

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi, Karnataka – 590018



A

Mini Project Report

On

"CAR RENTAL DATABASE MANAGEMENT SYSTEM"

Submitted By

SHUBHASHINI PAL (1KT17IS019)

Under the guidance

of

Mrs .VEENA M. NAIK

Assistant Professor,

Dept. of ISE



SRI KRISHNA INSTITUTE OF TECHNOLOGY

Department of Information Science and Engineering

No.29, Hesaraghatta Main Road, Chimney hills, Chikkabanavara P.O., Bengaluru – 560090

2019-2020

SRI KRISHNA INSTITUTE OF TECHNOLOGY

No.29, Hesaraghatta Main Road, Chimney hills, Chikkabanaavara P.O., Bengaluru – 560090

Department of Information Science and Engineering



CERTIFICATE

Certified that the mini project work prescribed in 17CSL58 entitled “CAR RENTAL DATABASE MANAGEMENT SYSTEM” carried out by Shubhashini Pal, 1KT17IS019, bonafied students of Sri Krishna Institute of Technology, Bengaluru in partial fulfillment for the award of Bachelor of Engineering in Information Science and Engineering of the Visvesvaraya Technological University, Belagavi during the year 2019-20. It is certified that all corrections / suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The mini project report has been approved as it satisfies the academic requirements with respect to project work prescribed for the said Degree.

27/11/19

Signature of the Guide

Mrs. Veena M. Naik

30/11/19

Signature of the HOD

Dr. Hemalatha K.L
Head of the Department
Information Science & Engg.
Sri Krishna Institute of Technology
Bangalore-560 090

EXTERNAL VIVA

Name of the Examiners

1. Dr. Hemalatha K.L
2. Veena Saptasagara

Signature with date

11/12/19

DECLARATION

I, Shubhashini Pal, student of V semester in Information Science and Engineering, Sri Krishna Institute of Technology, Bengaluru, hereby declare that the mini project entitled "**CAR RENTAL DATABASE MANAGEMENT SYSTEM**" has been carried out by me under the supervision of my guide **Mrs. Veena M. Naik**, Assistant Professor, Dept. of Information Science and Engineering, Sri Krishna Institute of Technology, Bengaluru and submitted in partial fulfillment for the award of degree in Bachelor of Engineering in Information Science and Engineering of Visvesvaraya Technological University, Belagavi during the academic year 2019-2020. We, further declare that the report has not been submitted to any other University for the award of any other degree.

Place: Bengaluru

Date:

SHUBHASHINI PAL (1KT17IS019)

ABSTRACT

A car rental or car hire agency is a company that rents automobiles for short period of time for a fee whether in a few hours or a few days or week. It is an elaborate form of a rental shop, often organized with numerous local branches (which allow a user to return a vehicle to a different location), and primarily located near airports or busy city areas and often complemented by a website allowing online reservations.

Car rental agencies primarily serve people who have a car that is temporarily out of reach or out of service, for example travelers who are out of town or owners of damaged or destroyed vehicles who are awaiting repair or insurance compensation. Because of the variety of sizes of their vehicles, car rental agencies may also serve the self-moving industry needs, by renting vans or trucks, and in certain markets other types of vehicles such as motorcycles or scooters may also be offered.

ACKNOWLEDGEMENT

The completion of mini project work brings with a sense of satisfaction, but it is never complete without thanking the persons responsible for its successful completion.

At the outset, we express our most sincere grateful acknowledgment to the holy sanctum "**Sri Krishna Institute of Technology**", the temple of learning, for giving us an opportunity to pursue the degree course in Information Science and Engineering and thus helping us in shaping our career.

We extend our deep sense of sincere gratitude to **Dr. A. Manjunatha, Principal, Sri Krishna Institute of Technology, Bengaluru**, for providing us an opportunity to continue our higher studies.

We express our heartfelt sincere gratitude to **Dr. Hemalatha K.L, Professor and HOD, Department of Information Science and Engineering, Sri Krishna Institute of Technology, Bengaluru**. for her valuable suggestions and support.

We extend our special in-depth, heartfelt, sincere gratitude to our guide **Mrs. Veena M. Naik, Assistant Professor, Department of Information Science and Engineering, Sri Krishna Institute of Technology, Bengaluru**, for her constant support and valuable guidance for completion of the miniproject work

We would like to thank all the teaching and non-teaching staff members in our **Department of Information Science and Engineering, Sri Krishna Institute of Technology, Bengaluru**, for their support.

Finally, we would like to thank all our friends and family members for their constant support, guidance and encouragement.

Shubhashini Pal (1KT17IS019)

TABLE OF CONTENTS

Abstract	i
Acknowledgement	ii
Table of Contents	iii
List of Figures	v
CHAPTER NO. CHAPTER NAME PAGE NO.	
Chapter 1	INTRODUCTION 1
	1.1 Purpose 1
	1.2 Objectives 1
	1.3 Methodology 2
	1.4 Scope of the Project 2
Chapter 2	SYSTEM ANALYSIS 3
	2.1 Overall Description 3
	2.2 System Requirements 3
	2.2.1 Software Requirements 3
	2.2.2 Hardware Requirements 3
	2.3 Functional Requirements 4
	2.4 Non Functional Requirements 4
	2.5 User Interface 5
	2.6 Existing System 5
	2.7 Proposed System 6
Chapter 3	SYSTEM DESIGN 7
	3.1 System Architecture 7
	3.2 Data Flow Diagram 7
	3.2.1 Data Flow Diagram for Admin Login 7
	3.2.2 Data Flow Diagram for User Login 8
	3.3 Use Case Diagram for Car Rental 8
	3.4 Entity Relationship Diagram 9
	3.5 Schema Diagram 12
Chapter 4	IMPLEMENTATION 13
	4.1 Local Server 13
	4.2 Apache 13
	4.3 CSS (Cascading Style Sheets) 13
	4.3.1 Proper Use of CSS 14
	4.3.2 Implementing CSS Formatting 14

	4.3.3 Cascading Style Rules	14
	4.4 Programming Language	15
	4.4.1 HTML	15
	4.4.2 PHP	15
	4.4.2.1 PHP- What's It Do?	15
	4.5 MySQL Database	16
	4.6 Normalization	16
	4.6.1 First Normal Form	16
	4.6.2 Second Normal Form	17
	4.6.3 Third Normal Form	17
	4.7 Stored Procedures	17
	4.8 Triggers	18
Chapter 5	TESTING	19
	5.1 Software Testing	19
	5.2 Basics of Software Testing	19
	5.2.1 White Box Testing	19
	5.2.2 Black Box Testing	19
	5.3 Testing Methodology	19
	5.4 Types of Testing	20
	5.4.1 Unit Testing of Different Modules	20
	5.4.2 System Integration Testing	21
	5.4.3 System Testing by Developer	22
	5.4.4 Acceptance Testing by User	22
Chapter 6	RESULTS	23
Chapter 7	CONCLUSION AND FUTURE ENHANCEMENT	24
	7.1 Conclusion	24
	7.2 Future Enhancement	24
	BIBLIOGRAPHY	
Appendix	Appendix A: Snapshots	

LIST OF FIGURES

FIGURE NO.	FIGURE DESCRIPTION	PAGENO.
Figure 3.1	System Architecture	7
Figure 3.2	Data Flow Diagram for Admin Login	8
Figure 3.3	Data Flow Diagram for User Login	8
Figure 3.4	Use Case Diagram for Car Rental	9
Figure 3.5	Entity Relationship Diagram	10
Figure 3.6	Schema Diagram	12
Figure 5.1	Levels of Testing	19
Figure 5.2	Types of Testing	20

CHAPTER 1

INTRODUCTION

The car 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 users requires.

The car rental mini project is completely based on integrated online system. It automates manual procedure in an effective and efficient way. This automated system facilitates customer and provides to fill up the details according to their requirements. It includes type of vehicle they are trying to hire and location. The purpose of Car rental system is to develop a website for the people who can book their vehicles along with requirements from any part of the world.

1.1 Purpose

The purpose of car rental system is to automate the existing manual system by the help of computerized equipment and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required software and hardware are easily available and easy to work with.

Car rental System, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

1.2 Objectives

- The system helps the administration to maintain all details the customer, vehicle, and booking.
- User friendly software.
- The system should provide up to date accurate information at any time.
- Increase processing speed and avoid errors.

1.3 Methodology

The methodologies are:

- Specifying the application and various components of the architecture.
- Specifying the bindings between the tasks and the resources either manually or by the design tools.

Specifying the port interconnections between the resources.

1.4 Scope of the Project

The mini project traverses a lot of areas ranging from business concept to computing field and required to perform several researches to be able to achieve the project objectives.

The areas covers include:

- Car rental industry: This includes study on how the car rental business is being done, process involved and opportunity that exist for improvement.
- PHP Technology used for the development of the application.
- General customers as well as the company's staff will be able to use the system effectively.
- Web-platform means that the system will be available for access 24/7 except when there is a temporary server issues which is accepted to be minimal.

CHAPTER 2

SYSTEM ANALYSIS

The software requirements specification is produced at the culmination of the analysis task. The function and performance allocated to software as part of system engineering are refined by establishing a complete information description, a detailed functional and behavioral description, an indication of performance requirements and design constraints, appropriate validation criteria, and other data pertinent to requirements.

2.1 Overall Description

The Car Rental Management System must include the following features:

- Simple, straight forward and easy to use.
- Easy to update or edit the database that has been maintained with routine check-ups for non-redundant entries.
- Provide car catalogue for users to select car by their own.
- To take testimonials and feedback from users.
- To view and manage the bookings by admin.
- To give UI to edit pages for admin.
- Improved and optimized service.

2.2 System Requirements

2.2.1 Software Requirements

- Front End : PHP & HTML, AJAX
- Backend : MySQL/phpMyAdmin
- Client-Side OS : Windows XP or higher

2.2.2 Hardware Requirements

- Processor : Intel Core 2 Duo E7300 (min)
- RAM Capacity : 512MB (min)
- Hard Disk : 80 GB (min)

2.3 Functional Requirements

Requirement analysis is a software engineering technique that is composed of the various tasks that determine the needs or conditions that are to be met for a new or altered product, taking into consideration the possible conflicting requirements of the various users.

Functional requirements are those requirements that are used to illustrate the internal working nature of the system, the description of the system, and explanation of each subsystem. It consists of what task the system should perform, the processes involved, which data should the system hold and the interfaces with the user. The functional requirements identified are:

- a. **Customer's registration:** The system should allow new users to register online and generate membership card.
- b. **Online reservation of cars:** Customers should be able to use the system to make booking and online reservation.
- c. **Automatic update to database once reservation is made or new customer registered:** Whenever there's new reservation or new registration, the system should be able update the database without any additional efforts from the admin.
- d. **Feedbacks to customers:** It should provide means for customers to leave feedback.

2.4 Non-Functional Requirements

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

- a. **Security:** The subsystem should provide a high level of security and integrity of the data held by the system, only authorized personnel of the company can gain access to the company's secured page on the system; and only users with valid password and username can login to view user's page.
- b. **Performance and Response time:** The system should have high performance rate when executing user's input and should be able to provide feedback or response within a short time span usually 50 seconds for highly complicated task and 20 to 25 seconds for less complicated task.
- c. **Error handling:** Error should be considerably minimized and an appropriate error message that guides the user to recover from an error should be provided. Validation of

user's input is highly essential. Also the standard time taken to recover from an error should be 15 to 20 seconds.

d. Availability: This system should always be available for access at 24 hours, 7 days a week. Also in the occurrence of any major system malfunctioning, the system should be available in 1 to 2 working days, so that the business process is not severely affected.

e. Ease of use: Considering the level of knowledge possessed by the users of this system, a simple but quality user interface should be developed to make it easy to understand and required less training.

2.5 User Interface

- HTML has been used for developing the user layout for the system.
- PHP and JavaScript have been used for creating all the validations and client-side scripting functionality.
- CSS has been used for designing the web page of the system.

2.6 Existing System

Car rental service is an innovative thought to simplify the transportation problems of employees of an organization. In the present system, organization do maintain a person for the allocating and proper functioning of transportation. The person appointed needs to look after the assigning and movement of cabs. Authorized person maintains the transportation details in papers, which is a tedious task if any updating or changes need to be done.

- Details are stored in papers.
- Maintenance is a huge problem.
- Updating, changes in details is a tedious task.
- Performance is not achieved up to the requirements.

2.7 Proposed System

In the earlier system, details are stored manually in papers, to share the details between employees was a financial drawback. Updating in the details is a tedious task.

But a new system was proposed to overcome the drawbacks.

Functionalities and advantages of proposed system are:

- Data is centralized which has overcome the sharing problem in previous system.
- As data is maintained electronically, it's easy for a person to update the details, which has overcome the tedious updating in previous system.
- Maintenance is easy and performance is good.

Mainly the system has automated the transportation process.

CHAPTER 3

SYSTEM DESIGN

3.1 System Architecture

A System Architecture is the conceptual model that defines the structure, behavior and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system. The System Architecture for the car rental data is as shown in Figure 3.1.

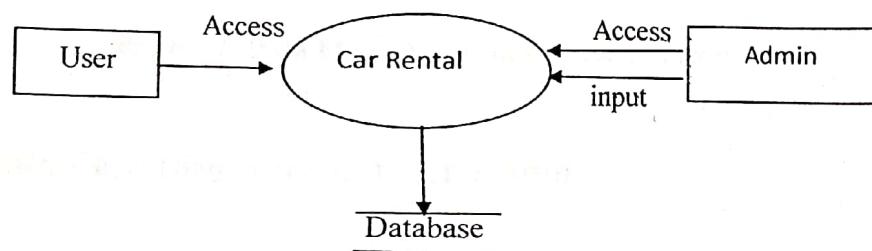


Figure 3.1: System Architecture

There are two categories of users for the car rental management system: Admin of the car rental company and other registered users. Both these access the car rental management system. Users' login to the car rental management system, only the verified users are allowed to access and keep the car rental database up to date. The System interacts with the database to obtain the required information.

3.2 Data Flow Diagram

3.2.1 Data Flow Diagram for Admin Login

After entering to the home page of the website, the authorized person can choose the ADMIN LOGIN option where they are asked to enter username & password, and if he/she is a valid user then an Admin login page will be displayed. The Data Flow Diagram for Admin Login is as shown in Figure 3.2.

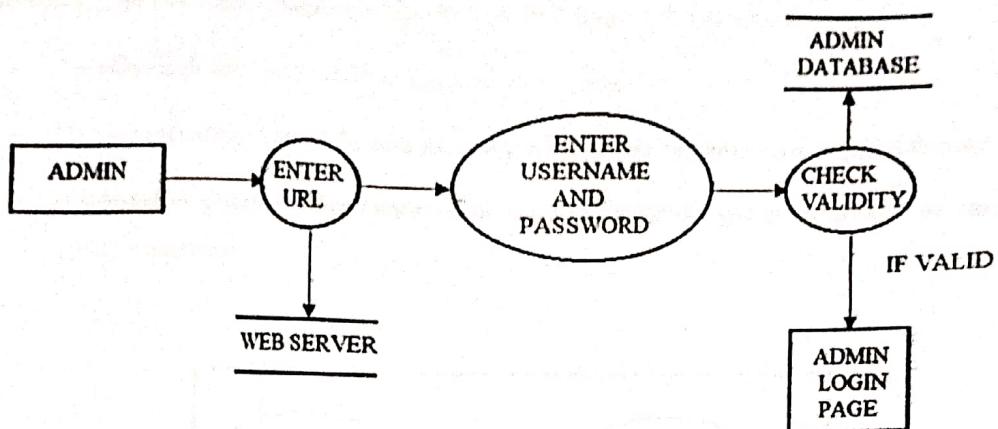


Figure 3.2: Data Flow Diagram for Admin Login

3.2.2 Data Flow Diagram for User Login

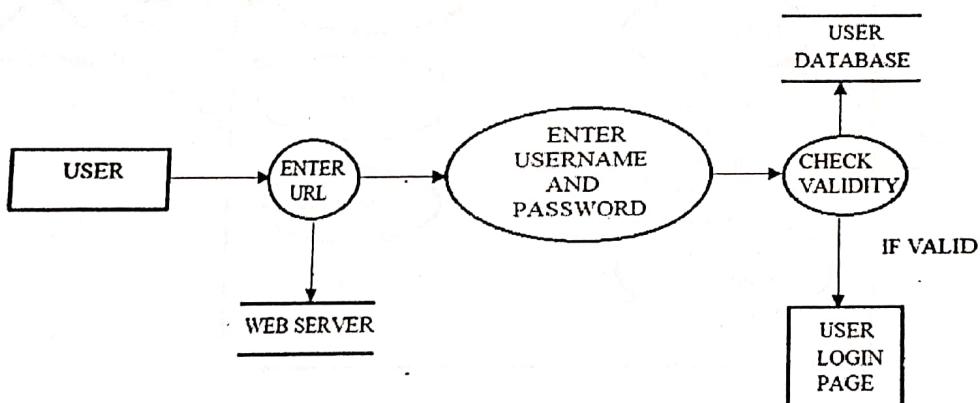


Figure 3.3: Data Flow Diagram for User Login

After entering to the home page of the website, user can choose the USER LOGIN option where they are asked to enter username & password, and if he/she is a valid user then a User login page will be displayed. The Data Flow Diagram For User Login is as shown in the Figure.3.3.

3.3 Use Case Diagram of Car Rental

A Use Case Diagram is a simplest representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which

the user is involved. It depicts how a user interacts with the system through various processes. The Use Case Diagram is as shown in Figure 3.4. Use case diagrams:

- Provides high level analysis from outside the system
- Provide scenarios in which system interact with people, organization or external factors
- It internal or external factor factors that may influence the system that should be taken into consideration.

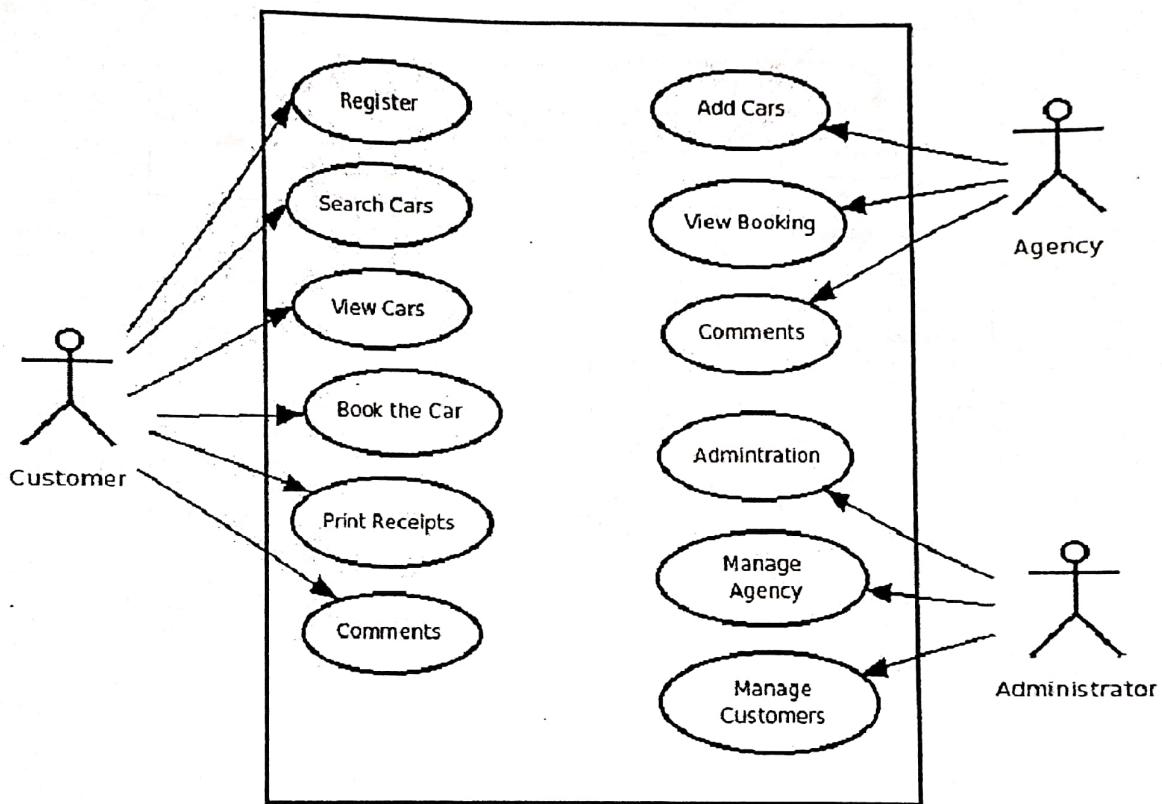


Figure 3.4: Use Case Diagram of Car Rental

3.4 Entity Relationship Diagram

Entity-Relationship Diagram depicts the relationship between the various entities involved. An entity is any real-world object. The attribute of each entity noted in the entity-relationship diagram can be described using an entity description. The Entity Relationship Diagram is as shown in Figure 3.5.

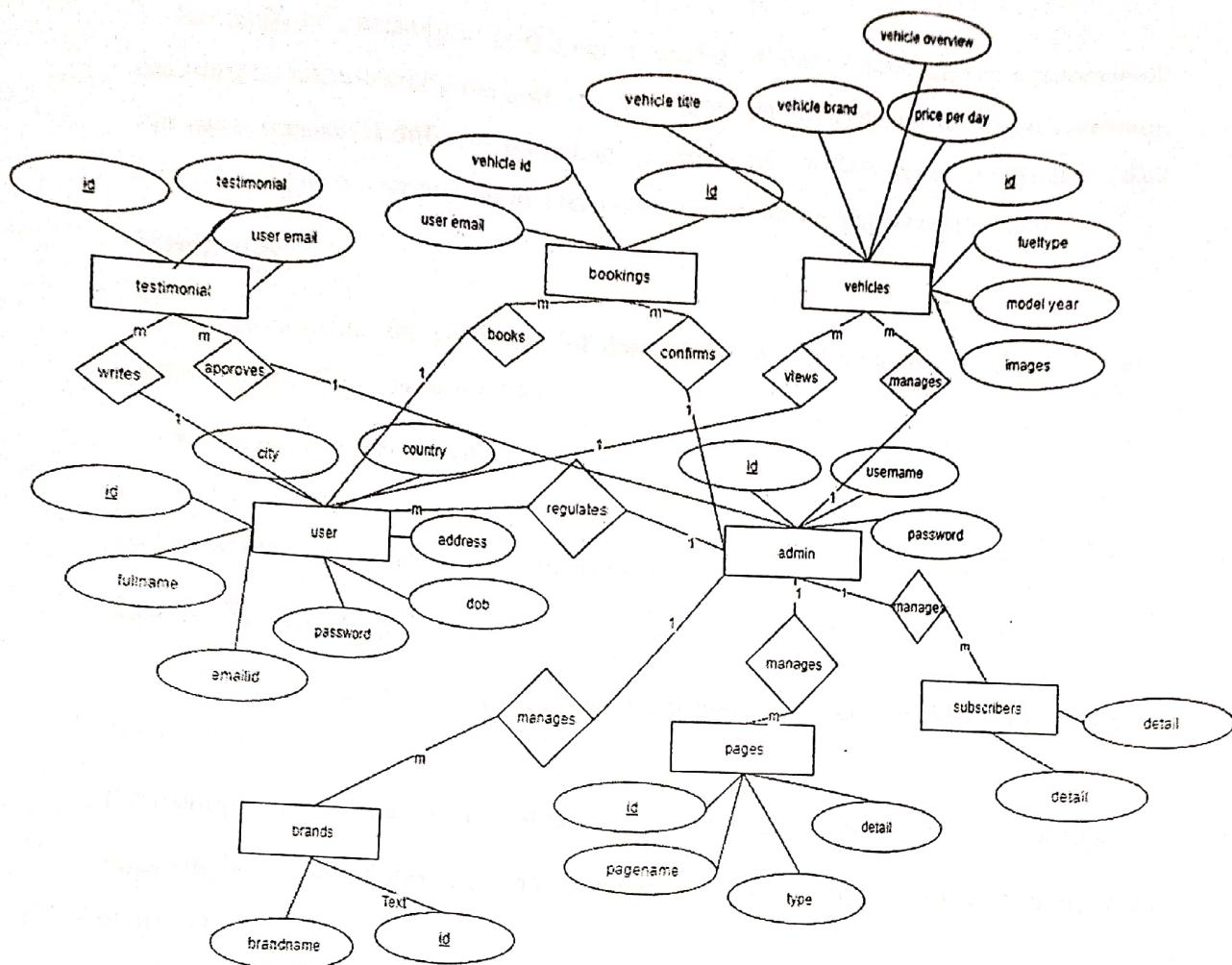


Figure 3.5: Entity Relationship Diagram

E-R diagram serves two purposes:

- To provide an indication of how data are transformed as they move through the system.
- To depict the functions that transformation the data flow.

Entities

An entity or a data object is the representation of almost any composite information that must be understood by the software. By composite information, we mean something that has a number of different properties or attributes. A data object encapsulates data only. There is no reference within a data object to operation that act on the data.

Attributes

Attributes define the properties of data object and take on one of three different characteristics. They can be used to:

- Name an instance of object.
- Describe the instance.

Make reference to another instance in the table.

Entity-Set and Keys

Key is an attribute or collection of attributes that uniquely identifies an entity among entity set.

For example, the roll_number of a student makes him/her identifiable among students.

Super Key – A set of attributes (one or more) that collectively identifies an entity in an entity set.

Candidate Key – A minimal super key is called a candidate key. An entity set may have more than one candidate key.

Primary Key – A primary key is one of the candidate keys chosen by the database designer to uniquely identify the entity set.

Schema Diagram

Admin

<u>Id</u>	Username	Password	UpdationDate
-----------	----------	----------	--------------

Booking

<u>Id</u>	UserEmail	VehicleId	FromDate	ToDate	Message	Status	PostingDate
-----------	-----------	-----------	----------	--------	---------	--------	-------------

Brands

<u>Id</u>	BrandName	CreationDate	UpdationDate
-----------	-----------	--------------	--------------

Pages

<u>Id</u>	PageName	Type	Detail
-----------	----------	------	--------

Subscribers

<u>Id</u>	SubscriberEmail	PostingDate
-----------	-----------------	-------------

Testimonial

<u>Id</u>	UserEmail	Testimonial	PostingDate	Status
-----------	-----------	-------------	-------------	--------

User

<u>Id</u>	FullName	EmailId	Password	ContactNo	Dob	Address	City
Country	RegNo	UpdationDate					

Vehicles

<u>Id</u>	VehiclesTitle	VehiclesBrand	RegDate	UpdationDate
-----------	---------------	---------------	---------	--------------

Figure 3.6: Schema Diagram

CHAPTER 4

IMPLEMENTATION

4.1 Local Server

Local server is a server that is running in a local or a mounted folder and whose document root is NOT the parent of the project root. To configure access to the server in this set-up, you need to specify the following:

- The server configuration root folder and the URL address to access it.
- A local server gives you exclusive access to data and objects in a set of Windows folders called data directories.

The localhost is the default name describing the local computer address also known as the loopback address.

4.2 Apache

XAMPP is a free and open source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, Maria DB database, and interpreters for scripts written in the PHP and Perl programming languages. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server possible.

XAMPP's ease of deployment means a WAMP or LAMP stack can be installed quickly and simply on an operating system by a developer, with the advantage a number of common add-in applications such as WordPress and Joomla! Can also be installed with similar ease using Bitnami.

XAMPP is regularly updated to the latest releases of Apache, Maria DB, PHP and Perl. It also comes with a number of other modules including OpenSSL, phpMyAdmin, mediawiki, joomla, WordPress and more. Self-contained, multiple instances of XAMPP can exist on a single computer, and any given instance can be copied from one computer to another. XAMPP is offered in both a full and a standard version (Smaller version).

4.3 CSS (Cascading Style Sheets)

This definition explains the meaning of CSS (cascading style sheets) and how using them with HTML pages is a user interface (UI) development best practice that

complies with the separation of concerns design pattern. CSS is the standard and preferred mechanism for formatting HTML pages.

4.3.1 Proper Use of CSS

In the early days of the World Wide Web (WWW), it was common for HTML files to include not only markup language and content, but formatting information and JavaScript as well. This made webpages difficult to write, difficult to read, difficult to update and difficult to maintain. As the web matured, it became a best practice to divide HTML, scripting content and style information into separate, easy-to-maintain files. As such, a modern webpage is typically made up of three separate entities: a cascading style sheet, a JavaScript file and the HTML file itself.

4.3.2 Implementing CSS Formatting

The cascading nature of CSS files is attributed to the fact that style information for a webpage can be defined in any of three different places, also known as style levels. The preferred practice is to put style information in a separate file with a .css extension. Using formatting information contained within an external cascading style sheet is accomplished via the HTML link tag. A webpage can link to zero, one or many different external CSS files by using multiple link tags.

```
<link rel="stylesheet" type="text/css" href="what-is-css.css">
```

However, on smaller projects or in cases where a given webpage is interested in overriding some of the style information in an external CSS file, style information can be written within a `<style>` tag inside the webpage. This is known as an internal style level. Internal style level information within a webpage will override any style information provided by an external cascading style sheet.

4.3.3 Cascading Style Rules

Furthermore, all HTML5 tags have a style property that one can use to override any style information defined at either the page style level or in an external style sheet. Using an HTML tag to define CSS information is referred to as an *inline style*. The fact that style rules dictate that parent-level styles are overridden by page-level styles and page-level styles are overridden by tag-level styles is what is meant by style sheets being *cascading*.

4.4 Programming Language

4.4.1 HTML

HTML is the standard markup language for creating Web pages and web applications. With Cascading Style Sheets(CSS) and JavaScript it forms a triad of cornerstone technologies for World Wide Web.

- HTML stands for Hyper Text Markup Language.
- HTML describes the structure of Web pages using markup.
- HTML elements are the building blocks of HTML pages.
- HTML elements are represented by tags.
- HTML tags label pieces of content such as "heading", "paragraph", "table", and so on.
- Browsers do not display the HTML tags, but use them to render the content of the page.

4.4.2 PHP

PHP stands for Hypertext Preprocessor (no, the acronym doesn't follow the name). It's an open source, server-side, scripting language used for the development of web applications. By scripting language, we mean a program that is script-based (lines of code) written for the automation of tasks.

- Web pages can be designed using HTML. With HTML, code execution is done on the user's browser (client-side). On the other hand, with PHP server-side scripting language, it's executed on the server before it gets to the web browser of the user.
- PHP can be embedded in HTML, and it's well suited for web development and the creation of dynamic web pages for web applications, e-commerce applications, and database applications. It's considered a friendly language with abilities to easily connect with MySQL, Oracle, and other databases.

4.4.2.1 PHP - What's It Do?

It is also helpful to think of PHP in terms of what it can do for you. PHP will allow you to:

- Reduce the time to create large websites.
- Create a customized user experience for visitors based on information that you have gathered from them.

- Open up thousands of possibilities for online tools. Check out PHP-HotScripts for examples of the great things that are possible with PHP.

Allow creation of shopping carts for e-commerce websites.

4.5 MySQL Database

In this project, MySQL is used as the backend database. MySQL is an open source database management system.

The features of MySQL are given below:

- MySQL is a relational database management system. A relational database stores information in different tables, rather than in one giant table. These tables can be referenced to each other, to access and maintain data easily.
- MySQL is open source database system. The database software can be used and modify by anyone according to their needs.
- It is fast, reliable and easy to use. To improve the performance, MySQL is multithreaded database engine.

A multithreaded application performs many tasks at the same time as if multiple instances of that application were running simultaneously.

4.6 Normalization

Normalization is a technique of separating redundant fields and breaking up a large table into smaller ones. It is also used to avoid insertion, deletion and updating anomalies. All the tables have been normalized up to the third normal form. In short, the rules for each of the three normal forms are as below.

4.6.1 First Normal Form

According to the first normal form, all the relations must have atomic values for their attributes. All composite attributes are to be decomposed to simple attributes. All attributes that are having multiple values must be decomposed to generate a new relation. All the relations have atomic values hence, all are in 1NF.

4.6.2 Second Normal Form

A relation schema R is said to be in second normal form if every non-prime attribute A in R is fully functional dependent of primary key of R. All the relations R in the schema are in 2NF form as well as other attributes other than one primary key or other than one primary key attribute determine all other attributes in each relation.

4.6.3 Third Normal Form

A relation schema R is said to be in third normal form if, whenever there doesn't exist any functional dependency of the form $X \rightarrow Y$ and $Y \rightarrow Z$ where Y is a non-prime attribute.

Normalization provides for table optimization through the investigation of entity relationships. Main purpose of normalization is to avoid data redundancy and some unforeseen scalability factors. Normalization is done to remove Insertion, Updating and Modification anomalies and redundancy of data. A certain level of normalization of tables in database gives a particular normal form based of particulars steps followed. Database can be normalized up to any defined normal forms according as the need of application and its effectiveness.

4.7 Stored Procedures

A procedure (often called a stored procedure) is a subroutine like a subprogram in a regular computing language, stored in database. A procedure has a name, a parameter list, and SQL statement(s). All most all relational database system supports stored procedure, MySQL 5 introduce stored procedure. MySQL 5.6 supports "routines" and there are two kinds of routines stored procedures which you call, or functions whose return values you use in other SQL statements the same way that you use pre-installed MySQL functions like `pi()`. The major difference is that UDFs can be used like any other expression within SQL statements, whereas stored procedures must be invoked using the `CALL` statement

A stored procedure can accept three types of values:

1. IN -it is used to provide input to stored procedure.
2. OUT- it is used to provide output from the stored procedure.
3. INOUT -it is used to as both accepting input as well as providing output.

4.8 Triggers

A trigger is a set of actions that are run automatically when a specified change operation (SQL INSERT, UPDATE, or DELETE statement) is performed on a specified table. Triggers are useful for tasks such as enforcing business rules, validating input data, and keeping an audit trail.

The following statements of MySQL procedure in triggers are:

- Compound statements (BEGIN / END)
- Variable declaration (DECLARE) and assignment (SET)
- Flow-of-control statements
(IF, CASE, WHILE, LOOP, WHILE, REPEAT, LEAVE, ITERATE)
- Condition declarations and Handler declarations.

CHAPTER 5

TESTING

5.1 Software Testing

The aim of the Software Testing process is to determine all defects in mini project. The program is subjected to a set of test inputs and various observations are made and based on these observations it will be decided whether the program behaves as expected or not.

5.2 Basics of Software Testing

There are two basics of software testing: Black Box Testing and White Box Testing.

5.2.1 White Box Testing

White Box Testing is a testing technique that occurs into each and every part of the program. It is also called structural testing and glass box testing. White Box Testing is often used for verification.

5.2.2 Black Box Testing

Black Box Testing is a testing technique that ignores the internal mechanism of the system and focuses on the output. It is also called functional testing. Black box testing is often used for validation.

5.3 Testing Methodology

In order to remove the errors, the different levels of testing are shown in Figure 5.1

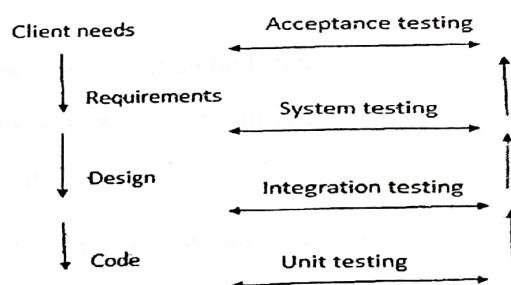


Figure 5.1: Levels Of Testing

5.4 Types of Testing

There are many types of testing as shown in Figure 5.2.

The mini-project went through the following levels of testing:

1. Unit testing
2. Integration testing
3. System Testing
4. Acceptance Testing

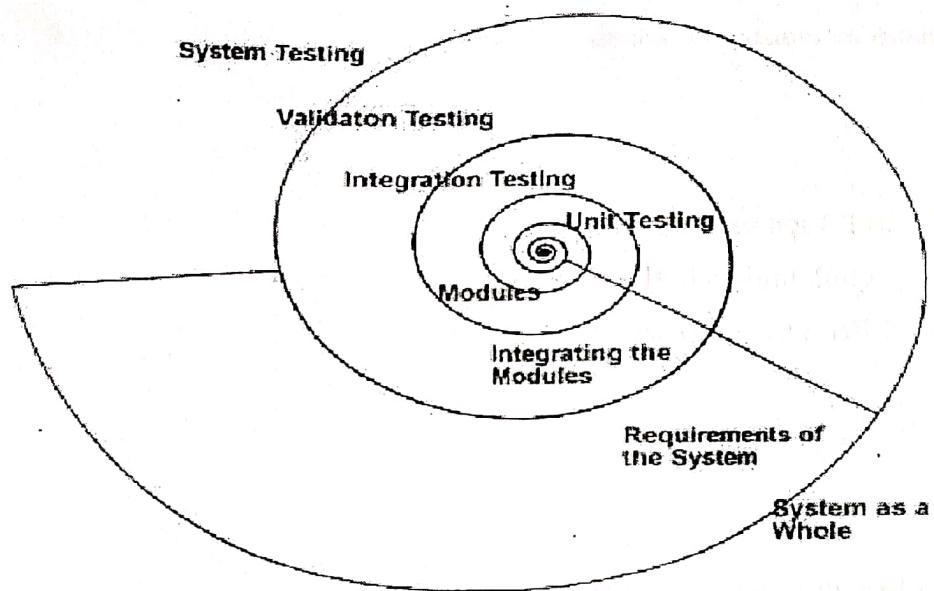


Figure 5.2: Types of Testing

5.4.1 Unit Testing of Different Modules

Unit testing is undertaken when a module has been created and successfully reviewed. In order to test a single module, we need to provide a complete environment i.e., besides the module we would require

1. The procedures belonging to other modules that the module under test calls.
2. Non-local data structures that module accesses.
3. A procedure to call the functions of the module under test with appropriate parameters.

1. Test for the Admin Module

a) Testing Admin Login Form

Admin Login Form is used for log in of administrator of the system. In the application, when user enter the username and password if both are correct administration page will open otherwise if any of data is wrong it will display a message saying that the user name and password is invalid, and again ask to re-enter the valid username and password.

2. Test for User Login Module

a) Test for User Login Form

User Login Form is used for log in of user. The customer enters the customers email-id and password if all these are correct user login page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for customers email-id and password.

b) Test for Account Creation

Account Creation Form is used for new account creation when user does not fill the form completely it asks again to fill the whole form when he fills the form fully it gets redirected to page which show waiting for conformation message as his data will be only added by administrator after verification.

3. Test for Admin Login Module

a) Test for Admin Login Form

This form is used for log in of admin. In this we enter the username and password if all these are correct admin login page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for username and password.

5.4.2 Integration Testing of Whole Module

In this type of testing we test various integration of the project module by providing the input. The primary objective is to test the module interfaces in order to ensure that no errors are occurring when one module invokes the other module. Integration testing is testing in which a group of components are combined to produce output. Also, the interaction between software and hardware is tested in integration testing if software and hardware components have any relation. It may fall under both white box testing and black box testing.

The two types of integration testing are Top-down integration testing which is testing that takes place from top to the bottom of the system. Bottom-up integration testing which is a testing that takes place from bottom the control flow upwards.

5.4.3 System Testing by Developer

System testing is the testing to ensure that by putting the software in different environments (e.g., Operating Systems) it still works. System testing is done with full system implementation and environment. It falls under the class of black box testing.

5.4.4 Acceptance Testing by User

Acceptance testing is often done by the user to ensure that the books available in the library meets the requirements and works as the user expected. It falls under the class of black box testing.

CHAPTER 6

RESULTS

After executing the mini project, a user could successfully signup and login to the account. The guest users can view the website and checkout the information about the rental cars also inquiry through contact us. Anyone can register through the registration page on the online portal and login to the system. After successful login, user can do the following activities: car booking-they can book cars, view cars booking history register users, update their profile and update their password , post and view testimonials , logout from the online portal.

Admin can create vehicle brands available, manage vehicle brands (edit,delete,modify), manage booking (admin can confirm and cancel booking). Admin can manage testimonials (active and inactive), manage to contact us query, admin has details of the registered uses, and admin can also update the page content. Admin can also update the contact us details, manage subscribers, admin dashboard (admin can view the count of registered users, total booking, total subscribers, total queries etc...) and change password (admin can change own password).

CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

7.1 CONCLUSION

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

7.2 FUTURE ENHANCEMENT

The future enhancements that can be done:

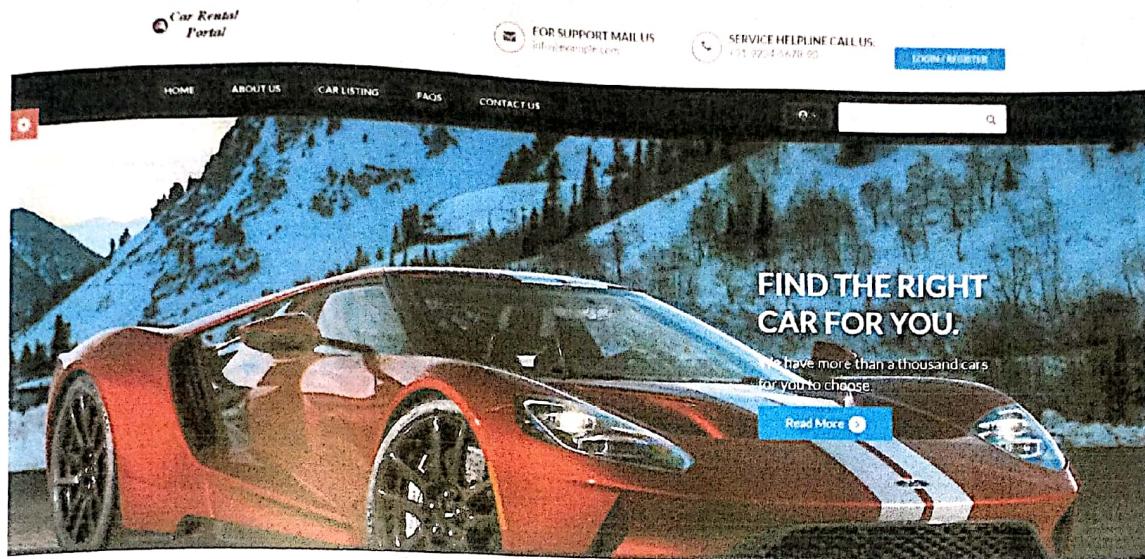
- Authentication using Gmail, Facebook accounts.
- Printing of lists.
- Payment through online payment gateway.
- SMS alerts to the user.

BIBLIOGRAPHY

- [1] Henry FKoth, Abraham Silberschatz, "Database system concepts", McGraw-Hill, 2nd edition, 2004.
- [2] Software Engineering, McGraw-Hill, 2nd Edition, 2006
- [3] <http://www.stackoverflow.com>
- [4] <http://www.w3school.com>
- [5] <http://www.scribd.com>
- [6] <http://www.getbootstrap.com>
- [7] <http://www.uber.com/en-IN/>
- [8] <http://www.olacabs.com>
- [9] <http://www.wikipedia.org>

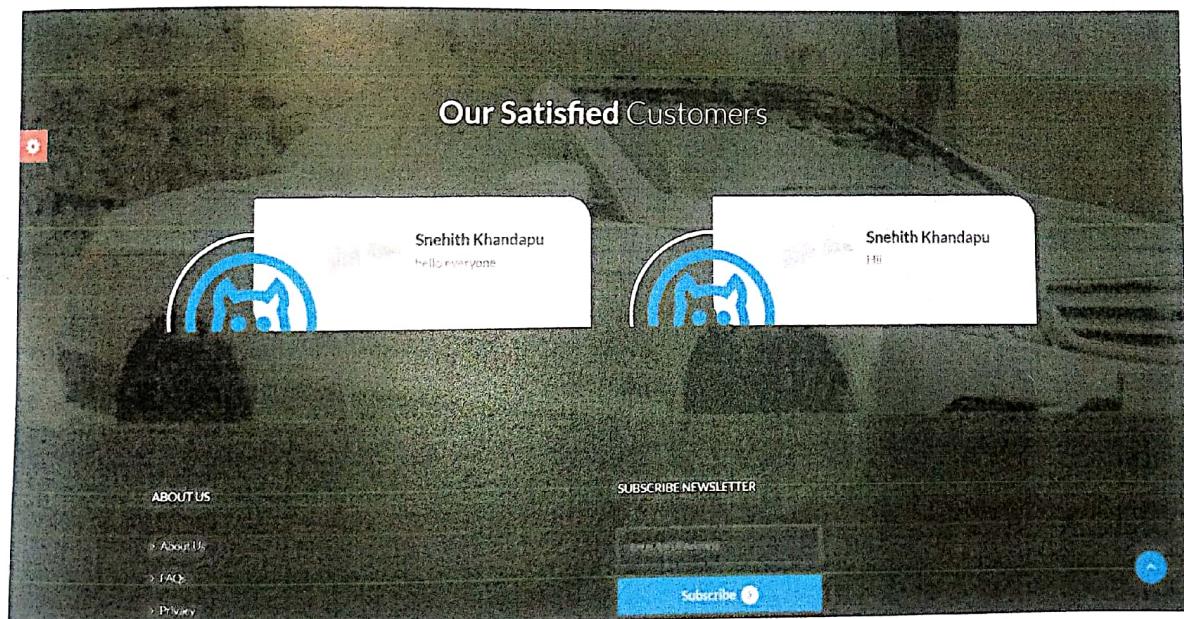
APPENDIX

APPENDIX A: SNAPSHOTS



A.1: Homepage

Home page where the users can login in, signup or get information about the cars.



A.2: Testimonials and Subscribe section

The customers testimonials are displayed here and the users can subscribe with their email-id for updates.



About Us

At vero eos et accusamus et iusto odio dignissimos ducimus qui blanditiis praesentium voluptatum delenit atque corrupti quos dolores et quas molestias excepturi sint occaecati cupiditate non provident, similique sunt in culpa qui officia deserunt mollitia animi, id est laborum et dolorum fuga. Et maximus placeat facere possimus, omnis voluptas assumenda est, omnis dolor repellendus. Temporibus autem quibusdam et aut officiis debitis aut rerum necessitatibus saepe eveniet ut et voluptates repudandae sint et molestiae non recusandae. Itaque earum rerum hic tenetur a sapiente delectus, ut aut reiciens voluptatis maiorum alias consequatur aut perferendis doloribus asperiores repellat.

A.3: About Us Page

About us page contains the information about the car rental company.



A screenshot of the 'Find Your Car' search interface. It includes fields for 'Select Brand', 'Select Fuel Type', and a 'Search Car' button. To the right, there is a detailed view of a car's dashboard with two analog gauges and a digital display. The car's details are listed: 'BMW , ytb rvtr', '\$345345 Per Day', '2 Years', '345 km/travel', and a 'View Details' button.

A.4: Car Listing

Car listing page contains the details of the cars like number of seats, fuel type, etc.



Get in touch using the form below

Contact Info

Full Name*

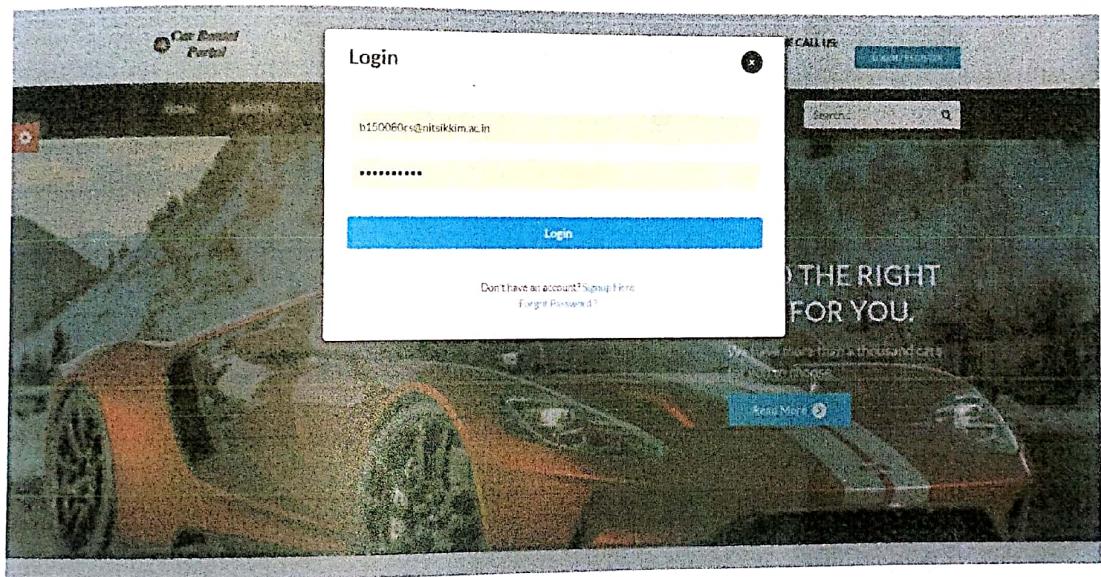
CAR Rental Portal, Barfuting Block, Parvatiya Sip
Dhinkar South 44 Km - 732 139

Email Address*

currentfile@gmail.com

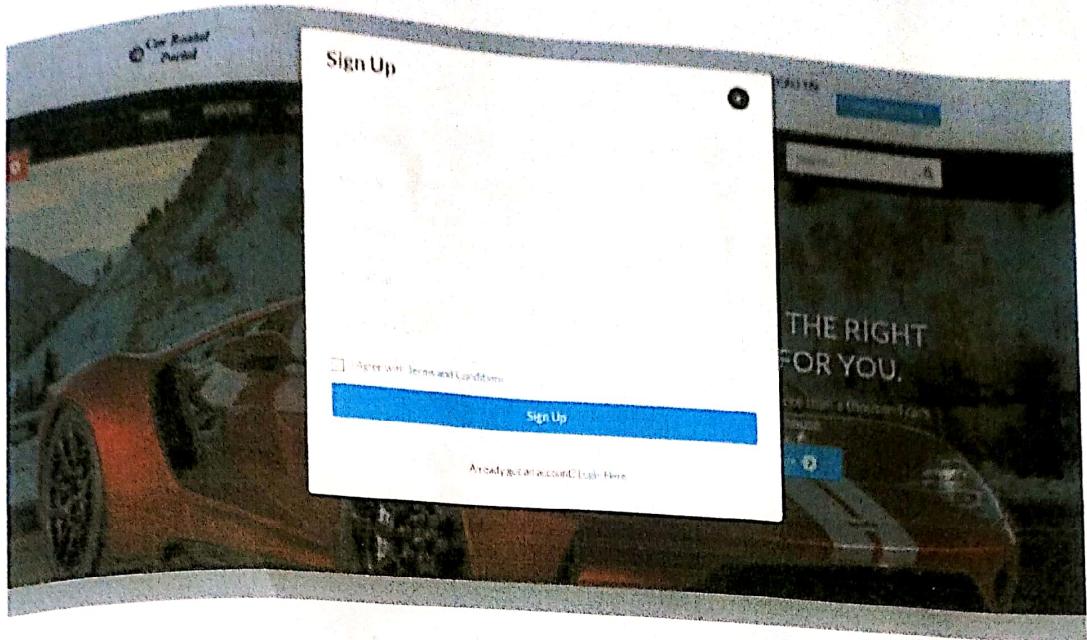
A.5: Contact Us Page

Contact us page contains the details of the contact information.



A.6: Login Page

Login page allows user to enter username and password for verification purpose to keep the software safe from unauthorized access.



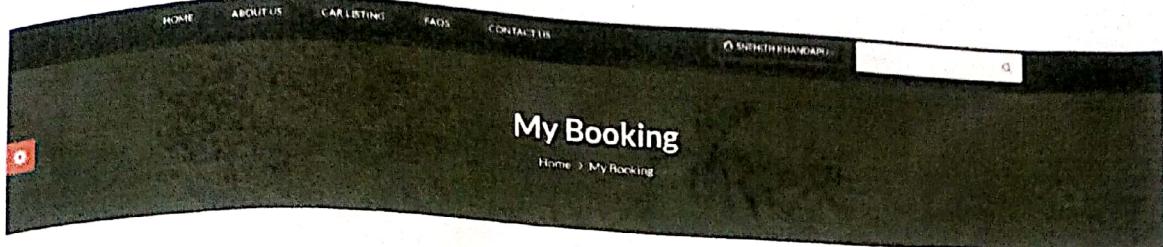
A.7: Sign Up Page

The user can register using the signup page (if not yet registered).

A screenshot of the 'Your Profile' page for Snehith Khandapu on the Autospot website. The top navigation bar shows 'Home > Profile'. The profile section features a small car icon, the name 'Snehith Khandapu', and the 'Autospot' logo. Below this, there are several links: 'Profile Settings', 'Update Password', 'My Booking', 'Post a Testimonial', 'My Testimonials', 'Sign Out', and 'Email Address'. On the right side of the page, there is a sidebar with sections for 'Recent Bookings', 'Testimonials', and 'Autospot News'.

A.8: User Logged In Page

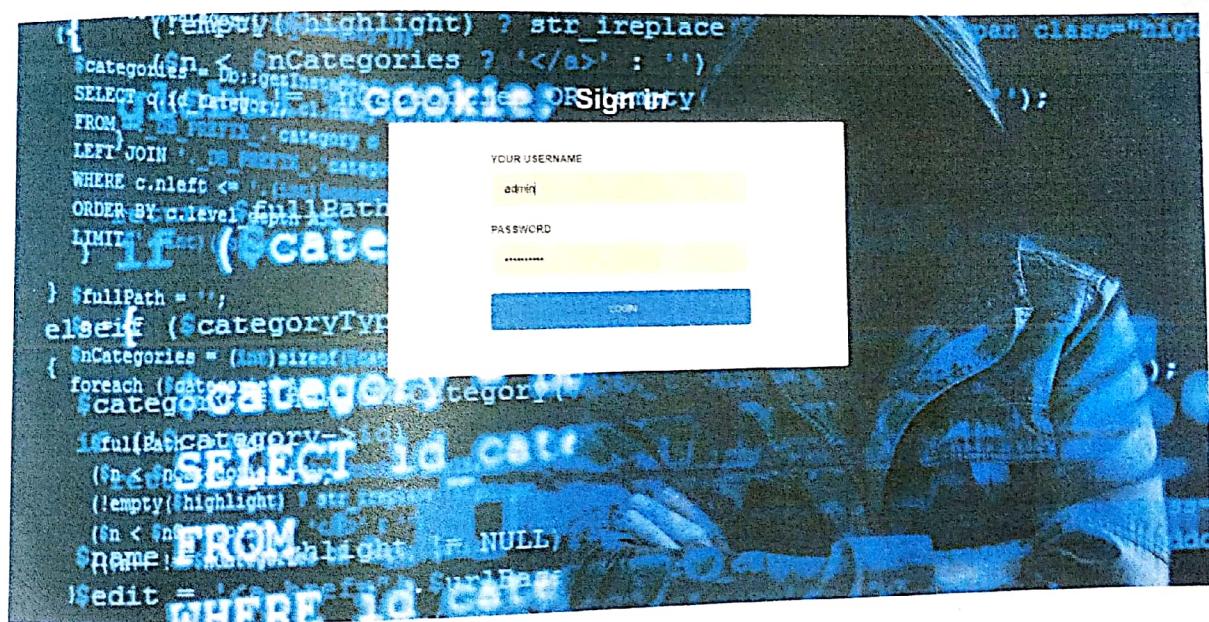
The user can view and update their details after login.



A screenshot of the "MY BOOKINGS" page. It shows a table with columns for "Category", "Car Model", "From Date", "To Date", "Coordinates", and "Message". One row is visible, showing a car from "04/11/17" to "05/11/17".

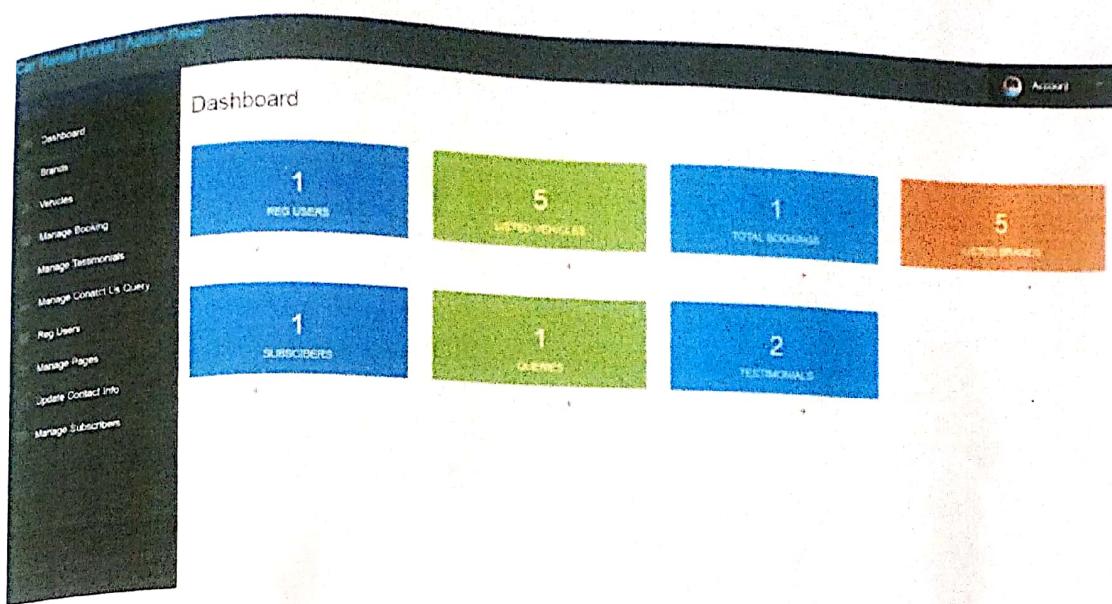
A.9: User Booking

If the user has booked a car then the user can check the status of their bookings.



A.10: Admin Login Page

Admin login page allows admin to enter username and password for verification purpose to keep the software safe from unauthorized access.



A.11: Admin Dashboard

The admin can check the count of the registered users, listed vehicles, total bookings, etc.

The screenshot shows the 'Update Contact Info' page. The sidebar menu is identical to the one in the dashboard. The main form has fields for Address, Email Id, and Contact Number, each with a value pre-filled. A blue 'Update' button is at the bottom.

Field	Value
Address	CAR Rental Portal Balung Block, Revangia Sub-Division, Revangia, Kukma, T22 159
Email Id	carrental@gmail.com
Contact Number	9999999999

A.12: Update Contact Information

The admin can update his/her contact information that is viewed by the users.