

***A Mini Project Report on***  
**Car Rental System**

**T.E. - I.T Engineering**

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## CERTIFICATE

This to certify that the Mini Project report on **Car Rental System** has been submitted by **Dhananjay Phalke(20104120),Disha Phatta (20104029) and Snehi Ratani(20104035)** who are a Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfilment of the requirement for the degree in **Information Technology**, during the academic year **2022-2023** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

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## **ABSTRACT**

### **Vigorous Vehicles**

Car rental management system is a project which aims in developing a computerized system to maintain all the daily work of Car Rental. This project has many features which are generally Not available at regular car rental stores, like facility of customer login and a facility of admin login. It also has a facility of admin login through which the admin can monitor the whole system .It also has facility of an online notice board where Admin can put up information about the cars available in the exhibition and their prices and updating all data that go through the rental process. It has also a facility where user after logging in their accounts can see list of cars and its price and Availability of the car and also the customer can request the admin to add new type of cars by filling the cars request form. The admin after logging into his account is admin account can generate various reports such as cars report, users/ customer report. Overall, this project of ours is designed to help anyone make it easier during the process of buying or renting a car in the best possible way, as well as reducing human efforts and obtaining the best offers.

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# Chapter 1

## Introduction

We certainly consider online shopping, e-banking, etc. Correspondingly, The Car Rental System is the online office to book vehicles online inside hardly any snaps in a manner of speaking. A couple of individuals can't remain to have a vehicle, for those people this system ends up being outstandingly helpful. This framework incorporates different vehicles, according to the client request and solace it put in the request and got according to the pickup-sloping edge area inside the zone. Booking should be possible by means of network access as it were. This undertaking navigates plenty of territories going from business idea to registering field and required to play out a few explore to have the option to accomplish the venture goals The prior investigations demonstrated that management data system could be used to oversee vehicle rental, expected to quicken just as chronicling administrations to clients better and more secure, making it simpler when required whenever. The online execution of the executives data framework gave and bolstered the clients to reservations, help the executives in realizing rental vehicle stock at a predetermined time, to process exchanges between branches vehicle rental, transportation exchange handling, which underpins good assistance to clients and bolster the organization's operational procedures. Online vehicle rental data framework expands the clients and helps advancement. The point of this examination is to take care of the issues that happen in Avis Indonesia; propose advancement of the electronic vehicle rental administration data framework.

### 1.1. Purpose

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:

- 1.1.1 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, thus increase their return on investment (ROI).

1.1.2 Online Vehicle Reservation: A tools through which customers can reserve available cars online prior to their expected pick up date or time.

1.1.3 Customer's registration: A registration portal to hold customer's details, monitor their transaction and used same to offer better and improve services to them.

## 1.2. 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.

## 1.3. Objectives

Specific goals are -

- 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.

## 1.4 Scope

If you want to rent a car in the long- or short-term or are swithering about leasing, you should weight up a few facts before you choose this option over buying. One advantage of renting is that you can experience driving brand new cars of lots of different types – some of which, for various reasons, you might never choose to buy. For instance, you might want to hire a 9-seater for the weekend or treat yourself to a luxury model or sporty convertible.

# Chapter 2

## Literature Review

### Introduction

Originally, this type of business model in car rental industry is observed in western countries. The car rental business began in 1918. It is a simple business where operators provided a set of standard cars to individuals over a fixed per day charge with addition to per KM charges. In 1930 a company called Hertz came with a concept “Rent it here and Leave it There” where a car could be rented in one location and after use return it at another location. By 50s rental companies made available multiple types of cars available at airports, rail road stations and hotels etc. The consumers would be availing services like a specific combination of car type, temporary insurance, pickup-return location and length of keep. In short, a self-drive car on rent offers one the privilege of having his/her own car without having to own it in principle or in other words serves people who require temporary vehicle for commutation in the city or to different cities This business model of organized Self-drive rental cars concept started developing in India in 2013-14. Since then the industry is evolving significantly following the demands of the market. The industry has witnessed remarkable attention among the young generation in the last 5 years. Technology has been the primary contributing factor for the boom in this industry especially in India. The consumers can hire cars through online software applications in mobile or desktops, it allows users to experience hassle free booking and cancellations and even locking and unlocking and locating their booked car from their mobile phone application.

### Review of the Literature

Renting a car and driving it yourself is concept that basically negates the need for buying a car. In India most of the cities are facing with issues like traffic congestion and limited parking space. A large proportion of the 25-30 age group population work in non-native cities. Therefore, younger generation is particularly attracted to this idea of car rentals as investing in the liability of a car does not really appeal to them. To cater the demand of this emerging trend, various companies are putting their hands into this business of self-drive



rental. These companies have sprung up gradually to provide affordable car rentals for the youngsters who want to get away from the stress of the modern-day work environment at the first chance they can grab – be it long weekends, scheduled breaks or just unplanned trips.

Self-drive cars on rent is a popular concept in the West and like all other things, has been well replicated in India by a few start-up companies like Zoom Car, Voler, Revv and JustRide etc. The year 2013 transformed the rental car industry trend to self-drive rental cars in India. Today, self-drive cars are available in most of the metropolitan cities of India. Delhi NCR, Bangalore, Mumbai, Pune, Hyderabad and Chennai are the major revenue source.

#### Emergence of the Trend through a startup

In 2012, an American duo Greg Morgan and David Back who studied together had came to India to start a business and after intense homework they finally narrowed down to Zoom Car. They both believed that the transport sector in India needed a disruption because they realized that infrastructure and economic hurdles affected car ownership in India. But at the same there was a strong sentiment among the masses also to possess a car. This prompted the foundation of Zoom Car which became the India's first self-drive mobility platform.

This idea strikes the right chord with young India who can now rent a car without the hassle of down payments, insurance and documentation process. “The younger population was more inclined towards access rather than ownership” says cofounder Greg Moran.

#### Working Principle of the Self-Drive Car Rental Service

To hire a self-drive car, an individual must choose a service provider, visit their website or mobile app, register, upload copies of an identity proof and a valid driving license. Some companies require credit card details, while others charge a refundable deposit. Usually, the car is provided with a full tank, and the user has to return the vehicle the same way as taken. Before the car is given the company maintains a checklist where they record every available accessory that has been provided and previous damages has been marked so that the customer is not blamed for that previously occurred damage. The company also records KMs in the odometer before handing over the car to the customer ensuring transparency in

the services provided. Also, you are entitled to select the pick-up and drop off locations provided by the company. The customer must check with the company for the most convenient and easy pick-up and drop points. Cancellation charges might apply based on how soon or late you inform them. If you want the car to be delivered to your house or any location other than the designated drop points, there may be an extra charge for it. Payments have to be made online and before hiring the car by debit/credit card or any other online payment method. Deposit is refunded to your account after deducting for damages or maintenance within 2-3 days. If you exceed the agreed time to return the car to the delivery point, there is a late fee charged according to the Terms & Conditions of the company.

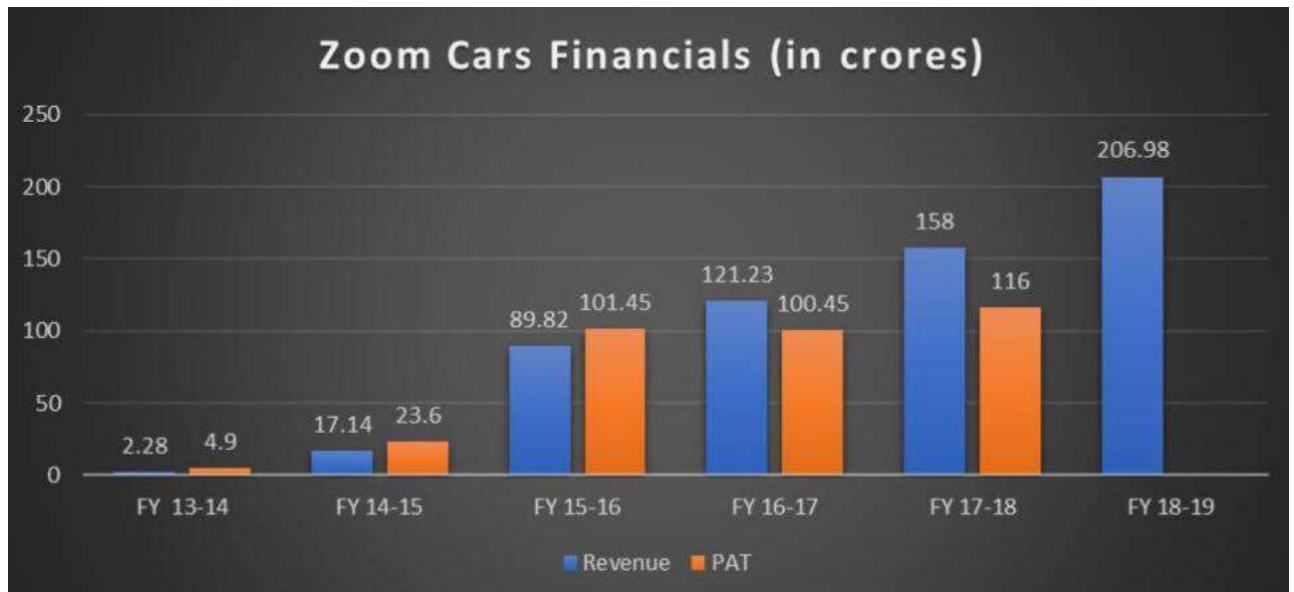
### Role of Technology

The self-drive can be acquired through web or through a mobile application. Eventually the mobile application played a great role. Zoom Cars saw an exponential growth in the mobile application usage for their services. As Greg Moran states in a news article “This is something that you see across the entire ecommerce community, the startup community in India right now: this shift to the app and it’s no different for us. We’re seeing very similar trend lines and that’s where most of our engineering focus, product focus, the overall denominator of the business will focus more and center more on the app going forward.”

### Journey of Zoom Cars

As the two entrepreneurs founded the self-drive car rental startup in Bangalore in 2013. There was a lack of trust among the vendors due to newly conceived business idea as many of the vendors had an unanswered question that “Whether the Indian population prefer driving a rented car?”. Another roadblock was need to own a yellow board license plate numbers to acquire license to rent vehicles. The funding acquired was entirely invested on Zoom so the founders needed to tie up with an existing player. Many of them rejected it right away and until they finalized a tie up with Ramesh Tours and Travels.

With this tie up the company had started its operation with the platform running manually but later on with additional funding the company hired a strong technical team to cope with its engineering system.



The company now has fleet size of 10000 cars across 45 cities. There are looking to operate in tier 2 and tier 3 cities keeping in mind the younger population presence.

Currently zoom car has 4.8 million users with an average 3000 rides daily.

## Chapter 3

### Proposed System

This system will allow a car rental company to accept rentals by advance reservation; the company will also accept customers who walk in to hire a car if it is available. At the end of each day, returned cars are assigned to the reservations for the following day. If more cars are requested than available cars at any of the outlets, the branch manager may ask for extra cars from other outlets.

Cars rented from of the organization's outlet may be returned to any other outlet. The renting outlet must ensure that cars are returned as per the pick-up and return dates indicated as per the car rental contract. Whenever a car is returned to a different outlet other than the renting outlet, the new outlet is assigned ownership.

Only one booking is allowed per day but the customer may make reservations of different cars for future use. There is an exception when a customer is reserving for an event. During this case, the customer must provide details of at least one person who will be responsible for each car. Customers are allowed to give feedback about their experiences. On the other hand, the organization keeps a record of all rental and had experiences such late return, damaged cars, or payment problems. This information informs the decision of renting a car to customers in the future.

### 3.1. Features and Functionality

Car Rental System provides the features for booking a car online. It includes several functionalities describes as below:

#### 3.1.1 Car Rental Management:

It provides car reservation facility online. Customer can visit the website and check for various cars. If they are feasible with requirement, then booking can be done.

#### 3.1.2 Checking For Availability:

Employee can check for the availability of the car. He/she maintains the database of car. If no any car is available it is the responsibility of the employee to provide alternative options.

### 3.1.3 Payment system :

Administrator/owner of the applications responsible for payment to the employee. Order cancellation, order finalize, these all activities are done by the administrator of the application.

## Chapter 4

### Requirement Analysis

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.

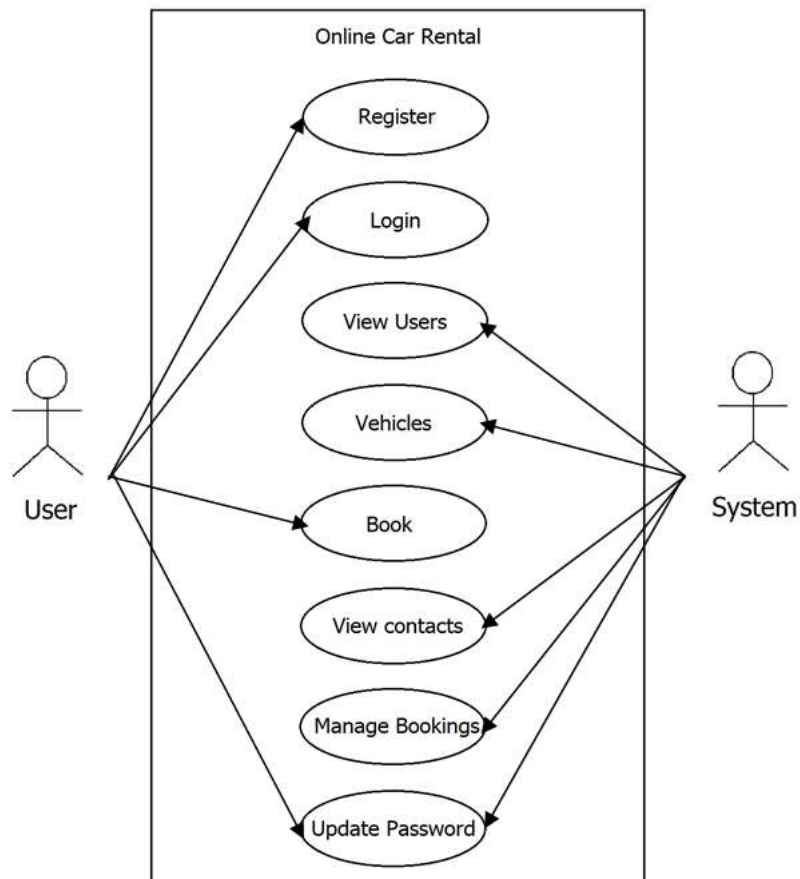
Functional requirements are those requirements that are used to illustrate the internal working nature of the system, the description of the system, and explanation of each subsystem. It consists of what task the system should perform, the processes involved, which data should the system holds and the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

- 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.

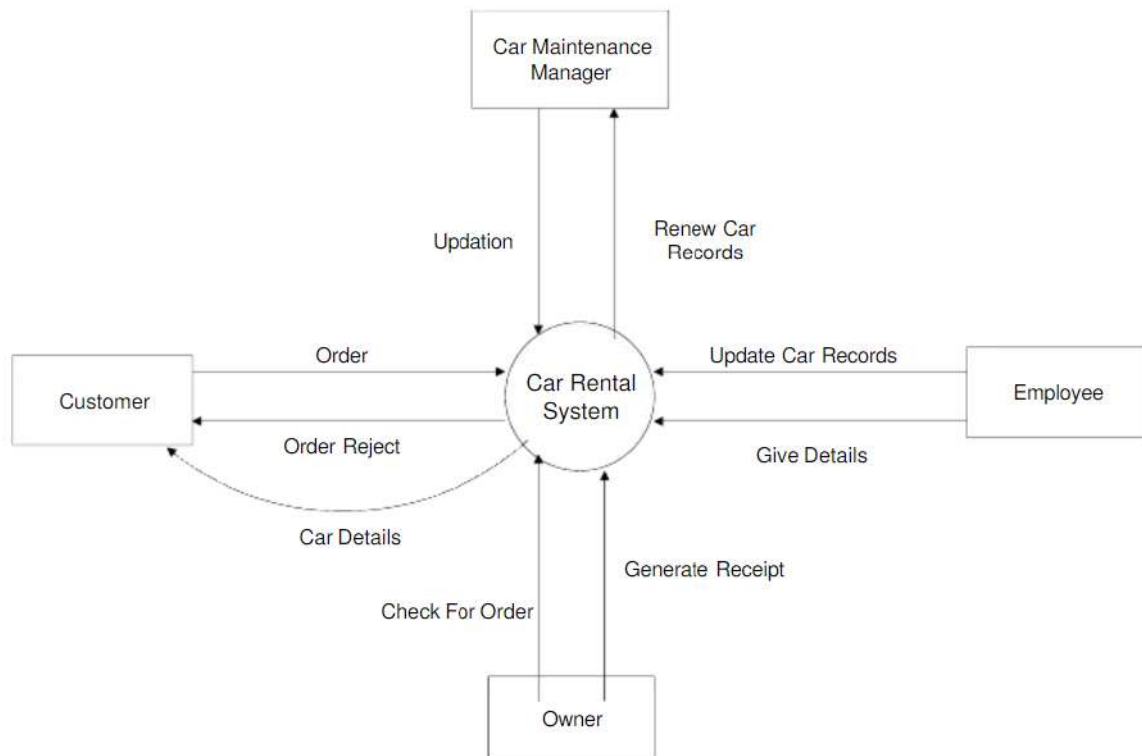
# Chapter 5

## Project Design

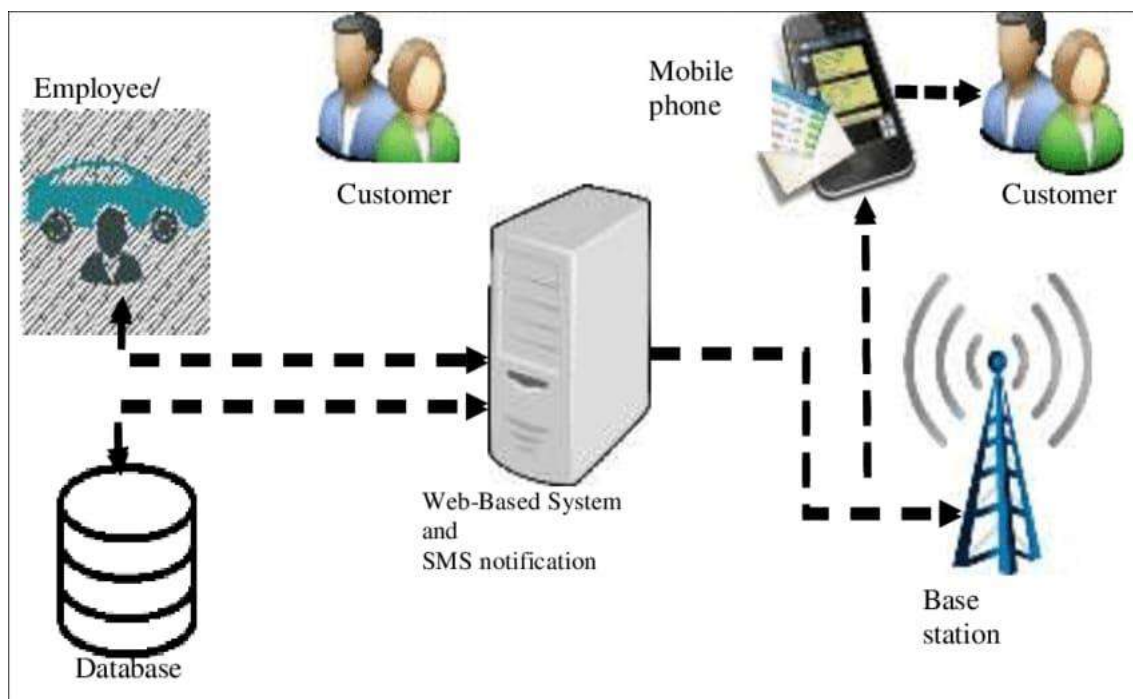
### 5.1. Use Case diagram



## 5.2. DFD (Data Flow Diagram)



## 5.3. System Architecture





# Chapter 6

## Technical Specification

VS Code also known as Visual Studio Code is a source code editor made by Microsoft for Windows, Linux, MacOS. It has various features such as Debugging, Syntax highlighting, extension, intelligent code completion.

Frontend: Html, CSS, JavaScript

OS : Windows, Mac OS

As a web developer, the three main languages we use to build websites are HTML, CSS, and JavaScript. JavaScript is the programming language, we use HTML to structure the site, and we use CSS to design and layout the web page. These days, CSS has become more than just a design language, though. You can actually implement animations and smooth transitions with just CSS.

Windows is a graphical operating system developed by Microsoft. It allows users to view and store files, run the software, play games, watch videos, and provides a way to connect to the internet.

It was released for both home computing and professional works.

## Chapter 7

### Project Scheduling

Group Member	Time duration	Work to be done
Dhananjay Phalke  Disha Phatta  Snehi Ratani	1 <sup>st</sup> week of August	<b>Implementing 1st module/ functionality.</b> Designing the main page user will login with password and will enter to the Web App.
	3 <sup>rd</sup> week of August	<b>Attractive GUI</b> This will consist of the main page where user will have the following options: <ul style="list-style-type: none"><li>• Home Page •</li><li>About Us •</li><li>Services.</li></ul>
	2 <sup>nd</sup> week of September	<b>Implementing 2nd module/ functionality</b> (designing next page/ functionality): Here the users can access all the Facilities <ul style="list-style-type: none"><li>• Car Listing</li><li>• Car Availability</li><li>• Car Booking</li></ul>
	By the end of October month	<b>Implementing 3rd module</b> (Backend): Used MongoDB for Database connection and it's Functionality.

## Chapter 8

### Implementation

```
<div class="bg-secondary p-5 mb-5" id="redseedetails">

    <h2 class="text-primary mb-4">Damage Protection Package</h2>

    <div class="form-group">

        <div class="custom-control custom-radio">

            <input type="radio" class="custom-control-input" name="payment"
id="paypal">

            <label class="custom-control-label" for="paypal">Standard ( ₹500/-
)</label><br>

            <p>You pay up to 80% of loss in case of any damage.</p>

        </div>

    </div>

    <div class="form-group">

        <div class="custom-control custom-radio">

            <input type="radio" class="custom-control-input" name="payment"
id="directcheck">

            <label class="custom-control-label" for="directcheck">Peace of Mind
( ₹1000/-)</label><br>

            <p>You pay up to 20% of loss in case of any damage.</p>

            <br>

        <div class="popup">
```

[How  
Damage Protection Works?](booking.html#redseedetails)

Incase of accidents or any  
damage to the car, Vigorous Vehicles will

take care of the expenses. You pay the minimum amount as

per the package and we take care of the rest. Higher the package  
you select, lower the risk at your end for any damage. Please note that this is applicable  
solely in the case

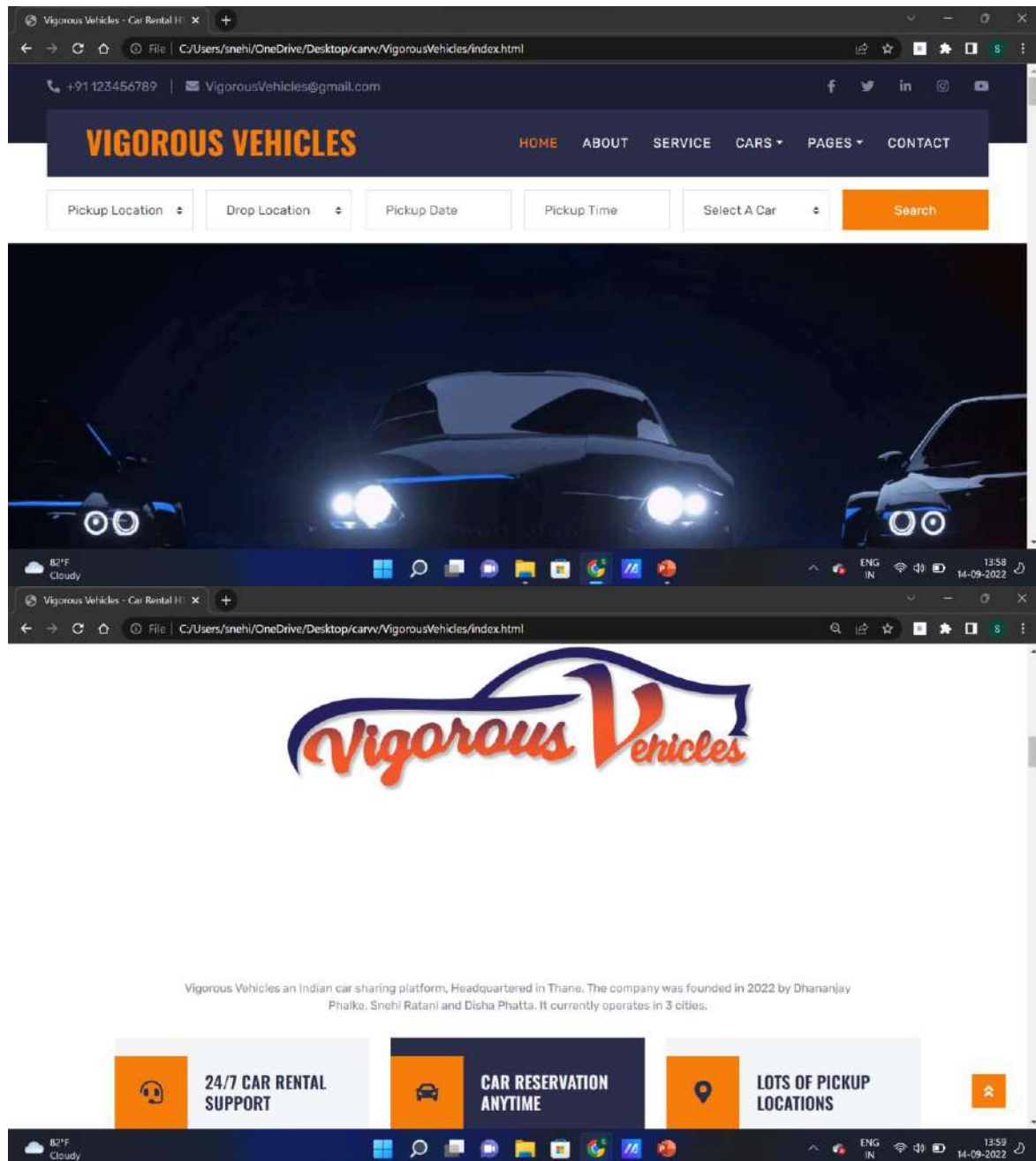
of damage to the vehicle and does not cover for any other third  
party loss.

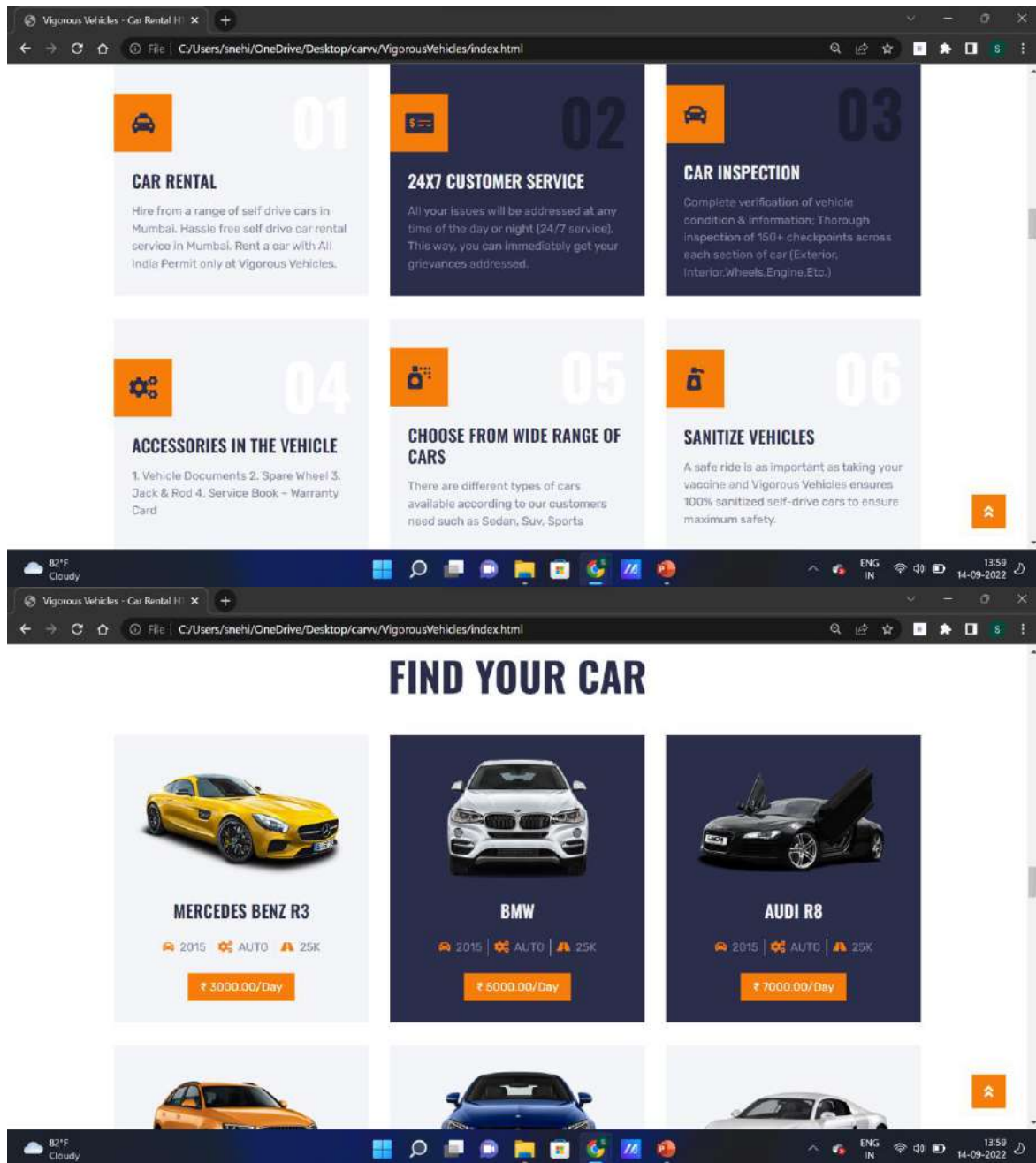
## Security deposit in car rental

In car rental, a security deposit is a sum of money that a supplier holds on to until the customer returns the rental car. The supplier uses this money to pay for any unexpected charges such as damages to the car and parking tickets. The customer can usually use their credit card for the deposit or sometimes a debit or check card. Some suppliers also accept cash deposits. Suppliers mainly use pre-authorisation to hold a security deposit from a card. The funds are then reserved and can't be used for other purposes but they haven't been charged. When the customer returns the car without any problems, the deposit is released. In some cases, the deposit is actually charged from the customer's card. In that case, the deposit is then refunded to the customer. Some suppliers release the deposit right after the rental. But it may also be released a few days after the car has been returned. In any case, the exact time it takes for the money to reach the customer's account depends on their bank. Security deposit is usually either a set amount or determined with a specific calculation method. The exact amount depends on various aspects, such as the rental time and length, car type, the renter's place of residence and the rental location.

## Chapter 9

### Result and Discussion









Vigorous Vehicles

File

C:/Users/snehl/OneDrive/Desktop/carvv/VigorousVehicles/detail.html

# CHOOSE FROM WIDE RANGE OF CARS

There are different types of cars available according to our customers need such as Sedan, Suv, Sports

Model: 2015	Automatic	20km/liter	GPS Navigation
Model: 2015	Automatic	20km/liter	GPS Navigation
Model: 2015	Automatic	20km/liter	GPS Navigation

## Check Availability

Pickup Location

Drop Location

Pickup Date

Pickup Time

Select A Car

Check Now


82°F Cloudy

Vigorous Vehicles - Car Rental

File

C:/Users/snehl/OneDrive/Desktop/carvv/VigorousVehicles/booking.html

# FORD MUSTANG



## ₹ 7000.00/Day

Rating: ★★★★★ (250)

Keep In Mind Driving License Mandatory + Fare & Fuel Policy Fare is inclusive of all taxes. Kindly return the car at the same fuel level as the trip start time Cancellation Policy Hassle free cancellations and refunds at nominal charges I Agreement Policy I hereby agree to the terms and conditions of the Lease Agreement with Host ; Have more questions? Chat with us! We will help you resolve queries.

Share on: [f](#) [t](#) [in](#) [p](#)

Model: 2015	Automatic	20km/liter	GPS Navigation
Model: 2015	Automatic	20km/liter	GPS Navigation
Model: 2015	Automatic	20km/liter	GPS Navigation

Vigorous Vehicles - Car Rental

File | C:/Users/snehi/OneDrive/Desktop/carvv/VigorousVehicles/booking.html

## Personal Detail

First Name

Last Name

Your Email

Mobile Number

## Booking Detail

Pickup Location

Drop Location

Pickup Date

Pickup Time

Select Adult

Select Child

Special Request

### Damage Protection Package

- Standard ( ₹500/-)  
You pay up to 80% of loss in case of any damage.
- Peace of Mind ( ₹1000/-)  
You pay up to 20% of loss in case of any damage.

How Damage Protection Works?

Proceed Payment

payment.html

File | C:/Users/snehi/OneDrive/Desktop/carvv/VigorousVehicles/payment.html

VISA

12345678

CARD HOLDER  
SNEHI RATANI

EXPIRES  
09 2029

CARD NUMBER

12345678

CARD HOLDER

SNEHI RATANI

EXPIRATION MM

09

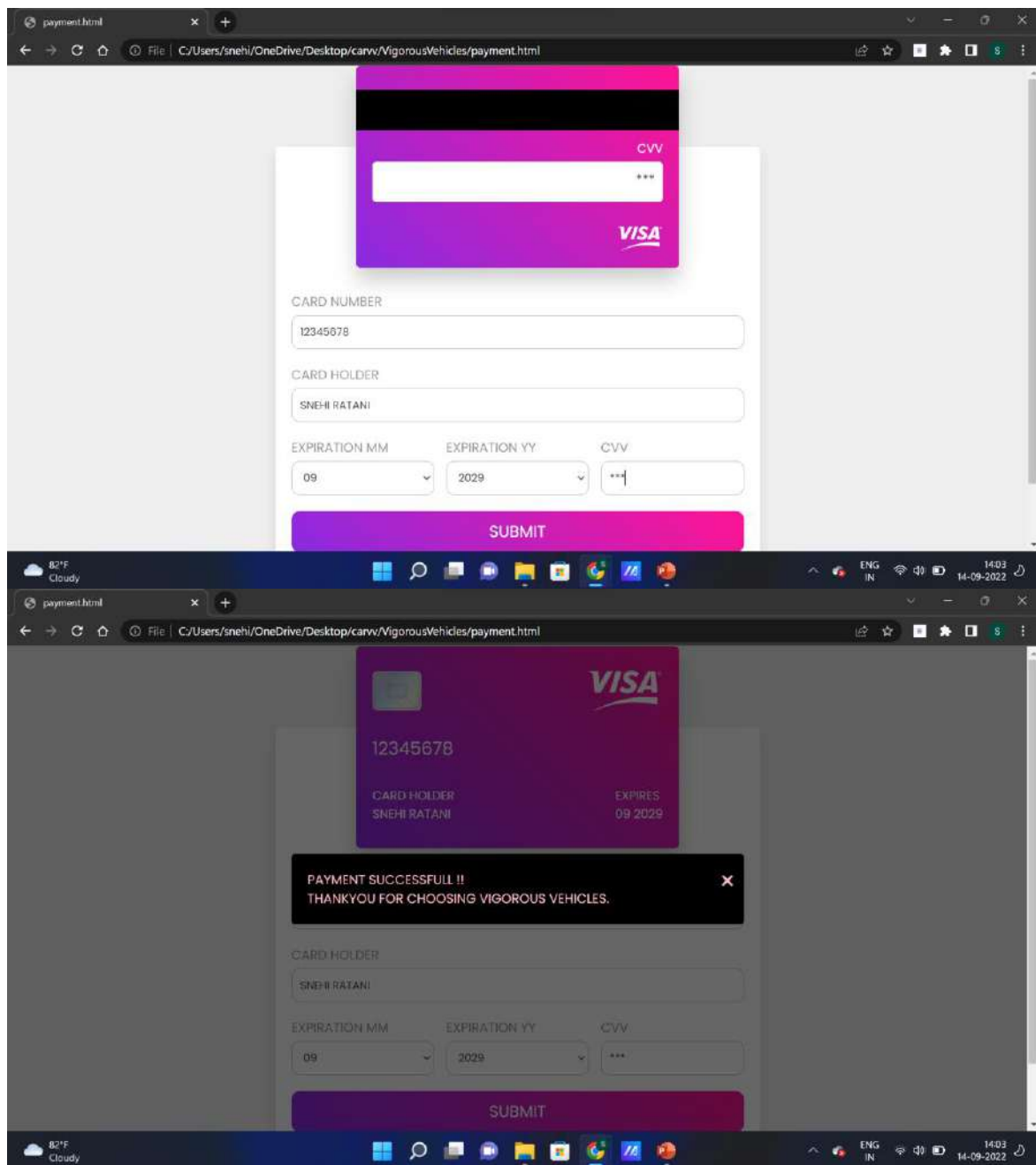
EXPIRATION YY

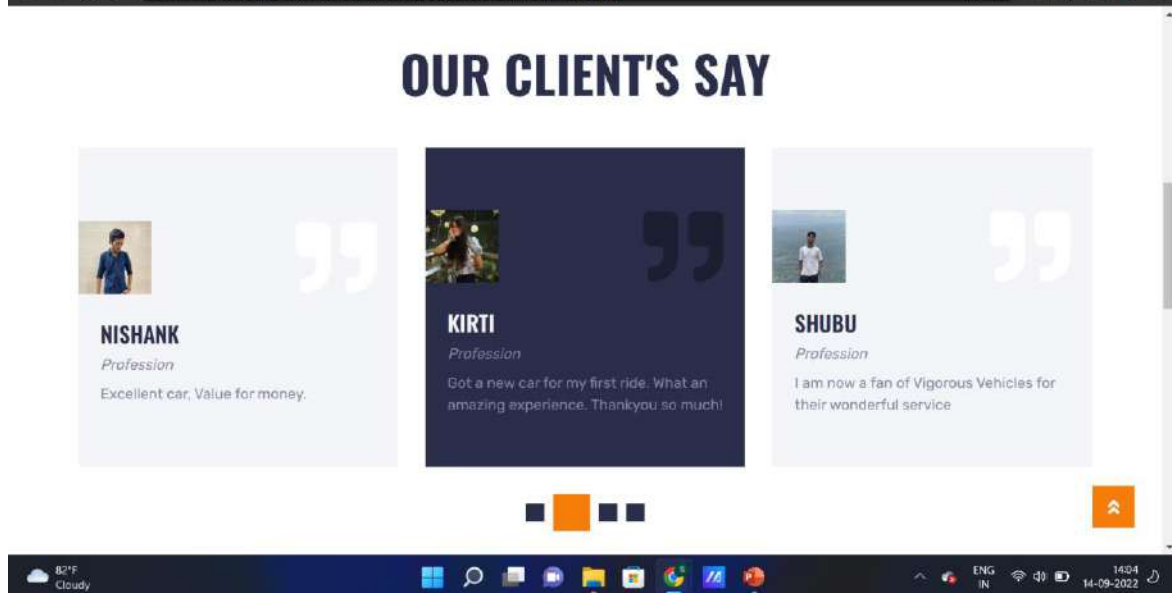
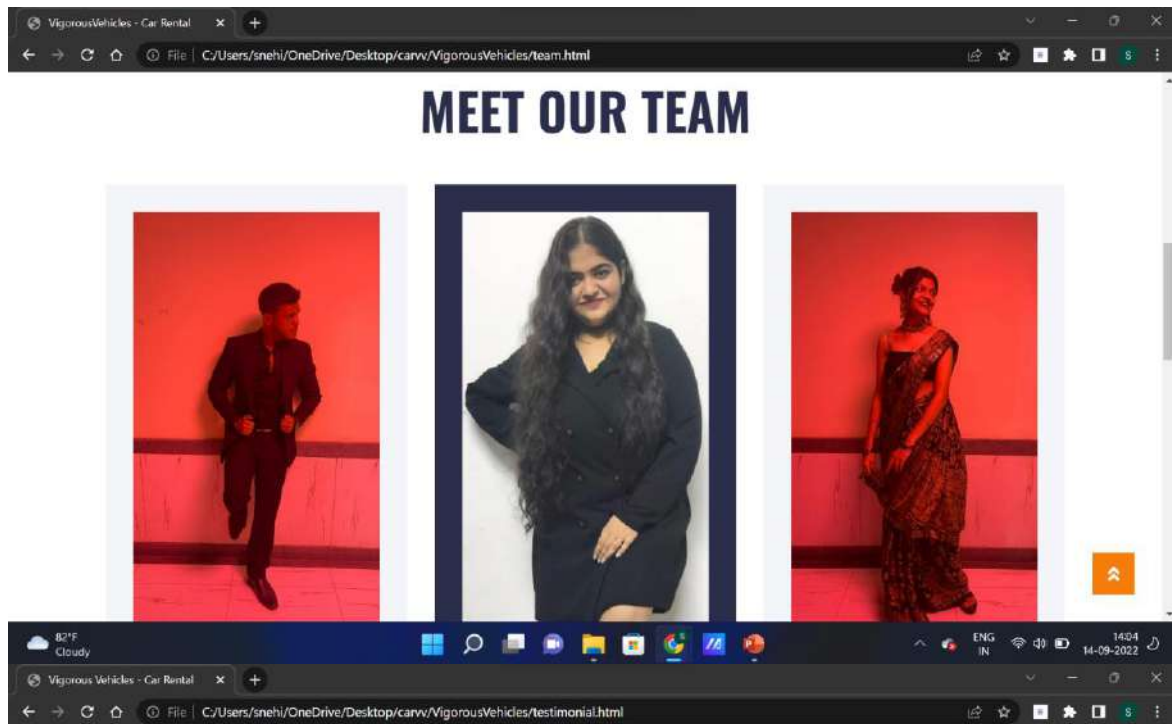
2029

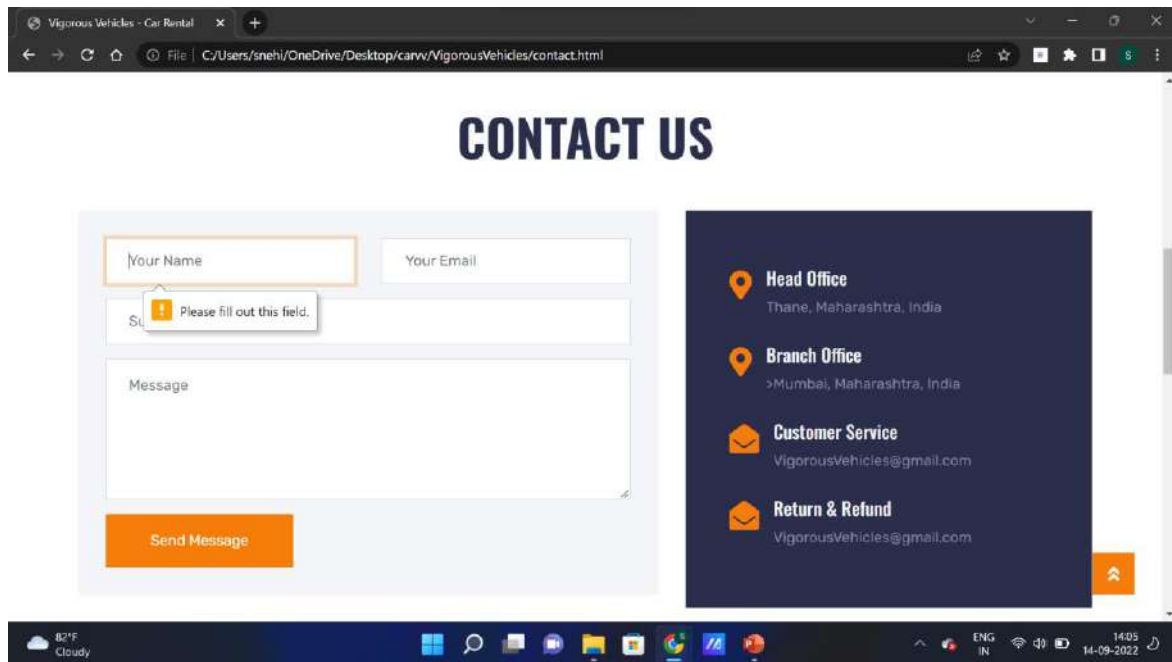
CVV

SUBMIT









## Chapter 10

### Conclusion and Future Scope

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.

While several players have already entered and established themselves in the market, there is still scope for others. Every company is trying to provide better services and offers to get more reservations and this is bringing improvement and use of new automated technologies in the market. Now rental companies are focusing on customer support, training, sales, and marketing to stand out clearly and to communicate better with the customers. This will increase the customer footfall and sales. Most car rental businesses are doing good and some of them are working hard on every facet to improve their services. We can expect a bright future for all car rentals that are implementing smart tricks and technologies to stand out in the market.