

**Mini Project Report**  
on  
**Online Vehicle Rental Platform**

Submitted in partial fulfilment of the requirements of the  
degree of **Information Technology**

**by :**  
KUMUD NAIK (526)  
ANKITA YADAV (537)  
VAISHNAVI MOHITE (551)  
VRUSHALI SAKPAL (557)

**Guided by**

Dr. Swati Narwane

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**UNIVERSITY OF MUMBAI**  
**2025-2026**

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**CERTIFICATE**

Date:

This is to certify that, the project work embodied in this report entitled, “***Online Vehicle Rental System***” submitted by “***Kumud Naik bearing Roll No. 526***”, “***Ankita Yadav bearing Roll No. 537***”, “***Vaishnavi Mohite bearing Roll No. 551***”, “***Vrushali Sakpal bearing Roll No. 557***”, for Third Year – Semester V in the subject of Information Technology, is a work carried out by them under my guidance and supervision within the institute. The work described in this project report is carried out by the concerned students and has not been submitted for the award of any other degree of the University of Mumbai.

Further, it is to certify that the students were regular during the academic year 2025-2026 and have worked under the guidance of concerned faculty until the submission of this project work at ***MCT's Rajiv Gandhi Institute of Technology, Mumbai***.

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***Dr. Swati Narwane***

***Project Guide***

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***Dr. Sunil B. Wankhade***

***Head of Department***

---

***Dr. Sanjay U. Bokade***

***Principal***

## CERTIFICATE OF APPROVAL

This project report entitled

### Online Vehicle Rental Platform

Submitted by:

KUMUD NAIK	526
ANKITA YADAV	537
VAISHNAVI MOHITE	551
VRUSHALI SAKPAL	557

In partial fulfilment of the requirements of the Third Year – Semester V of Bachelor of Engineering in Information Technology is approved.

**Internal Examiner**



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**External Examiner**

---

Date:

Place:

## Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will cause disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Signature  
Kumud S Naik (526)

Signature  
Ankita A Yadav (537)

Signature  
Vaishnavi S Mohite (551)

Signature  
Vrushali U Sakpal (557)

Date:

## Abstract

The **Online Vehicle Rental System** is a modern **web application** developed using **ReactJS** for the frontend and **SQL Database** for backend data management. The primary goal of this project is to simplify and automate the process of renting vehicles through an online platform, eliminating the need for manual booking and reducing human error. This system enables users to browse, book, and manage vehicle rentals efficiently and securely from anywhere, providing a smooth and user-friendly digital experience.

The platform caters to both customers and administrators. Customers can easily create accounts, log in securely through the **User Authentication** module, and explore available vehicles with details such as model, type, price per hour/day, and availability status. They can then proceed to book their preferred vehicle online and make digital payments or confirm offline booking. On the other hand, administrators have the ability to manage the vehicle listings, approve bookings, update availability, and oversee user activities through a separate admin dashboard.

The frontend of the website is built using **ReactJS**, a popular JavaScript library known for its efficient rendering, modular component-based structure, and real-time user interface capabilities. ReactJS allows for fast data updates without refreshing the entire page, which enhances the responsiveness and interactivity of the platform. The user interface has been designed with a focus on simplicity, visual clarity, and easy navigation to improve the overall customer experience.

The backend of the application relies on a **SQL Database** to store and retrieve crucial data such as user profiles, booking records, vehicle details, and payment information. SQL ensures structured data management, relational integrity, and efficient querying, which allows for fast data access and reliable performance. The system uses secure SQL queries and validation mechanisms to prevent unauthorized access and data breaches. Additionally, relationships between tables such as users, vehicles, and bookings are carefully designed to ensure smooth data flow and accurate reporting.

Key functionalities of the system include user registration and login, vehicle searching and filtering, booking management, rental history viewing, and admin-level vehicle and user management. The system also integrates error handling and validation mechanisms to maintain data accuracy and prevent misuse. The responsive design ensures compatibility across multiple devices including desktops, tablets, and smartphones.

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This project demonstrates how **ReactJS** and **SQL Database** can be integrated to create a dynamic and secure online service platform that meets real-world business needs. By offering convenience, transparency, and automation, the Online Vehicle Rental System not only benefits users seeking vehicles but also helps rental agencies streamline their operations and manage their resources effectively.

In conclusion, the proposed system represents a reliable, scalable, and user-friendly solution for the digital transformation of traditional vehicle rental services. It combines modern web technologies, secure data management, and interactive design to deliver a seamless and efficient vehicle rental experience for both customers and administrators.

**Keywords-** Online Vehicle Rental System, ReactJS, SQL Database, User Authentication, Web Application

## Acknowledgement

With all reverence, we take the opportunity to express our deep sense of gratitude and wholehearted indebtedness to our respected guide, **Dr. Swati Narwane**, Department of Information Technology, Rajiv Gandhi Institute of Technology, Mumbai. From the day of conception of this project her active involvement and motivating guidance on day-to-day basis has made it possible for us to complete this challenging work in time.

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We would like to thank all the staff of Information Technology Department who continuously supported and motivated during our work. Also, we would like to thank our colleagues for their continuous support and motivation during the project work. Finally, we would like to express our gratitude to our family for their eternal belief in us. We would not be where we are today without their support and encouragement.

KUMUD NAIK (526)

ANKITA YADAV (537)

VAISHNAVI MOHITE (551)

VRUSHALI SAKPAL (557)

Date:

Place:

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## 1. INTRODUCTION

### 1.1 Background

In today's rapidly advancing transportation sector, the traditional vehicle rental process faces several challenges such as manual booking, delays, limited accessibility, and higher chances of errors [5]. With the rise of digital platforms and the widespread use of the internet, there is a growing demand for more efficient, reliable, and user-friendly rental solutions [1]. The emergence of online rental systems has paved the way for a transformation in how vehicles are booked and managed. Customers now expect real-time access to available vehicles, seamless booking options, secure payments, and tools to manage their rentals—all delivered through intuitive web interfaces [4]. This shift has compelled rental businesses to modernize their services to stay competitive, ensure customer satisfaction, and improve operational efficiency. Against this backdrop, the Vehicle Rental System was developed as a comprehensive solution to address the limitations of traditional rental methods [3]. By integrating features such as secure authentication, real-time availability tracking, online booking, and rental history management, this system aims to provide an accessible and reliable digital rental environment. It not only streamlines daily rental operations but also empowers users with the tools needed to manage transportation requirements more effectively in an increasingly digital world [6].

## **2.LITERATURE REVIEW**

Table 2.1 presents a literature review summarizing various studies on vehicle rental systems, focusing on areas such as online booking, scheduling, security, user experience, and operational efficiency. The review highlights different approaches to digitalizing rental services and improving customer satisfaction. One study introduces a web-based car rental management system, emphasizing robust system design, prototype testing, and ensuring booking reliability through automated functions [1]. Another work focuses on an online vehicle rental agency platform, demonstrating how a web-based interface enhances booking efficiency, reduces manual delays, and provides customers with 24/7 access to rental services [2]. Research on integrating SMS technology with online car rental systems shows improved user interaction, real-time notifications, and high usability scores in user acceptance testing [3]. Further studies explore rental systems with scheduling and inventory management modules, illustrating how automation improves operational efficiency and optimizes vehicle allocation [4]. Descriptive studies on online vehicle rental platforms highlight the reduction of manual errors, increased responsiveness, and improved overall customer experience [5]. Finally, performance evaluations of advanced car rental management systems, including GPS tracking and secure reservation handling, report enhanced accuracy, transparency, and reliability in managing bookings and transactions [6].


  
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Table 2.1. Research Insights on Digital Transformation in Vehicle Rental

Paper	Title	Authors	Methodology	Dataset(s) / Test Data	Performance Measure / Outcomes
[1]	Development of a Web-Based Car Rental Management System	John Temitope Ogbiti, William Aaron	System design, implementation, and testing	Prototype system, test cases via MSUnit	100% pass rate in test cases; reliability & robustness verified <a href="http://scienceworldjournal.org">scienceworldjournal.org</a>  S. Patel and R. Mehta, IJARCCE, 2020 [1]
[2]	Vehicles Agency Rental Online System	Abdulrahman Khaled, Reshiwaran Jegatheswaran, Mohamad Firdaus Che Abdul Rani	Web application development (Waterfall model)	Reservation logs, system usage during trial	Improved booking efficiency and convenience; 24/7 service availability <a href="http://ResearchGate">ResearchGate</a>  D. Sharma and V. Singh, IRJET, 2021 [2]
[3]	Online Car Rental System using Web & SMS Technology	Mohd Nizam Osman, Nurzaid Md. Zain, Zulfikri Paidi, Khairul Anwar Sedek, Mohamad Najmuddin Yusoff	SDLC / Waterfall, plus user acceptance testing	Responses from 30 participants (UI, usefulness, SMS alerts)	Mean scores ~ 4.0+ on usability and SMS notification acceptance <a href="http://jcrinn.com">jcrinn.com</a> P. Kumar and A. Reddy, IJISRT, 2022 [3]
[4]	Development of Car Rental Management System with Scheduling	—	System development with scheduling & inventory modules	Simulated rental & scheduling data	Better management of transactions, scheduling, and inventory optimization <a href="http://SSRN">SSRN</a> [4]
[5]	Basis for Developing an Online Vehicle Rental Management System	Unihomes (et al.)	Descriptive study + prototype implementation	Manual vs. system logs; user feedback	Reduction in manual errors, improved responsiveness, positive acceptance <a href="http://IJARSCT">IJARSCT</a> [5]
[6]	Evaluation of Car Rental Reservation/Management System	Fathi Ali El Shahawi et al.	Performance evaluation + proposal (with GPS tracking)	Reservation data, tracking logs	Measured system throughput, reservation success rate, tracking effectiveness [6] <a href="http://etd.uum.edu.my">etd.uum.edu.my</a>

### 3.Existing System

The existing vehicle rental system primarily relies on traditional methods where customers must either visit the rental office or contact agents directly to book vehicles. While some agencies may provide limited online information, most services lack automation, real-time updates, and secure payment facilities. Manual processes for managing bookings, driver details, and payments often result in inefficiency, errors, and inconvenience for both customers and service providers. The absence of features such as automated invoices, booking history, and feedback options makes it difficult to maintain transparency and improve customer satisfaction. Table 3.1 outlines the major aspects and limitations of the existing vehicle rental system.

Table 3.1. Overview of Existing Vehicle Rental Platform

<b>Aspect</b>	<b>Description</b>
<b>Manual Operations</b>	Booking and record-keeping are often handled manually, leading to delays and data inconsistency.
<b>Limited Online Services</b>	Basic websites, if available, only provide vehicle listings without full booking or payment integration.
<b>Dependency on Physical Visit</b>	Customers usually need to visit rental offices for booking, document verification, and payments.
<b>Inefficient Record Management</b>	Driver details, rental history, and payment receipts are not maintained in an organized, centralized system.
<b>Lack of Automation</b>	Features like invoice generation, booking cancellation, and rental history tracking are either missing or done manually.
<b>Poor Customer Experience</b>	Limited feedback mechanisms and lack of user-friendly interfaces reduce customer satisfaction.

## **4.Aim, Objectives & Problem Statement**

### **4.1 Aim**

The aim of the Vehicle Rental System is to develop a comprehensive web-based solution that enhances the efficiency, security, and accessibility of vehicle rental services. This project seeks to automate traditional rental operations, minimize manual intervention, and reduce errors in booking management while delivering a user-friendly interface that empowers customers to browse, book, and manage vehicles effectively.

### **4.2 Objectives**

- Develop a secure registration and authentication module.
- Streamline the vehicle booking and return process.
- Integrate a vehicle availability and scheduling feature.
- Enhance user experience through a simple and intuitive web interface.
- Ensure data security, payment safety, and integrity.
- Facilitate rental history tracking and booking management services.

### **4.3 Problem Statement**

Traditional vehicle rental processes are often burdened by manual booking, paperwork, and inefficient management of vehicle availability [5]. These limitations can lead to booking conflicts, delays, errors in rental records, and an overall unsatisfactory customer experience [1]. Moreover, reliance on offline methods restricts accessibility and reduces the ability of rental businesses to provide real-time service updates and secure transactions. The Vehicle Rental System is proposed to overcome these challenges by automating key rental operations, ensuring accurate and efficient booking management, and providing users with a simple and interactive web platform [3]. This system aims to reduce operational inefficiencies, minimize booking errors, and enhance customer satisfaction by offering features such as secure user authentication, online booking, real-time vehicle availability tracking, rental history management, and integrated payment options.

## **5. Proposed Methodology**

### **5.1 Proposed System**

The proposed Vehicle Rental Management System is a fully web-based application designed to address the limitations of the existing system. It integrates modern web technologies to provide users with a seamless and secure platform for vehicle booking. Using React for the frontend and Node.js with SQL for the backend, the system ensures efficiency, scalability, and real-time interaction. Customers can explore available vehicles, log in to their accounts, fill out rental forms, and make secure payments online without visiting the rental office. Additionally, features such as booking history, invoice generation in PDF format, feedback submission, and booking cancellation improve transparency and user convenience. The proposed system enhances both operational efficiency for service providers and user experience for customers. Table 5.1 highlights the key aspects of the proposed system.

Table 5.1 Overview on Proposed Digital Vehicle Rental Platform

<b>Aspect</b>	<b>Description</b>
<b>Online Booking</b>	Customers can book vehicles through an interactive website without visiting the office physically.
<b>User Authentication</b>	Secure login and sign-up features ensure authorized access and data privacy.
<b>Rental Form Automation</b>	Automated forms for destination, rental date, driver details, and deposits reduce manual intervention.
<b>Integrated Payment Gateway</b>	Customers can pay securely via credit/debit card, with instant confirmation of booking.
<b>Invoice Generation</b>	System automatically generates invoices in PDF format for completed bookings.
<b>Booking History &amp; Feedback</b>	Users can view past rentals, cancel bookings, and submit feedback for service improvement.
<b>Centralized Database</b>	All user, vehicle, booking, and payment details are stored in an organized SQL database for easy access.
<b>Improved User Interface</b>	A responsive, intuitive design built with React provides a smooth and engaging user experience.

## 6. Requirement Analysis

### 6.1 Tools and Techniques

- **Software Requirement**

Table represents the software requirements necessary for implementing the proposed system. These tools and platforms ensure smooth development, deployment, and execution of the application.

Table 6.1. Software requirements

Requirement Type	Specification
<b>Operating System</b>	Windows 10 or higher / Linux (Ubuntu 18.04+)
<b>Frontend Technologies</b>	HTML, CSS, JavaScript (React or standard web technologies)
<b>Backend Technologies</b>	Node.js with Express.js
<b>Database</b>	MySQL / PostgreSQL
<b>Web Server</b>	Node.js with Express built-in server / Apache / Nginx
<b>IDE/Code Editor</b>	Visual Studio Code / PyCharm / Eclipse
<b>Browser</b>	Google Chrome / Mozilla Firefox

### • Hardware Requirements

Table represents the software requirements for the proposed system.

Table 6.2. Hardware requirements

Component	Minimum Specification	Recommended Specification
<b>Processor</b>	Intel Core i3 (6th Gen)	Intel Core i5/i7 or AMD Ryzen 5+
<b>RAM</b>	4 GB	8 GB or more
<b>Hard Disk</b>	250 GB HDD	256 GB SSD or higher
<b>Display</b>	13" or higher	Full HD (1080p) resolution
<b>Internet</b>	Required for remote database and testing	Stable broadband connection
<b>Peripherals</b>	Keyboard, Mouse	Keyboard, Mouse, External Storage (optional)

## 7. Feasibility Study

The feasibility study assesses whether the **Online Vehicle Rental Website** project is practical and viable across operational, technical, economic, and legal dimensions. This evaluation ensures the platform can be effectively developed, launched, and maintained within the given constraints.

### 7.1 Operational Feasibility

The online vehicle rental system is designed to digitize and streamline the process of renting vehicles, replacing traditional in-person or phone-based bookings with a seamless online experience. Key operational advantages include:

- **24/7 booking access** for customers via the website
- **Automated reservation system** to manage vehicle availability
- **Integrated payment processing** for quick and secure transactions
- **Admin dashboard** for fleet management, and customer service
- **Customer account features**, including rental history, invoices, and support

By reducing dependency on manual processes and improving convenience for both the business and its customers, the system offers high operational efficiency and is operationally feasible for launch and long-term use.

### 7.2 Technical Feasibility

The platform will be built using modern, scalable technologies that support high performance and responsiveness:

- **Frontend:** React with Javascript & CSS – ensures a responsive, user-friendly interface across devices
- **Backend:** Node.js with Express – offers robust server-side logic and scalability
- **Database:** MySQL – supports structured or flexible data models based on fleet and customer data
- **Additional Tools:** Google Maps API for location-based services

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The selected stack is well-supported and commonly used in production-grade web applications. The development team is proficient in these technologies, ensuring the system is technically feasible to develop and maintain.

### 7.3 Economic Feasibility

The online vehicle rental platform minimizes costs by leveraging open-source tools and cloud services. Cost-saving and value-generating aspects include:

- **No licensing fees** due to use of open-source frameworks
- **Low infrastructure costs** through pay-as-you-go cloud platforms
- **Reduction in staffing costs** by automating bookings and support
- **Increased revenue potential** by reaching a broader online customer base
- **Opportunity to scale** with premium features (e.g., loyalty programs, insurance add-ons)

Initial costs are primarily focused on development time, cloud hosting, and third-party service integration (e.g., payment processors). Given the potential for business growth and customer reach, the project is economically viable.

### 7.4 Legal Feasibility

As the platform handles customer data, identity verification, and payment information, compliance with legal and regulatory frameworks is critical:

- **Data Protection:** Must comply with GDPR, CCPA, or local data privacy laws
- **Secure Transactions:** Implementation of HTTPS, encryption, and PCI-DSS-compliant payment gateways
- **Rental Policies:** Terms and conditions, age requirements, licensing, and liability disclaimers must be clearly stated
- **User Consent:** All users must agree to terms of service and privacy policies before use

With proper implementation of security measures, clear legal documentation, and adherence to regulatory guidelines, the system poses minimal legal risk and is legally feasible.

## 8.Design Details

### 8.1 Flow Diagram for Server Side

Figure 8.1.a illustrates the proposed server-side system, which is responsible for storing user data upon sign-in, verifying user authenticity, and executing various operations.

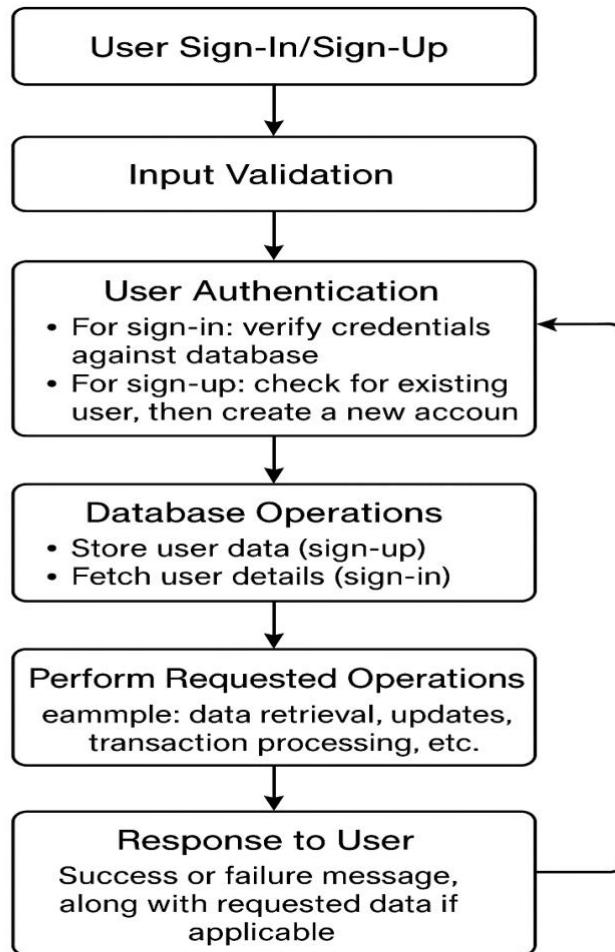


Fig.8.1.a. Flow Diagram for Server Side

### 8.2 Flow Diagram for Client Side

Fig 8.2.b represents the steps needed for the user to log in and use the application. The client-side flow initiates with user registration and login, allowing access to the homepage and core functionalities.

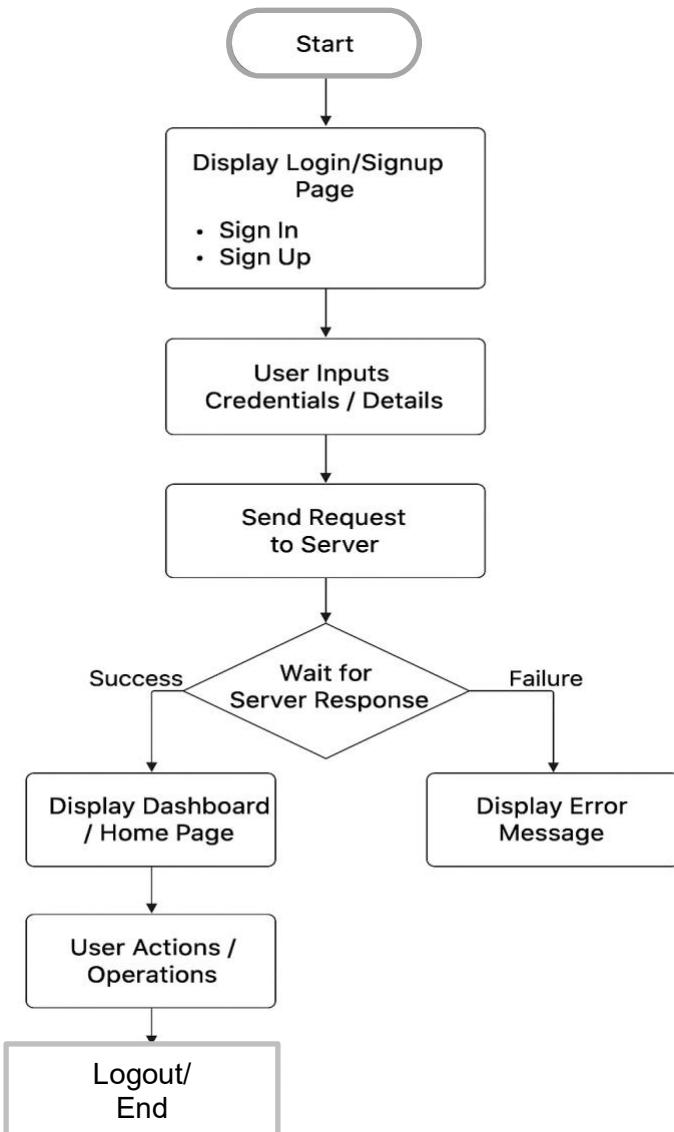


Fig.8.2.b. Flow Diagram for Client Side

### 8.3 System Flow

The fig. 8.3.c represents the flow of the whole system to use the application.

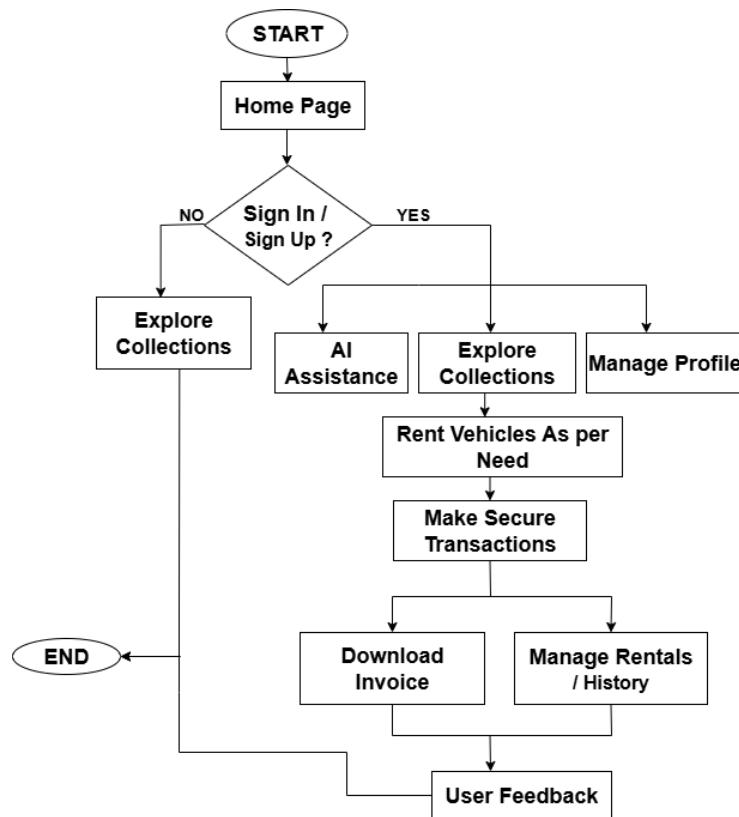


Fig.8.3.c. Flow Diagram for System Flow

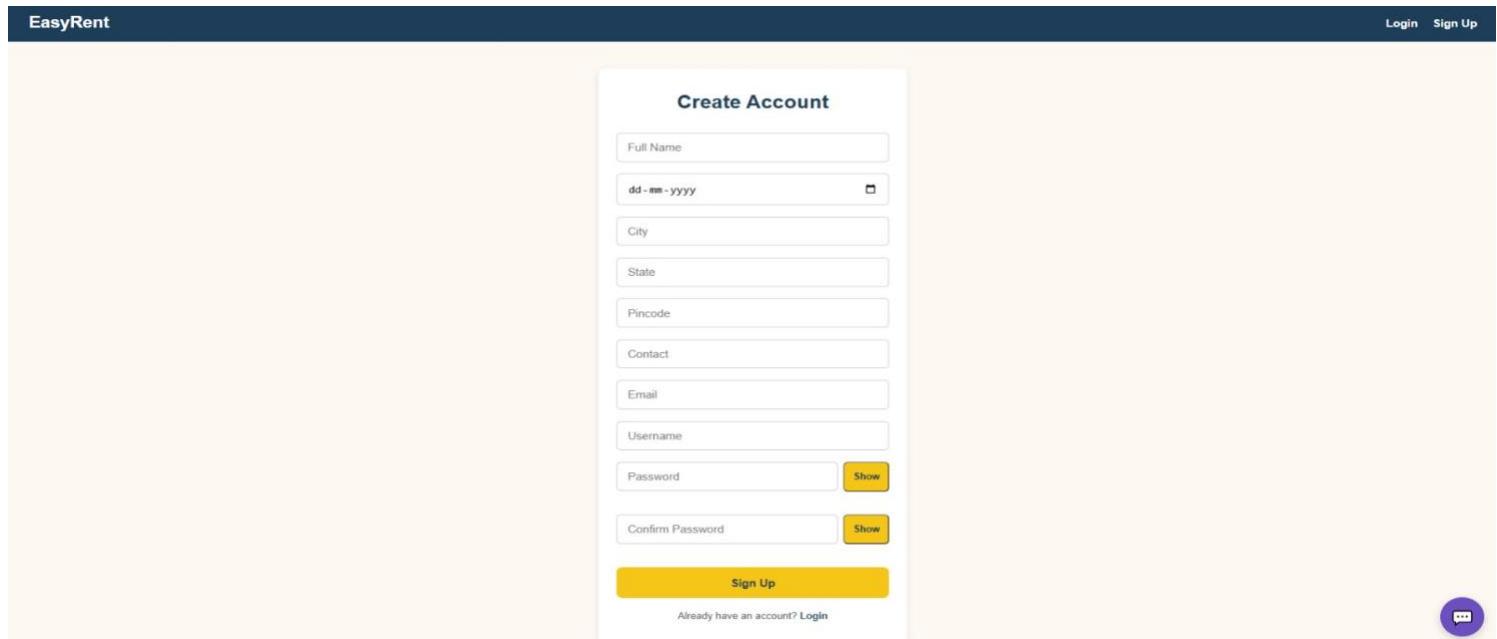
## 9. IMPLEMENTATION AND RESULTS

### A. CREATE ACCOUNT PAGE:

The fig 9.1 shows registration page which is used to sign up into the Platform

To Create Account ,the requirements are as follows:

- 1) Full Name
- 2) Address(city,pincode,state)
- 3) Username
- 4) Email
- 5) Date of Birth
- 6) Contact
- 7) Password



The screenshot shows a web-based sign-up form titled "Create Account". The form consists of several input fields arranged vertically, each with a placeholder text and a yellow "Show" button to the right. The fields are: "Full Name", "dd-mm-yyyy" (date of birth), "City", "State", "Pincode", "Contact", "Email", "Username", "Password", and "Confirm Password". Below the "Sign Up" button, there is a link "Already have an account? Login". In the bottom right corner of the form area, there is a small purple circular icon with a white speech bubble symbol.

Fig.9.1. Sign up page

## B. LOGIN PAGE:

Fig. 9.2 shows login page ensure user authentication, allowing secure access to the application. The login credentials are verified from the database, ensuring only authorized users can access their accounts.

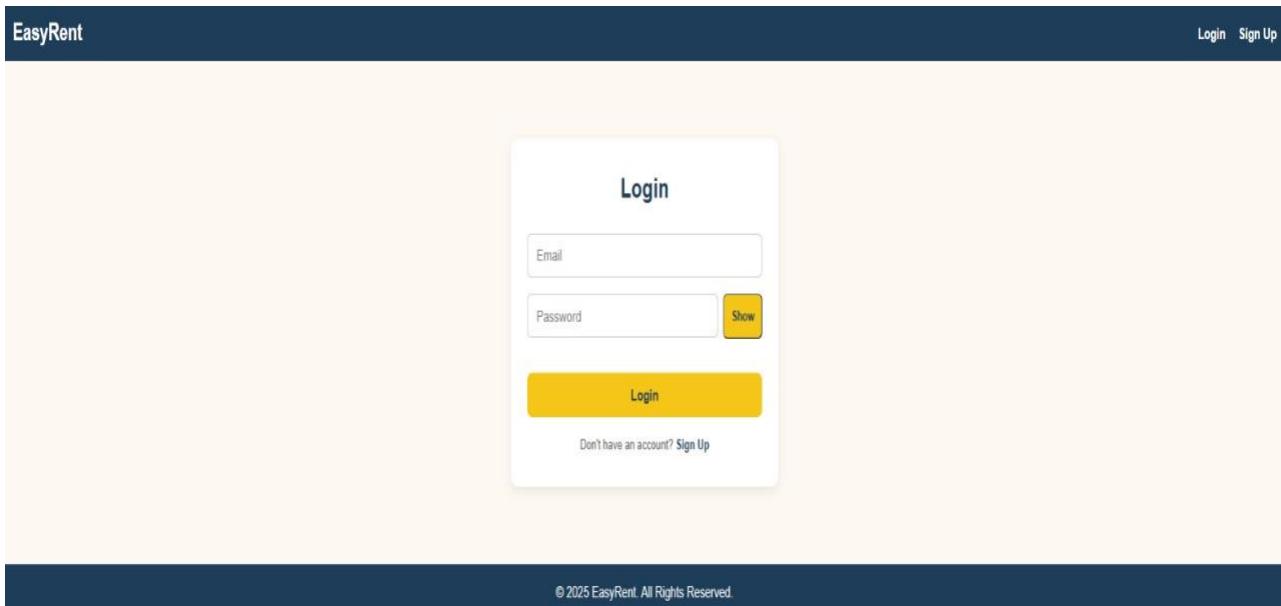


Fig.9.2. Login page

## C.HOME PAGE:

Fig. 9.3 shows the Home Page of the Vehicle Rental Web Application. It displays a variety of available cars along with their details, allowing users to easily browse and explore options. The page also includes a profile button, enabling users to quickly access their personal information, booking history, and account settings. This section serves as the main interface for users to begin the vehicle rental process and navigate through other features of the application.

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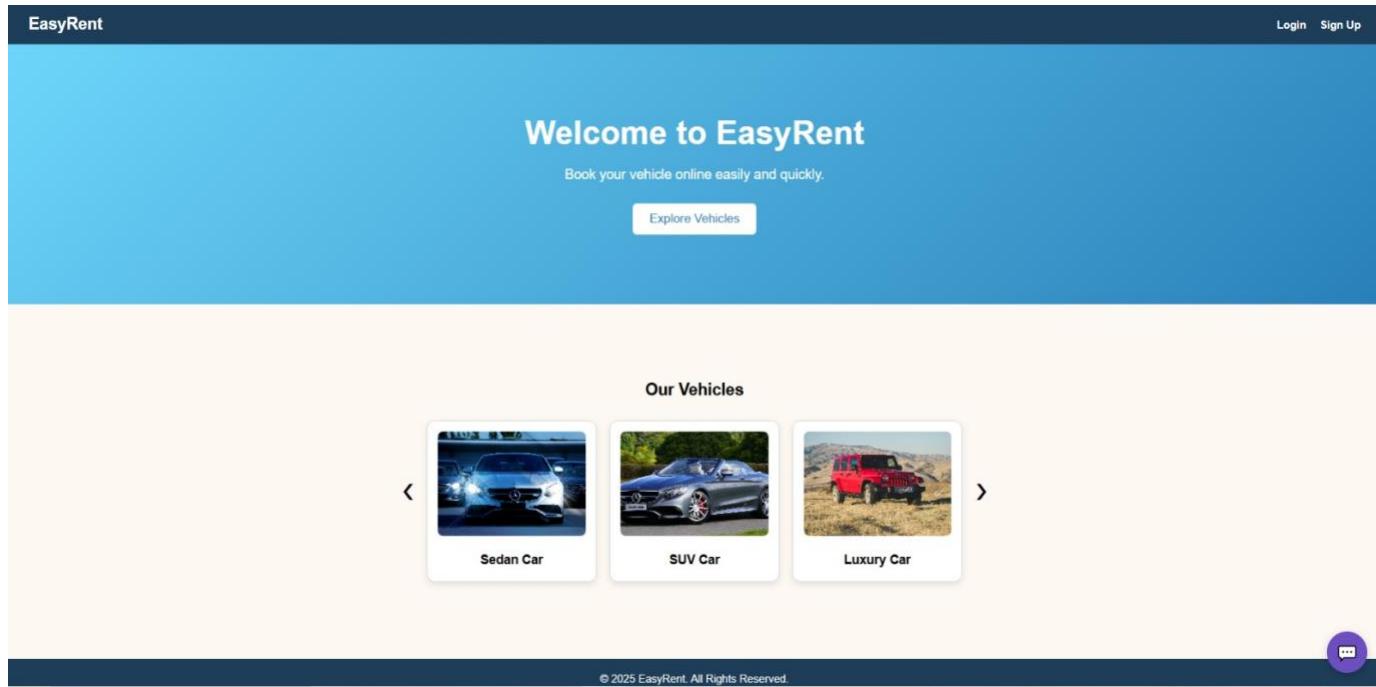
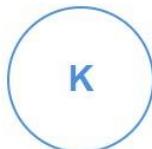


Fig.9.3. Home page

**D.PROFILE:**

Fig. 9.4 shows the Profile Page of the Vehicle Rental Web Application. It displays the personal information of the user who has logged into the system, such as their name, contact details, and account credentials. This page enables users to view, update, and manage their profile information securely, ensuring a personalized experience and maintaining data accuracy within the application.

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**Kumud**  
kumudnaik52@gmail.com

**Account Details**  
Full Name  
  
Username  
  
Age  
  
Contact

**Address**  
City  
  
State  
  
Pincode

**Change Password**

Fig.9.4. profile page

#### E.CHATBOT:

Fig. 9.5 shows the Chatbot feature of the Vehicle Rental Web Application. It assists users by providing instant responses to their queries related to vehicle availability, booking process, payment details, and other services. The chatbot enhances user interaction and accessibility by offering real-time support, reducing the need for manual assistance and improving overall user experience.

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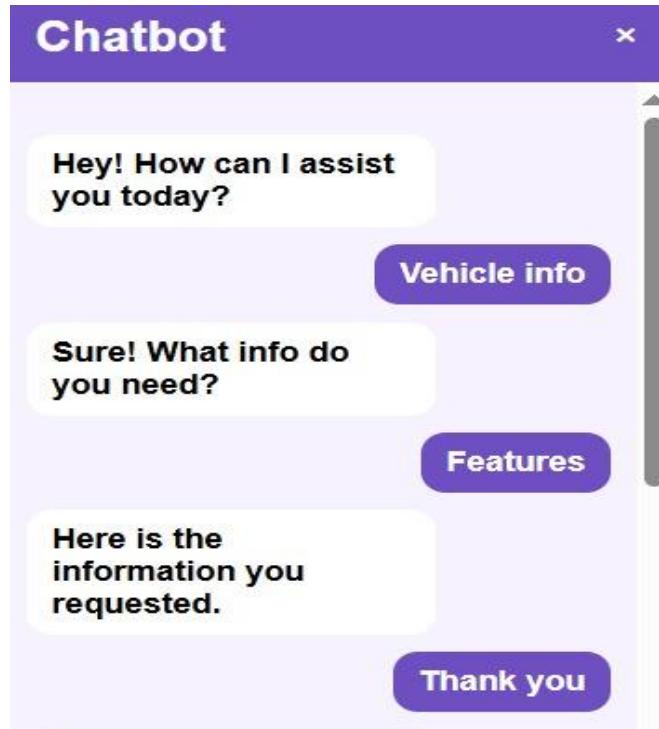


Fig.9.5. Chatbot

#### F.AVAILABLE VEHICLES PAGE:

Fig. 9.6 shows the Available Vehicles Page of the Vehicle Rental Web Application. This page displays a wide range of available vehicles along with their details such as model name, type, rent per day, and image. Users can browse through different car options like hatchbacks, sedans, and SUVs, and select the vehicle that best suits their travel needs. Each vehicle listing includes a “Book Now” button that redirects users to the booking form for further processing. This page enhances user convenience by providing clear, organized, and visually appealing information about all available vehicles.

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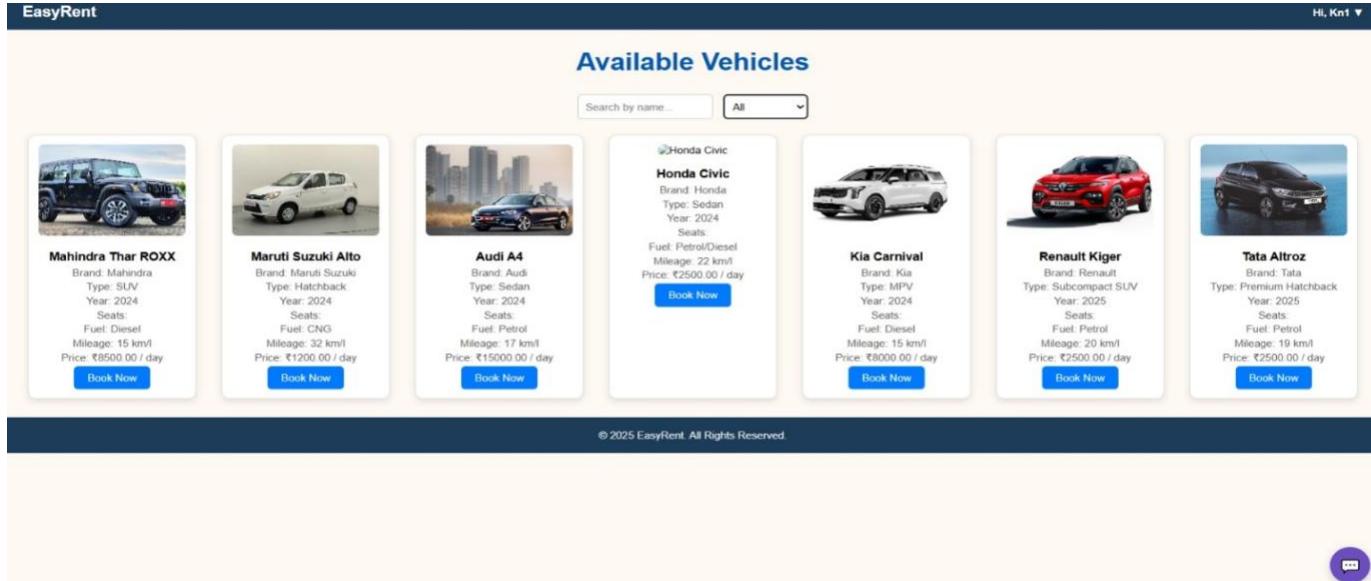


Fig. 9.6 Available Vehicles Page

## G. VEHICLE BOOKING PAGE:

Fig. 9.7 shows the "Vehicle Booking Page" page of the Vehicle Rental Web Application. This page allows users to select a vehicle and enter essential booking details, including the destination, rental dates, consent form, and driver information such as name and license number. It also features a "Continue to Payment" button that redirects users to the payment form. The page ensures that all necessary information is collected efficiently, enabling a smooth and secure vehicle booking process.

Additionally, users can estimate the rental cost before booking based on the details they provide, such as the distance to be covered and the number of rental days. The cost is calculated at a rate of ₹15/km.

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**Mahindra Thar ROXX**

Brand: Mahindra  
Type: SUV  
Seats: —  
Fuel: Diesel  
₹8500.00 / day

The Mahindra Thar ROXX is a 5-door SUV that combines rugged off-road capability with modern features. It boasts a 2.2L mHawk engine delivering 172 bhp and 370 Nm torque, ensuring a thrilling driving experience.

**User Feedback**

	good
9/20/2025	

### Book Your Ride

Pick SOURCE on map    Pick DESTINATION on map    Or enter addresses below



Source (From)    Sakinaka Telco Exchange Lane, Mumbai, MH, India    Destination (To)    Powai, Mumbai, MH, India

Pinpoint: 19.10039, 72.88175    Pinpoint: 19.11622, 72.91117

From Date: 06-10-2025    To Date: 13-10-2025

**Calculate Price**

**Estimated Price: ₹71584**

Distance: 5.00 km  
Base fare: ₹100  
Distance cost: ₹75 (5.00 km × ₹15/km)  
Rental (8 days): ₹68000  
Service fee (5%): ₹3408.75

**Booking Terms & Consent**

By confirming you agree that the vehicle will be returned in the same condition it was at pickup, with a **full fuel tank**, and without additional damage. The renter is responsible for fuel, tolls, and traffic fines. You also consent to the collection of trip details for booking and support.

I have read and agree to the terms above.

**Confirm Booking**

Fig. 9.7 Vehicle Booking Page

#### H.DRIVER DETAILS PAGE:

Fig. 9.8 shows the Driver Details Page of the Vehicle Rental Web Application. This page provides information about the driver assigned to the booked vehicle, including the driver's name, license number, and contact details. It ensures that users have all necessary information about the driver for a safe and reliable ride. Displaying driver details enhances transparency, builds trust with users, and supports a secure rental experience.

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**Driver Details & CAPTCHA**

Driver Name

Driver Contact

10-digit contact

Driver Age

Driver License No.

TVXV5N      Enter CAPTCHA

Submit Booking      Cancel

Service fee (5%): ₹3408.75

Fig. 9.8 the Driver Details Page

## I.PAYMENT PAGE:

Fig. 9.9 shows the Payment Page of the Vehicle Rental Web Application. This page allows users to securely enter their payment information, including credit/debit card details or other supported payment methods, to complete the vehicle booking. It ensures that all transactions are processed safely, and users receive confirmation of successful payments. By providing a secure and straightforward payment interface, the page enhances user trust and facilitates a seamless booking

**Payment**

Total Amount: ₹71584

Card Number

1234 5678 9012 3456

Cardholder Name

Full Name

Expiry (MM/YY)

MM/YY

CVV

123

Pay Now      Cancel

Fig. 9.9 Transaction Page

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Fig. 9.9.1 shows the Successful Transaction Page of the Vehicle Rental Web Application. This page confirms that the user's payment has been processed successfully and the vehicle booking is complete. It provides essential details such as booking ID, vehicle information, rental dates, and total amount paid. Users can also download a PDF invoice for their records. Displaying a clear confirmation ensures transparency, builds user confidence, and completes the booking process efficiently.

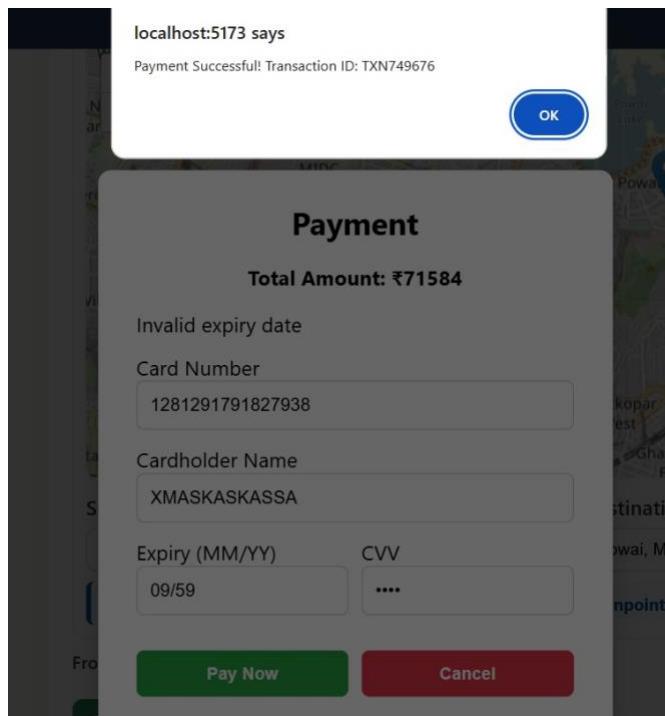
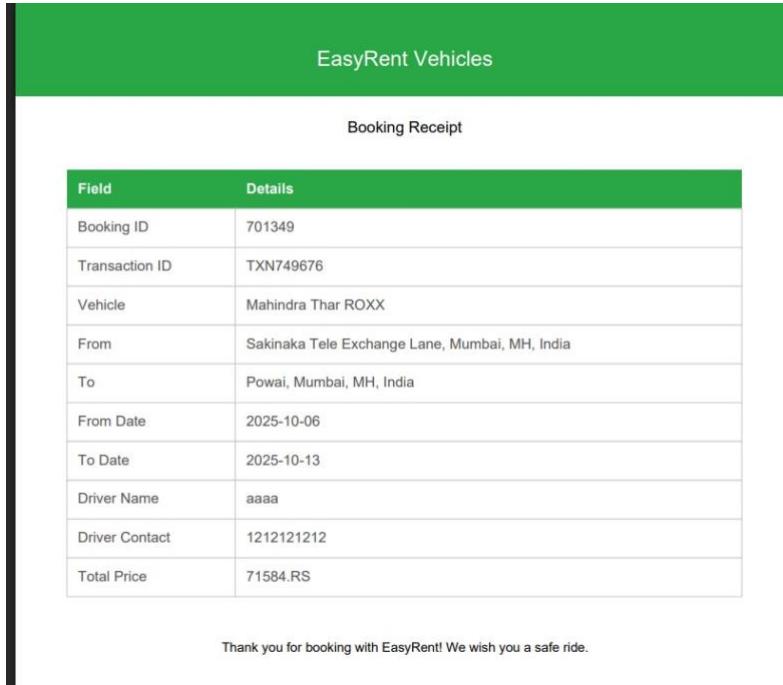


Fig. 9.9.1 Successful Transaction Page

#### J. BOOKING RECEIPT PAGE:

Fig. 9.10 shows the Booking Receipt Page of the Vehicle Rental Web Application. This page provides a detailed summary of the completed booking, including vehicle details, rental dates, user information, driver details, and the total payment made. Users can download or print the receipt in PDF format for future reference. Providing a comprehensive booking receipt ensures transparency, accountability, and easy record-keeping for both users and the service provider.

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The image shows a booking receipt page from 'EasyRent Vehicles'. The page has a green header bar with the text 'EasyRent Vehicles' and a white body. At the top of the body is the title 'Booking Receipt'. Below this is a table with the following data:

Field	Details
Booking ID	701349
Transaction ID	TXN749676
Vehicle	Mahindra Thar ROXX
From	Sakinaka Tele Exchange Lane, Mumbai, MH, India
To	Powai, Mumbai, MH, India
From Date	2025-10-06
To Date	2025-10-13
Driver Name	aaaa
Driver Contact	1212121212
Total Price	71584.RS

Thank you for booking with EasyRent! We wish you a safe ride.

Fig. 4.10 Booking Receipt Page

#### K.RENT HISTORY PAGE:

Fig. 9.11 shows the Rent History Page of the Vehicle Rental Web Application. This page allows users to view all their past and current bookings in a structured format, including vehicle details, rental dates, payment status, and booking IDs. By providing an organized record of previous transactions, the page helps users track their rentals, manage future bookings, and maintain transparency in their interactions with the system.

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EasyRent										
Your Rent History										
Vehicle	Pickup	Drop	Date	Price	Driver	Booking Date	Receipt	Feedback	Cancel	
Mahindra Thar ROXX	Sakinaka Tele Exchange Lane, Mumbai, MH, India	Powai, Mumbai, MH, India	10/6/2025 to 10/13/2025	₹71584.00	aaaa	10/5/2025, 12:32:26 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
Audi A4	Mumbai, MH, India	Pune, MH, India	9/20/2025 to 9/21/2025	₹34065.00	kumud	9/20/2025, 8:04:48 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
Kia Carnival	Powai, Mumbai, MH, India	Sion, Mumbai, MH, India	9/21/2025 to 9/22/2025	₹17122.00	Kumud NAIK	9/20/2025, 7:21:29 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
Mahindra Thar ROXX	Mumbai, MH, India	Pune, MH, India	9/28/2025 to 9/30/2025	₹29330.00	K	9/20/2025, 7:18:55 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
Mahindra Thar ROXX	Powai, Mumbai, MH, India	Sion, Mumbai, MH, India	9/21/2025 to 9/21/2025	₹9247.00	Kumud	9/20/2025, 7:17:48 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
Mahindra Thar ROXX	Powai, Mumbai, MH, India	Sion, Mumbai, MH, India	9/21/2025 to 9/21/2025	₹9247.00	Kumud	9/20/2025, 7:17:32 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
Mahindra Thar ROXX	Powai, Mumbai, MH, India	Sion, Mumbai, MH, India	9/21/2025 to 9/21/2025	₹9247.00	Kumud	9/20/2025, 7:10:56 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
Mahindra Thar ROXX	Powai, Mumbai, MH, India	Sion, Mumbai, MH, India	9/21/2025 to 9/21/2025	₹9247.00	Kumud	9/20/2025, 7:06:42 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
Renault Kiger	Powai, Mumbai, MH, India	Sion, Mumbai, MH, India	9/21/2025 to 9/25/2025	₹13447.00	kdosodikposd	9/20/2025, 8:24:21 PM	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...
9/21/2025 to 9/25/2025						9/20/2025, 8:16:45	<a href="#">Download PDF</a>	<a href="#">Leave Feedback</a>	<a href="#">Cancel</a>	...

Fig. 9.11 the Rent History Page

#### L.FEEDBACK PAGE:

Fig. 9.12 shows the Feedback Page of the Vehicle Rental Web Application. This page allows users to provide their opinions and rate their experience regarding the vehicle, driver, and overall service. Users can submit comments and suggestions, which are stored in the system for analysis and improvement. Collecting feedback helps enhance service quality, address user concerns, and ensure a better user experience in future bookings.

### Leave Feedback



the best car ever!!!!!!

Fig. 9.12 Feedback Page

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**M.CANCEL BOOKING PAGE:**

Fig. 9.13 shows the Cancel Booking Page of the Vehicle Rental Web Application. This page allows users to cancel their existing bookings by selecting the desired reservation and confirming the cancellation. The system updates the booking status in real-time and processes any applicable refunds according to the policy. Providing a clear and easy cancellation process enhances user convenience, ensures transparency, and maintains trust in the application.

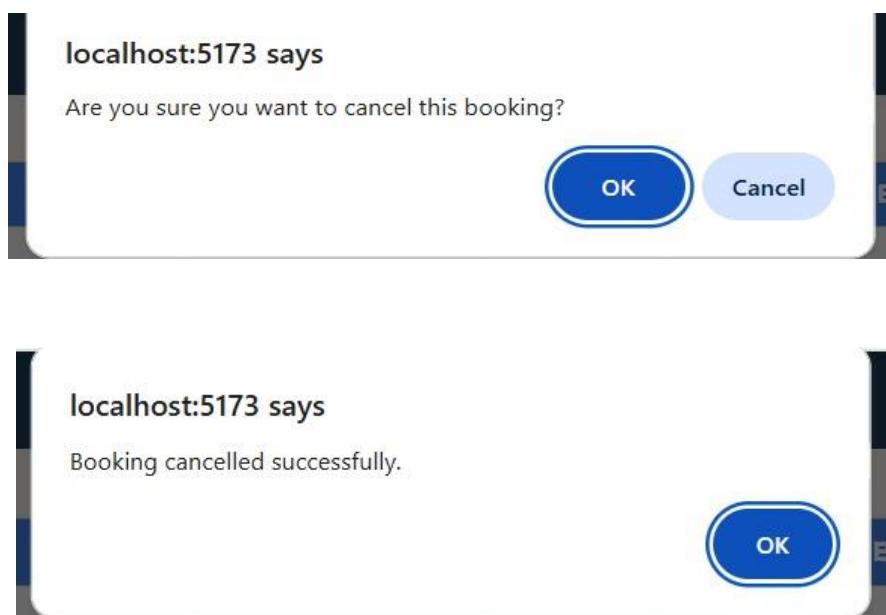


Fig. 9.13 the Cancel Booking Page

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**Database:**

The Vehicle Rental System Database consists of following tables:

- Bookings table (Fig. 9.21): Stores details of all vehicle rental transactions including user, vehicle, dates, and driver information.
- Feedback table (Fig. 9.22): Contains user reviews and ratings for completed vehicle bookings.
- Users table (Fig. 9.23): Maintains registered customer details for authentication and profile management.
- Vehicles table (Fig. 9.24): Holds information about available vehicles, their specifications, and rental pricing.

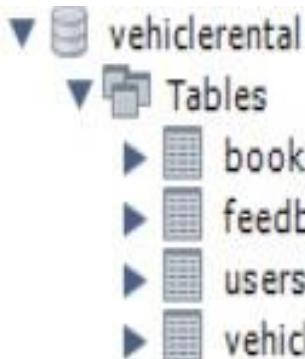


Fig. 9.16 Vehicle Rental Database

**Table: bookings**

**Columns:**

<b>id</b>	int AI PK
<b>user_id</b>	int
pickup_location	varchar(100)
drop_location	varchar(100)
date_from	date
date_to	date
price	decimal(10,2)
driver_name	varchar(100)
driver_contact	varchar(15)
driver_age	int
driver_license	varchar(50)
created_at	timestamp
vehicle_id	int

Fig.9.17 Booking Table

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**Table: feedback**

**Columns:**

<b>id</b>	int AI PK
<b>booking_id</b>	int
rating	int
review	text
created_at	timestamp

**Table: users**

**Columns:**

<b>id</b>	int AI PK
<b>full_name</b>	varchar(100)
<b>dob</b>	date
<b>email</b>	varchar(100)
<b>contact</b>	varchar(15)
<b>city</b>	varchar(50)
<b>state</b>	varchar(50)
<b>pincode</b>	varchar(10)
<b>username</b>	varchar(50)
<b>password_hash</b>	varchar(255)
<b>profile_picture</b>	varchar(255)
<b>created_at</b>	timestamp

Fig.9.18 Feedback Table

Fig.9.19 User Table

**Table: vehicles**

**Columns:**

<b>id</b>	int AI PK
<b>name</b>	varchar(100)
<b>type</b>	varchar(50)
<b>brand</b>	varchar(50)
<b>model</b>	varchar(50)
<b>price_per_day</b>	decimal(10,2)
<b>image_url</b>	varchar(255)
<b>created_at</b>	timestamp
<b>mileage</b>	decimal(10,0)
<b>fuel_type</b>	varchar(20)
<b>seat_capacity</b>	int
<b>transmission</b>	varchar(50)
<b>availability</b>	tinyint(1)
<b>description</b>	text
<b>registration_no</b>	varchar(20)
<b>year_of_manufacture</b>	year

Fig.9.20 Vehicle Table

## 10.CONCLUSION

### 10.1 Conclusion

The development of the Vehicle Rental Web Application successfully achieves its primary goal of providing users with an easy, secure, and efficient platform to rent vehicles online. The system integrates essential features such as vehicle browsing, booking forms, payment processing, and driver information management to ensure a seamless user experience. With functionalities like rent history, feedback submission, and invoice generation, the platform enhances both user convenience and transparency. As the world shifts towards digital solutions, traditional vehicle booking methods that require physical visits and manual paperwork are becoming outdated. This web-based platform offers a modern alternative by simplifying the rental process through a fully digital and user-friendly interface. Overall, the project promotes convenience, accessibility, and efficiency, making vehicle rentals more streamlined and reliable in today's fast-paced digital environment.

### 10.2 Challenges and Future Scope

The development and implementation of the Vehicle Rental Web Application presented several challenges and opportunities for future enhancement. One of the primary challenges was ensuring secure handling of user data and online transactions, as the system involves sensitive information such as personal details, driver information, and payment credentials. Implementing strong authentication mechanisms, encrypted data storage, and secure API communication is crucial to prevent unauthorized access and cyber threats. Another challenge lies in maintaining system performance and scalability. Handling multiple user requests simultaneously, managing vehicle availability, and ensuring real-time updates without performance delays require efficient backend architecture and optimized database queries. Additionally, designing an intuitive and responsive user interface that works seamlessly across different devices was essential to enhance user experience and adoption. Despite these challenges, the future scope of the Vehicle Rental Web Application is highly promising. The system can be extended to include features such as real-time vehicle tracking using GPS, integration with third-party payment gateways, and automated email or SMS notifications for booking confirmations and reminders. Mobile app development for Android and iOS can further improve accessibility and user convenience. Moreover, implementing AI-based recommendation systems can help users select vehicles based on their preferences and past rentals. Features like dynamic pricing, loyalty programs, and advanced analytics can enhance both customer satisfaction and business efficiency. In the long term, integrating IoT and smart sensors can enable remote vehicle monitoring, predictive maintenance, and better fleet management.

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