VEHICLE RENTAL SYSTEM

A PROJECT REPORT SUBMITTED IN PARTIAL

FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE

OF

BACHELOR OF COMPUTER APPLICATION

Submitted by

Rajib Sarkar **Roll no: 220310043033**

Afred Mobin **Roll no: 220310043003**

UNDER THE GUIDENCE OF

Dr. Mukta Ranjan Singha

Designation: Associate Professor & HOD

DEPARTMENT OF COMPUTER APPLICATION

GIRIJANANDA CHOWDHURY INSTITUTE OF MANAGEMENT AND TECHNOLOGY

ASSAM SCIENCE AND TECHNOLOGY UNIVERSITY

December-2024

DEPARTMENT OF COMPUTER APPLICATION

GIRIJANANDA CHOWDHURY INSTITUTE OF MANAGEMENT AND TECHNOLOGY

ASSAM SCIENCE AND TECHNOLOGY UNIVERSITY

CERTIFICATE

This is to certify that **Rajib Sarkar**, Roll No. **220310043033** and **Afred Mobin**, Roll No. **220310043003** have successfully completed the Project work on **VEHICLE RENTAL SYSTEM**. This project work is a bonafide work for the partial fulfillment of the requirement of the fifth semester **Bachelor of Computer Application** Programme in the Department of Computer Application, **Girijananda Chowdhury Institute of Management and Technology**, Guwahati, affiliated to **Assam Science and Technology University, Guwahati** and approved by **AICTE**, MHRD, Govt. of India.

The work done by them is an academic work and cannot be presented for any other purpose.

I wish them all success in life.

Dr. Mukta Ranjan Singha

Head of Department

Department of Computer Application

GIMT, Guwahati

External Examiner

Declaration by the Candidate

We Rajib Sarkar, Roll No. 220310043033 and Afred Mobin, Roll No. 220310043003 are students of the Department of Computer Application, Girijananda Chowdhury Institute of Management and Technology hereby declares that we have compiled this progress report reflecting all our works during the semester long full time project as part of my BCA curriculum.

We declare that we have included the descriptions of our project work, and nothing has been copied replicated from other's work. The facts, figures, analysis, results, claims etc depicted in our reports are all related to our full time project work.

We also declare that the same report or any substantial portion of this report has not been submitted anywhere else as part of any requirements for any degree/diploma etc.

Rajib Sarkar
Roll No. 220310043031

Afred Mobin
Roll No. 220310043039

BCA 5TH Semester
GIMT

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to everyone who has contributed to the successful completion of our project "**Vehicle Rental System**"

First and foremost, we extend our heartfelt thanks to our project supervisor, **Dr. Mukta Ranjan Singha**, for his invaluable guidance, continuous support, and insightful feedback throughout the development of this project. His expertise and encouragement have been instrumental in shaping this work.

We are deeply grateful to the faculty members of **Department of Computer Application** at **Girijananda Chowdhury Institute of Management and Technology** for providing us with the knowledge and skills necessary to undertake this project. Their teachings have been the foundation upon which this work was built.

With true Regards,

Rajib Sarkar

220310043033

Afred Mobin

220310043003

GIMT

GIRIJANANDA CHOWDHURY INSTITUTE OF MANAGEMENT AND TECHNOLOGY

DEPARTMENT OF COMPUTER APPLICATION

CERTIFICATE

This is to certify that **RAJIB SARKAR**, Roll No: 220310043033 and **AFRED MOBIN**, Roll No: 220310043003 has carried out the system development project work on "VEHICLE RENTEL SYSTEM" under my supervision and has compiled this project report reflecting the candidate's work in the semester long project. The candidate did this project full time during the whole. semester under my supervision and the analysis, results, claims etc. are all related to his studies and works during the semester.

I recommend submission of this project report as a part for partial fulfillment of the requirement for the degree of Bachelor of Computer Application of Assam Science and Technology University.

Internal Guide

Mr. Mukta Ranjan Singha
Head of Department
Department Of Computer Application
GIMT, Guwahati

Abstract

The Vehicle Rental 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 vehicle, register and book vehicle. We developed this project to book a vehicle 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 harder. This aim of the project is to automate the work performed in the Vehicle rental system like records of cab, cabs available for booking, rental charges for cars, store records of the customer.

CrAzy MoToRs is a vehicle booking software that provides a complete solution to all your day-to-day vehicle 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.

CONTENTS

Chapter 1

INTRODUCTION AND PROJECT DESCRIPTION

1.1 Introduction

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

1.2 Objectives:

- produce a web-based system that allow customer to register and reserve car online and for the company to effectively manage their car rental business.
- To ease customer's task whenever they need to rent a car.
- As all the system is computerized, there is no need to fill any application form for renting purpose. So, the paperwork will be very less.
- To make sure a user gets his desire car as early as possible. The car rental system will provide a faster response to complete the process

ORGANISATION DETAILS:

Crazy Motors Car Rental is a premier car rental service based in the heart of Guwahati, catering to a diverse clientele. Specializing in reliable and affordable vehicle rentals, Crazy Motors provides a wide range of cars, from compact sedans to spacious SUVs, designed to meet the needs of solo travellers, families, and business professionals alike. The company prides itself on offering a seamless rental experience, ensuring customer satisfaction and convenience at every step. Crazy Motors is committed to maintaining a fleet of well-maintained vehicles equipped with modern amenities such as air conditioning, GPS navigation, and comfortable seating. Customers benefit from 24/7 roadside assistance and

flexible rental plans tailored to suit both short-term and long-term requirements. The management at Crazy Motors prioritizes safety, ensuring all vehicles undergo regular maintenance and adhere to stringent quality checks. Additionally, the company offers comprehensive insurance coverage and transparent pricing policies to guarantee a stress-free experience. With Crazy Motors, clients also enjoy complimentary pickup and drop-off services within designated areas, making their travel experience even more convenient. Driven by the motto of "Comfort and Reliability on Every Drive," Crazy Motors continues to set new benchmarks in the car rental industry by focusing on customer-centric services and fostering trust and loyalty among its patrons.

EXISTING SYSTEM:

The existing system is predominantly manual, requiring significant effort and time to manage operations. In the current setup, customers can inquire about car availability and make reservations via phone or in person, but the actual booking and billing processes are handled manually. This often leads to delays in processing requests, inefficiencies in fleet management, and potential errors in pricing calculations.

Moreover, the manual nature of the system makes it challenging to track vehicle usage, maintenance schedules, and customer feedback systematically. The lack of an automated platform also hinders the ability to provide instant confirmations, real-time updates on car availability, and streamlined communication with clients.

PROPOSED SYSTEM:

The existing system does not address critical aspects such as automated invoice generation, GPS-based vehicle tracking, or complaint management, which can impact customer satisfaction and operational efficiency. This traditional approach is not only time-consuming but also leaves room for inconsistencies in service delivery, ultimately affecting the company's ability to meet customer expectations effectively.

This project is aimed at developing a system to manage the operations and records of Crazy Motors Car Rental. The system will streamline the process of car reservations, billing, and fleet management, allowing the company to provide efficient and reliable services to its customers. This system will provide comprehensive information about the cars available for

rent, including their current status. It will also allow customers to check vehicle availability, book rentals online, and receive instant confirmations.

The system will include modules to track customer details, owner details and manage payments. A dedicated administrator module will allow the admin to add, edit, or delete records related to vehicles, customers, and owners as well as monitor overall system performance.

This system will be developed using the Software Development Life Cycle (SDLC) methodology and implemented using PHP for back-end functionality and JavaScript for an interactive user interface. XAMPP will be utilized for database management, offering robust security features and advanced capabilities to handle the company's data effectively. This integrated, web-based system will improve operational efficiency, enhance customer experience, and support the long-term growth of Crazy Motors Car Rental.

Chapter 2

FEASIBILITY STUDY

Introduction:

The aim of a feasibility study is not to resolve the issue but to gain an understanding of its extent. Throughout the study, the problem definition becomes clearer, and the elements of the problem to be incorporated into the system are identified. Any project is achievable with boundless resources and endless time. Regrettably, the advancement of computer-based systems tends to be hindered by a lack of resources and challenging timelines. It is essential and wise to assess the feasibility as soon as possible; otherwise, efforts, whether weeks or months, or thousands, may lead to a system being acknowledged too late in the definition stage. Thus, a comprehensive analysis is conducted to evaluate the functionality of the suggested system.

Numerous practical studies are disappointing for both the user and the analyst. Initially, the research frequently assumed that while the feasibility document is being created, the analyst is capable of assessing the solution. Secondly, many studies often ignore the confusion present in system development—the limitations and the presumed mindsets. If the feasibility study is intended to act as a decision document, it needs to address three questions:

Is there a new and improved method to complete the task that will advantage the user?

What are the options for cost and savings?

What is suggested?

The most effective system projects aren't always the largest or most apparent in a company, but instead, those that genuinely fulfill user expectations. Four main factors are involved in the analysis of the feasibility study: Economic. Technical, Behavioral, and Operational

Technical Feasibility:

The technical viability in the suggested system concerns the technology implemented in the system. It involves the hardware and software utilized in the system, regardless of whether they are cutting edge or not, and if, after a system is developed, new technology emerges and the user desires the system to be based on that new technology. This system utilizes the Windows platform, the Apache XAMPP server, MySQL for the database, PHP as the

programming language, and HTML or XML for the user interface. Therefore, a Vehicle Rental system is practically achievable

Financial Feasibility:

Economic analysis is the most commonly employed technique for assessing the efficiency of candidate systems. Often referred to as cost/benefit analysis, the method involves assessing the anticipated benefits and savings from a proposed system and contrasting them with the costs. If advantages surpass expenses, the choice is made to create and execute the system. Alternatively, additional justification or options in the suggested systems will need to be provided if it hopes to be approved.

Operational Feasibility:

Proposed projects are advantageous only if they can be converted into an information system that satisfies the organization's opening needs. In simple terms, this feasibility test inquires whether the system will function effectively once developed and installed and identifies significant obstacles to its development. Our initiatives feature an engaging, easy-to-navigate interface, which nearly removes operational challenges. This project features a highly interactive search function and includes reports. The performance will enhance after implementation due to simpler information access, and there will also be no loss of control in the area. Therefore, we can assert with assurance that our project is also operationally viable.

Behavioral Feasibility:

Individuals are naturally resistant to change, while computers are recognized for their ability to promote change. An assessment should be conducted regarding the anticipated response of the user staff towards the creation of a computerized system. It is widely recognized that computer setups are related to turnover, transfer, retention, and changes in employee job positions. Consequently, it is comprehensible that implementing a candidate system necessitates significant effort to inform, promote, and train employees about the new methods of conducting business.

Chapter 3

REQUIREMENT ANALYSIS AND SPECIFICATION

3.1 Functional Requirements Vehicle Rental

System These are statements of services the system should provide, how the system should react to particular inputs and how the system should behave in particular situations. In some cases, the functional requirements may also explicitly state what the system should not do. The functional requirements for a system describe what the system should do. These requirements depend on the type of software being developed, the expected users of the software and the general approach taken by the organization when writing requirements. When expressed as user requirements, the requirements are usually described abstractly. However, functional system requirements describe the system function in detail, its inputs and outputs, exceptions, and so on. Functional requirements for a software system may be expressed in several ways.

The functional requirements of VEHICLE RENTAL SYSTEM are as follows:

Register Module:

• The user needs to provide their first name, last name, email, license number, phone number, password, confirm password, gender for registration.

• These details will be stored in database.

Login Module:

• For login user will input their email and password .

• Admin will provide their admin id and password which will compared with a database content.

Booking Module:

• User can view the list of cars. The booking details of cars are provided by the admin.

• User can select their preferred car and book for the same.

Payment Module:

• User should able to make payment by filling card number, expiry date and CVV are provided by the admin.

• After payment user will get the payment successful popup window.

Logout Module:

• The system should allow user to logout.

• The system should also allow admin to logout.

Owner Module:

• The system should allow owner to register, login, vehicle entry and checking.

3.2 Non-Functional Requirements of Vehicle Rental System

Non-functional requirements are requirements that are not directly concerned with the specific functions delivered by the system. Alternatively, they may define constraints on the system such as the capabilities of I/O devices and the data representations used in system interfaces. The plan for implementing functional requirements is detailed in the system design. The plan for implementing non-functional requirements is detailed in the system architecture. Non-functional requirements are often called qualities of a system. Other terms for non-functional requirements are "constraints", "quality attributes", "quality goals", "quality of service requirements" and "non behavioral requirements". Qualities, that are non-functional requirements, can be divided into two main categories: Execution qualities, such as security and usability, which are observable at run time.

Performance:

• The system should have high performance rate when executing user's input.

• The system provides user friendly interface, any common people with little knowledge can use the system.

• System is robust, reliable and fast, provides more efficiency.

Reliability:

• It is the probability and percentage of the system performing without any failure for a specific number of uses or amount of time.

• Vehicle rental system provides reliable interface as it provides data security and data safety.

• User can rely on the details present in the system, since it is provided by the admin.

Consistency:

• The car rental system provides consistency services, by retaining the data present in the database.

• The user gets the details that are only provided by the admin, thus achieving correctness of data in the database.

3.3 Hardware Requirements:

• Processor: Intel i3/i5/1.8GHz machine or above

• Primary memory: 4 GB RAM or above

• Hard disk drive: 1 TB or greater

3.4 Software Requirements:

• Operating System: Windows 7 or higher

• Front End: HTML5, CSS3, JavaScript

• Back End: PHP, SQL • Frame work: Bootstrap

• Software: Visual Studio Code XAMPP

Chapter 4

SYSTEM DESIGN

System Design process partitions the system into subsystems based on the requirements. It establishes overall system architecture and is concerned with identifying various components, specifying relationships among components, specifying software structure, maintaining a record of design decisions and providing a blue print for the implementation phase.

INTRODUCTION:

System design is a solution a "how to approach the creation of a new system". This important phase is composed of several steps. It provides the understanding and procedural details necessary for implementing in the system recommended in the feasibility study. Emphasis is on translating the performance requirement into design specification Design goes through logical and physical stages of development. Logical design reviews the present physical system, prepares input and output specification details the implementation plan and prepares a logical design walkthrough. The physical design maps out details of the physical system, plans the system implementation, devices a test and implementation plan and specifics any new hardware and software.

LOGICAL DESIGN:

We know that the data flow diagram shows the logical flow of the system and defines the boundaries of the system. A logical design specifies the user needs at the level of the detail that virtually determines the information flow into and out of the system and the required data resources. Logical design describes the inputs, outputs, databases and procedures all in a format that meets the user requirements.

PHYSICAL DESIGN:

It provides the working system by defining the design specification that tells the programmers exactly what the candidate system must do. In short, it can state that physical design is the implementation of the logical design.

Physical system design consists of the following steps:

i) Design the physical system:

- Specify input/output media
- Design the database and specify backup procedures
- Design physical information flow through the system and a physical design walkthrough.

ii) Planned system implementation:

• Prepare a conversion schedule and a target date

• Determining training procedure, course and timetable

• Device a test and implementation plan and specify any new hardware/software

• Update benefits costs, conversion date and system constraints (legal, financial, hardware, etc.)

INPUT DESIGN:

Input is one of the most expensive phases of the operation of a computerized system and sometimes creates major problem. Different types of problem with a system can usually he traced back to faulty design method. Therefore, the input data of a system and have to be analysed and designed with utmost care and consideration. The input data also determines whether the user can interact efficiently with the system.

OUTPUT DESIGN:

Presenting the data processed by a computer-based information system is an attractive and usable form has become very essential these days. Success and acceptance of a system to some analyst must know fully how to design output report in an attractive way.

4.1 ER DIAGRAM

ER Diagram stands for Entity Relationship Diagram, also known as ERD is a diagram that displays the relationship of entity sets stored in a database. In other words, ER diagrams help to explain the logical structure of databases. ER diagrams are created based on three basic concepts: entities, attributes and relationships.ER Diagrams contain different symbols that use rectangles to represent entities, ovals to define attributes and diamond shapes to represent relationships.

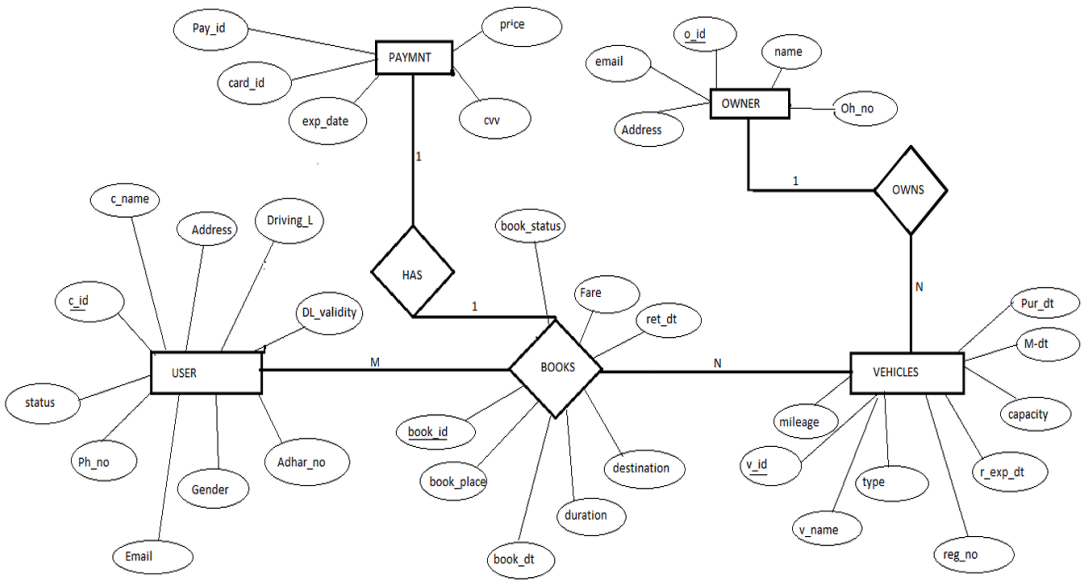


Figure4.1 ER Diagram of Vehicle Rental System

The Vehicle Rental System, as depicted in the ER diagram, is designed to streamline the process of renting vehicles. Users, who are potential customers, can browse through a variety of vehicles owned by different owners. When a user decides to rent a vehicle, they initiate a booking process. This booking is recorded in the BOOKS entity, which captures essential details such as the booking status, destination, duration, and fare. Each booking is associated with a specific vehicle from the VEHICLES entity, which stores comprehensive information about each vehicle, including its type, capacity, and mileage. The system also manages the financial aspect of rentals through the PAYMENT entity. When a booking is confirmed, a payment record is created, linking the booking to the payment details. This ensures a clear

trail of transactions for each rental. The OWNER entity keeps track of individuals or companies that own the vehicles available for rent, allowing for proper management of vehicle ownership and potential revenue sharing. Throughout the rental process, the system maintains up-to-date information on vehicle availability, booking statuses, and user history. This allows for efficient management of the rental fleet and helps in making informed decisions about vehicle allocation. The interconnected nature of the entities ensures that all aspects of the rental process - from user registration to vehicle selection, booking, payment, and return - are seamlessly integrated. This comprehensive approach not only simplifies the rental process for users but also provides valuable insights for system administrators and vehicle owners, enabling them to optimize their operations and improve customer service

4.2 BLOCK DIAGRAM

A Block diagram is a diagram of a system in which the principal parts or functions are represented by blocks connected by lines that show the relationships of the blocks. They are heavily used in engineering in hardware design, electronic design, software design, and diagrams. Block diagrams are typically used for higher level, less detailed descriptions that are intended to clarify overall concepts without concern for the details of implementation. Contrast this with the schematic diagrams and layout diagrams used in electrical engineering, which show the implementation details of electrical components and physical construction.

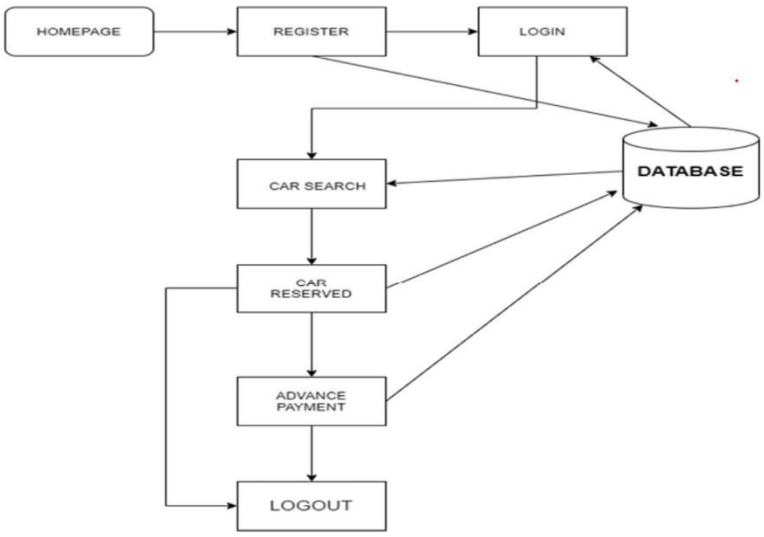


Figure 4.2 Block Diagram of Vehicle Rental Syst

4.3 DATABASE TABLES

1.CUSTOMERS

SL_NO	FIELDNAME	DATATYPE	KEY	FIELDSIZE
1	C_id	int	Primary Key	10
2	C_name	varchar		50
3	C_email	varchar		50
4	password	varchar		10
5	address	varchar		100
6	Ph_no	int		10
7	Adhaar_no	int		20
8	Dl_no	int		20
9	Dl_validity	date		
10	gender	varchar		10
11	status	varchar		10

2.BOOKINGS

SL_NO	FIELDNAME	DATATYPE	KEY	FIELDSIZE
1	Book_id	int	Primary Key	10
2	v_id	int	Foreign Key	11
3	c_id	int	Foreign Key	10
4	Book_place	varchar		50
5	Book_dt	date		
6	duration	int		10
7	destination	varchar		50
8	fare	Int		10
9	Ret_dt	date		
10	Book_status	varchar		20

3. VEHICLES

SL_NO	FIELDNAME	DATATYPE	KEY	FIELDSIZE
1	v_id	int	Primary Key	11
2	o_id	int	Foreign Key	11
3	v_name	varchar		50
4	img	blob		
5	type	varchar		20
6	reg_no	varchar		20
7	capacity	int		10
8	mileage	varchar		10
9	price	int		20
10	Pur_dt	date		
11	mfg	date		
12	Reg_exp	date		
13	status	varchar		50
14	available	varchar		5

4.OWNER

SL_NO	FIELDNAME	DATATYPE	KEY	FIELDSIZE
1	o_id	int	Primary Key	10
2	name	varchar		50
3	email	varchar		50
4	password	varchar		50
5	Ph_no	int		10
6	address	varchar		100
7	pincode	int		10
8	image	varchar		50

5.PAYMENT

SL_NO	FIELDNAME	DATATYPE	KEY	FIELDSIZE
1	Pay_id	int	Primary Key	10
2	Book_id	int	Foreign Key	10
2	Card_id	int		20
3	Exp_dt	date		
4	cvv	int		10
5	price	int		10

Chapter 5

SYSTEM ANALYSIS

5.1. INTRODUCTION

Structured analysis is a set of techniques and graphical tools that allow the analyst to develop a new kind do system specification that is easily understandable to the user. It is the detailed step investigation of related procedures to see what must be done and to determine the best way of doing it. The objective is to build a system specification that provides the basis for design and implementation.

The goal of system development is to deliver system in line with user requirements. Analysis is the heart of the process. The first phase focuses on problem definition where analysis helps us to understand the present system. In phase two the study goes in a detailed manner, studying the present system and determining potential solutions.

Therefore, the problem analysis is to clearly understand the needs of the clients and the users. That is, what is desired from the system, and what are the constraints on the solution, if any, this requires understanding all the inputs, all the outputs, processing requirements, performance requirements, how the system should behave etc. the understanding obtain during analysis involves interviewing all the people who are affected by the system. This includes at least the client. Who is the sponsor for the system development and the user who are the end users of the system. To get the clear understanding of the existing system (procedures, output) have to be studied, along with any other related documentation. Frequently the client and the user may not understand the requirements themselves. Due to this the analyst should also try to help them understand their needs.

In analyzing the present system, a great deal of data is collected through interviews, questionnaires, onsite observations, manuals etc. The traditional approach of organizing the data through system flow chart has some drawbacks. Due to this, other tools like structured analysis tools are used. Structured analysis considers certain techniques and goals:

- Use of graphics wherever possible.
- Differentiation between logical and physical system.

- Building of a logical system to familiarize the user with system characteristics before implementation

The various tools used in structured analysis are:

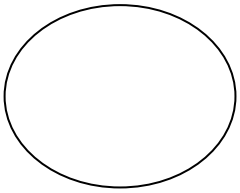
- Context Diagram
- Data Flow Diagram
- E-R Diagram (Entity Relationship Model)

5.2. Context Diagram:

In the initial stage of System, Context Diagram is constructed to show the higher-level model of a system. It is used to represent pictorially the boundaries of a system. Expanding the Context Diagram, we get the detailed DFD of the system. Context Diagram is generally used to show the sources of data and the destination where the processed data goes. From source data is sent for processing and then processed data is sent to the destination.

5.3. Data Flow Diagram

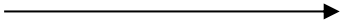
DFD is a pictorial representation which depicts the different processes at work within a system. It is used to show the information flow from process to process, process to store, or store to process. The DFD of the individual processes may be broken down into forms which may be shown level wise.



A process.

:

Defines a source (originator) or definition of system



The arrow head shows the flow of the information

Data Store

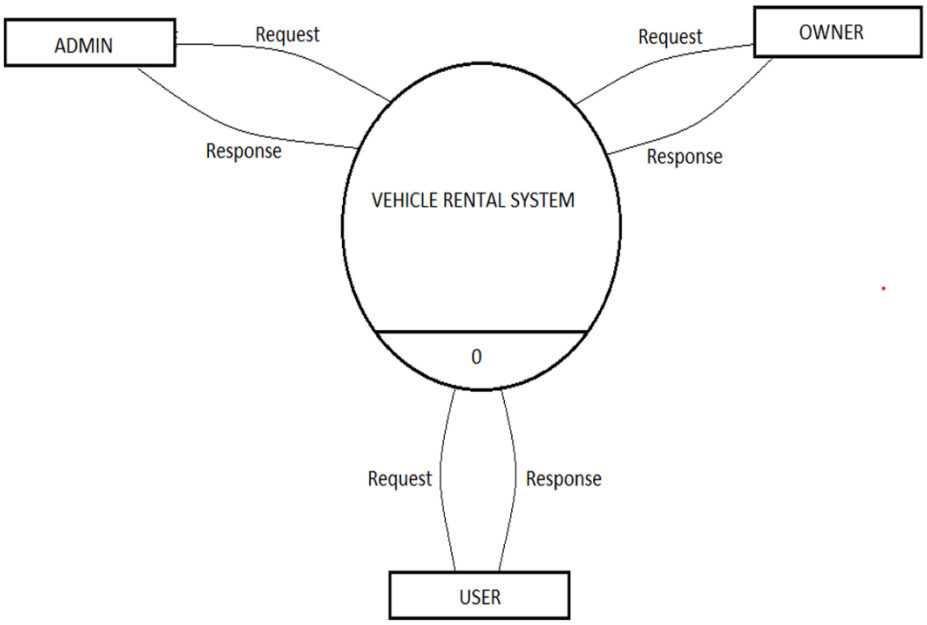


Fig 5.2 Context Diagram for Vehicle Rental System

LEVEL 1 DATAFLOW DIAGRAM (DFD Lv1):

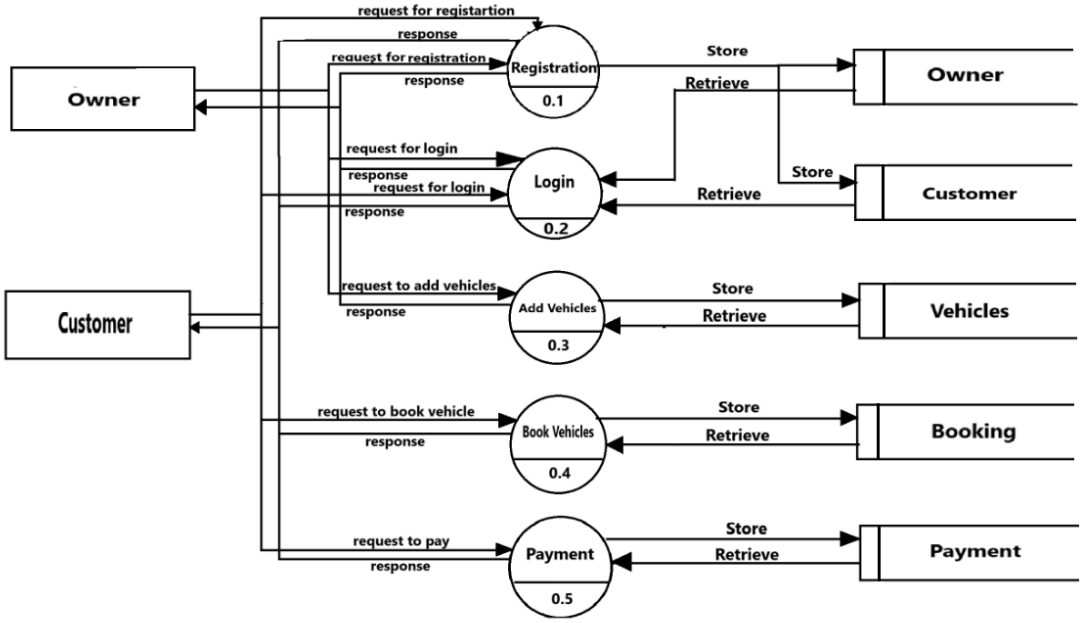


Figure 5.3: 1st level DFD of Owner and customer.

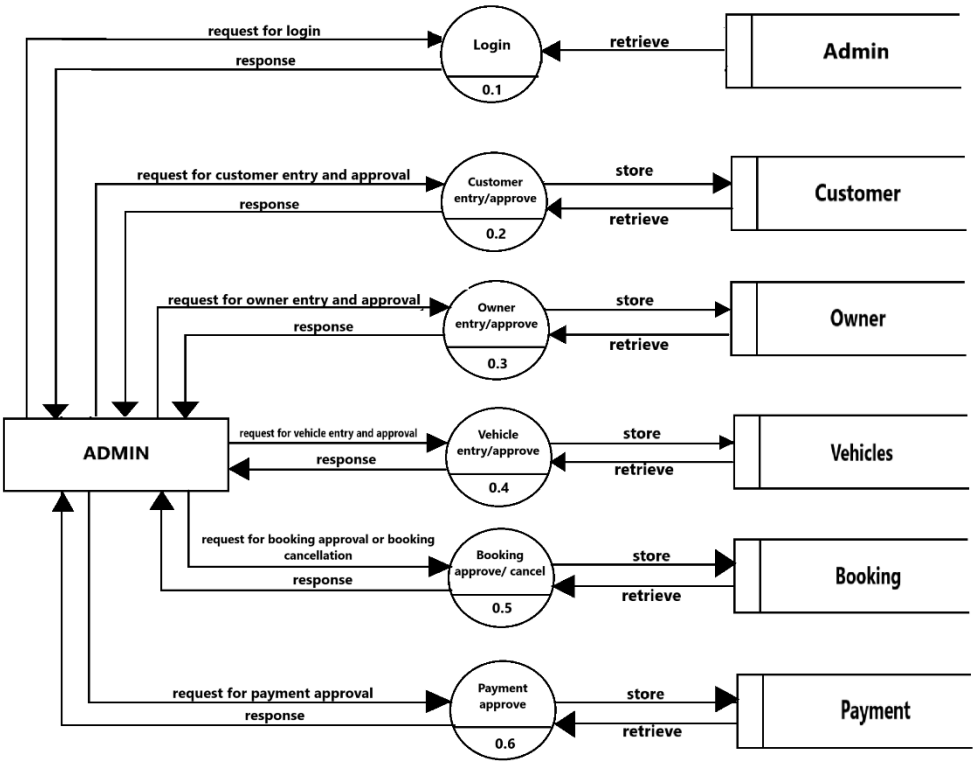


Figure 5.3: 1st level DFD of Admin.

CHAPTER-6
SYSTEM TESTING

INTRODUCTION

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 us.

Testing is the process of executing with the explicit intention of finding errors that can make the program fail. Hence, a successful test is finding an error. Test case was devised with this purpose in mind. A test case is a series if data that the system will process as normal input. The software units developed in the system are modules and routines that are assembled and integrated to perform the required function of the system. Actually, testing is the state of implementation, which is aimed at ensuring that the system works efficiently before live operation commence.

6.1 TESTING PROCESS

Best testing process is to test each subsystem separately, as we have done in project. Best done during implementation. Best done after small sub-steps of the implementation rather than large chunks. Once each lowest level unit has been tested, units are combined with related units and retested in combination. This proceeds hierarchically bottom-up until the entire system is tested as a whole. Typical levels of testing:

- Module- package, abstract data type, class.
- Sub-system- collection of related modules, cluster of classes, method-message paths.
- Acceptance testing- whole system with real data (involve customer, user)

Alpha testing is acceptance testing with a single client (common for bespoke systems). Beta testing involves distributing system to potential customers to use and provide feedback. In this project, beta testing has been followed. This exposes system to situations and errors that might not be anticipated by us.

6.1.1 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. Unit testing is a fundamental aspect of software development where individual components, or units, of a program are examined in isolation to ensure they work correctly. In unit testing, specific functions, methods, or modules are tested independently to verify that they perform as intended. This meticulous examination allows developers to identify and address issues at an early stage, preventing potential problems when the entire system is integrated.

6.1.2 INTEGRATION TESTING

Integration testing is another aspect of testing that is generally done in order to uncover errors associated with the flow of data across interfaces. The unit-tested modules are grouped together and tested in small segment, which makes it easier to isolate and correct errors. This approach is continued until we have integrated all modules to form the system as a whole.

6.1.3 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.

6.1.4 VALIDATION TESTING

Validation testing can be defined in many ways, but a simple definition is that can be reasonably expected by the customer. After validation test has been conducted, one two possible conditions exist.

- The Functions or performance characteristics confirm to specification and are accepted
- A deviation from specification is uncovered and a deficiency is created. Proposed system under consideration has been tested by using validation and found to be working satisfactorily.

6.1.5 WHITE BOX TESTING

White box testing, sometimes called glass-box testing is a test case design method that uses the control structure of the procedural design to derive test cases. Using white box testing methods, the software engineer can derive test cases:

- Guarantee that all independent paths with in a module have been that exercised at least once.
- Exercise all logical decisions on their true and false sides. once Execute all loops at their boundaries and within their operational bounds.
- Exercise internal and data structure to. For example, in this project white box testing is performed against indoor patient assure their validity. module. Without entering text if we apply it displays the message "First add record then save it" else it should be saved.

6.1.6 BLACK BOX TESTING

This method treats the coded module as a black box. The module runs with inputs that are likely to cause errors. Then the output is checked to see if any error occurred. This method cannot be used to test all errors, because some errors may depend on the code or algorithm used to implement the module.

- It concentrates solely on the inputs and outputs of the system, ignoring the internal workings.
- Tests are designed based on requirements and specifications, not on the implementation details.
- The tester acts as an end-user, interacting with the system interface without needing programming knowledge.
- It includes various testing methods such as functional testing, integration testing, system testing, and acceptance testing.

CHAPTER 7
IMPLEMENTATION AND MAINTENANCE

7.1 IMPLEMENTATION

System implementation simply means to convert a new system design into an operational one. After a successful testing of individual programs, the new system run through a series of test to ensure the working of the system as a whole After a thorough testing of different aspects of the system as described above. The system is ready for implementation. The system is to run in parallel with the existing system for few days until the concerned authority becomes fully confident of the new system.

Implementation phase is an important phase in the system development life cycle where the new system is being successfully implemented. Implementation focuses mainly on user training, site preparation and file conversion for installing a candidate system.

The main feature of the proposed software is to reduce the manual work. Through the system, the user will be able to implement the steps that formulate the data management.

7.2 MAINTENANCE

System maintenance is a very broad activity that includes error correction. enhancements of capabilities, deletion of obsolete capabilities, and optimization. Because change is inevitable, mechanisms must be developed for evaluation, controlling and making modifications. So, any work done to change the software after it is in operation is considered to be maintenance work.

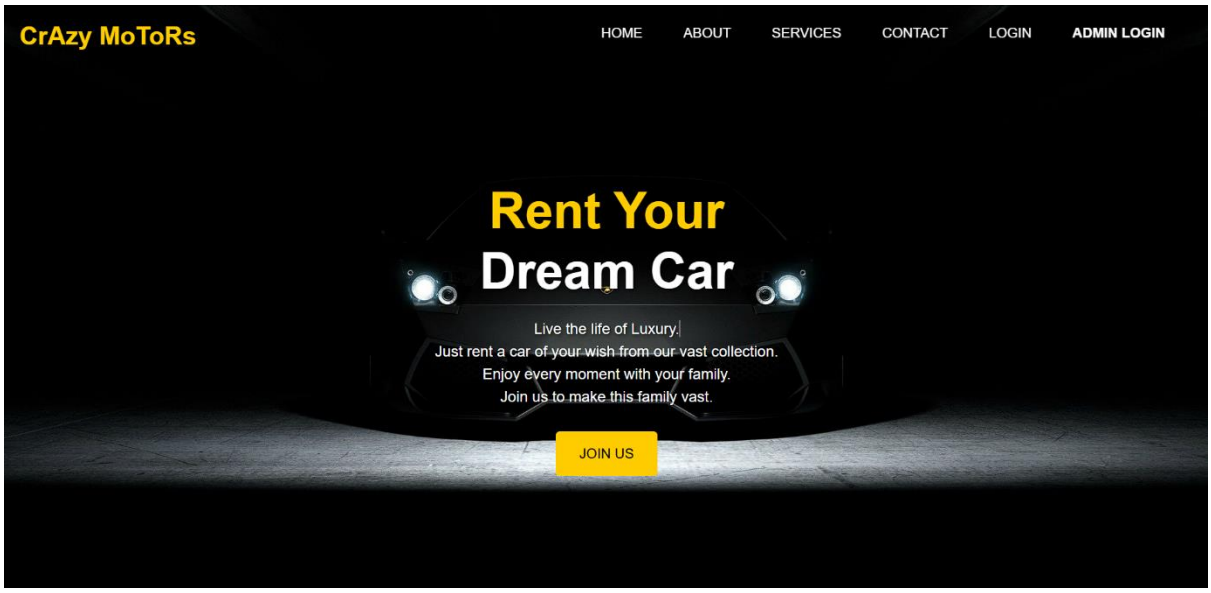
The purpose of maintenance is to preserve the value of software over the time. The value can be enhanced by expanding the customer base, meeting additional requirements, becoming easier to use, more efficient and employing newer technology.

This phase provides the necessary software adjustment for the system to continue to comply with original specifications. The quality assurance goal is to develop a procedure for correcting errors and enhancing software. This procedure improves quality assurance by encouraging complete reporting and logging of problems, ensuring that reported problems are promptly forwarded to the appropriate for solution and reducing redundant effort making known problem reports available to any department that handle complaints.

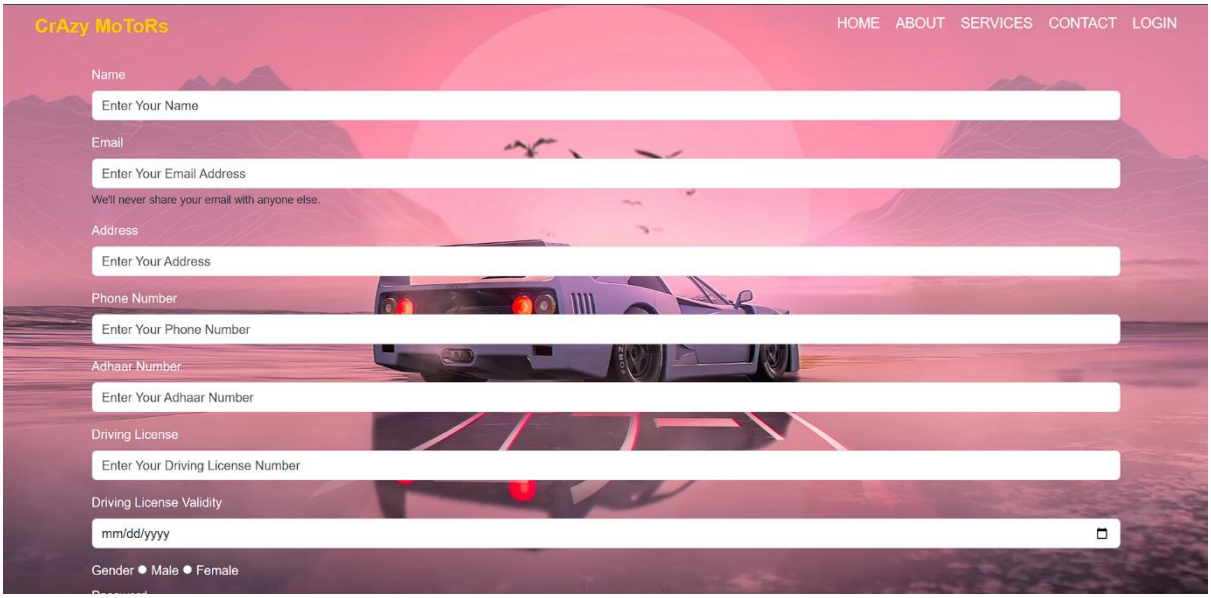
CHAPTER 8

SCREENSHOTS OF THE SYSTEM

Home Page

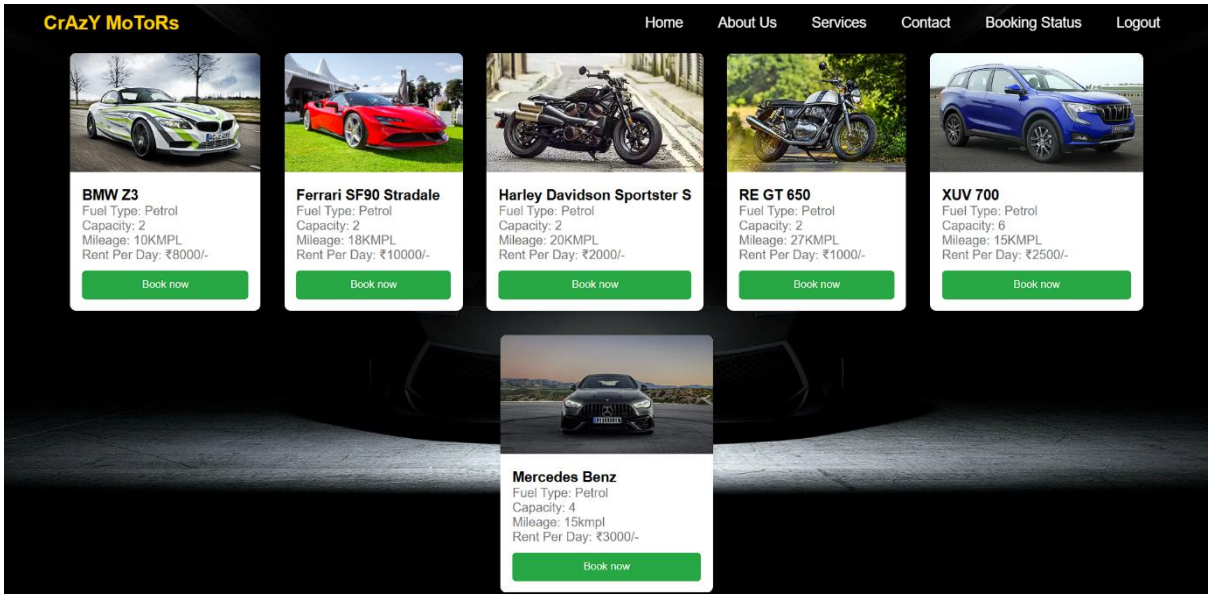


Customer Registration Page

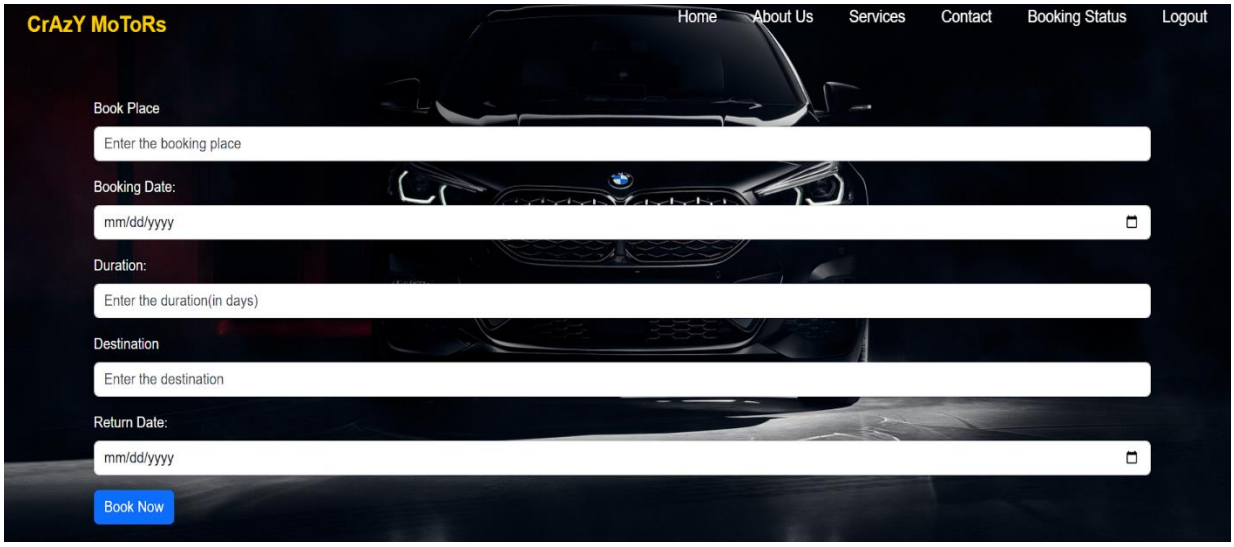


Login Page

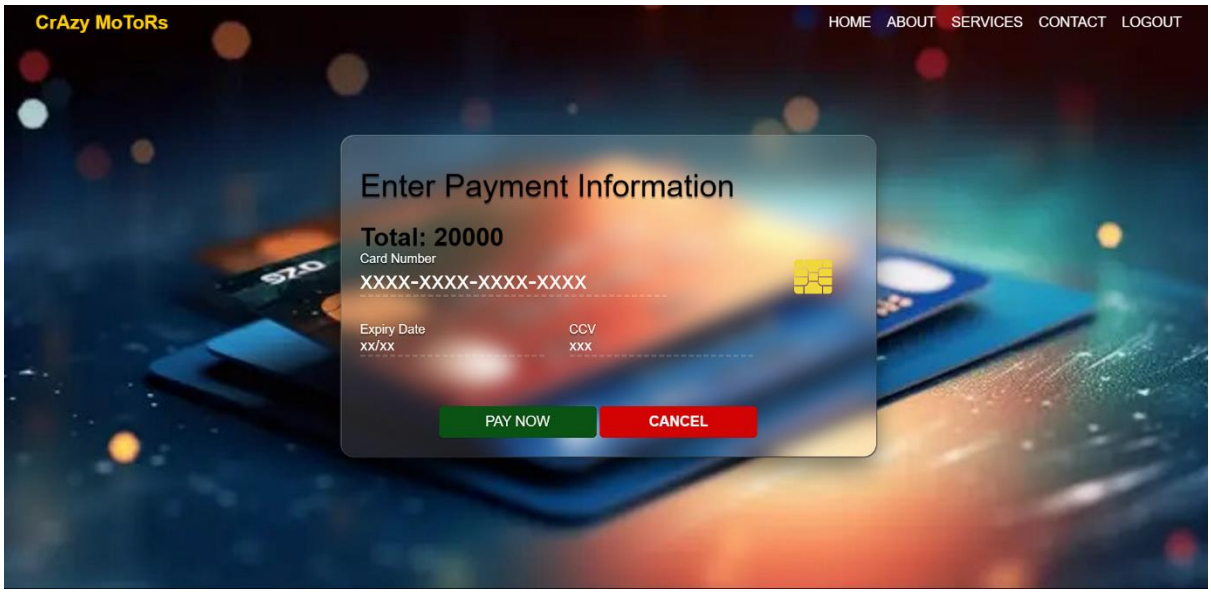
View Vehicles Page



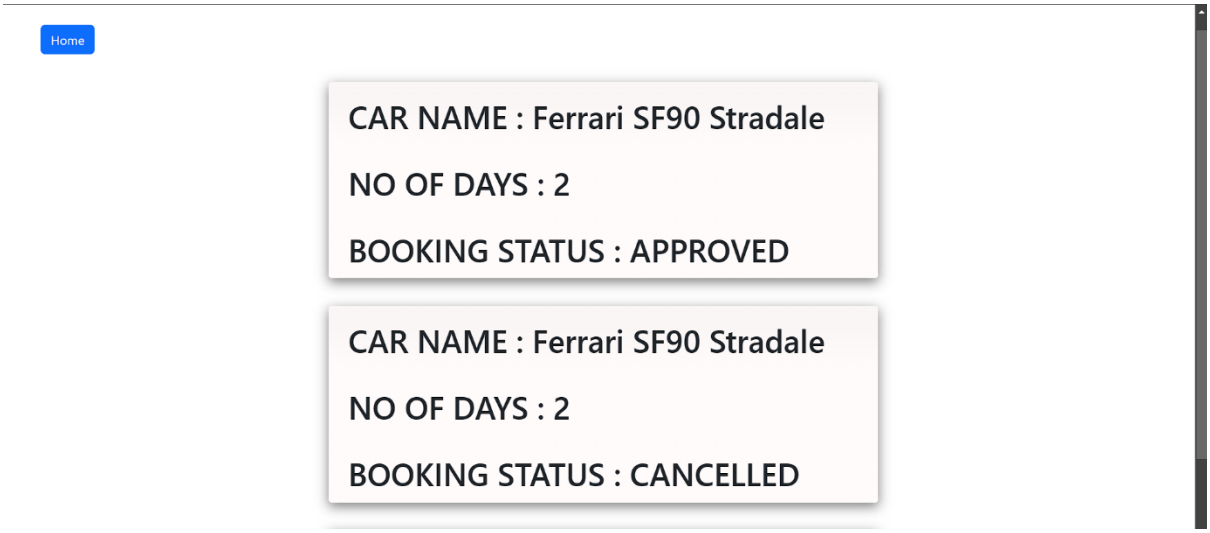
Booking Page



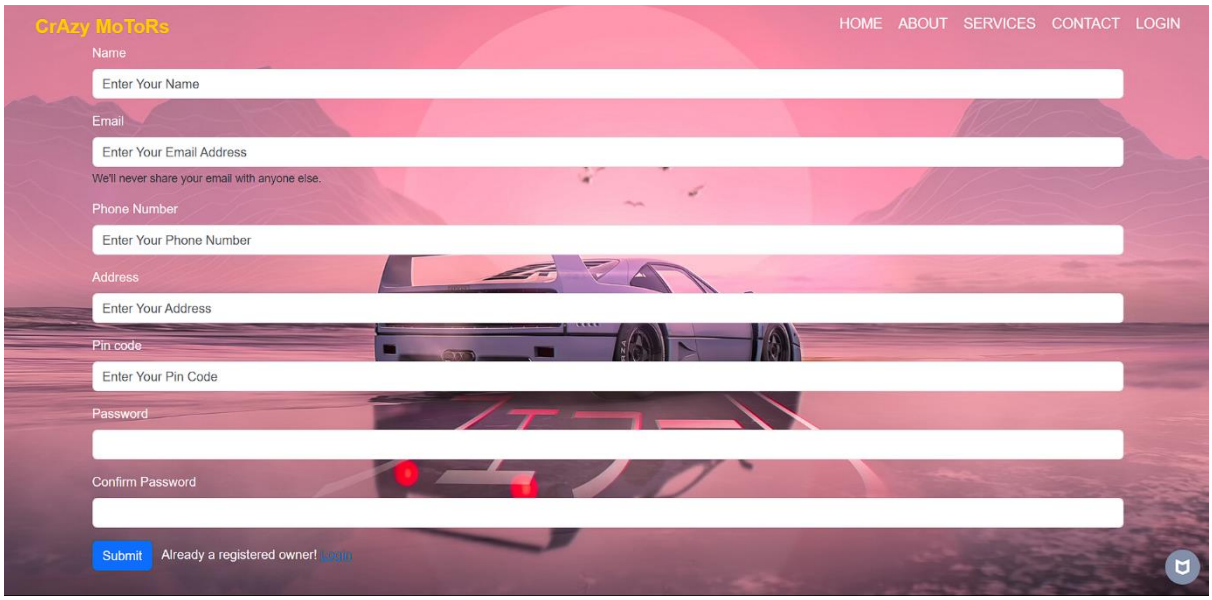
Payment Page



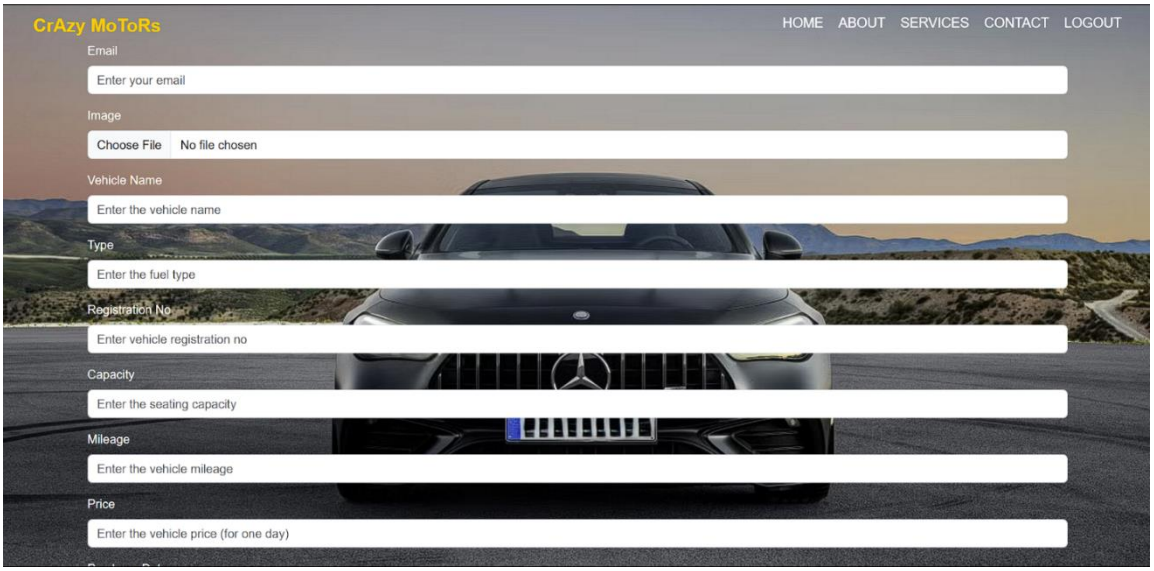
Booking Status Page



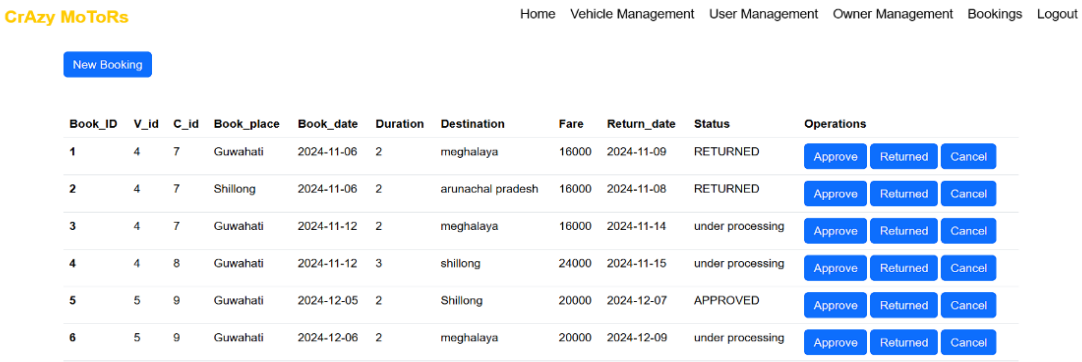
Owner Registration Page

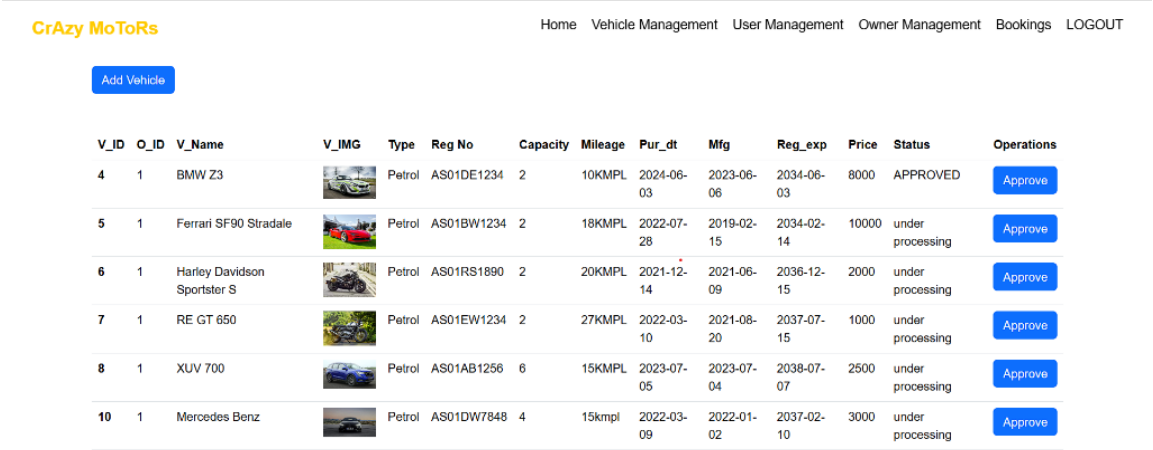


Vehicle Entry Page



Admin Panel





CHAPTER 9
FUTURE ENHANCEMENTS

- **Mobile Application:** This system can be also developed as dedicated mobile application for the android and iOS platform, providing users with a convenient and accessible way to rent a vehicle directly from their phones. Mobile apps also allow for push notifications, enhancing communication with customers and vendors.

- **Multiple Payment Options:** Expand the payment options to accommodate various preferences, including mobile wallets, upi and international payment gateways. Offering secure and diverse payment methods can attract more customers and boost sales.

- **Social Commerce Integration:** Allow customers to share their purchases and experiences on social media platforms directly from the provision management system. This integration can increase brand exposure and drive organic traffic.

- **Multilingual Support:** Expand the platform's language support to cater to customers and vendors from different regions and linguistic backgrounds, widening the platform's reach and appeal.

- **Integration of AI Chat-bot:** Integrate an AI-powered chat-bot to offer instant customer support, answer common queries, and assist with order tracking and returns. This reduces the burden on customer support teams and provides round-the-clock assistance.

CONCLUSION

Vehicle Rental Management System is user-friendly and customized software for vehicle renting company. Online Vehicle Rental Management System has been developed to manage and automate the overall processing of any large vehicle renting company. Online vehicle Rental Management System project is capable of managing vehicles, booking, payment etc. It is a user friendly and customized software for providing support for company admin. This project is a very flexible software and it can be upgraded according to the individual needs.

BIBLIOGRAPHY

Books:

1. Internet and World Wide Web Deitel HM, Deite, Goldberg, Third Edition.

2. The Joy of PHP Programming, Alan Forbes 5th edition, Plum Island.

3. Web Technologies 2nd Edition, Achyut S Godbole & Atul Kahate.

4. J.D. Ullman, Principles of Database Systems.

Websites:

5. https://www.w3schools.com/php

6. https://www.freecodecamp.org

7. https://www.geeksforgeeks.org