

# Tribhuvan University Faculty of Humanities and Social Sciences

#### A PROJECT REPORT

On

**Vehicle Rental System** 

# In partial fulfillment of the requirements for the degree of Bachelor of Computer Applications

Submitted to

Department of Computer Application

Swastik College

Chardobato, Bhaktapur

Submitted by
Swosti Makaju (113102097)
Thomas Bhattarai (113102098)



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Swosti Makaju (113102097)
Thomas Bhattarai (113102098)

Under the Supervision of Susan Sunuwar

11th March 2025



# Tribhuvan University Faculty of Humanities and Social Sciences Swastik College

## SUPERVISOR'S RECOMMENDATION

I hereby recommend that this project prepared under my supervision by Swosti Makaju & Thomas Bhattarai entitled "VEHICLE RENTAL SYSTEM" in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

.....

Susan Sunuwar

Supervisor

Lecturer, BCA Department

Swastik College



# Tribhuvan University Faculty of Humanities and Social Sciences Swastik College

## LETTER OF APPROVAL

This is to certify that this project prepared by Swosti Makaju & Thomas Bhattarai entitled "VEHICLE RENTAL SYSTEM" in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion, it is satisfactory in the scope and quality as a project for the required degree.

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Sristi Khatiwada
rdinator
A Department, Swastik College
ernal Examiner

#### **AKNOWLEDGEMENT**

We would like to extend our heartfelt gratitude to our supervisor Ms. Susan Sunuwar for her invaluable guidance and support throughout our project. Her expertise, dedication, valuable encouragement and friendly environment with us have played a vital role in shaping the successful completion of this project.

We would also like to express our deepest sense of gratitude and thanks to our coordinator Mrs. Sristi Khatiwada for her constant guidance and supervision as well as for providing necessary information and ICT infrastructure relevant to the project.

At the end, we would like to express our sincere thanks to all the friends, seniors and others who helped us directly or indirectly during this project work.

With Regards: Swosti Makaju Thomas Bhattarai **ABSTRACT** 

Velorent is an innovative vehicle rental company based in Bhaktapur, Nepal, dedicated to

providing seamless and reliable transportation solutions. Specializing in the rental of

motorbikes, cars, and scooters, Velorent offers a wide range of vehicles tailored to meet

the diverse needs of its customers. The company is committed to delivering exceptional

service quality by maintaining a fleet that emphasizes safety, affordability, and

convenience.

With an intuitive online booking platform, Velorent ensures that users can easily browse

available vehicles, make reservations, and manage their bookings. The platform

incorporates robust user authentication processes and secure payment options to enhance

trust and reliability. Velorent's customer-centric approach focuses on flexibility,

transparent pricing, and personalized support, making it a trusted partner for daily

commutes, weekend getaways, or long-term rentals.

By blending technology with customer-focused services, Velorent aims to set a new

benchmark in the vehicle rental industry in Nepal. This abstract highlights Velorent's

mission to simplify transportation, prioritize customer satisfaction, and contribute to

sustainable, efficient mobility solutions.

Keywords: HTML, CSS, JavaScript, MySQL, Xampp, phpMyAdmin

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# LIST OF ABBREVIATIONS

CASE Computer Aided Software Engineering

CSS Cascading Style sheets

DFD Data Flow Diagram

ERD Entity Relation Diagram

HTML Hypertext Markup Language

ICT Information Technology

INFO Information

IDE Integrated Development Environment

JS JavaScript

MYSQL My Structured Query Language

PHP Hypertext Preprocessor

SDLC Software Development Life Cycle

UI User Interface

#### **CHAPTER 1 - INTRODUCTION**

#### 1.1 Introduction

A vehicle rental system is a digital platform or software solution designed to facilitate the process of renting vehicles to customers. The vehicle rental industry has seen a significant increase in demand due to its convenience, cost-effectiveness, and flexibility. Velorent, a vehicle rental company, offers an array of motorbikes, cars, and scooters for rent to cater to different customer preferences and needs. This project aims to develop a comprehensive vehicle rental system tailored specifically for Velorent as part of a college project.

#### 1.2 Objectives

The main objectives/features of the system are:

- To provide a reliable and user-friendly vehicle rental platform.
- To offer a diverse selection of vehicles suitable for various transportation needs.
- To ensure safety and maintenance standards for all vehicles in the fleet.
- To streamline the rental process through an intuitive online booking system.
- To build trust through transparent pricing and secure payment options

#### 1.3 Scope and Limitation

#### 1.3.1 Scope of the Project

The Velorent project focuses on creating an efficient vehicle rental platform that simplifies the booking process and enhances user satisfaction. The system will include an online booking portal, a database for managing vehicle and user information, Additionally, the project will support admin capabilities for fleet management and data oversight.

#### 1.3.2 Limitation of the Project

 Limited scalability for large organizations as the system does not include the advanced features or complex functionalities required to handle large-scale operations. • Absence of performance tracking for employees as the system does not track work output, goals, or key performance indicators (KPIs).

#### 1.4 Report Organization

The report organization is divided into five different chapters. The five chapters of the report are:

Chapter 1 includes the introduction of the system the problem statement, objectives, the scope and the limitations of the 'Vehicle Rental System'.

Chapter 2 includes the description of fundamental theories, general concepts and terminologies related to the project. It also consists the review of the similar literature and works carried out by different authors, publishers in past.

Chapter 3 summarizes the functional and the non-functional requirements of the project. Different diagrams like use case diagram, DFD, Gantt chart, E-R diagram, schema design etc. are used to give the structure or design for the system.

Chapter 4 describes the different technologies or tools used for the entire development process of the Front-end as well as the Back-end development of the application. It also defines the different implementation details of the modules and the testing cases such as unit Testing and system Testing.

Chapter 5 provides a brief summary of the Vehicle Rental System (VRS) project, encapsulating its main objectives, key features, and overall significance of the system. It also mentions about the future recommendations and improvements for the system that can be done in the near future.

# CHAPTER 2: BACKGROUND STUDY AND LITERATURE REVIEW

#### 2.1 Background Study

Velorent should provide a comprehensive understanding of the vehicle rental industry, user expectations, market trends, and competitive insights. The vehicle rental market has experienced significant growth globally, driven by the increasing demand for flexible, costeffective transportation. Urbanization, the rise in tourism, and shifting consumer preferences toward short-term vehicle use over ownership are major contributors to this growth. [1] To achieve this, Velorent must focus on creating a seamless digital experience, incorporating features such as real-time vehicle availability checks and transparent pricing. Mobile optimization, and automated booking systems can enhance user convenience, while data analytics can offer personalized services by understanding user preferences. Studying competitors' strengths and weaknesses is vital to identify opportunities, such as offering a diverse fleet that includes premium and eco-friendly vehicles like electric scooters, implementing loyalty and referral programs, and providing flexible rental terms. Ensuring high-quality service is essential, with vehicle maintenance and user safety prioritized alongside responsive customer support to handle issues efficiently. Building trust through security measures like verified user profiles, encrypted data handling, and robust login systems is crucial.

Additionally, adopting eco-friendly practices, such as expanding the fleet with electric or low-emission vehicles, can attract environmentally conscious users and align with sustainability trends. Technological integration should be a focal point, incorporating features like GPS tracking for real-time updates and a dedicated mobile app for managing bookings and notifications to boost user retention. By leveraging local market insights and aligning with global best practices, Velorent can differentiate itself as a modern, customer-focused platform. This approach will position it to meet market demands effectively and maintain a competitive edge, ensuring steady growth and enhanced user satisfaction. [2]

#### 2.2 Literature Review

The vehicle rental sector has evolved considerably, driven by urbanization, tourism, and shifting consumer behavior that favors short-term access over ownership. Studies highlight that consumers prioritize convenience, affordability, and flexibility, making digital transformation a vital element for success in this industry. Research also points to the significant impact of high service quality on consumer loyalty, with reliable vehicles, and transparent rental policies being key contributors to user trust. Incorporating user feedback mechanisms and post-rental support enhances satisfaction and encourages repeat business, while loyalty and referral programs have proven effective in fostering customer retention by adding value. Competitive analysis within the literature underscores the rise of peer-to-peer rental platforms, which have reshaped the industry by leveraging community trust and transparent practices. [3]

To compete, traditional rental services must adapt, offering platforms that are user-friendly and ensure a comparable level of transparency. The literature also stresses the critical importance of security, highlighting that encrypted data handling, secure payment processing, and verified user accounts build trust and protect users from fraud. Moreover, the push for eco-friendly practices is becoming more pronounced, with studies noting that incorporating electric or low-emission vehicles appeals to environmentally conscious consumers and aligns with global sustainability trends that influence market preferences. Technological integration is cited as a major differentiator, where features like GPS tracking, real-time updates, and data-driven personalization enhance the user experience and improve engagement. In conclusion, the literature review for Velorent underlines the importance of digital transformation, strong service quality, security measures, and sustainability efforts. Leveraging these insights, Velorent can build a platform that meets current consumer expectations and stands out in the competitive vehicle rental market in Nepal. By incorporating user-friendly digital tools, loyalty initiatives, flexible rental options, and eco-conscious practices, Velorent can position itself as a modern, trustworthy, and forward-thinking service provider that appeals to both locals and tourists alike. [4]

#### **CHAPTER 3: SYSTEM ANALYSIS AND DESIGN**

#### 3.1 System Analysis

During system analysis, all the functional and non-functional requirements are analyzed and then designing of the system is carried out according to the requirements.

#### 3.1.1 Requirement Analysis

#### 3.1.1.1 Functional Requirements

The functional requirements of the Vehicle Rental System are:

- i. Users should be able to book available vehicles for a specific time period.
- ii. Users should be able to view their past rental bookings, including details such as vehicle type, rental period, and payment history.
- iii. Admin users should be able to manage the inventory of vehicles, and track bookings.
- iv. The system should update vehicle availability in real-time based on the status of bookings and returns.

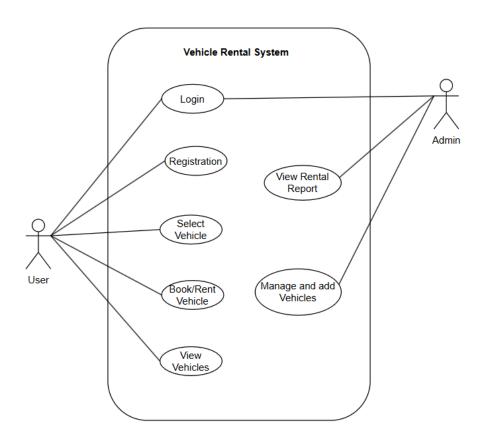


Figure 3.1: Use Case Diagram of Vehicle Rental System

#### 3.1.1.2 Non-Functional Requirements

The non – functional requirements of the projects are:

- i. The system should respond to user actions within milliseconds.
- ii. Velorent should scale to handle a growing number of users, vehicle listings, and bookings.
- iii. All sensitive information, including user credentials, payment details, and personal information, should be encrypted and stored securely.

#### 3.1.2 Feasibility Analysis

#### a. Technical Feasibility

The Vehicle Rental System is technically feasible because everything needed for its development is easy to get. We have access to essential software like HTML, CSS, JS, and PHP for building the system. The required libraries can do what we need them to do. Using free IDE like VS Code and XAMPP makes it even easier to create the system. In simple terms, the technical side of things is well-supported, so we can confidently develop and implement the system.

#### **b.** Economic Feasibility

Building this system comes with minimal expenses. Since we're handling all the coding internally and using free tools like VS code and XAMPP, there's no initial financial burden. Utilization of the free and widely available development environments ensures that the project is economically viable and feasible.

#### c. Operational Feasibility

The system convincingly showcases its operational feasibility through its user-friendly design, ensuring that anyone can navigate and utilize its features effortlessly. The operations are not only smooth but also well-organized with minimum maintenance challenges, enhancing overall efficiency in managing tasks and processes of vehicle system.

#### d. Schedule Feasibility

The project is schedule-feasible, with an estimated timeline of 3-4 months for development, testing, and launch. The timeline is realistic and achievable with proper resource allocation and planning.

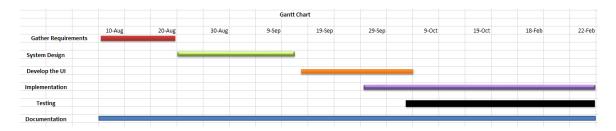


Figure 3.2: Gantt Chart

	Documentation	Testing	Implementation	Develop the UI	System Design	Gather requirement
Start Date	10 Aug	5 Oct	9 Sep	16 Sep	22 Aug	10 Aug
Duration (In days)	168	35	90	23	24	12

The Gantt chart visually represents the project timeline, showing the start dates, durations, and overlaps of key tasks. The project begins with Gather Requirements on 10th August (12 days), followed by System Design on 22nd August (24 days). Implementation starts on 9th September and is the longest phase, lasting 90 days, while UI Development runs parallel from 16th September for 23 days.

Testing begins on 5th October for 35 days, ensuring quality before project completion. Documentation spans the entire project, running for 168 days. The chart helps track dependencies and ensures efficient resource management for smooth execution.

#### 3.2 System Design

VeloRent follows a three-tier architecture with a dark-themed, responsive interface for seamless user interaction. The system manages user authentication, vehicle rentals, bookings, and secure payments, with admins overseeing vehicle listings and approvals. A secure database stores all records, ensuring hashed passwords, two-factor authentication, and encrypted transactions for security. Optimized for performance and usability, ValoRent delivers an efficient and user-friendly rental experience.

#### 3.2.1 Data Modeling: E-R Diagram

The ER Diagram of the system is given below:

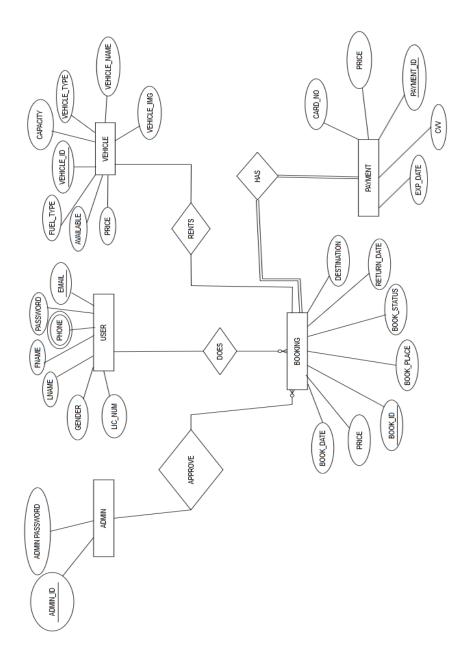


Figure 3.3: ER Diagram of Vehicle Rental System

The given ER diagram represents a vehicle rental system with key entities: User, Admin, Vehicle, Booking, and Payment. The User entity stores details like first name, last name, email, phone number, password, gender, and license number, allowing users to make

bookings. The admin entity, with an admin ID and password, has the authority to approve bookings. The Vehicle entity includes attributes such as vehicle ID, name, type, image, capacity, fuel type, availability, and price. Users rent vehicles through the Booking entity, which records booking details like booking ID, book date, return date, destination, book place, booking status, and price.

The Payment entity is linked to bookings and stores payment information, including payment ID, card number, CVV, expiration date, and amount. Relationships between these entities define how users interact with vehicles and payments, ensuring efficient management of the vehicle rental system.

#### 3.2.2 Process Modeling (DFD)

The DFD of the system is given below:

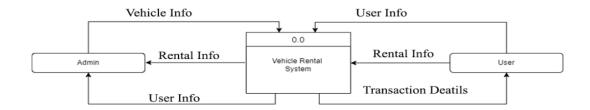


Figure 3.4: Level 0 DFD of Vehicle Rental System

The Level 0 DFD outlines the data flow in the Vehicle Rental System, showing interactions between Admins, Users, and the System. Admins provide Vehicle Info and User Info, which the system processes to manage rentals and generate Rental Info.

Users submit User Info to access rental services and receive Rental Info and Transaction Details like booking confirmations. The Vehicle Rental System acts as the central hub, ensuring smooth data exchange. This diagram helps visualize system interactions, improving efficiency and understanding of data movement.

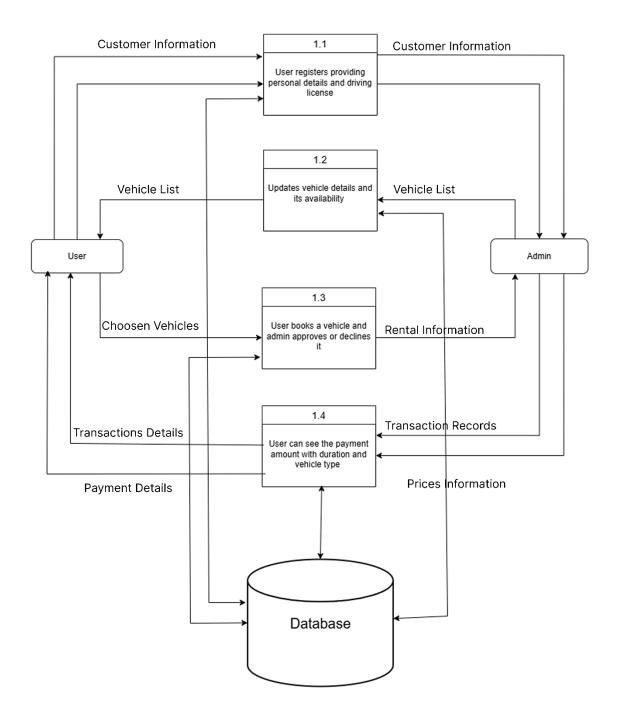


Figure 3.5: Level 1 DFD of Vehicle Rental System

The given diagram represents a vehicle rental system's workflow, where both Users and Admins interact with different modules connected to a centralized Database. The system consists of four main functions: Manage User Information (1.1), which handles user registration, authentication, and profile management; Manage Vehicle Information (1.2), where admins can add, update, or remove vehicle details; Monitor Vehicle Rentals (1.3),

which tracks booking activities and vehicle availability; and Manage Transactions (1.4), responsible for handling payments and financial records. Users primarily interact with rental and transaction processes, while admins oversee vehicle and user management, ensuring smooth system operations.

#### 3.2.3 Architectural design

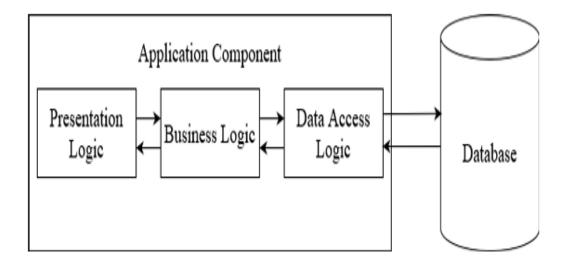


Figure 3.6: Architectural Design of Vehicle Rental System

The given diagram represents a three-tier architecture used in software applications, consisting of Presentation Logic, Business Logic, and Data Access Logic, which collectively interact with a Database. The Presentation Logic is responsible for the user interface, handling user interactions and displaying information. It communicates with the Business Logic, which processes data, applies rules, and manages the overall application functionality. The Data Access Logic acts as an intermediary between the Business Logic and the Database, handling queries, data retrieval, and storage. This architecture ensures a modular, scalable, and maintainable system by separating concerns, allowing for efficient data management and application performance.

#### 3.2.4 Database Schema Design

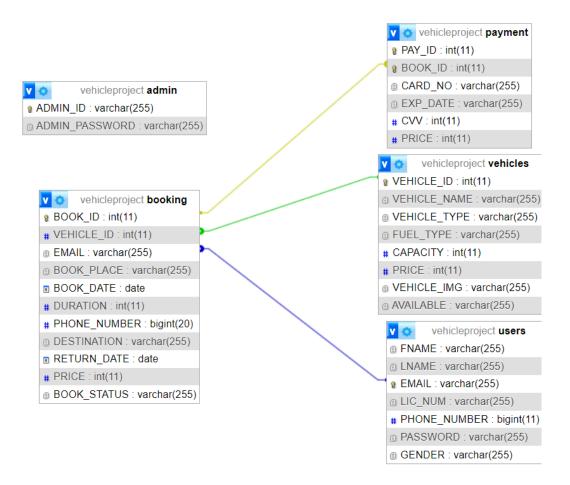


Figure 3.7: Database Schema Design of Vehicle Rental System

The entity-relationship diagram (ERD) depicts the structure of a vehicle project database, showcasing its five interconnected tables: admin, booking, payment, vehicles, and users. Each table contains specific attributes essential to the database's functionality. For example, the admin table manages authentication details with admin ID and password, while the booking table tracks reservation information, such as booking ID, vehicle details, dates, and status. Payment details are securely stored in the payment table, including card details and transaction amounts. The vehicles table outlines data related to the fleet, such as vehicle types, pricing, capacity, and availability. Finally, the users table captures user information, including personal details, contact information, and licensing data. The diagram also illustrates the relationships between these tables, ensuring a comprehensive understanding of how data flows and interacts within the database, which is critical for efficient database management and development tasks.

## 3.3 Interface Design (UI Interface)

Interface Design reflects about what kind of looks or styles you want to give to the system. The UI design of login page shown below:

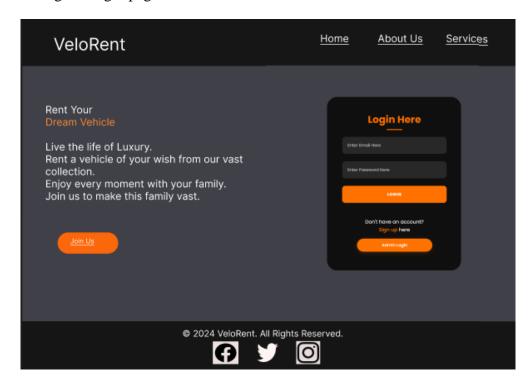


Figure 3.8: User login page UI

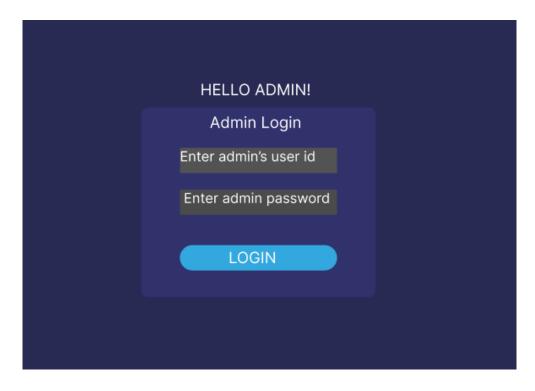


Figure 3.9: Admin Login Page UI

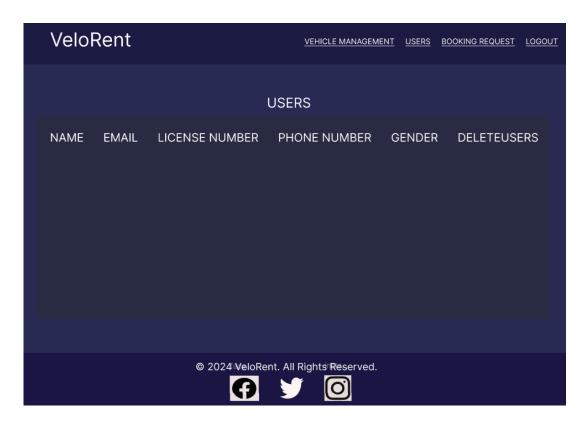


Figure 3.10: Admin Dashboard

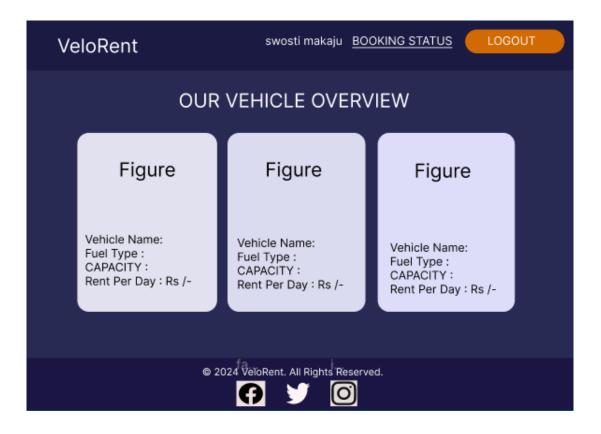


Figure 3.11: User Dashboard

#### 3.4 Physical DFD

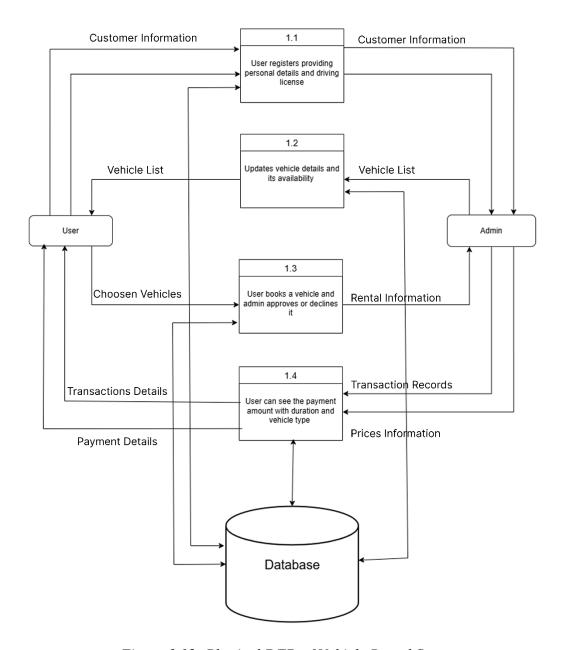


Figure 3.12: Physical DFD of Vehicle Rental System

This image represents a Physical DFD for a vehicle booking system, illustrating how users interact with the system. It begins with the user registering their details, followed by an admin updating vehicle availability. Once the user initiates a booking, the admin reviews and either approves or denies the request. Payment details are then displayed, calculated based on the type of vehicle and booking duration. The process outlines the step-by-step interaction between the user and the admin for a seamless booking experience.

#### **CHAPTER 4: IMPLEMENTATION AND TESTING**

#### 4.1 Implementation

#### 4.1.1 Tools Used

#### i. Front End Tools

The front-end part of application is designed using HTML, CSS and JavaScript.

#### • HTML

Html, which stands for Hypertext Markup Language, is a foundational language used in web development for creating web pages and websites. In our project, we used html to create and structure sections, headings, links, paragraphs using various tags and elements. HTML ensures structured content, compatibility, accessibility, search engine optimization, integration, scalability, and community support in web development. As, HTML is fast, easy and gives good ser interface, we chose it as a front-end tool. [3]

#### JavaScript

JavaScript is a programming language used in web development to make the website responsive and interactive by adding different functionalities of it. Mainly, JavaScript was used for client-side validation, animations and to add the dynamic behavior to the web page. [4]

#### CSS

CSS (Cascading Style Sheets) is a language used to make web pages look nice. It controls things like colors, fonts, layouts, and spacing. By using CSS, you can change how your website appears without changing the content. This helps keep your website organized and makes it easier to update the look of multiple pages at once. CSS is also important for making websites work well on different devices, like phones and tablets. [5]

#### ii. Back End Tools

#### PHP

Php is used in web development to create dynamic web page and to add connectivity to database. It is also used for server-side validation. In this project, PHP as backend language to connect to database and to help in performing the CRUD operations. [6]

#### iii. DATABASE TOOLS

#### MYSQL

We used MySQL for storing all the information about the library system. Also, the crude operations in this project are performed with the aid of it. XAMPP, a software distribution which provides the Apache web server, MySQL and database all in one package was used. XAMPP was used to develop a local server for data storage and providing base for database. [7]

#### iv. DESIGN TOOLS

#### Draw.io:

This tool was used to create diagramming tool like DFD, ER diagram for system analysis and design.

#### • Figma

This tool was used to create design of the Website.

#### 4.1.2 Implementation Details of Modules

Different modules of Vehicle Rental System are:

#### **User Registration & Authentication Module**

The User Registration & Authentication Module allows users to create accounts, and log in. Users can register by filling out personal details. Upon successful verification, their data is stored in the database with encrypted passwords. For login, users provide their credentials, and the system authenticates them by checking against the stored data.

#### **Booking & Reservation Module**

The Booking & Reservation Module handles the process of booking vehicles and managing reservations Users select their desired vehicle, rental duration, and pickup location, after which the system checks the availability and confirms the booking. Payment details are collected, and once processed, the booking is confirmed. Users can view their booking history and upcoming reservations from their account dashboard. Key functions include creating, viewing, cancelling bookings, and processing payments.

## 4.2 Testing

Testing part includes making sure all features do what they are supposed to, that the system is easy to use, secure, and performs well. It's done to find and fix problems before the system is used by others.

#### **4.2.1** Test cases for Unit Testing

Table 4. 1: Test Case for Login

Test case	Test Case	Expected results	Status
No.			
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 4. 2: Test Cases for Sign Up

Test cases No.	Test Case	<b>Expected results</b>	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 4.3: Test Cases for Payment

Test cases No.	Test Case	<b>Expected results</b>	Status
1	Payment	All details provided correctly	Successful
2	Payment	Any one field is incorrect	Unsuccessful
3	Payment	Any field left empty	Unsuccessful

Table 4.4: Test Cases for Booking

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

# **4.2.2** Test Cases for System Testing

Table 4.5 Test Cases for system testing of the Vehicle Rental System

Test Case ID	Test Name	Test case Details	Expected Result	Test Result	Status
1	Application Launch Test	Open the application	System Login Page opens	System Login Page opens	Pass
2	Registration Functionality Test	Enter Valid user credentials	Registration Successful	Registration Successful	Pass
3	Login Functionality Test	Provide Correct login credentials	Login successful	Login successful	Pass
4	Add Product Functionality Test	Click on add product and enter details	Product added successfully	Product added successfully	Pass
5	Delete Product Functionality Test	Select product and delete details	Product deleted successfully	Product deleted successfully	Pass
6	Logout functionality Test	Click on logout button	System Login page opens	System login page opens	Pass

#### **CHAPTER 5: CONCLUSION AND RECOMMENDATION**

#### 5.1 Lesson Learnt/Outcome

The Velorent project provided several key lessons and outcomes. First, it reinforced the importance of a user-centric design, with a seamless, intuitive interface that directly impacts customer satisfaction and retention. Managing real-time data for vehicle availability proved crucial for avoiding booking conflicts and ensuring accurate information. Additionally, efficient fleet management emerged as essential for maintaining high service quality and minimizing operational disruptions. The project also highlighted how effective marketing strategies, both online and offline, play a significant role in customer acquisition and brand visibility.

Financially, the project underscored the importance of balancing initial investments, operational costs, and revenue streams, while careful financial management ensures long-term viability. Providing excellent customer support proved to be a key factor in building loyalty and improving the overall experience.

Moreover, understanding legal and compliance requirements, such as insurance, rental agreements, and data privacy laws, was vital for operating within legal boundaries. Finally, the need for scalability became apparent, as the system should be built to handle growing traffic, more vehicle listings, and increased bookings without compromising performance. Ultimately, Velorent demonstrated that a strong business model, efficient operations, and customer engagement are essential for success in the competitive vehicle rental market.

#### **5.2 Conclusion**

In conclusion, Velorent is a promising vehicle rental platform with significant potential for growth and success. By focusing on user-centric design, real-time data management, efficient fleet operations, and strong financial planning, the platform can deliver a seamless and satisfying customer experience. Effective marketing strategies, excellent customer support, and adherence to legal and regulatory standards will be key drivers of its success. Additionally, the ability to scale and adapt to increasing demand ensures that Velorent can continue to thrive in a competitive market. With careful execution and continuous improvement, Velorent is poised to become a leading player in the vehicle rental industry, offering value to both customers and stakeholders.

#### **5.3 Recommendation**

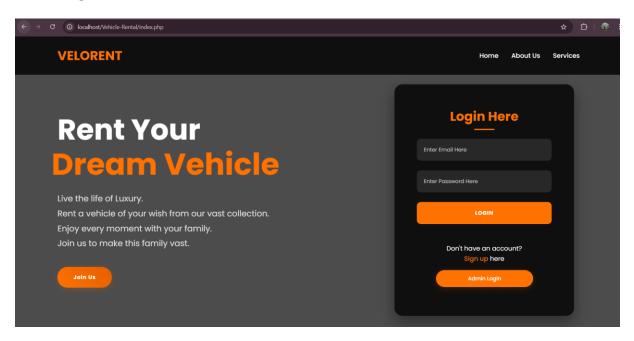
Velorent is not just about providing seamless vehicle rentals, it's about continuous innovation and improvement. In the future, popular payment gateways like eSewa and Khalti can be integrated for faster and more secure transactions. To provide services to growing user demands, dedicated servers can be used to handle high traffic efficiently. Additionally, to enhance the platform with real-time vehicle tracking, automated booking confirmations, and AI-powered customer support can be used to make the rental process even smoother.

### References

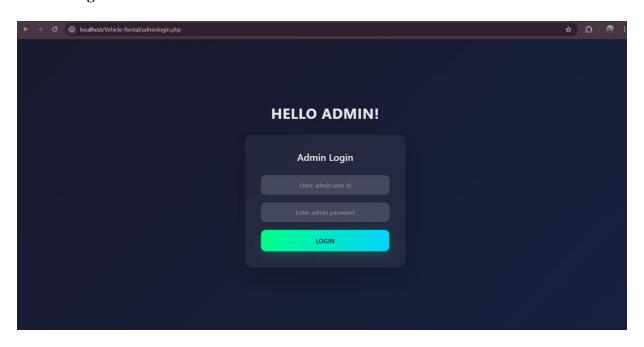
- [1] K. Acharya, "Research Gate," [Online]. Available: https://www.researchgate.net/publication/380835687\_Online\_Vehicle\_Rental\_Syste m\_Project\_Report.
- [2] "Types of Feasibility Study in software project deavelopmeint," GeeksforGeeks, [Online]. Available: https://en.wikipedia.org/wiki/MySQL. [Accessed 05 September 2024].
- [3] W3Schools, "W3Schools," [Online]. Available: https://www.w3schools.com/html/. [Accessed 20 August 2024].
- [4] "Tutorials Point," [Online]. Available: www.tutorialspoint.com/javascript/index.html. [Accessed 28 08 2024].
- [5] R. E. Shamkanth, in Fundamental Of Database System, Pearson.
- [6] A. Forbes, "The Joy of PHP Programming," Plum Island.
- [7] "Wikipedia," Wikipedia, [Online]. Available: https://en.wikipedia.org/wiki/MySQL. [Accessed 30 August 2024].

## **APPENDIX**

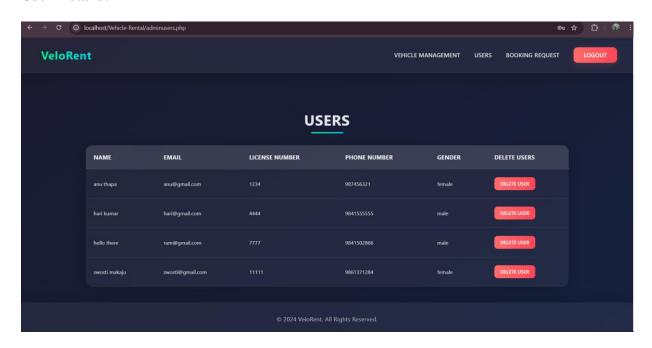
#### **Home Page:**



#### **Admin Login:**



#### **User Details:**



#### **Vehicle Details:**

