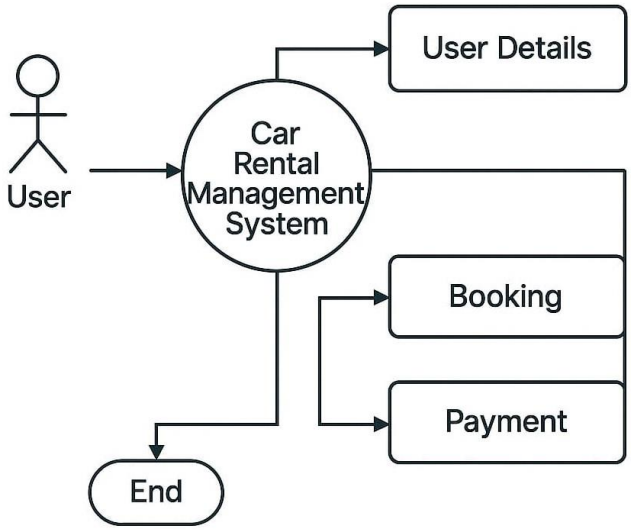

Fig 5.3 Data Flow Diagram

5.4 Sequence diagram

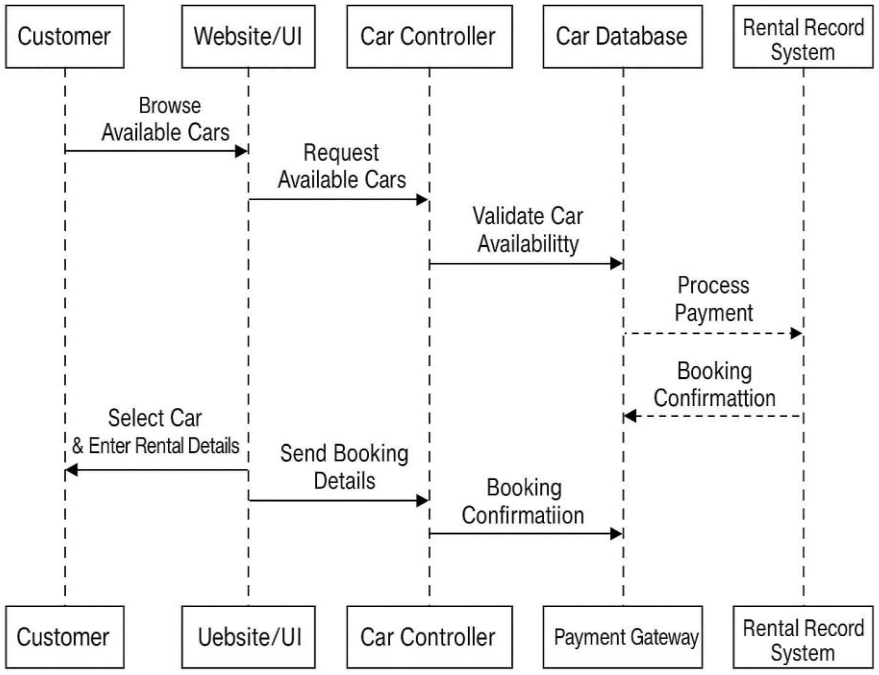

Fig 5.4 Sequence Diagram

CHAPTER 6

IMPLEMENTATION

6.1 Introduction to PHP

PHP (Hypertext Preprocessor) plays a crucial role in developing dynamic and interactive web applications, making it an ideal choice for building a Car Rental Management System. As a server-side scripting language, PHP enables seamless communication between the front-end interface and the backend database, allowing users and administrators to interact with the system efficiently. In a car rental system, PHP can be used to manage functionalities such as user registration and login, car availability listings, booking processes, payment integration, and administrative controls like adding or removing vehicles, monitoring bookings, and managing feedback.

With its built-in support for working with databases like MySQL, PHP ensures secure data storage and retrieval for customer details, vehicle records, rental transactions, and feedback. Its ease of integration with HTML, CSS, and JavaScript further enhances the user experience by enabling the development of responsive and user-friendly interfaces. Overall, PHP provides a flexible, reliable, and cost-effective foundation for creating a robust Car Rental Management System.

6.2 Introduction to MySQL

MySQL is an open-source relational database management system that serves as the backbone for storing, organizing, and managing data in a Car Rental Management System. It is widely used in web development due to its speed, reliability, and ease of integration with server-side scripting languages like PHP. In a car rental system, MySQL is used to manage various datasets such as customer information, vehicle records, booking history, payment transactions, and feedback.

The structured nature of MySQL allows for the efficient creation of tables and relationships between them, enabling developers to build scalable and organized databases. Through SQL (Structured Query Language), administrators can perform operations such as inserting new records, updating car availability, deleting bookings, or retrieving reports on vehicle usage. MySQL ensures data consistency and supports features like indexing, foreign keys, and user access control, which are essential for maintaining the integrity and security of a multi-user

application. Overall, MySQL is a powerful and dependable solution for handling the data requirements of a Car Rental Management System.

6.3 Introduction to HTML

HTML (HyperText Markup Language) is the foundational language used to create and structure content on the web. In a Car Rental Management System, HTML plays a vital role in building the user interface, enabling users to interact with the system through web browsers. It defines the layout of pages such as car listings, booking forms, login/register screens, and dashboards for administrators and customers. HTML elements are used to create headings, paragraphs, links, images, tables, buttons, and forms that collect and display information about vehicles, users, and rental details. Combined with CSS for styling and JavaScript for interactivity, HTML ensures that the car rental platform is visually organized, user-friendly, and accessible. Its semantic tags also help improve readability and maintainability of code, making it easier to integrate with backend technologies like PHP and databases like MySQL. Overall, HTML provides the structural framework for a functional and interactive Car Rental Management System website.

6.4 Introduction to CSS

CSS (Cascading Style Sheets) is a powerful stylesheet language used to control the visual presentation of web pages designed with HTML. In a Car Rental Management System, CSS enhances the appearance and user experience by providing layout, color, typography, spacing, and responsiveness to the interface. It allows developers to create visually appealing pages for car listings, booking forms, dashboards, and user profiles. With CSS, elements such as buttons, navigation bars, tables, and forms can be styled consistently across the application to reflect the brand identity and ensure a modern look.

CSS supports responsive design, making the system accessible on various devices including desktops, tablets, and smartphones. Features like hover effects, transitions, and animations improve user interaction and engagement. By separating content (HTML) from design (CSS), the system becomes more maintainable and scalable. Overall, CSS plays a crucial role in delivering a professional, intuitive, and user-friendly web interface for the Car Rental Management System.

6.5 Introduction to JavaScript

JavaScript is a versatile scripting language used to add interactivity and dynamic functionality to web applications. In the context of a Car Rental Management System, JavaScript plays a key role in enhancing the user experience by enabling real-time interactions without requiring full page reloads. It is commonly used for tasks such as form validation, search filtering, dynamic updates of booking status, displaying available cars based on user preferences, and managing dropdowns or modals.

For example, when a user types in a car name in the search bar, JavaScript can filter the results instantly. It can also validate the booking form to ensure all required fields are filled out correctly before submission, improving data integrity. Additionally, JavaScript is essential for AJAX operations, which allow the system to communicate with the server in the background—fetching or updating data seamlessly.

By combining JavaScript with HTML and CSS, developers can create a responsive, efficient, and interactive Car Rental Management System that provides a smooth and engaging experience for both users and administrators.

CHAPTER 7

UI DESIGN AND OUTPUT

7.1 Home Page

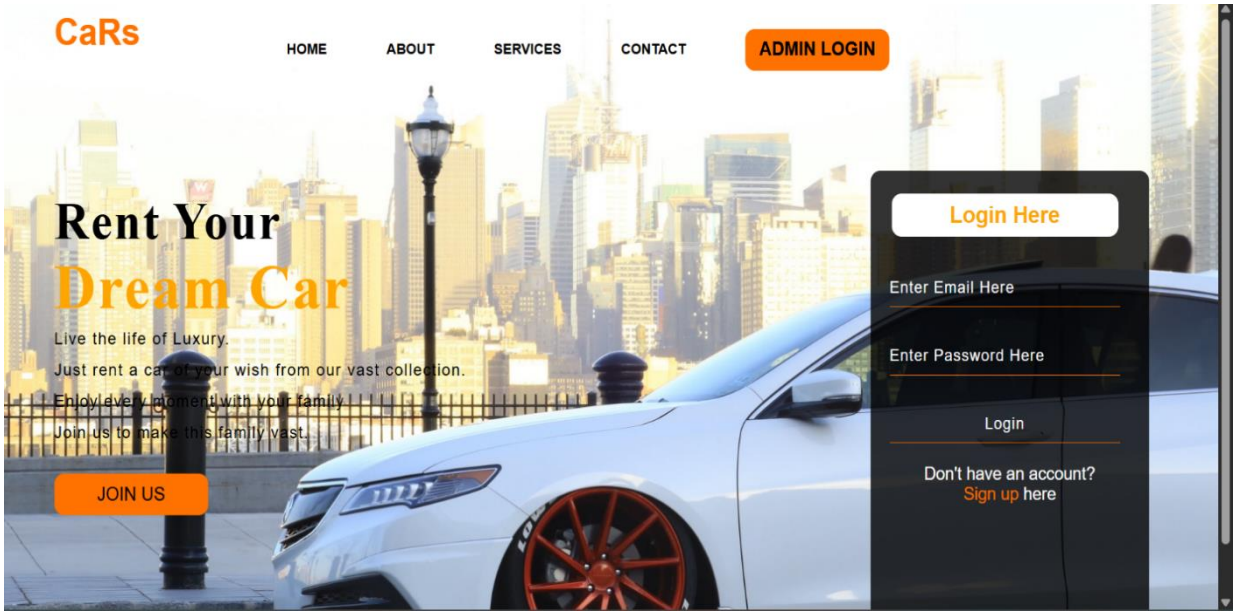

Fig 7.1 Home Page

7.2 Car Review Page

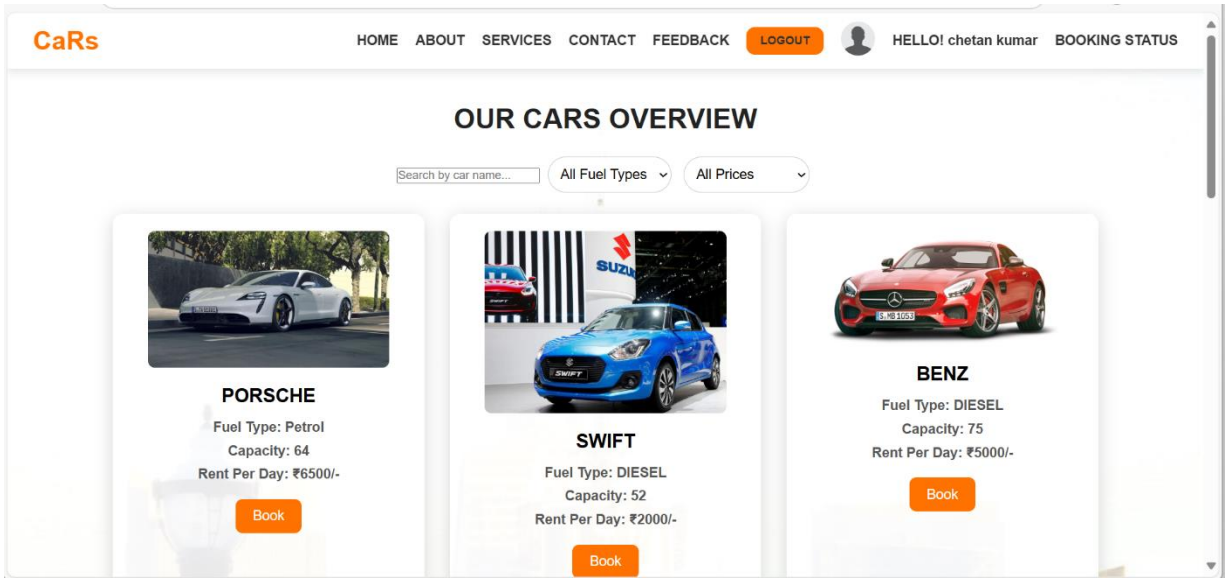

Fig 7.2 Car Review Page

7.3 Car Booking Page

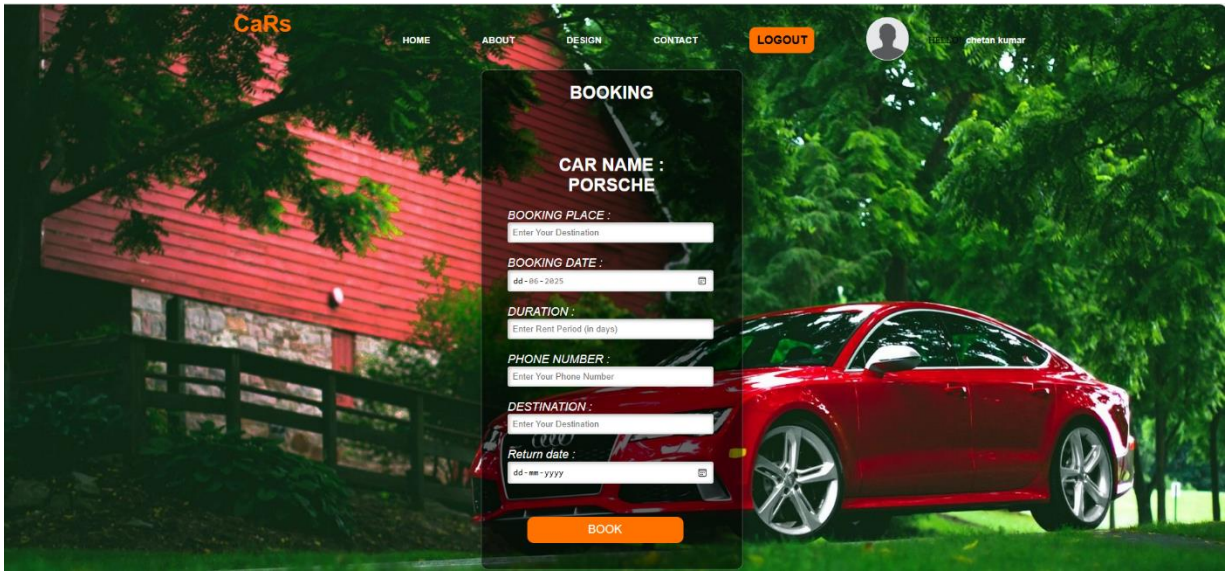

Fig 7.3 Car Booking Page

7.4 Payment Page

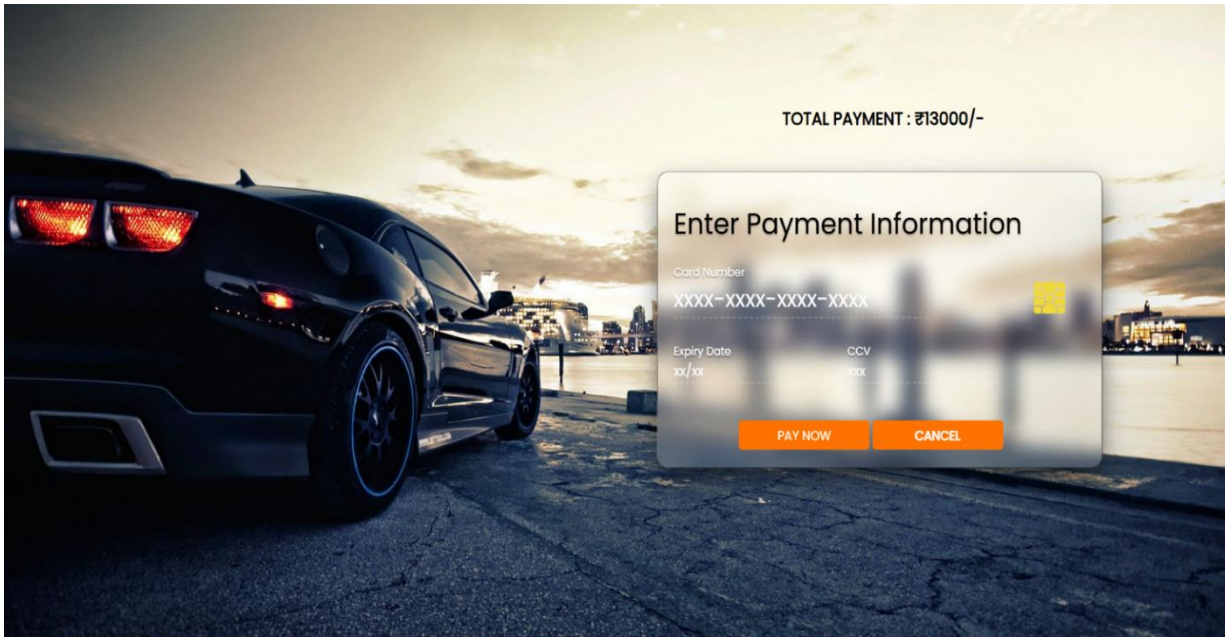

Fig 7.4 payment page

7.5 Booking Confirmation

Fig 7.5 Booking Confirmation

7.6 Admin Login Page

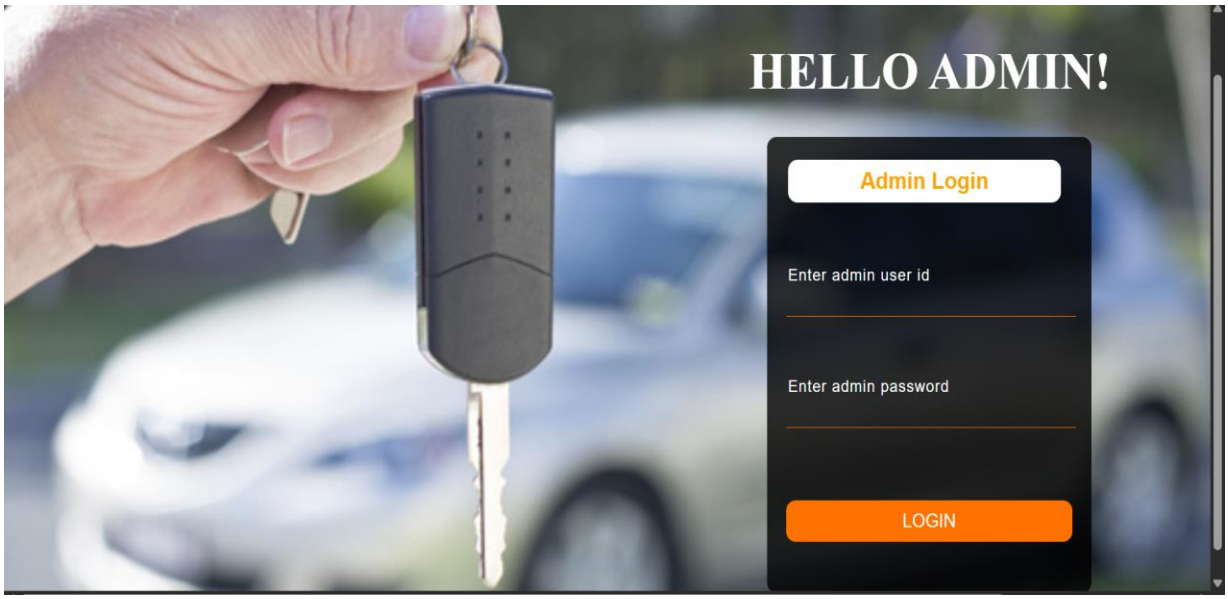

Fig 7.6 Admin Login

7.7 Booking Request Page

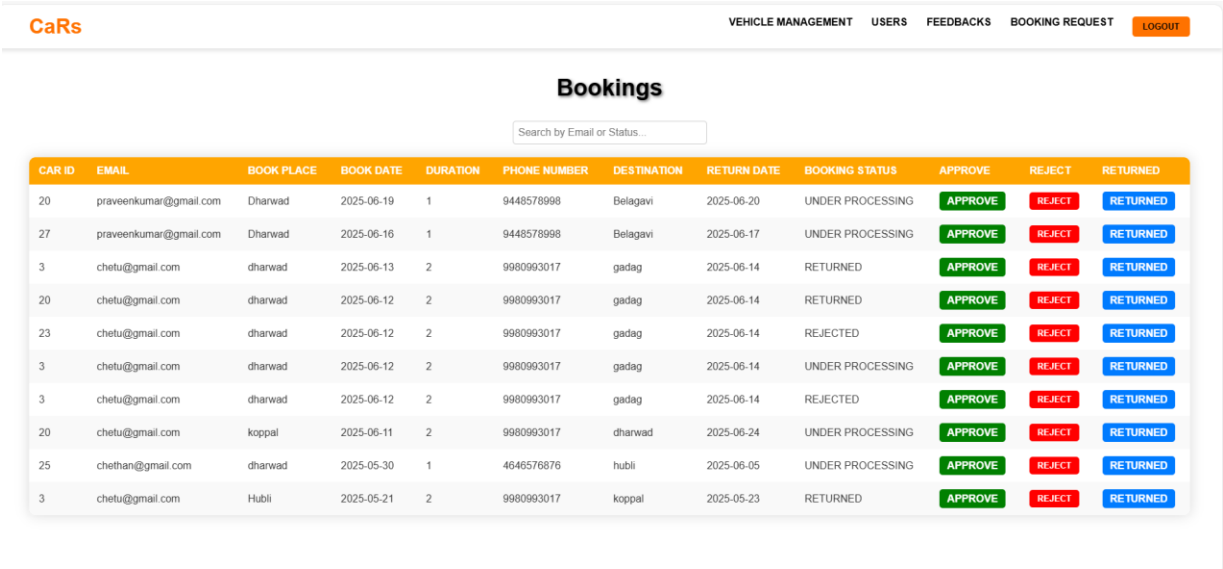

Fig 7.7 Booking Request Page

7.8 Contact Page

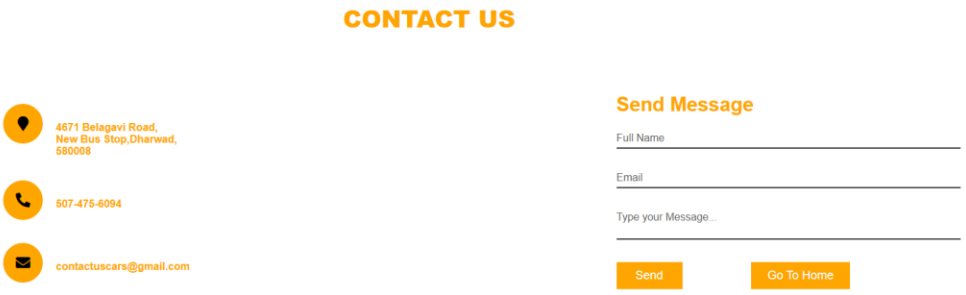

Fig 7.8 Contact Page

CHAPTER 8

CODING

Here's a **complete overview of the coding implementation** for a **Car Rental Management System** using a typical **web technology stack**: PHP, MySQL, HTML, CSS, JavaScript.

8.1 Home page

```
<!DOCTYPE html>
<html lang="en">
<head>

   <title>CAR RENTAL</title>
   <script type="text/javascript">
      window.history.forward();
      function noBack() {
         window.history.forward();
      }
   </script>
   <link  rel="stylesheet" href="css/style.css">
   <script type="text/javascript">
      function preventBack() {
         window.history.forward();
      }

      setTimeout("preventBack()", 0);

      window.onunload = function () { null };
   </script>
</head>
<body>


<?php
require_once('connection.php');
   if(isset($_POST['login']))
   {
      $email=$_POST['email'];
      $pass=$_POST['pass'];


      if(empty($email)|| empty($pass))
```

```
        {
            echo '<script>alert("please fill the blanks")</script>';
        }

        else{
            $query="select *from users where EMAIL='$email'";
            $res=mysqli_query($con,$query);
            if($row=mysqli_fetch_assoc($res)){
                $db_password = $row['PASSWORD'];
                if(md5($pass)  == $db_password)
                {
                    header("location: cardetails.php");
                    session_start();
                    $_SESSION['email'] = $email;

                }
                else{
                    echo '<script>alert("Enter a proper password")</script>';
                }









            }
            else{
                echo '<script>alert("enter a proper email")</script>';
            }
        }
    }


?>
    <div class="hai">
        <div class="navbar">
            <div class="icon">
                <h2 class="logo">CaRs</h2>
            </div>
            <div class="menu">
                <ul>
                    <li><a href="#">HOME</a></li>
                    <li><a href="aboutus.html">ABOUT</a></li>
                    <li><a href="services.html">SERVICES</a></li>
```

```
            <li><a href="contactus.html">CONTACT</a></li>
                    <li> <button class="adminbtn"><a href="adminlogin.php">ADMIN
LOGIN</a></button></li>
          </ul>
        </div>


      </div>
      <div class="content">
        <h1>Rent Your <br><span>Dream Car</span></h1>
        <p class="par">Live the life of Luxury.<br>
          Just rent a car of your wish from our vast collection.<br>Enjoy every moment with
your family<br>
           Join us to make this family vast.  </p>
        <button class="cn"><a href="register.php">JOIN US</a></button>
        <div class="form">
          <h2>Login Here</h2>
          <form method="POST">
          <input type="email" name="email" placeholder="Enter Email Here">
          <input type="password" name="pass" placeholder="Enter Password Here">
          <input class="btnn" type="submit" value="Login" name="login"></input>
          </form>
          <p class="link">Don't have an account?<br>
          <a href="register.php">Sign up</a> here</a></p>
          <!-- <p class="liw">or<br>Log in with</p>
          <div class="icon">
                  <a href="https://www.facebook.com/"><ion-icon
name="logo-facebook"></ion-icon> </a>  
            <a href="https://www.instagram.com/"><ion-icon name="logo-instagram"></ion-
icon> </a> 
            <a href="https://myaccount.google.com/"><ion-icon name="logo-google"></ion-
icon> </a> 

          </div> -->
        </div>
      </div>
    </div>
    <script src="https://unpkg.com/ionicons@5.4.0/dist/ionicons.js"></script>
</body>
</html>
```

CHAPTER 9

TESTING

Software testing is the process of used to identify the correctness, security, completeness and quality of developed computer software. This includes the process of executing the program or applications with the intent of finding errors. An individual unit, functions or procedures of developed project is verified and validated and these units are fit for use.

9.1 Unit Testing

Unit testing is the process of testing individual software components unit or modules. Since it needs the detailed knowledge of the internal program design and code this task is done by the programmer and not by testers.

9.2 System Testing

System testing tests a completely integrated system to verify that it meets its requirements. After the completion of the entire module they are combined together to test whether the entire project is working properly.

9.3: Test cases

A Test Case is a software testing document, which consists of events, action, input, output, expected result and actual result. Technically a test case includes test description, procedure, expected result and remarks. Test cases should be based primarily on the software requirements and developed to verify correct functionality and to establish conditions that reveal potential errors.

Test cases no	Test Case	Expected results	Status
1	Logging into website	Email and password provided correct	Successful
2	Logging into website	Email incorrect	Unsuccessful
3	Logging into website	Password Incorrect	Unsuccessful
4	Logging into website	Any field left empty	Unsuccessful

Table 5.1 Test Case for Login

Table 5.1 represents the test case for Login module. It shows both successful and unsuccessful results for the test cases.

Test cases no	Test Case	Expected results	Status
1	Registration for new user	All details provided correctly	Successful
2	Registration for new user	Any one field is incorrect	Unsuccessful
3	Registration for new user	Any field left empty	Unsuccessful

Table 5.2 Test Case for Signup

Table 5.2 represents the test case for sign up module. It shows both successful and unsuccessful results for the test cases.

Test cases no	Test Case	Expected results	Status
1	Payment	All details provided correctly	Successful
2	Payment	Any one field is incorrect	Unsuccessful
3	Payment	Any field left empty	Unsuccessful

Table 5.3 Test Case for Payment

Table 5.3 represents the test case for Payment module. It shows both successful and unsuccessful results for the test cases.

Test cases no	Test Case	Expected results	Status
1	Booking	All details provided correctly	Successful
2	Booking	Any one field is incorrect	Unsuccessful
3	Booking	Any field left empty	Unsuccessful

Table 5.4 Test Case for Booking

Table 5.4 represents the test case for Booking module. It shows both successful and unsuccessful results for the test cases.

CONCLUSION

The Car Rental Management System is a comprehensive web-based solution designed to streamline the process of renting cars both for users and administrators. By integrating key technologies such as HTML for structure, CSS for styling, JavaScript for interactivity, PHP for server-side processing, and MySQL for database management, the system ensures a robust and user-friendly experience.

Users can easily browse available cars, make bookings, check statuses, and provide feedback. On the other hand, administrators can manage vehicle listings, monitor user activity, handle booking requests, and view customer feedback efficiently. The system not only enhances operational efficiency but also improves customer satisfaction by providing a seamless and responsive interface.

In summary, the Car Rental Management System demonstrates how modern web technologies can be effectively combined to create a functional, dynamic, and scalable application tailored to the needs of the vehicle rental industry.

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