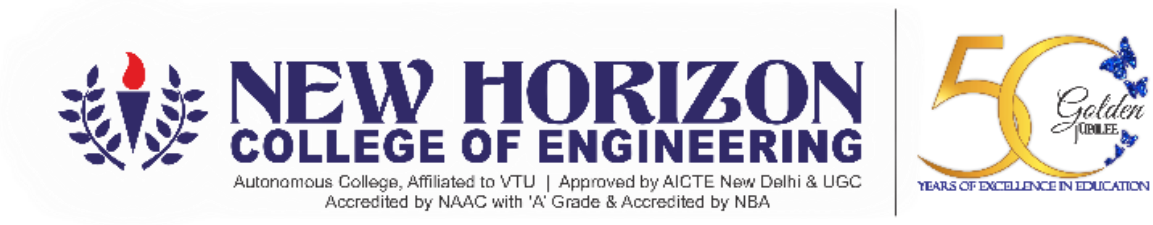

"ONLINE CAR RENTAL SYSTEM"

A MINI PROJECT REPORT

Submitted by

CHRISEL FERNANDES [1NH18IS026]

Under the guidance of,

Dr. ARVIND SHIVAPPA KAPSE

Professor, ISE, NHCE

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

INFORMATION SCIENCE AND ENGINEERING

FOR

COURSE NAME: MINI PROJECT

COURSE CODE: 20ISE59

NEW HORIZON COLLEGE OF ENGINEERING

Autonomous College, Affiliated to VTU | Approved by AICTE New Delhi & UGC
Accredited by NAAC with 'A' Grade & Accredited by NBA

50 Golden Jubilee YEARS OF EXCELLENCE IN EDUCATION

CERTIFICATE

Certified that the project work entitled Online Car Rental System carried out by Mr. CHRISEL FERNANDES, bearing USN 1NH18IS026, a bonafide student of 5th semester in partial fulfillment for the award of Bachelor of Engineering in Information Science & Engineering of the Visveswaraiah Technological University, Belagavi during the year 2020-21. It is certified that all corrections / suggestions indicated for Internal Assessment have been incorporated. The project report has been approved as it satisfies the academic requirements in respect of Mini Project work prescribed for the said Degree.

Name & Signature of Guide	Name & Signature of HOD	Name & Signature of Principal
Dr. Arvind Shivappa Kapse	Dr. Anandhii R J	Dr. Manjunatha

Examiners:

Name	Signature
1. …….	……..
2 ……	……

ABSTRACT

This Car Rental System project is designed to help the car rental organization to enable renting cars through an online system. It helps the clients to scan for available cars view profile and book the cars for the time period. It has an easy to understand interface which helps the client to check for cars and rent them for the period determined. They could likewise make payment on the online. The rental cars will be ordered into an economy, premium and so forth. Based on a type of car required by the client, the client will have able to make bookings. The utilization of internet technology has made it simple for the clients to rent a car at any time. This Car Rental System makes the booking easy. It spares time and work. The apparatus will approach the client for data, for example, the date and time of journey, kind of car and so forth. Likewise, it will require a recognizable identification number. Utilizing these details, the tool will help the client with booking a car for the journey.

ACKNOWLEDGEMENT

Any project is a task of great enormity and it cannot be accomplished by an individual without support and guidance. I am grateful to a number of individuals whose professional guidance and encouragement has made this project completion a reality.

I have a great pleasure in expressing my deep sense of gratitude to the beloved Chairman **Dr. Mohan Manghnani** for having provided me with a great infrastructure and well-furnished labs.

I take this opportunity to express my profound gratitude to the Principal **Dr. Manjunatha** for his constant support and management.

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I would like to mention special thanks to all the Teaching and Non-Teaching staff members of Information Science and Engineering Department, New Horizon College of Engineering, Bengaluru for their invaluable support and guidance.

CHRISEL FERNANDES

1NH18IS026

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INTRODUCTION TO ONLINE CAR RENTAL SYSTEM

1.1 Introduction

This project is designed so as to be used by Car Rental Company specializing in renting cars to customers. It is an online system through which customers can view available cars, register, view profile and book car.

Nowadays, there is Online Car Rental which gives much benefit to user. A rental service is a service which customers arrive to request the hire of a rental unit. It is more convenient than carrying the cost of owning and maintain the unit. A car rental is a company that rent automobiles for short period of time for a fee for few hours or a few days or a week.

It helps to book the cars or vehicles online rather than using the traditional manual system of vehicle reservation. This eliminates the risk of erroneous booking and reduce overall lead time and ensures growth in customer satisfaction. They can book any car according to their brands and price.

1.2 Reason for the Project

The advancement in Information Technology and internet penetration has greatly enhanced various business processes and communication between companies (services provider) and their customers of which car rental industry is not left out.

This E-Car Rental System is developed to provide the following services:

- Enhance Business Processes: To be able to use internet technology to project the rental company to the global world instead of limiting their services to their local domain alone.
- Online Vehicle Reservation: A tools through which customers can reserve available cars online prior to their expected pick-up date or time.
- Customer's registration: A registration portal to hold customer's details, monitor their transaction and use the same to offer better and improve services to them.

1.3 Methodology/Procedure

- For the development of project the designing of database was done on PHPMYADMIN using MySQL, back end was coded in basic PHP and for frontend we used the same basic PHP codes, along with HTML, CSS, JavaScript and Bootstrap.

1.4 Data and Information

Data collection plays an important role in a projects succession and also it plays an inevitable role in the timely completion of the project. The data in the project includes contact information of the clients and their respective feedbacks/complaints which is stored in a database. To assure safety, only the admin has proper access to the information provided by the clients.

1.5 Tools used

- **Xampp:**
  - **Apache:**
    - (Application Server) Apache, often referred to as Server, is an open-source Java Servlet Container developed by the Apache Software Foundation.
  - **MySQL Server:**
    - It handles large databases much faster than existing solutions.
    - It consists of multi-threaded SQL server that supports different back ends, several different client programs and libraries, administrative tools, and application programming interfaces (APIs)
    - Its connectivity, speed, and security make MySQL Server highly suited for accessing databases on the Internet.
- **Sublime Text 3.1.1-** Sublime Text is a sophisticated text editor for code, markup and prose. It is known for its slick user interface, extraordinary features and amazing performance.
- **Web browsers**: Google Chrome, Mozilla Firefox, Opera and Internet Explorer.
- **Git Hub**: GitHub Inc. is a web-based hosting service for version control using Git. It is mostly used for computer code. It offers all of the distributed version control and source code management functionality of Git as well as adding its own features.

1.6 Problem Statement

A car rental is a vehicle that can be used temporarily for a fee during a specified period. Getting a rental car 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.

1.7 Aims & Objectives

- To 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.
- To provide a platform for customers to register complaints.
- To reduce the difficulty of customers by making all services available to them online.

1.8 Scope

This 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 area 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 issue which is expected to be minimal.

CHAPTER-2

SYSTEM REQUIREMENTS

2.1 Software/Hardware Used

Hardware System Configuration:

Processor - Intel Core i5
Speed - 2.3GHz
RAM -16GB
Hard Disk - 512GB

Software System Configuration:

Operating System - Windows 10
Programming Languages - HTML, CSS, JavaScript, Bootstrap, php.
Database- MySQL
Apache Server
Database Platform- phpmyadmin

CHAPTER-3

CAR RENTAL SERVICES

3.1 How Car Rental Services Work

A car rental is a vehicle that can be used temporarily for a period of time with a fee. Renting a car assists people to get around even when they do not have access to their own personal vehicle or don't own a vehicle at all. The individual who want to rent a car must first contact the car rental company for the desire vehicle. This can be done online. At this point, this person has to supply some information such as; dates of rental, and type of car. After these details are worked out, the individual renting the car must present a valid Identification Card.

Most companies throughout the industry make a profit based of the type of cars that are rented. The rental cars are categorized into economy, compact, compact premium, premium and luxury. And customers are free to choose any car of their choice based on their purse and availability of such car at the time of reservation.

3.2 Benefits of Online Car Rental Services

- This online car rental solution is fully functional and flexible.
- It is very easy to use.
- This online car rental system helps in back office administration by streamlining and standardizing the procedures.
- It saves a lot of time, money and labour.
- Eco-friendly: The monitoring of the vehicle activity and the overall business becomes easy and includes the least of paper work.
- The software acts as an office that is open 24/7.
- It increases the efficiency of the management at offering quality services to the customers.
- It provides custom features development and support with the software.

CHAPTER-4

FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS

4.1 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 holds and the interfaces with the user. The functional requirements identified are:

- Customer's registration: The system should allow new users to register online and generate membership card.
- Online reservation of cars: Customers should be able to use the system to make booking and online reservation.
- 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.
- Feedbacks to customers: It should provide means for customers to leave feedback.

4.2 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: Considered 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.

CHAPTER-5

SYSTEM DESIGN

5.1 Data Flow Diagram (DFD)

A Data Flow Diagram (DFD) is a graphical representation that depicts the information flow and the transforms that are applied as data moves from input to output.

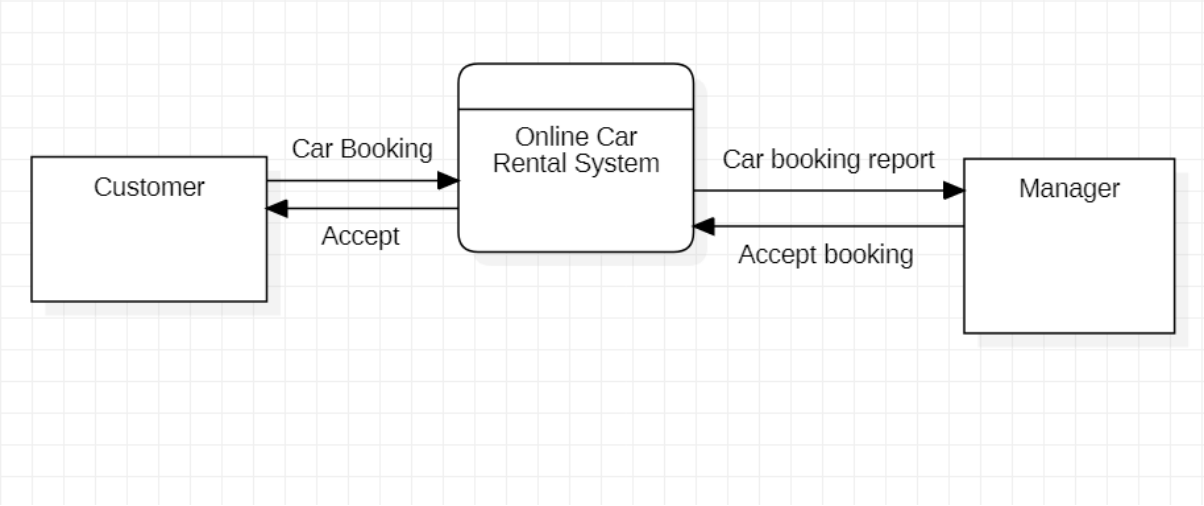

Figure 5.1: Data flow diagram

Above Data Flow Diagram, explains the overall structure of the system. It shows how and what types of services the client chooses and the amount of admin interaction in it.

5.2. Actor and use case description

Actor	Use Case	Use Case Description
Customer	Register as member	This use case describes the activities of the customer to register online and become a member. Customer's details are required as part of the registration. Login detail is automatically saved to the database after successful registration.
	Make Reservation	This use case enable customer to search and make reservation. Non-register customer will be directed to register before their reservation can be confirmed.
	Return car	This use case describes the event of customer returning the car borrowed, the use case extends "process rental" use case from the staff actor.
	Give feedback	This use case is used by the customer to provide feedbacks/comment to the company; a confirmation notification will be send to the customer once a feedback has been submitted.
Staff	Add new car	This use case is used by the staff to add new car to the company's fleet database. Staff will need to login to activate this use case.
	Update car details	This use case is used by the staff to edit and modify car details whenever there is new renewal. It allows the company to keep up-to-date record of their fleet.
	Reply to customer's feedback	This use case describes the event by which staff sends reply to customer's earlier feedback. It depends on `give feedback' use case from the customer.
	Process rental	This use case describes the event by which staff updates the system when customer pick up or when returning car.

Table 5.2 Actors and Use Case Description

5.3 Use Case Diagram

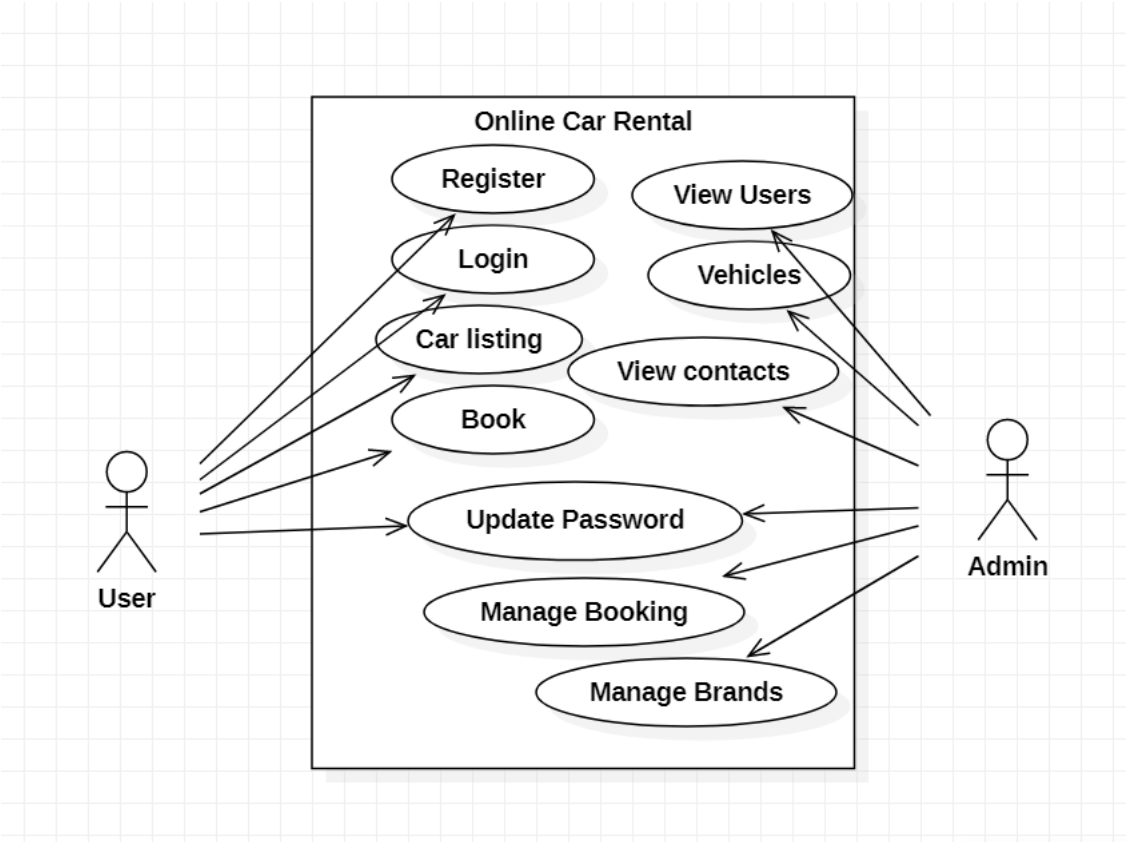

Figure 5.3: Use Case Diagram

Above figure represents Use Case Diagram of the project and is a useful technique for identifying, clarifying, and organizing system requirements. It describes how a user uses a system to accomplish a particular goal. Use cases help ensure that the correct system is developed by capturing the requirements from the user's point of view.

5.4 Sequence Diagram

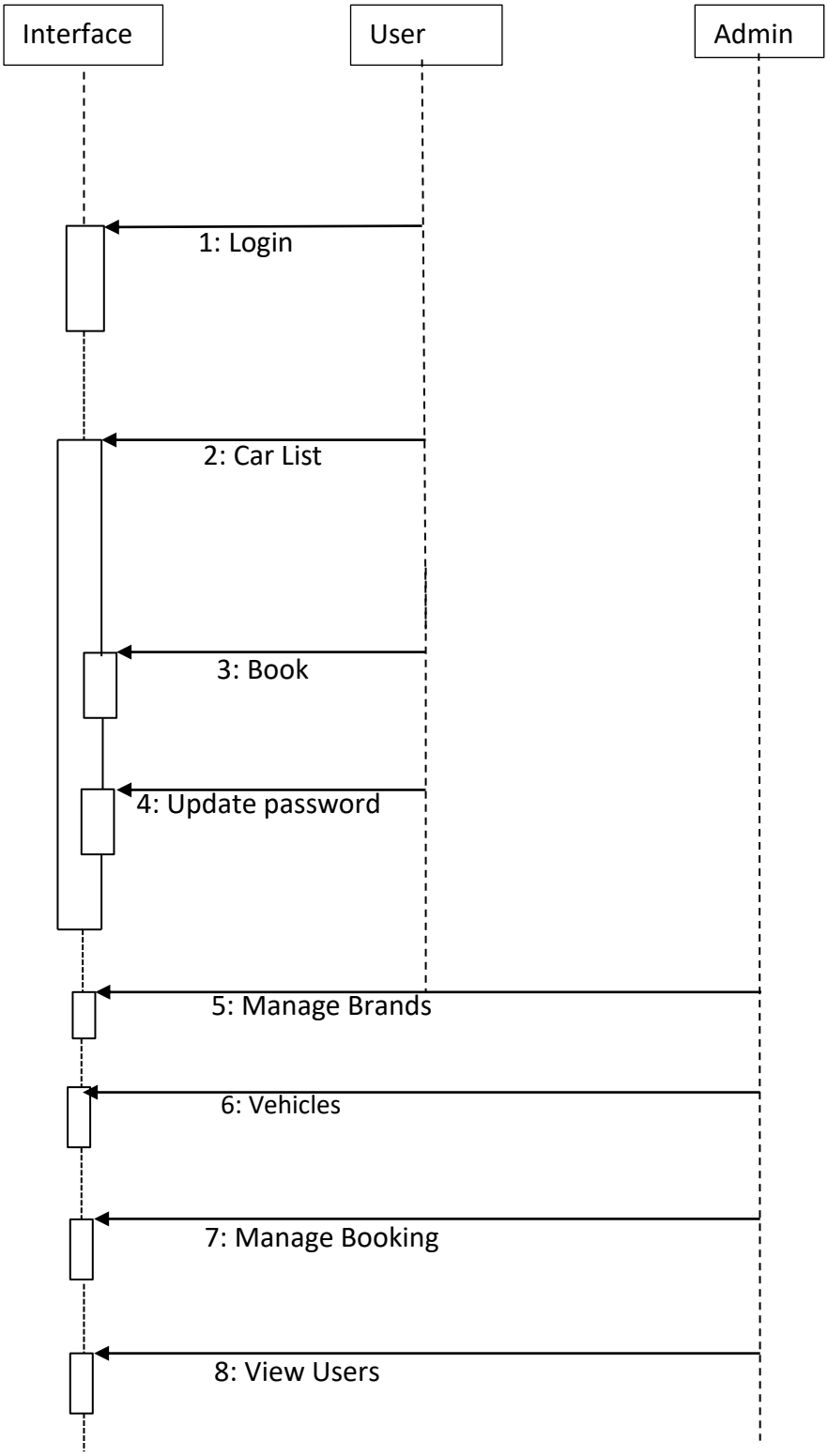

Figure 5.4: Sequence Diagram

Above diagram represents Sequence Diagram of the project which is a type of interaction diagram because it describes how—and in what order—a group of objects works together. A sequence diagram specifically focuses on lifelines, or the processes and objects that live simultaneously, and the messages exchanged between them to perform a function before the lifeline ends.

5.5 ER Diagram

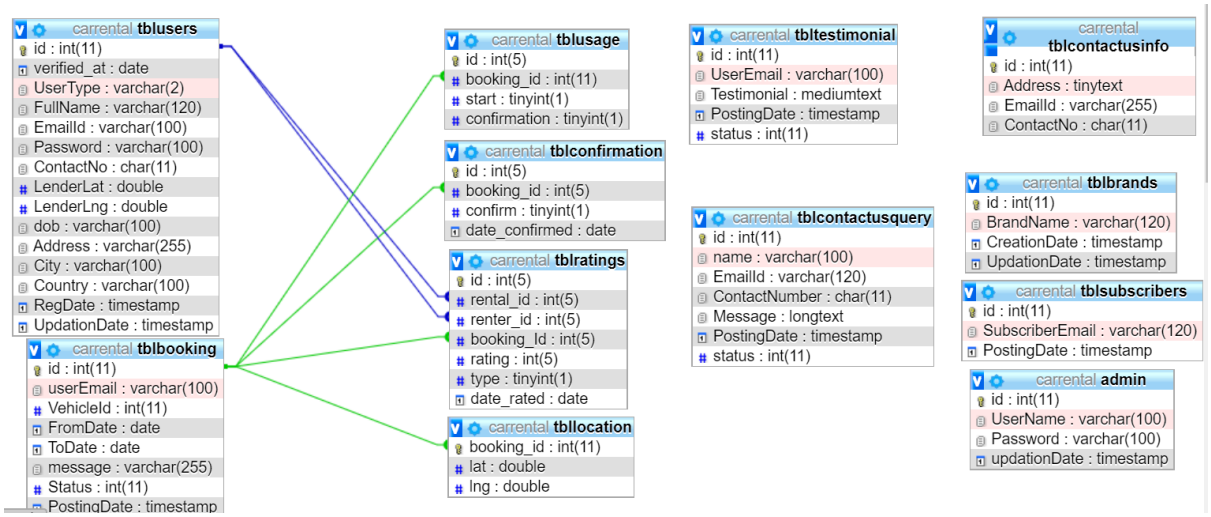

Figure 5.5: ER Diagram

ER diagram show all the relationships between entity sets stored in the database. It illustrates the logical structure of the database. It helps to visualize how data is connected in general ways.

5.6 Flow Chart

Figure 5.6: Flowchart of Online Car Rental System

CHAPTER-6

INTRODUCTION OF TECHNOLOGIES USED IN PROJECT

6.1 About PHP

PHP: Hypertext Pre-processor is a widely used, general-purpose scripting language that was originally designed for web development to produce dynamic web pages. For this purpose, PHP code is embedded into the HTML source document and interpreted by a web server with a PHP processor module, which generates the web page document.

As a general-purpose programming language, PHP code is processed by an interpreter application in command-line mode performing desired operating system operations and producing program output on its standard output channel. It may also function as a graphical application. PHP is available as a processor for most modern web servers and as standalone interpreter on most operating systems and computing platforms.

PHP was originally created by Rasmus Lerdorf in 1995 and has been in continuous development ever since. The main implementation of PHP is now produced by the PHP Group and serves as the *de facto* standard for PHP as there is no formal specification. PHP is free software released under the PHP License.

PHP is a general-purpose scripting language that is especially suited to server-side web development where PHP generally runs on a web server. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic web page content. It can also be used for command-line scripting and client-side GUI applications. PHP can be deployed on most web servers, many operating systems and platforms, and can be used with many relational database management systems. It is available free of charge, and the PHP Group provides the complete source code for users to build, customize and extend for their own use.

Originally designed to create dynamic web pages, PHP now focuses mainly on server-side scripting, and it is similar to other server-side scripting languages that provide dynamic content from a web server to a client, such as Microsoft's Active Server Pages, Sun Microsystems' Java Server Pages, and mod_perl. PHP has also attracted the development of many frameworks that provide building blocks and a design structure to promote rapid application development (RAD). Some of these include CakePHP, Symfony, CodeIgniter and Zend Framework, offering features similar to other web application frameworks.

6.2 PHP Syntax:

HTML and PHP code is written on the same page, and to distinguish PHP code from HTML, the PHP code is enclosed within <? php ?> Tags. For example:

```
<html>
<head><title>php basics</title></head>


<body>
<h1>HELLO</h1>


<?php
echo “hello”;
?>


</body>
</html>
```

In the above example PHP code is embedded within HTML. In this way PHP and HTML coding is combined on the same page.

Since PHP is a server side scripting language, the PHP coding cannot be seen by the end user through view source option, due to this feature PHP is very secure.

PHP is a parsed language; therefore PHP environment is necessary at the server for running PHP scripts.

6.3 Working of PHP:

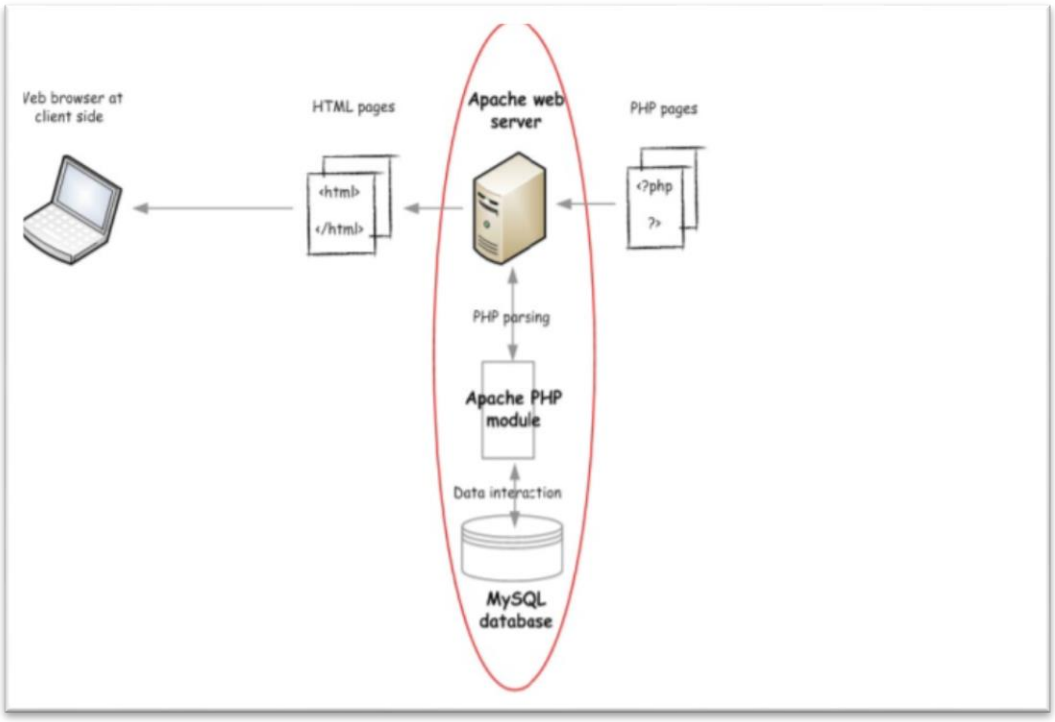

Figure 6.3 Working of PHP

When a client requests web page containing PHP code from the server, then the requested PHP pages are parsed under PHP environment and interaction with database is made if required.

After server side processing, the resulting HTML pages are passed to client and displayed on the browser.

In this way the working of php is complete.

6.4 Connecting PHP Application to MySQL Database

1) Make a connection variable to the database:

$con= mysql_connect ("localhost","servername","password");

Here $con is a connection variable to database.

2) Select a database over that connection variable:

$db=mysql_select_db("databasename",$con);

3) Prepare a sql query to execute:

$qry= Select * from abc;

4) Run the sql query:

$result=mysql_query($qry);

5) Iterate over the result:

while($row = mysql_fetch_array($result))

{

//some logic

}

6.5 Introduction to MySQL:

MySQL is a relational database management system (RDBMS) that runs as a server providing multi-user access to a number of databases. MySQL is officially pronounced ("My S-Q-L"), but is often pronounced ("My Sequel"). It is named for original developer Michael Widenius's daughter My.

The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL is owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Sun Microsystems, a subsidiary of Oracle Corporation.

MySQL code uses C and C++. The SQL parser uses yacc and a home-brewed lexer, sql_lex.cc.

MySQL works on many different system platforms, including AIX, BSDi, FreeBSD, HPUX, i5/OS, Linux, Mac OS X, NetBSD, Novell NetWare, OpenBSD, OpenSolaris, eComStation, OS/2 Warp, QNX, IRIX, Solaris, Symbian, SunOS, SCO OpenServer, SCO UnixWare, Sanos, Tru64 and Microsoft Windows. A port of MySQL to OpenVMS also exists.

All major programming languages with language-specific APIs include Libraries for accessing MySQL database. In addition, an ODBC interface called MyODBC allows additional programming languages that support the ODBC interface to communicate with a MySQL database, such as ASP or ColdFusion. The HTSQL - URL based query method also ships with MySQL adapter allowing direct interaction with MySQL database from any web client via structured URLs. The MySQL server and official libraries are mostly implemented in ANSI C/ANSI C++.

6.6 Introduction to APACHE SERVER:

In this project apache server is used to parse and execute PHP pages, before deploying websites on the server, the website should be tested at the developer side to get a feel of how the website will work on actual server.

Therefore apache server is like a local server on the developer side, apache server should be informed about the environment on which it should work.

In our project apache server is configured to work with PHP, in this way all the PHP pages are parsed and executed by the server.

When apache is installed on the system, then its services is controlled by apache service monitor.

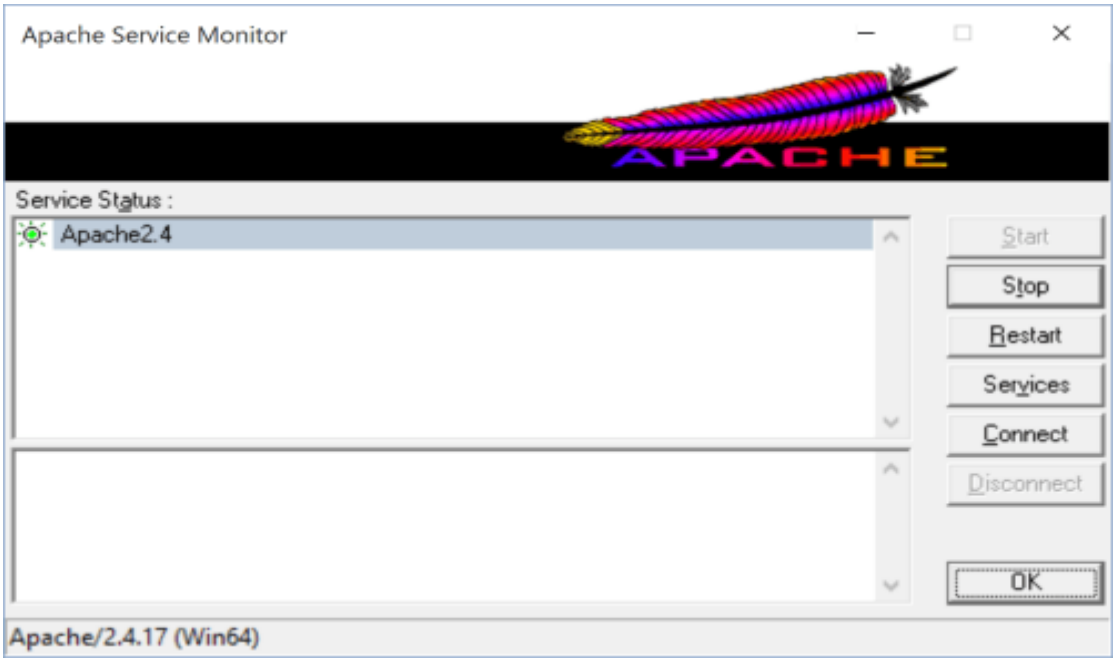

Figure 6.6 APACHE Service Monitor

CHAPTER-7

SNAPSHOTS

7.1 Front end

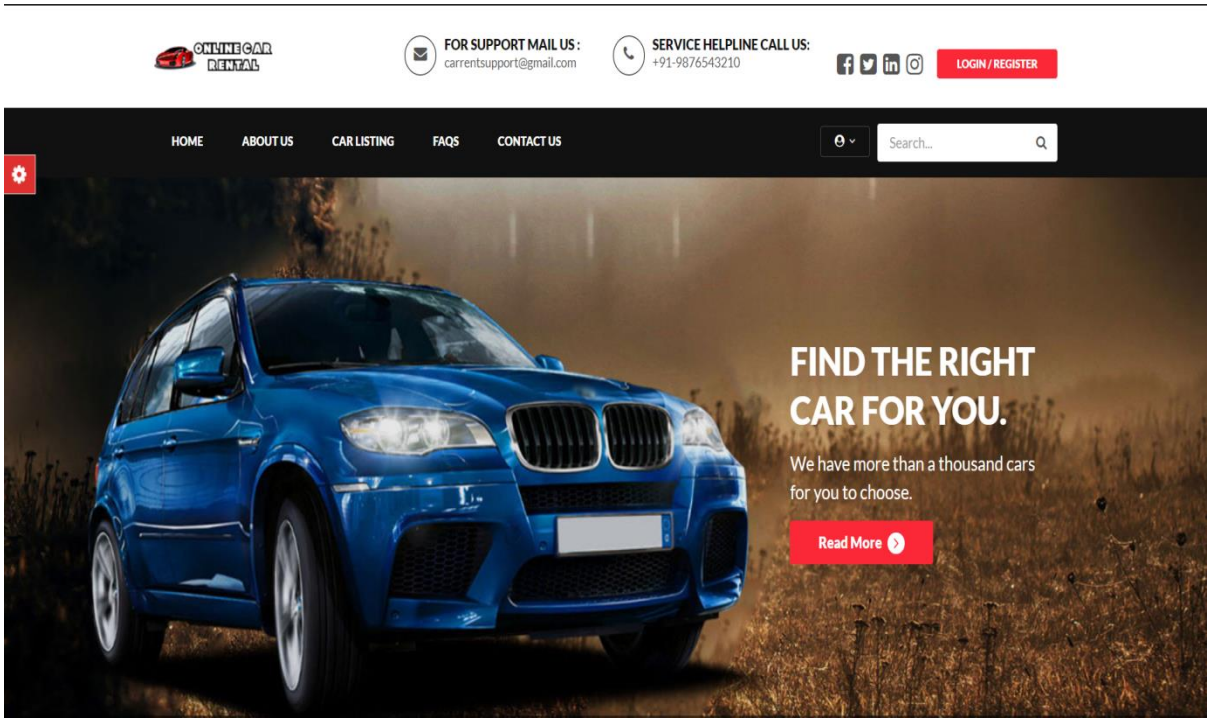

Figure 7.1.1: Homepage

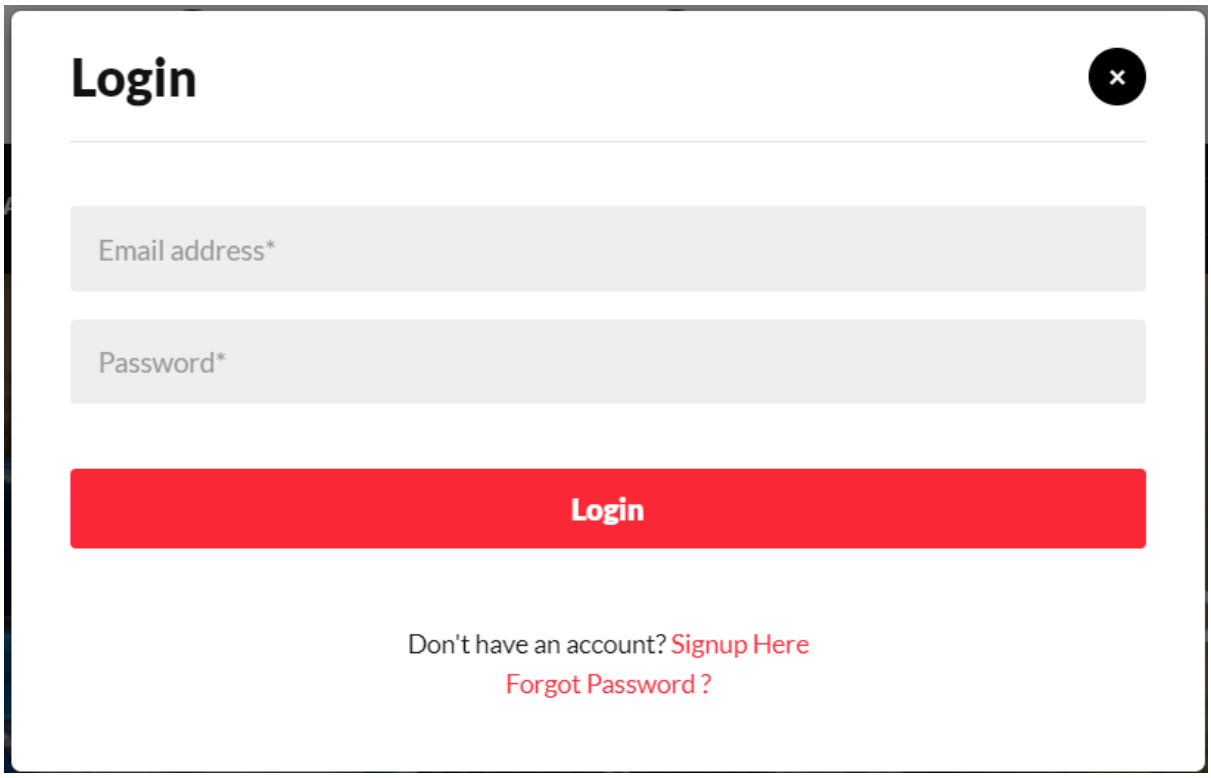

Figure 7.1.2: Login Page

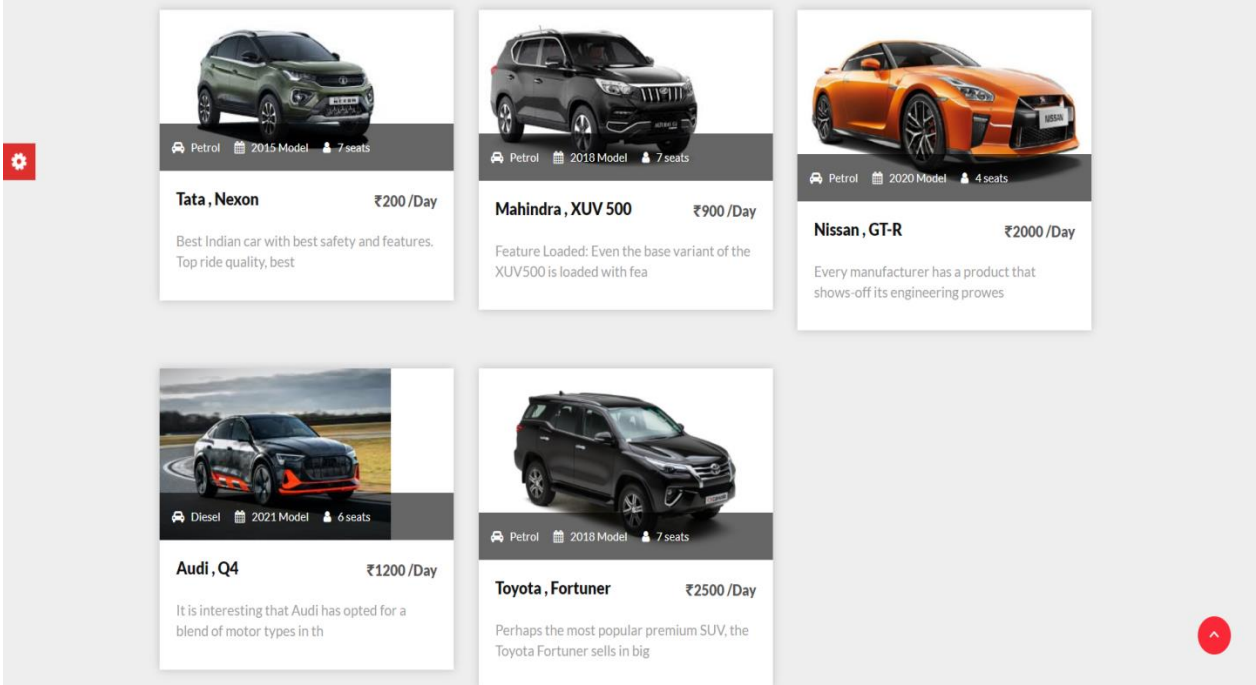

Figure 7.1.3: Car Catalogue

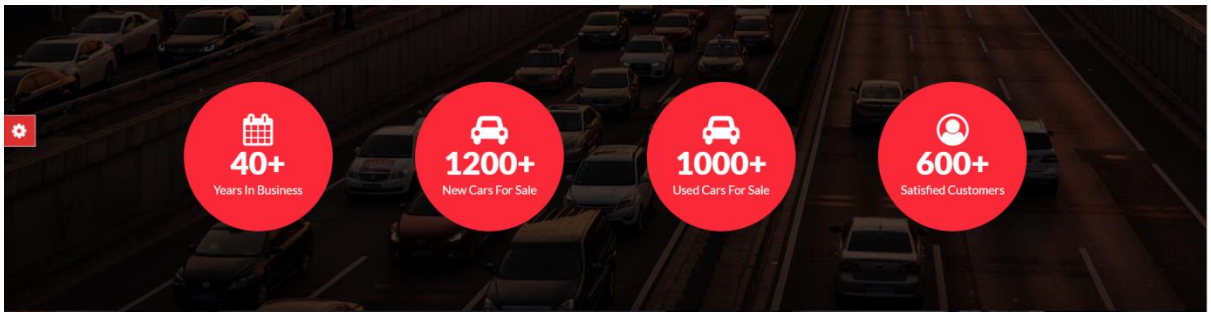

Figure 7.1.4: Car Rental Stats

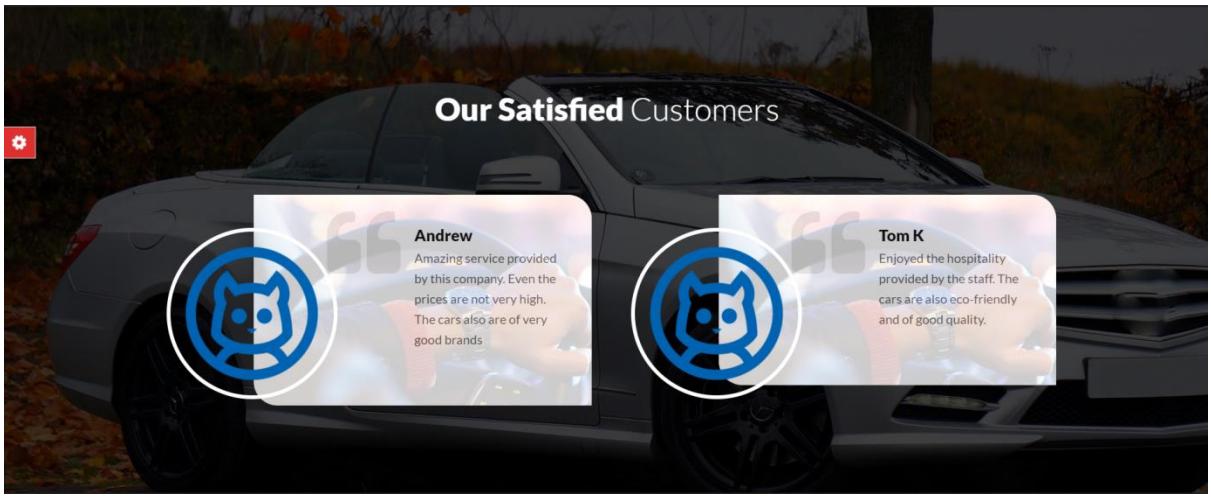

Figure 7.1.5: Customer Testimonials

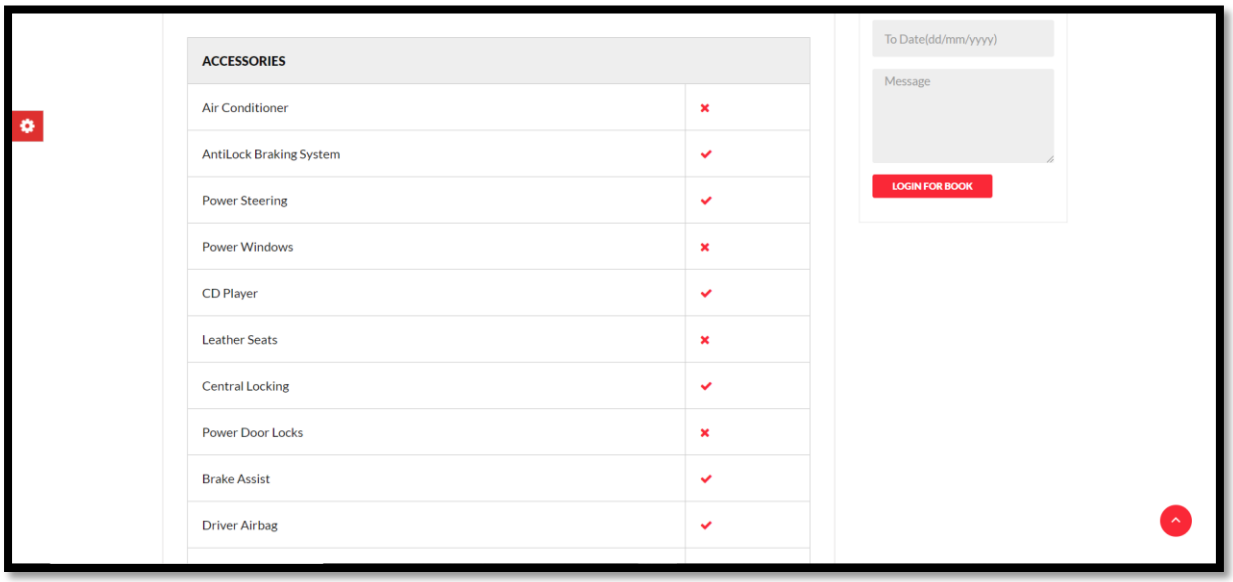

Figure 7.1.6: Car Details

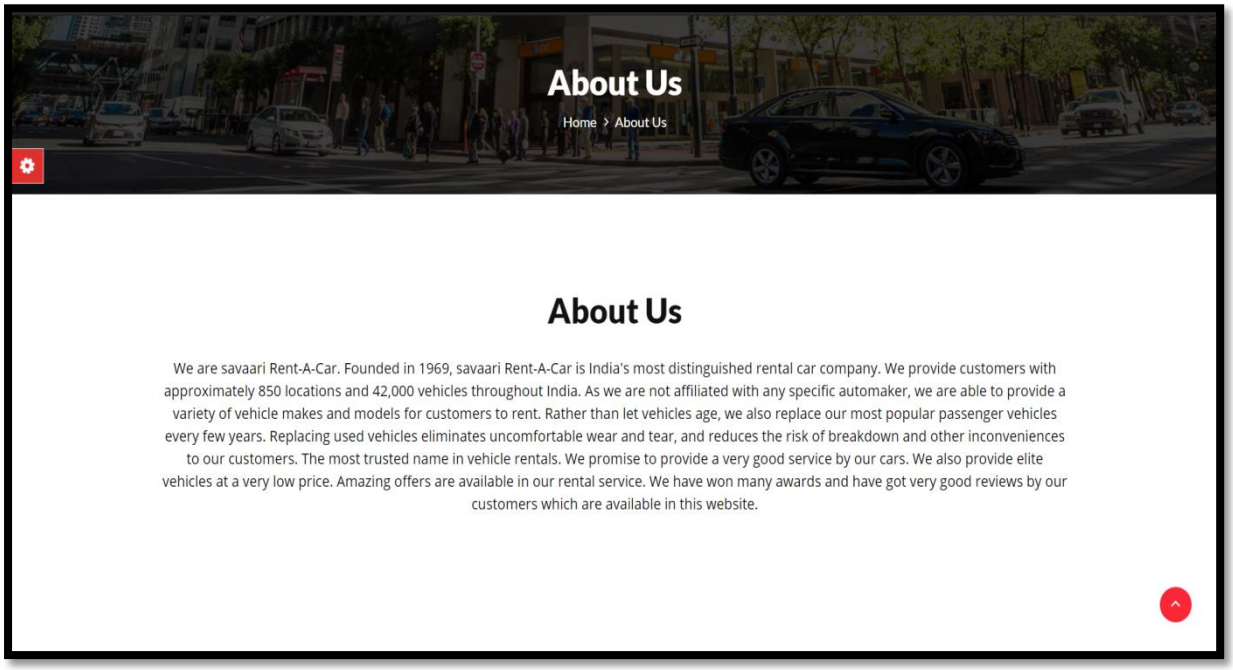

Figure 7.1.7: About us Page

7.2 Backend

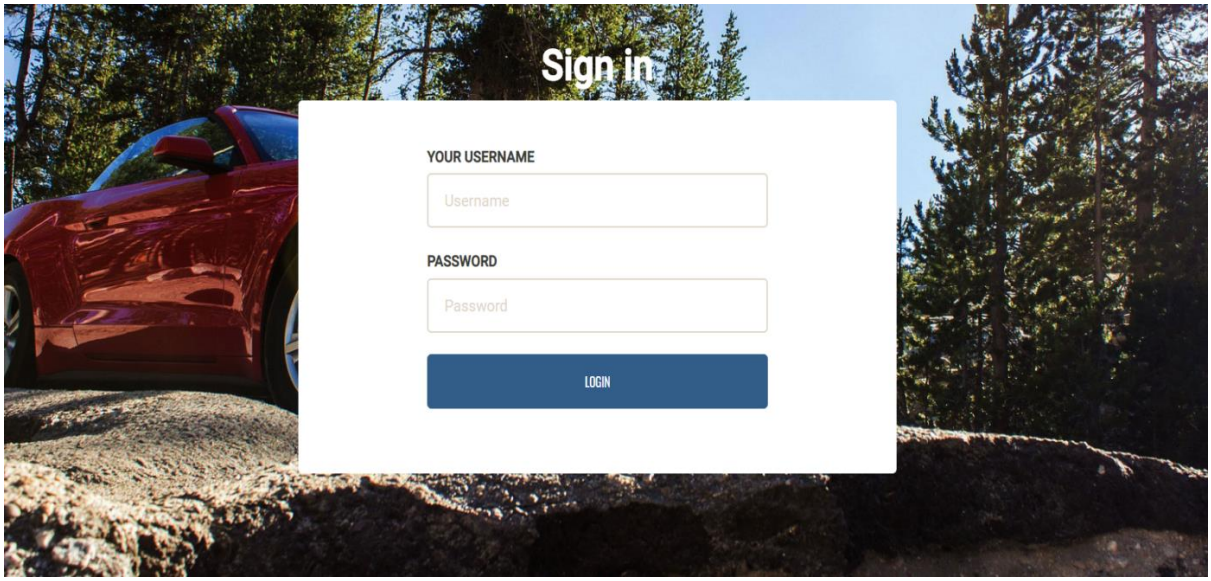

Figure 7.2.1 Admin Login Page

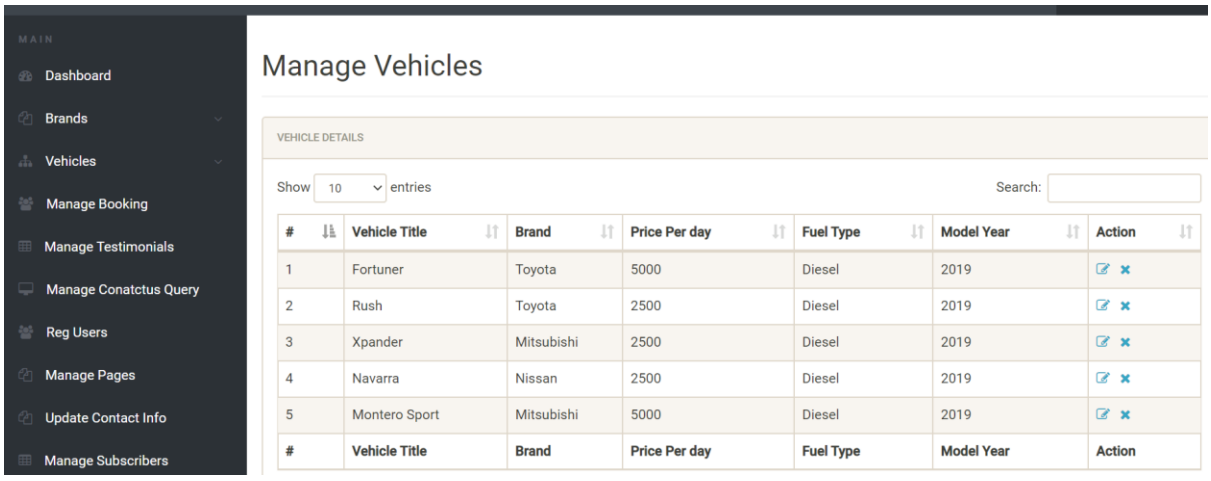

Figure 7.2.2 Manage Vehicles

Figure 7.2.3 Dashboard

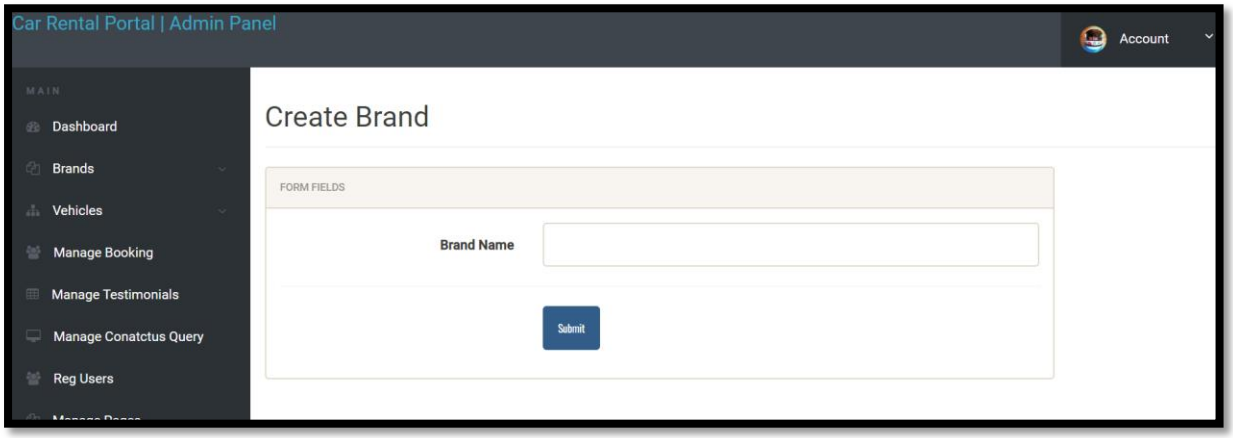

Figure 7.2.4 Create Brand

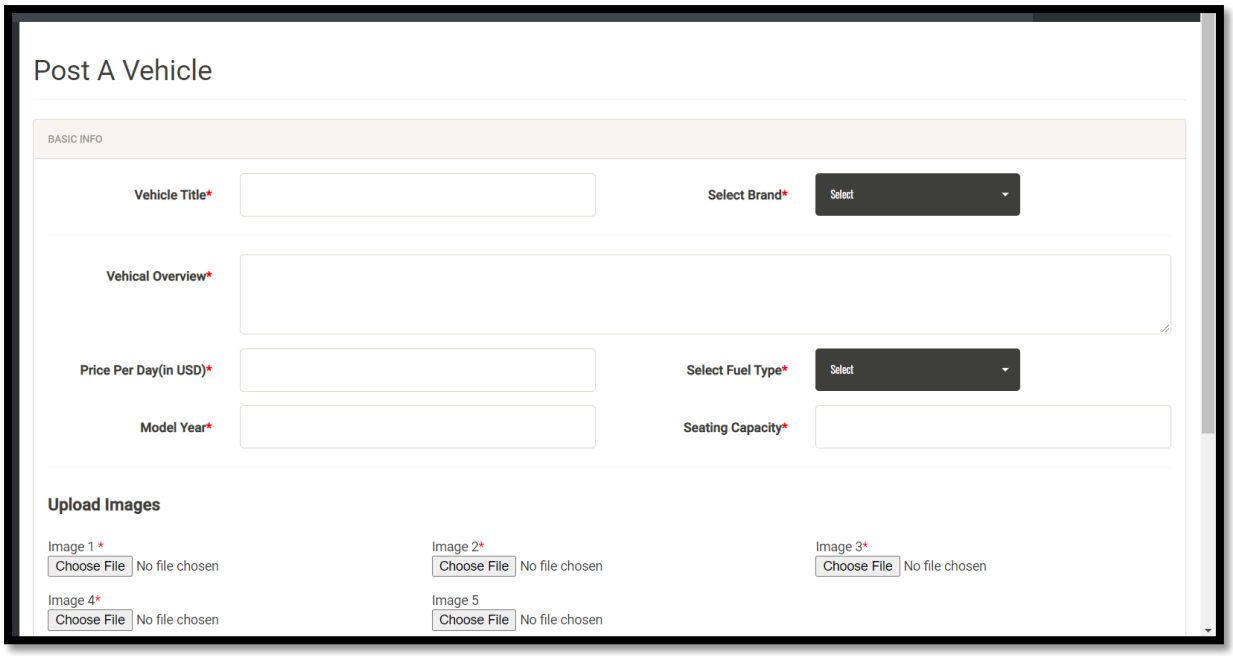

Figure 7.2.5 Post a Vehicle

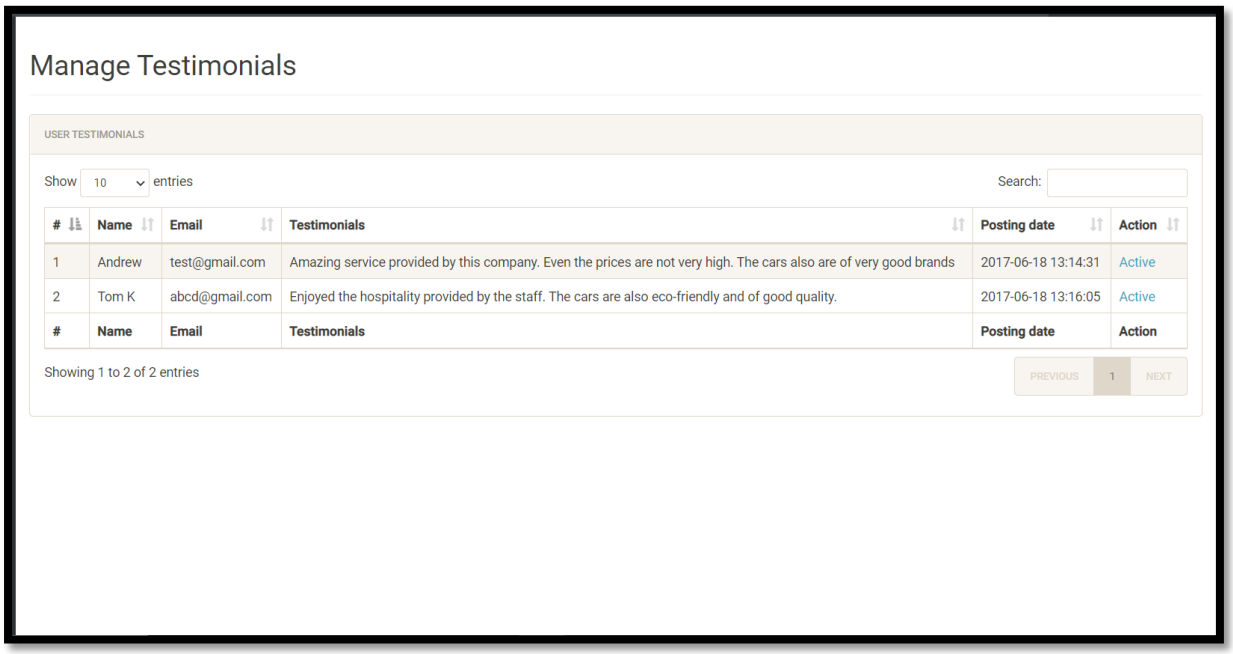

Figure 7.2.6 Manage Testimonials

CHAPTER-8

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 physical 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 and effectively manage the business and satisfies customers' need at the click of a button.

CHAPTER-9

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