PROJECT FINAL REPORT
GROUP PROJECT
CST 392-2

Group No: 07

Vehicle Rental and Service System

Computer Science &Technology

Department of Computer Science and Informatics

Uva Wellassa University

February 2021

Declaration

We declare that this project report is out own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

Date: …….

Signatures of the Candidates:

Name	**Registration Number**	**Signature**
UWU/CST/17/028	Jebaprashanth J.V.	
UWU/CST/17/052	Shankeerthan P.	
UWU/CST/17/054	Shindujah A.	
UWU/CST/17/059	Thenuja A.	

I endorse the declaration by the candidates. ……

Date: ……

…….....

Mr K. Charith

Supervisor

Department of Computer Science and Informatics

Faculty of Applied Sciences

Dedication

We would like to dedicate this project to our wonderful client who hope in our design. They are the biggest support to finish this project successfully. It would not have been possible without their support.

Acknowledgement

We would like to express our sincere gratitude to our supervisor Mr. K. Charith for providing their invaluable guidance, comments and suggestions throughout the course of the project. Sir gave us some guidance to complete the system on time. In addition while we meet some logic or design problem, she always give us useful and logic solutions.

We would like to thanks Mr. K. Charith for one more time because she shares his experience with us, so that we can get clear understanding on how to develop a software which suitable for the current society. Also we would like to thank our project coordinators.

Abstract

Our Aim is to design and create a data management system for a car rental company. This enables admin can rent a vehicle that can be used by a customer. By paying the money for a specified period of time. Also, the customers can buy their vehicle parts by ordering through online and they can book a time for service their own vehicle. This system increases the simplicity of work for the owner and staff of this company and also for the customers. Our System has a very user-friendly interface. Thus, the users will feel very easy to work on it. By using this system admin can manage their rental, bookings, customer issues and vehicle issues, vehicle service bookings and parts order bookings. While implementing these System we face many struggles to understand the real world scenario of this vehicle rental and service company. Also to understand their process order. We spent more time to take a clear view about the system environment. We meet and contact the company staff several time and clarify our problems. This was little bit hard to manage. But finally we got a clear idea and process our work accordingly.

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Chapter 1: Introduction

1.1 Project Description

Vehicle rental and service system is our project which aim is book a vehicle on rent at the fare charges. In present system all booking work done manually and it takes very hard work to maintain the information of booking and vehicles. If you want to find which vehicle is available for booking then it takes a lot of time. It only makes the process more difficult and hard. This aim of the project is to automate the work performed in the vehicle rental management system like generating daily bookings, records of vehicle available for booking, record of routes available, rental charges for vehicles for every rout, store record of the customer.

And this system provides a complete solution to all your day-to-day vehicle booking office running needs. This system helps you to keep the information of customer online. You can check your customer information any time by using this system. Vehicle rental management system is a unique and innovative product. Using this this you can also keep the information of number of bookings in current month or in last 6 month or in last year. This helps you to track your business and you earning in particular month or in any year. Based on this information you can take decision regarding your business development.

And vehicle repair management task is handled from the admin part. From adding customers to checking their completion time. The admin has the full access to this task. When you send your product for repair the admin will allocate it to the workers. If your vehicle is repaired then the admin will mark it as to be delivered to the user. Also, the admin can check the product status. He can view the annual income or even the monthly income. He can also manage the profits of the store.

1.2 Background and Motivation

The RS company considered in this project is a Finnish vehicle rental company.

Its physical product offerings range from the smallest to luxury cars, vans and bikes, and the duration of the rental varies from a few hours to months. Similarly, its service offerings are also customized to fit customer preferences. On the other hand, the customers of RS

company rent vehicles for work-related businesses and payments are taken care of in the form of billing to the company.

Database driven websites has its demand in so many areas of life.it has carried out its daily work by providing its service to customers using manual system. The organization uses a manual system for reserving and renting a car through phone calls placed to the car operators by intending users. Under this manual method, there is little or no record of all the rental activities and customer information. During vehicle reservation, the customers reserve a vehicle by making a phone call to the organization otherwise; he/she is expected to go to the organization to make reservation. Such manual system is ineffective due to the following bottleneck and drawback associated with it;

1.During reservation a customer reserves a vehicle via phone call or he/she is expected to go to the organization for reservation. This has the following problems:

- The organization phone may be busy or may not work when customer is calling to make reservation.
- It may be difficult for customers to get the phone number or location of the organization.
- The customers may make unnecessary extra expenses and waste their time.
- There may accrue duplicated reservation of the same vehicle.
- The organization may not be able to serve many customers.
- The customers may not get service of the organization 24/7 (twenty four hours a day and seven days a week), the service thus being limited by time.

2.When generating report, it takes time and it may not be easy to manage and analyse work due to massive collection of data and the generated report may not be accurate.

This project is being considered in order to reduce and eliminate loss of customers to competitors, and save the company from folding up. The goal of this project is to automate vehicle rental and reservation so that customers do not need to walk-in or call in order to

reserve a vehicle. They can go online and reserve any kind of vehicle they want from the inventory of available vehicles.

Even when a customer chooses to walk-in, computers are available for him to go online and perform his reservation. When he choose to reserve by phone, any of the customer service representatives can help him reserve the vehicle speedily and issue him a reservation number. The OVRS will maintain the database of all vehicles the company has. It will also keep track of all vehicle reservation and return. Reports will be generated bi-weekly. Reports for the Accounts Manager will detail the cost incurred to maintain each vehicle and revenue accrued on each vehicle.

1.3 Problem in Brief

- An existing system can provide manually paper work or excel sheet to track the booking and registered vehicles details.

- The user has to go in the office where the user can get the car on rent and book their car. Most of the time user does not get a sight of the car in which he is planning to travel. Which results in compromising the travel comfort.

- In the existing system, you cannot provide feedback of the user to the admin directly. The user gets fluctuation every time he/she travels.

- Maintaining excel sheet or paper book record of reservation is very laborious work. Chances of error are more. No automation involves which means they are a very slow to process.

- The current system is manual and it is time consuming .It is also cost ineffective, and average return is low and diminshing.currently, customers can call or walk-in in order to rent or service a vehicle.The staff of the company will check their file to see which vehicle is available for rental.

- More manual hours need to generate required reports.

- Daily purchase and stock details must be entered into books are very difficult to maintain.

- During renting a vehicle the customer personal information, payments status and rent agreements are filled in the bike rent agreement form, in order to hold legal contract between the customer and vendor for renting the vehicle.

1.4 Objectives

The project aims and objectives that will be achieved after completion of this project are discussed in this subchapter. The aims and objectives are as follows:

- To produce a web-based system that allow customer to register and reserve vehicle online and for the company to effectively manage their vehicle business.
- To ease customer's task whenever they need to rent a vehicle.
- Maintaining a record of every booking history.
- To provide for a quick and efficient retrieval of information. Any type of information would be available whenever the user requirements.
- Provide a feedback mechanism for increasing service quality.
- Easy to maintain stock and purchase details for repair and generate the report monthly.

1.5 Significance of Study

This system is developed to solve the problems that usually happen when users want to rent a vehicle, all activities is done manually which is no record have done on computerize or on mobile technology. So, they have many problems using this existing way of process. A web application is an application that is accessed over a network such as the Internet or an intranet. Therefore, with this new method, the process will be more efficient and the safety

of hiring car is secure. It's also the best way to increase the quality of management and can reduce the time constraints.

Purpose of this system develop:

- Hassle-Free Management of Bookings – There may be more number of vehicles be listed, but using online booking system you can manage vehicles online. Also, you can connect the users easily. To know more view car booking script

- 24/7 Operation – Available all the time. A person who wishes to book a room for rental at usual times like midnight early in the morning etc. Yes, it is possible with an online booking system which is present all the time.

- Cut Your Workload – Through online booking and management system, a business administrator manages the system seamless as it does not deal with manual action. In a vacation rental software, the workloads are split among multiple admins.

- Increase Revenues – The online vehicle booking system stores the entered data and also collects the data based on bookings and listings, accumulates then into a report. Through which users can analyse their performance, which helps to increase their efficiency also helps to earn more.

Chapter 2: Methodology

2.1 Introduction

We choose the water fall model for this system because we find the requirements clearly so the water fall model is the best option for the system. The main methodologies are

- Requirements gathering

Requirement gathering process will be achieved by the field visit to the RS rental vehicle company. And we understood the requirements which company want to achieve its ‘goal. We gathered the information from that company manager with the users.

- Design

We use the UML diagram for our designing.

- Implementation

We are going to use language technologies to design our system.
Ex: html, php, java script, java

- Testing

The testing process will be checked if the system is running properly or not.

- Deployment

The deployment process is aim to deliver a successful system to satisfy the client.

2.2 System Analysis and design

Class Diagram

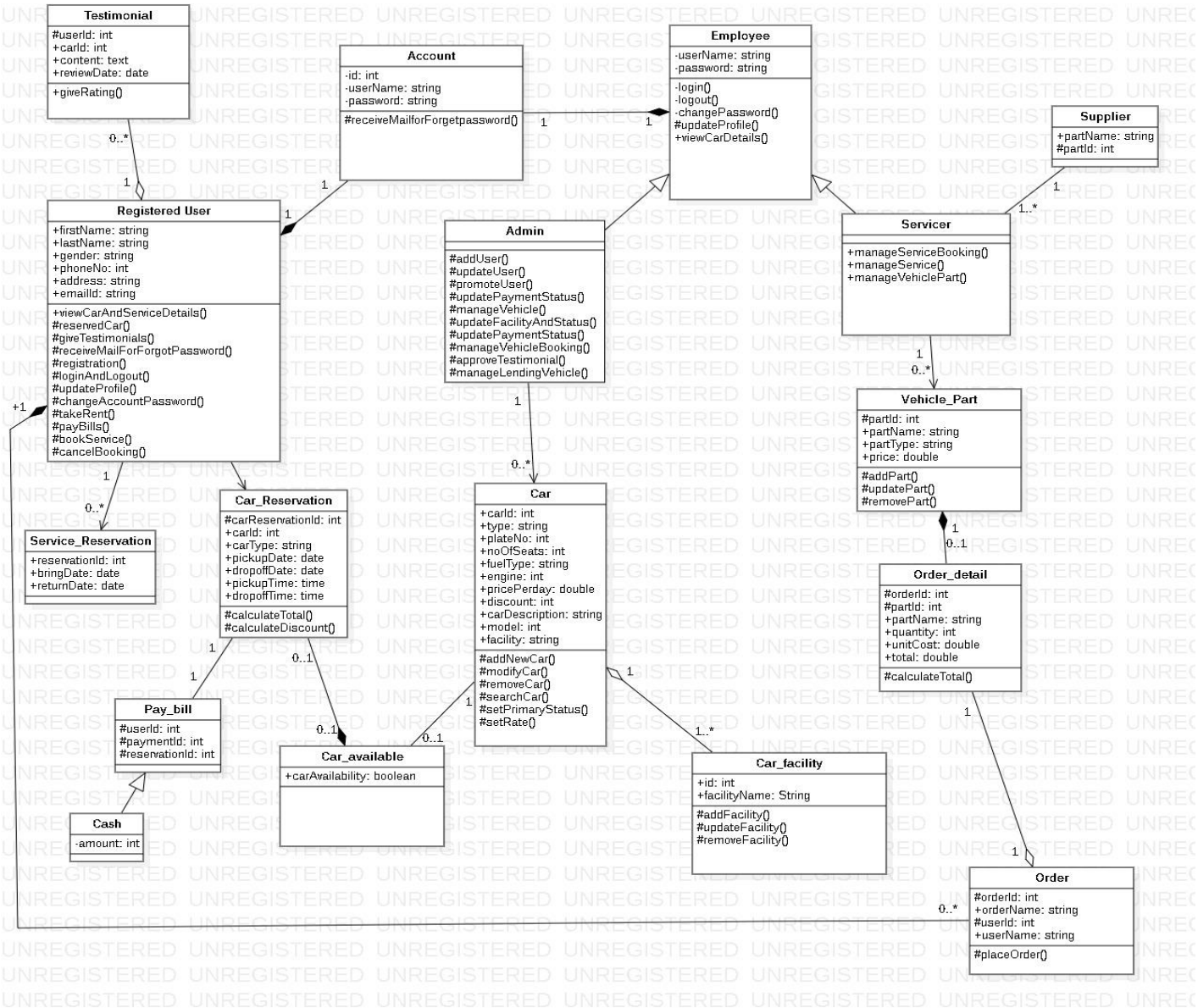

Figure 1: Class Diagram

ER Diagram

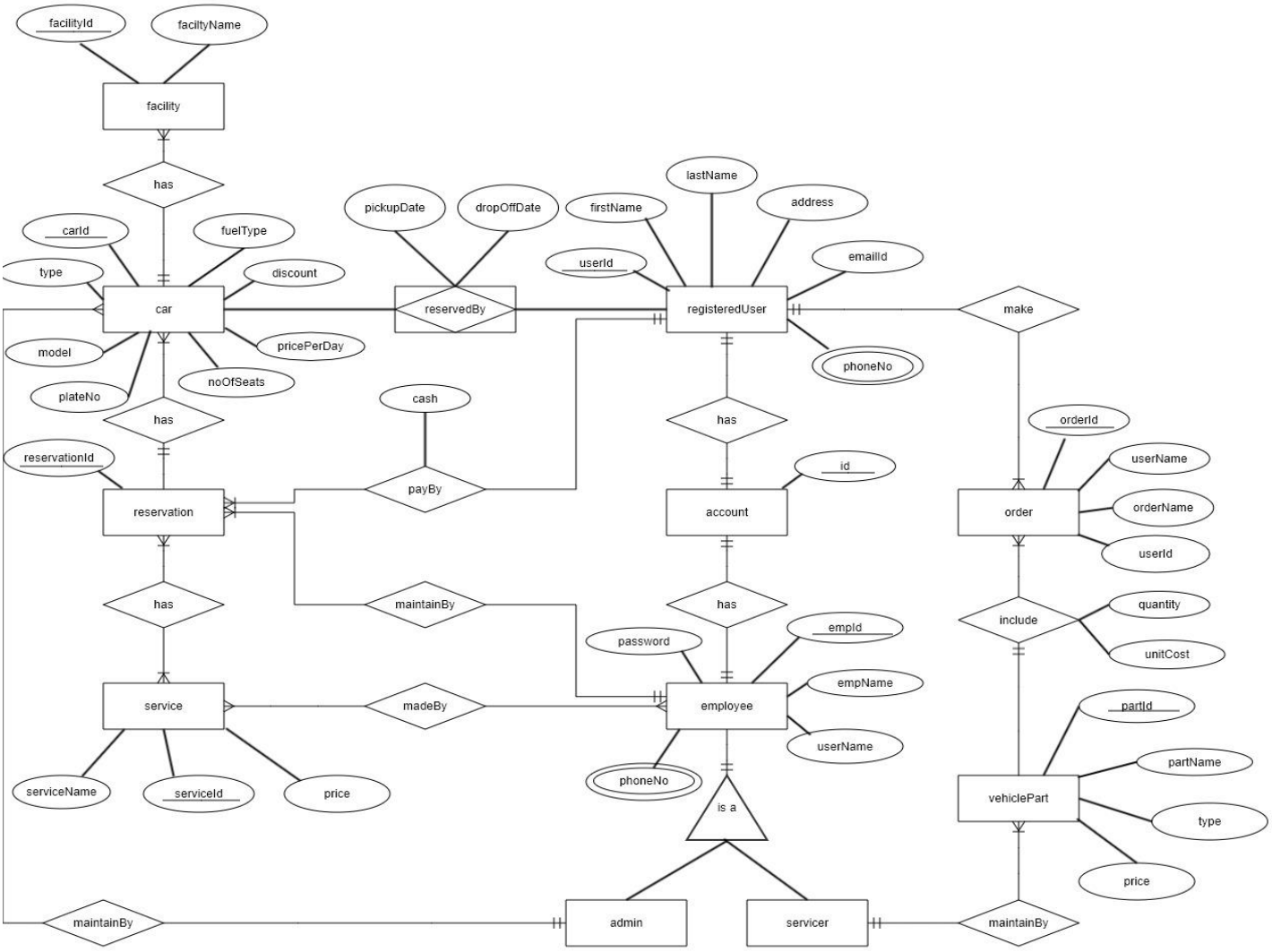

Figure 2: ER Diagram

Use case Diagram

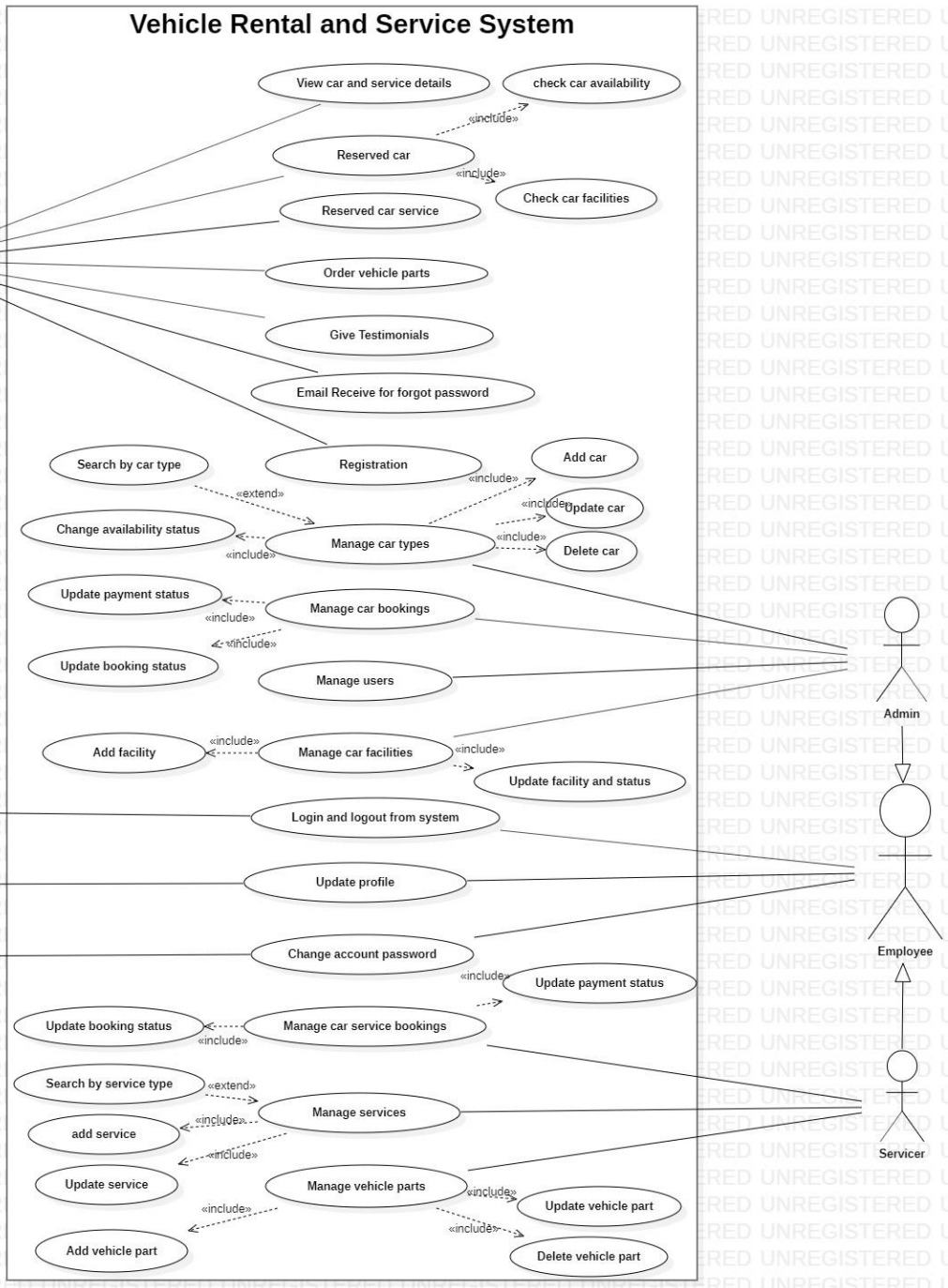

Figure 3: Use case Diagram

2.3 Requirements identification

a. Functional and Non-functional Requirements

Functional Requirements

1. Signup, login and change password.
2. User Dashboard.
3. Items add, delete, view and edit.
4. Vehicle booking and confirm.
5. User feedback.
6. Repair administration.
7. User Maintenance
8. Vehicle Maintenance.

Non-Functional Requirements

1. Security

   The system 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.

2. 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.

3. 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.

4. Availability.

   This system should always be available for access at 24 hours,7 days a week.

5. 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.

b. User levels, User roles

1. Admin

- Login the system.
- Add New vehicle type Details.
- Manage Vehicle Facilities Details (Edit, Delete).
- Add New Vehicle Details.
- Manage Booking details (Admin can confirm and Cancel Booking).
- Manage Testimonial Details (Active and Inactive).
- Manage Contact us Query.
- Check All registered users' details.
- Change Password
- Update the contact details dynamically.

2.Servicer

- Reparation management.(Admin can change the reparation status)
- Inventory and purchases management.
- Maintain the Vehicle parts and Categories.
- Maintain the stock and monthly earning reports.

3.User

- New User can Register through Registration page.
- Registered User can login with valid email and password.
- User Can Recover Forget password after Providing Some Correct Information.
- User can find vehicle details and Booked vehicle
- User can View Vehicle booking history
- User Can Check Booking Status(admin can approve or disapprove)
- User can Check the Reparation Status.
- User can update their profile
- User can update their password
- User can add new testimonals
- Logout

2.4 Technology Adapted

a. System requirements

1.Software Resources

- Technology: - PHP 7.1.10, CSS4, HTML5, JavaScript, Laravel framework.

  Here we use html to develop the whole webpages with CSS, JavaScript for styling work and php for server-side scripting. Also use Laravel frame work for easy of develop and for the OOP purpose it's an oop principle-based framework.

- Database: -MySQL 5.7.14

  We use MySQL database as our database server. It's the most common Database used by web design beginners. It's more flexible to use and handle over database system.

- Design Tools: -Star UML

  We use Star UML to design the design patterns and diagrams.

- Documentation: -Microsoft Word 2016, Microsoft PowerPoint 2016

2.Hardware Resources

- Laptop
- Intel Core I5 or higher
- 4GB RAM or higher
- 400GB Hard disk
- Keyboard and Mouse
- Internet Connection

Chapter 3: Implementation

1.Home Page of the System.

Figure 4: Home Page of the System.

2.Login Page

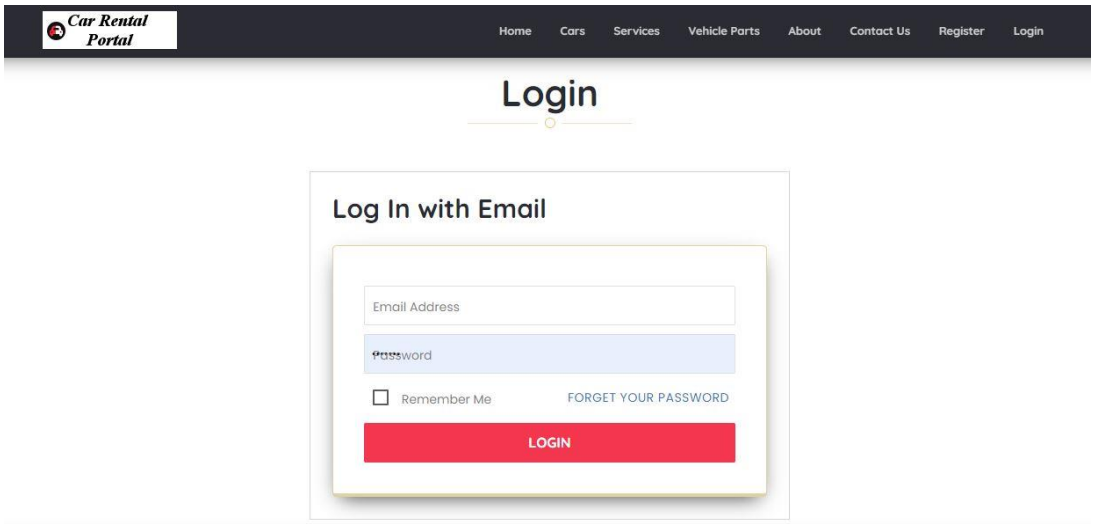

Figure 5: Login Page

3.Signup Page

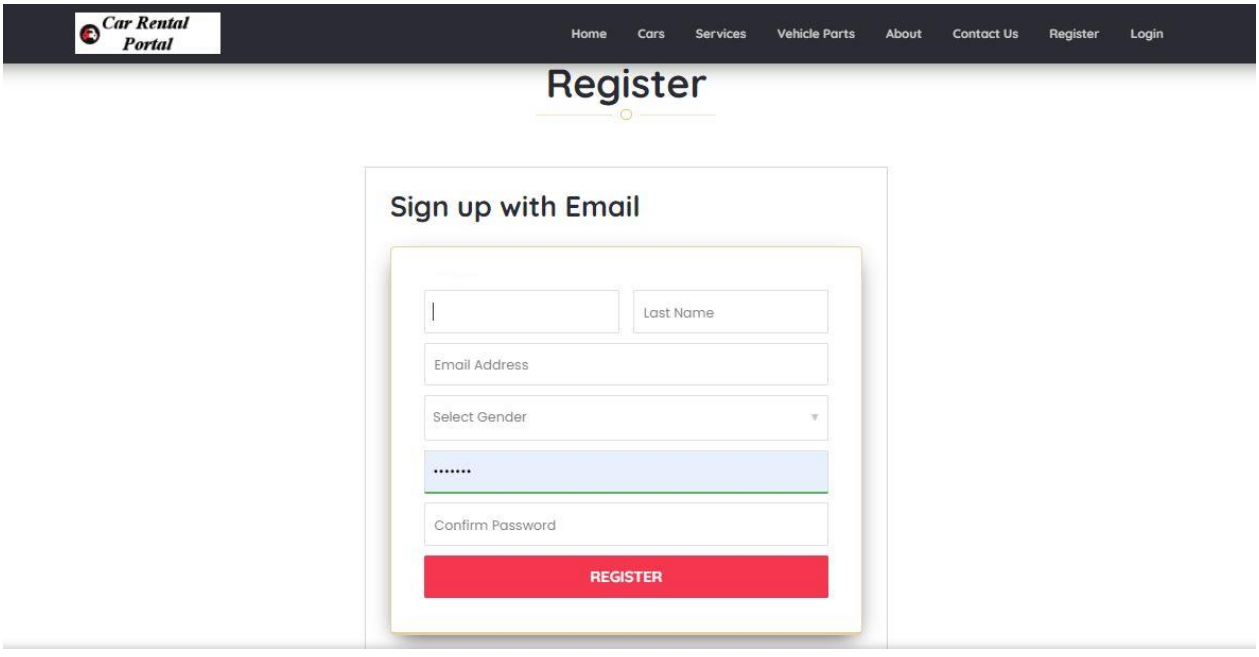

Figure 6: Signup Page

4.Car types page

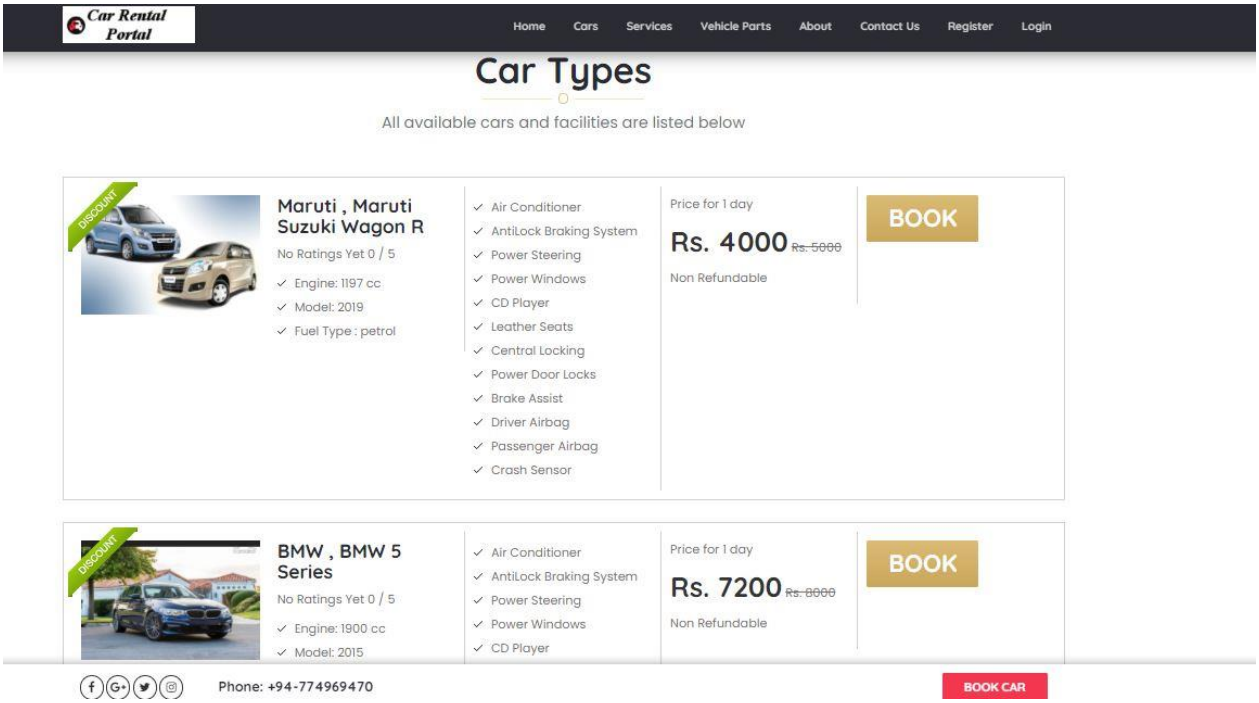

Figure 7: Car types pag

5.Contact us page

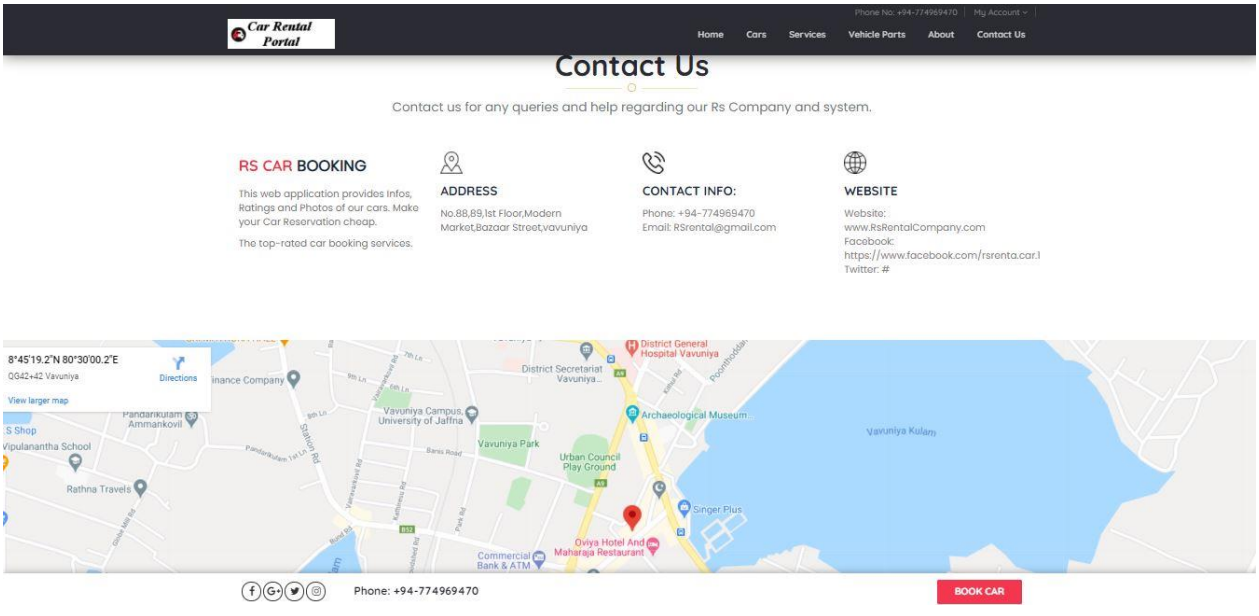

Figure 8: Contact us page

6.User Dashboard Page

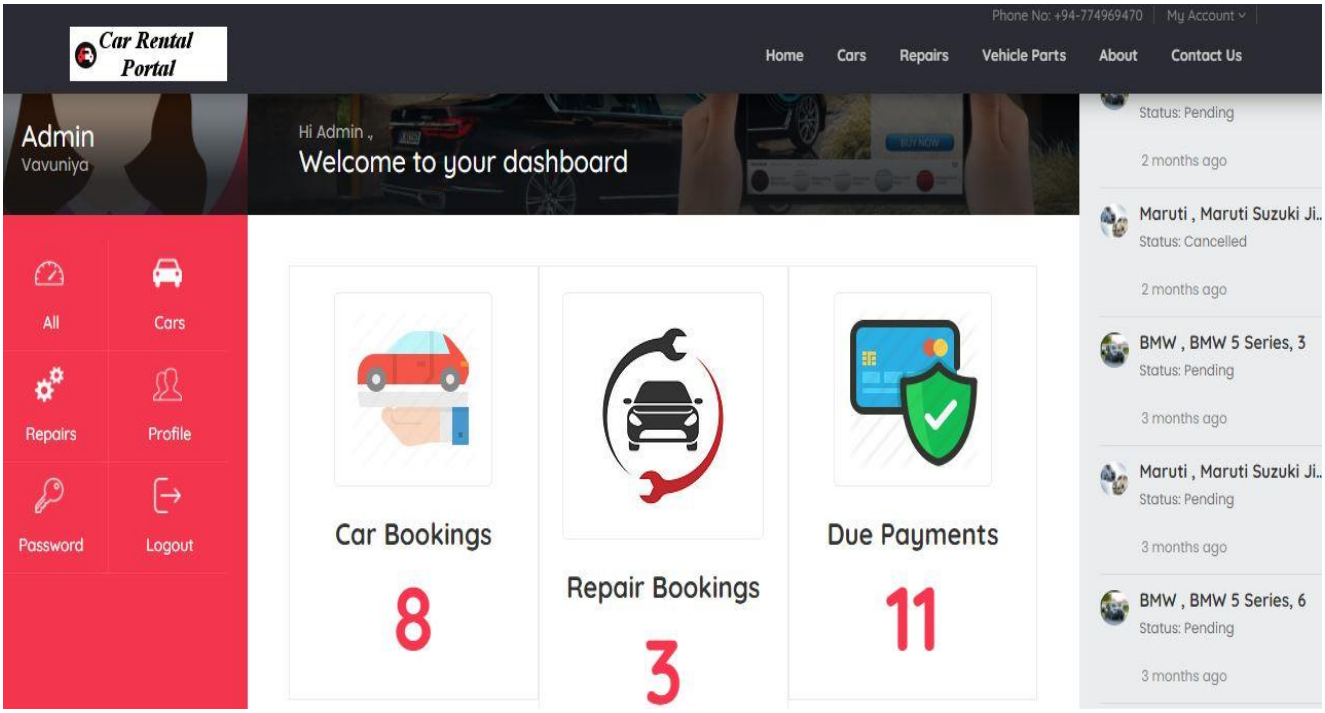

Figure 9: User Dashboard Page

7.User profile page

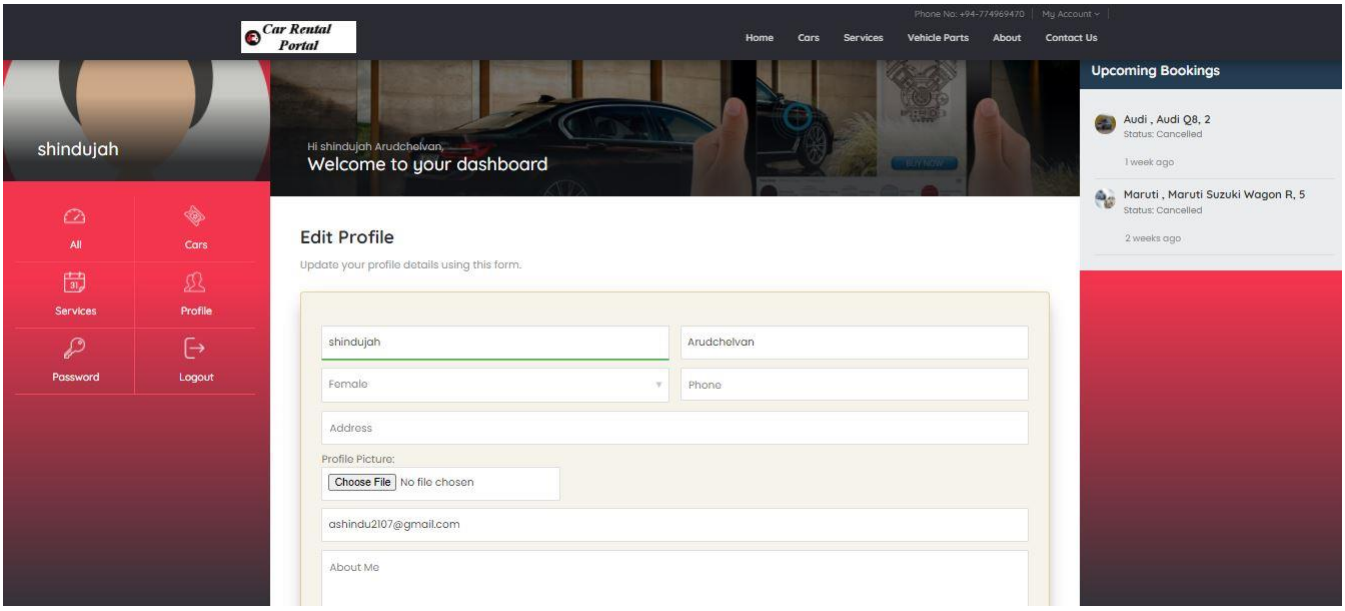

Figure 10: User profile page

8.My Bookings page

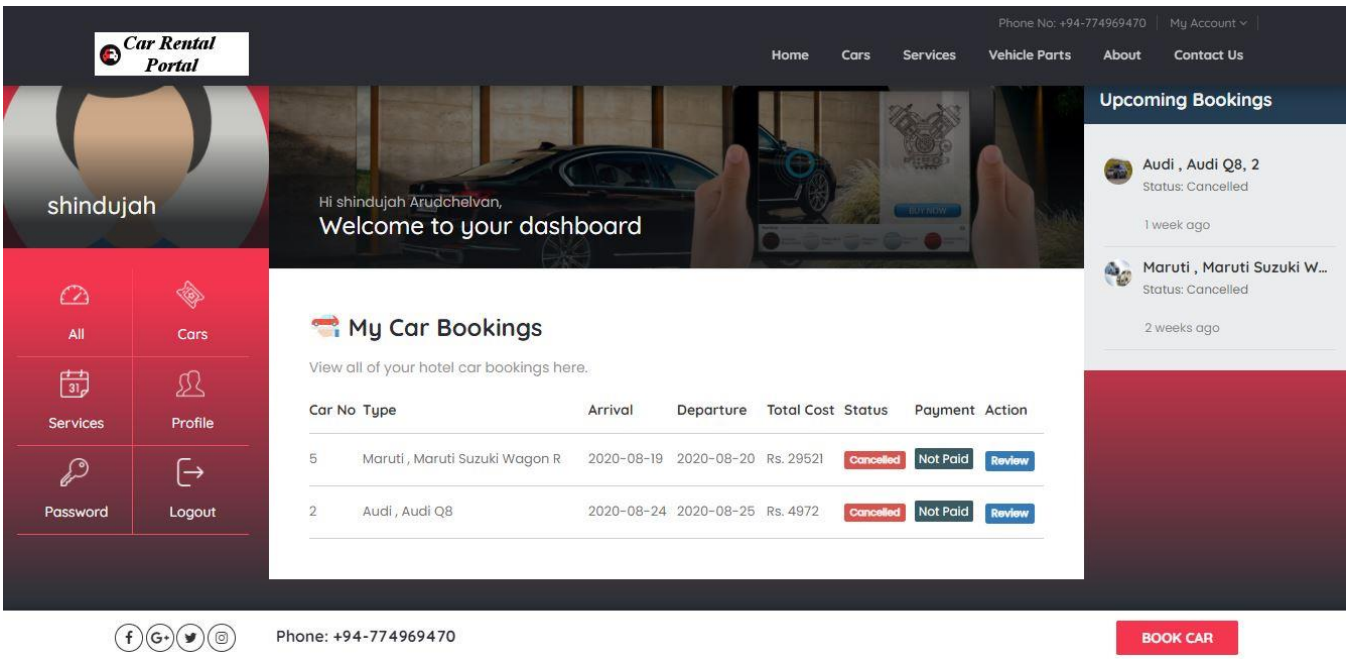

Figure 11: User profile page

9.Change Password

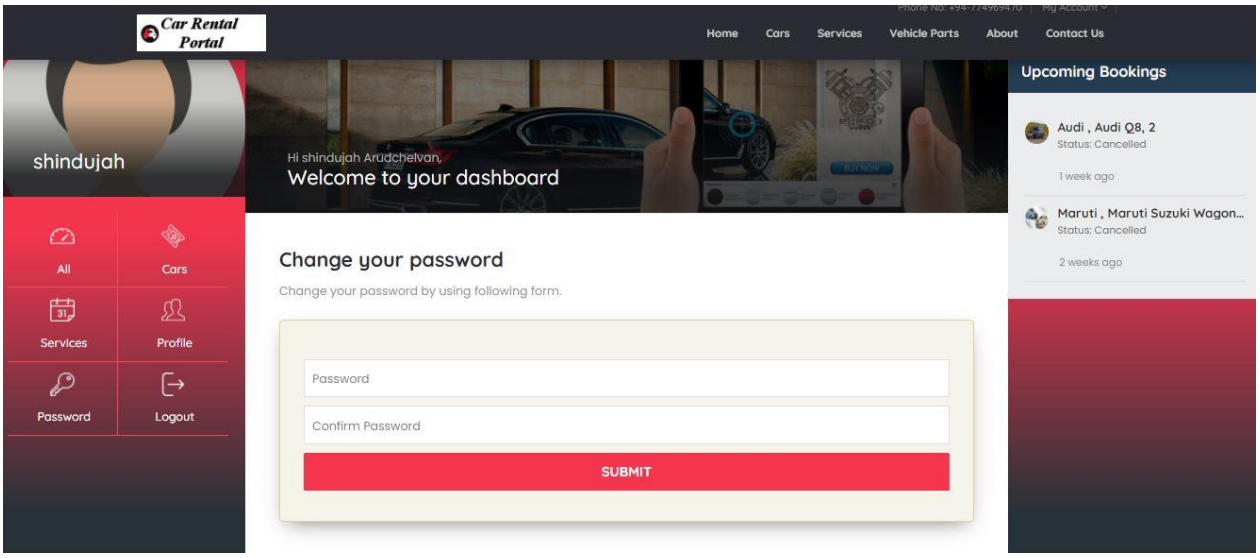

Figure 12: Change Password

10.Admin Page

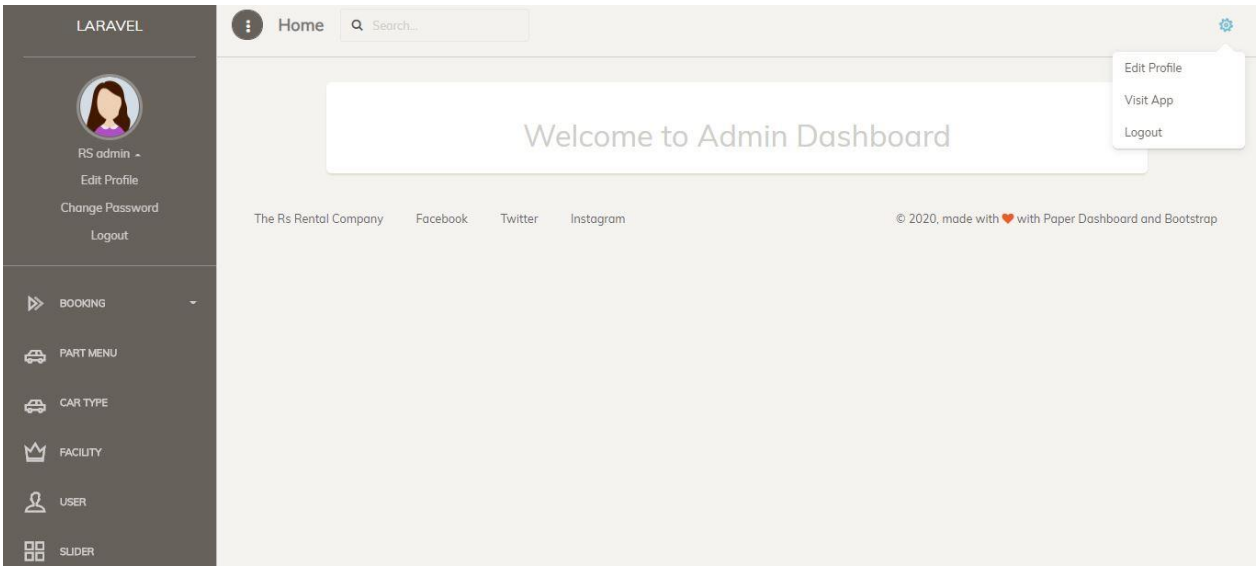

Figure 13: Admin Page

11. Car Booking Maintenance

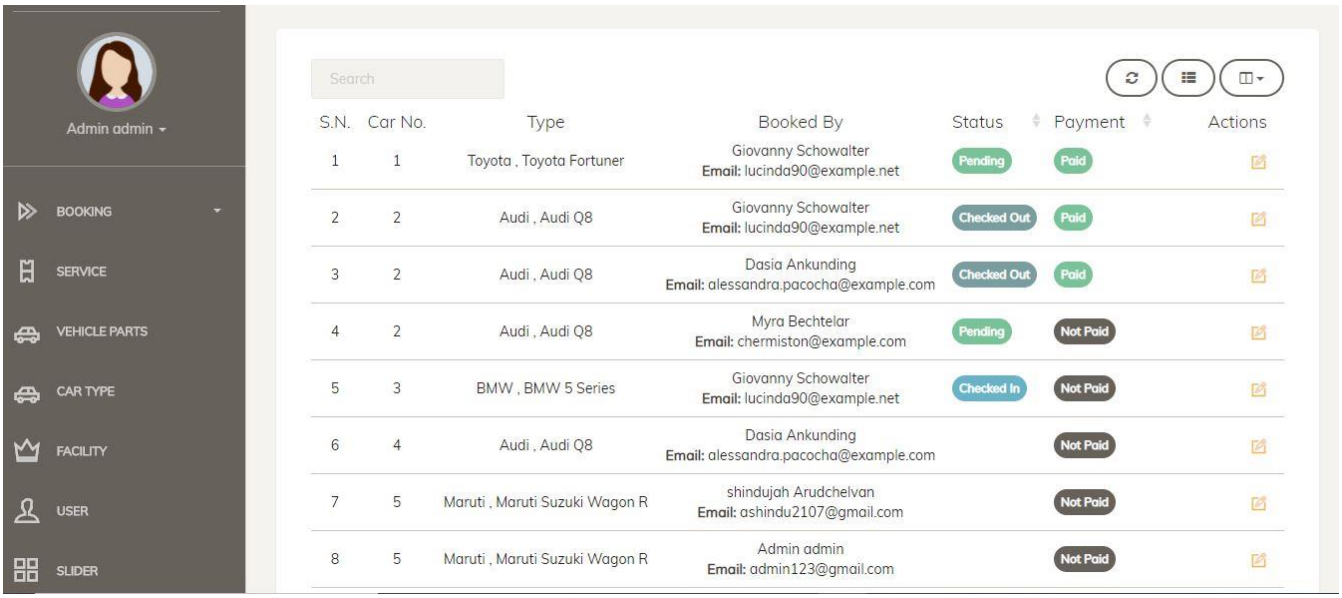

Figure 14: Car Booking Maintenance

12.Car Type Maintenance

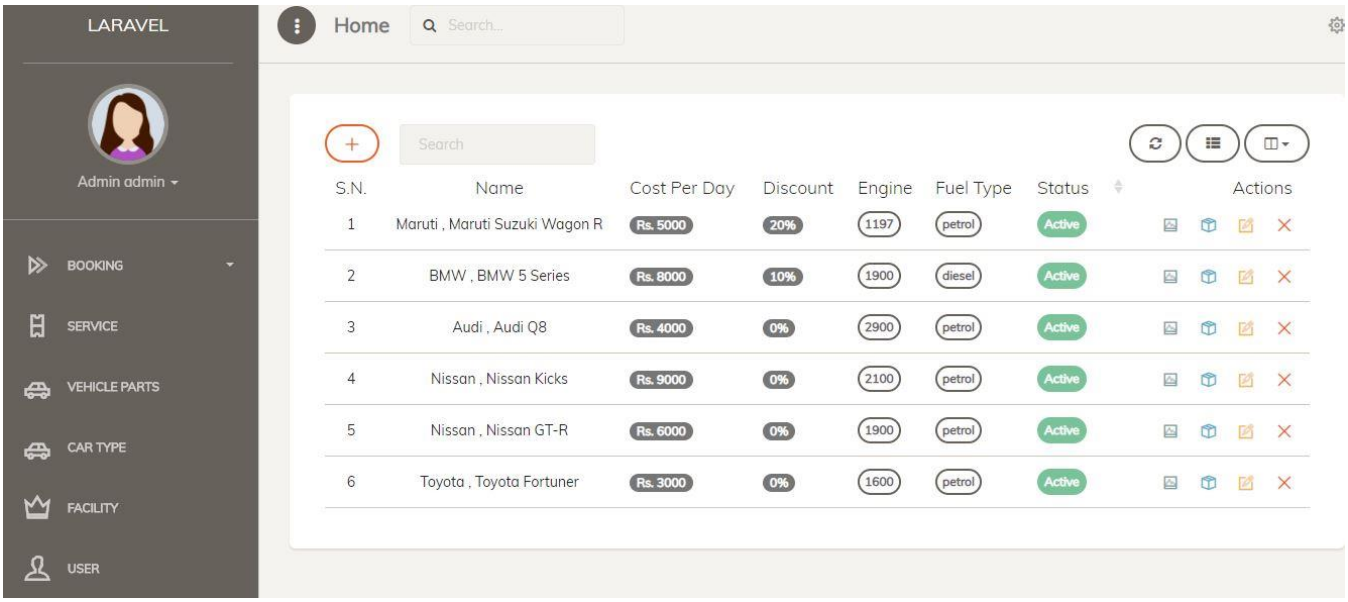

Figure 15: Car Type Maintenance

13. Car Facilities

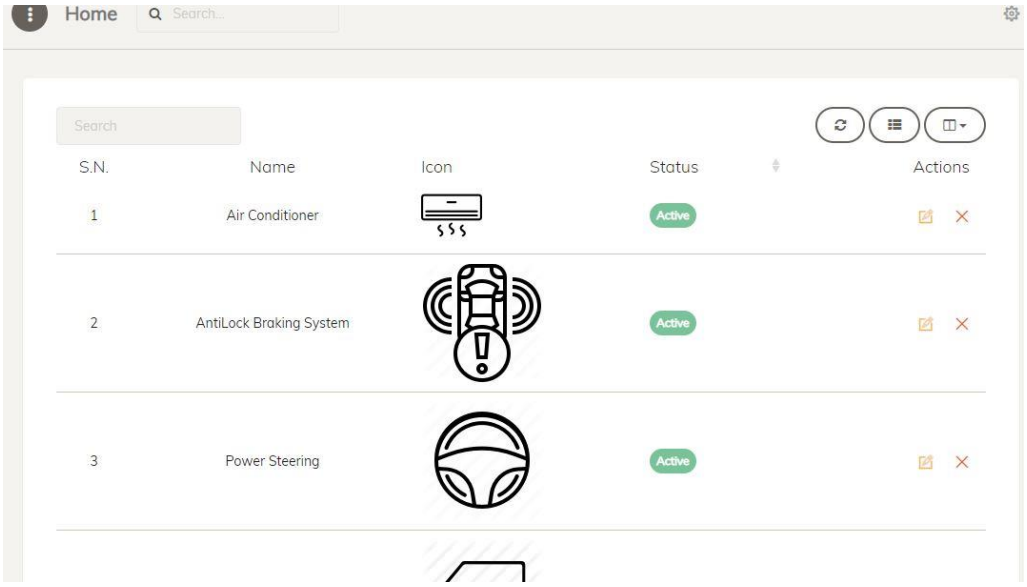

Figure 16: Car Facilities

14.User Maintenance

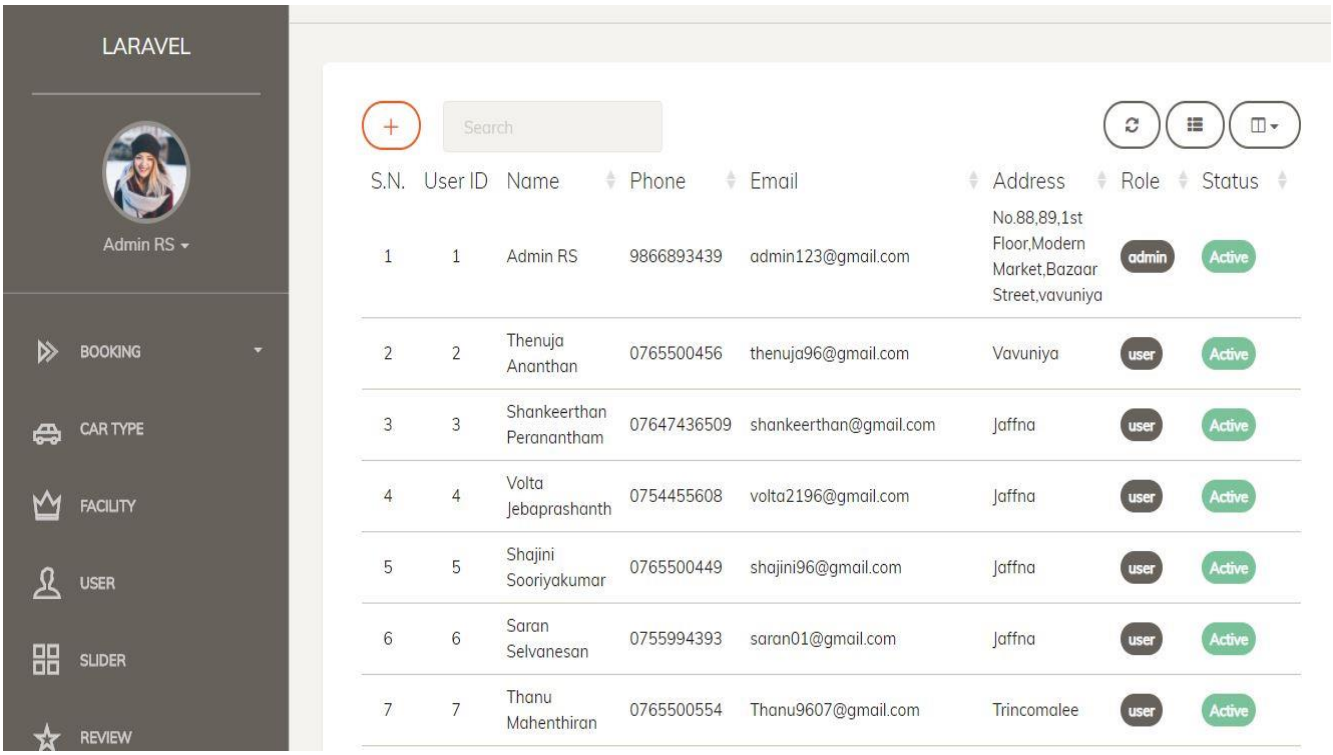

Figure 17: User Maintenance

15.Slider Manage

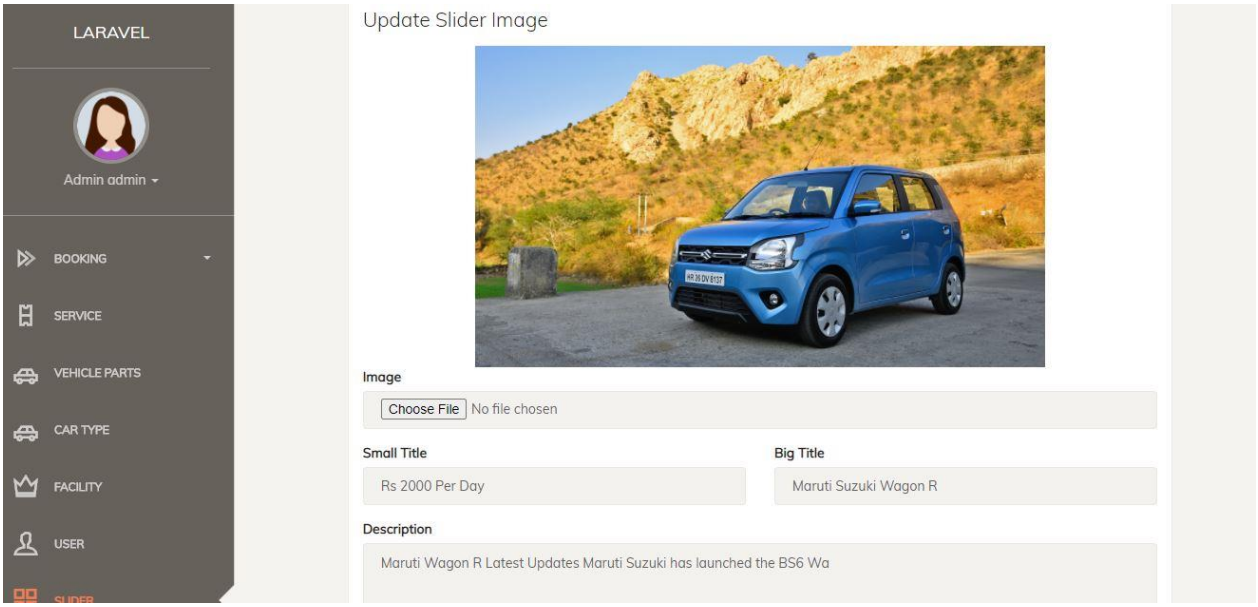

Figure 18: Slider Manage

16.Manage Cars

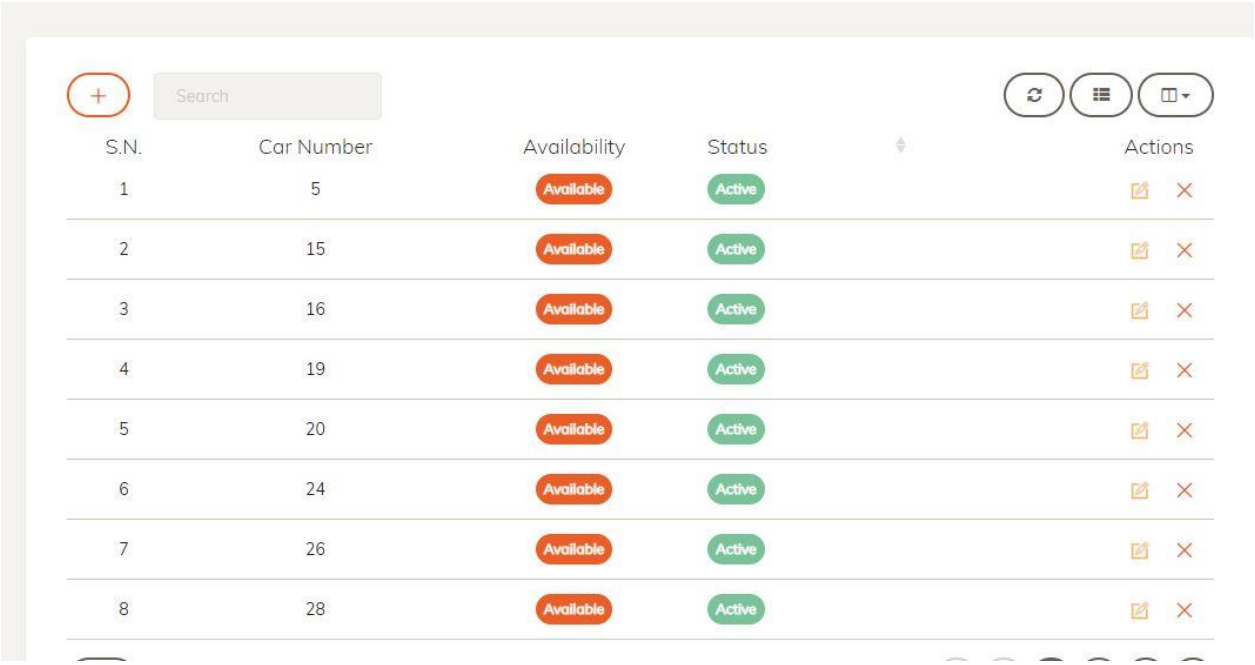

Figure 19: Manage Cars

17. Repair Types

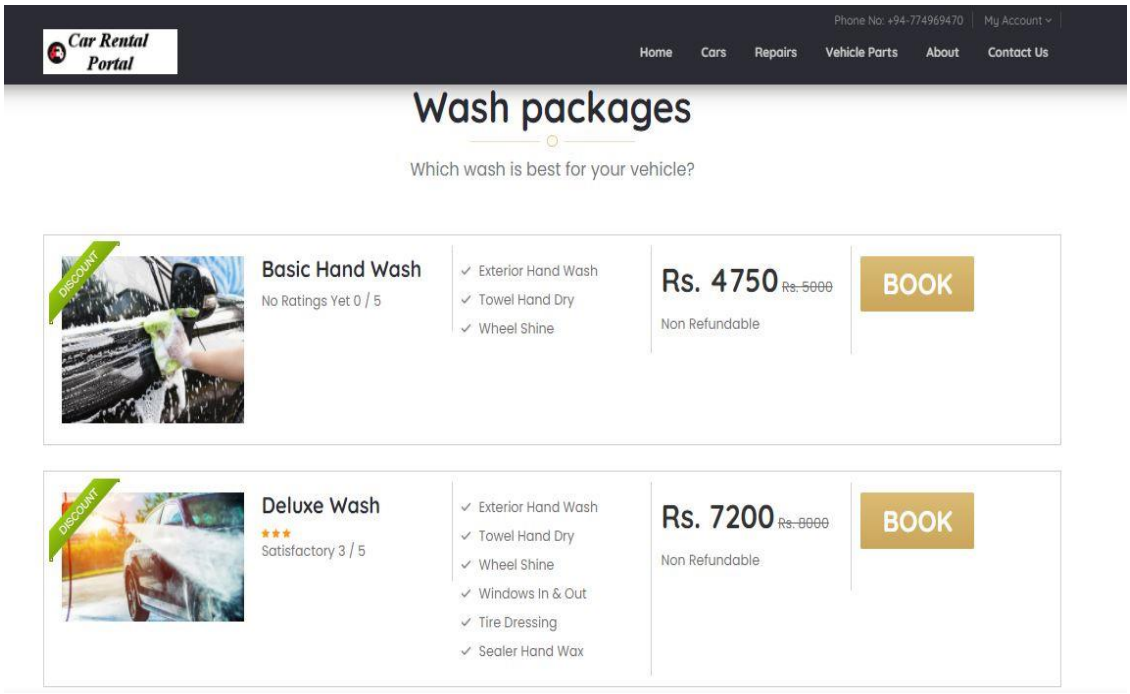

Figure 20: Repair Types

18.Repair Booking Page

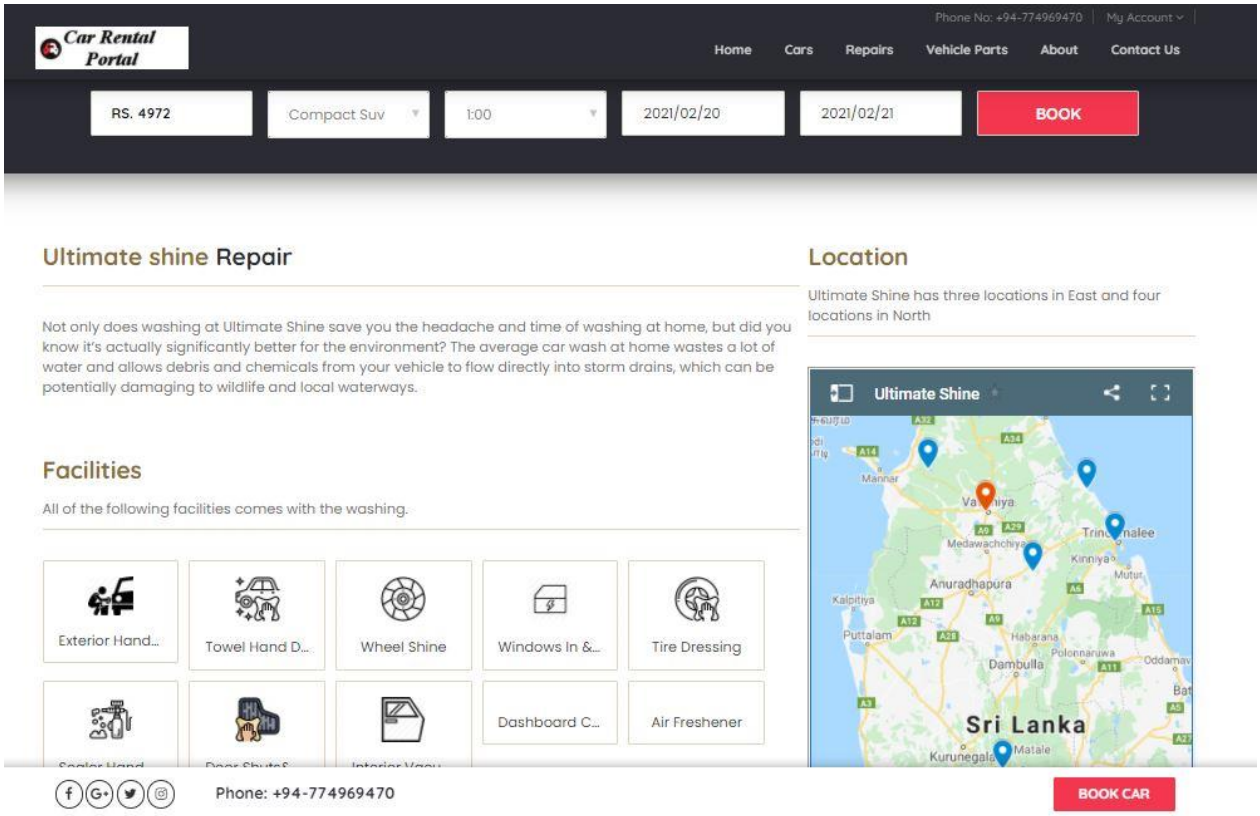

Figure 21: Repair Booking Page

19.Repair in User Dashboard

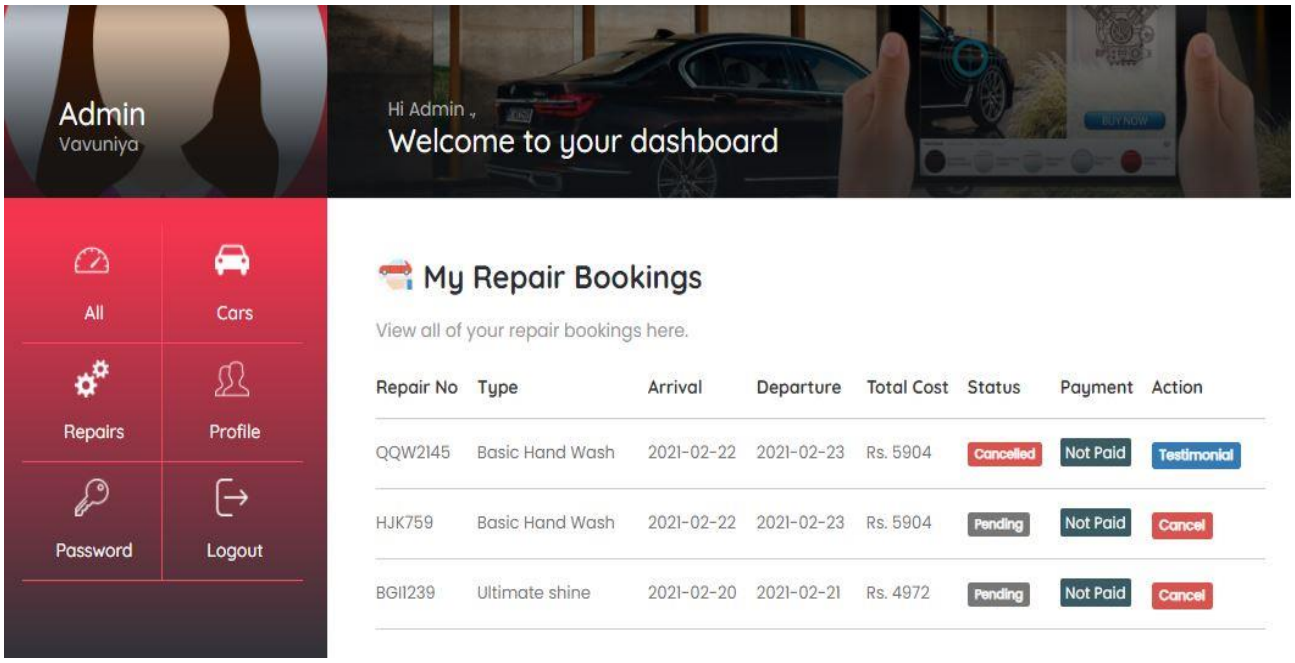

Figure 22 :Repair in User Dashboard

20.Testimonial

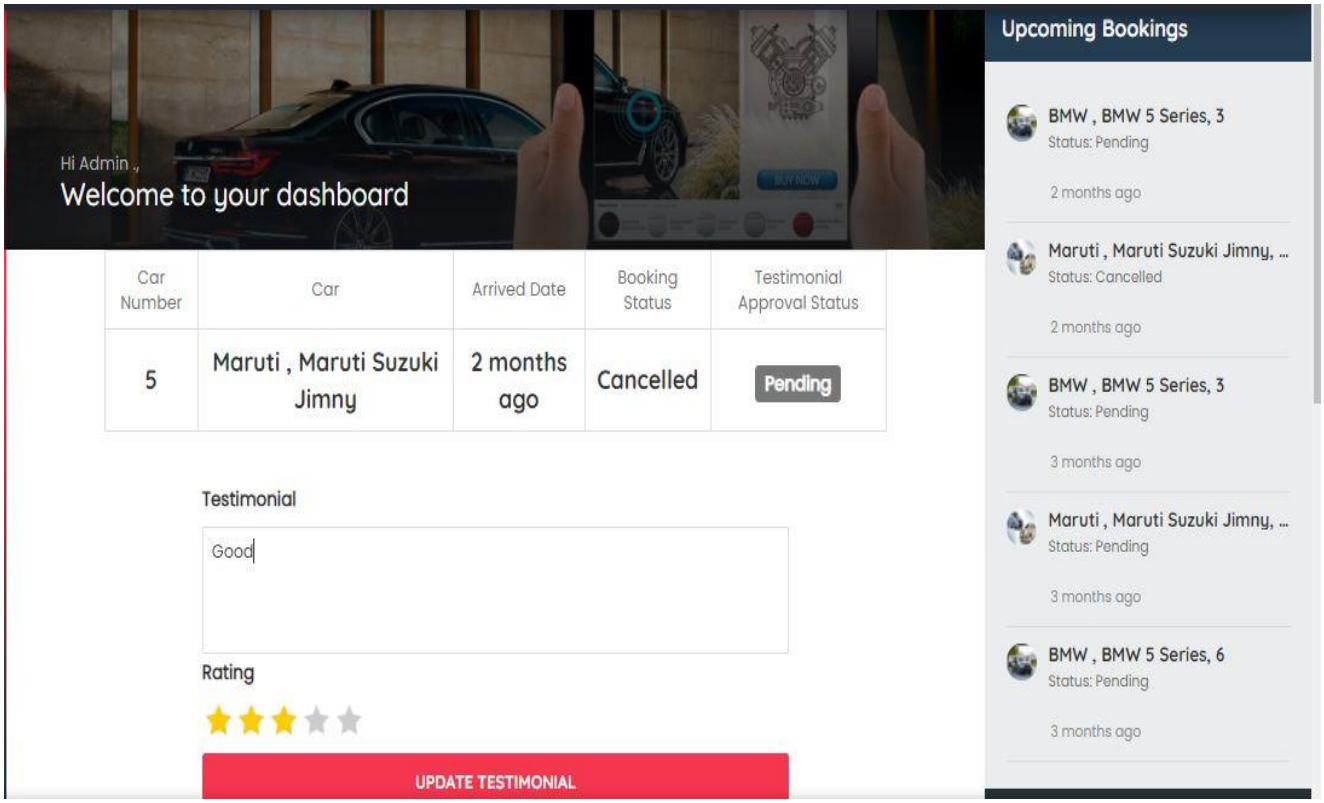

Figure 23: Testimonial

21.Testimonial Approve by admin

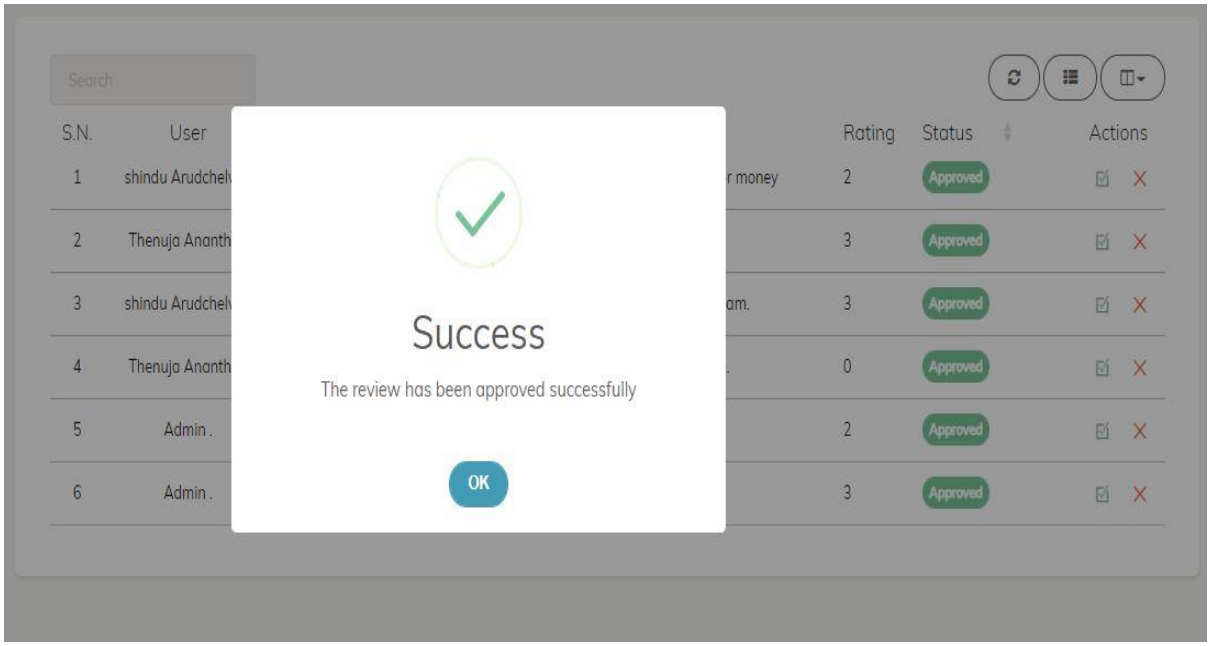

Figure 24: Testimonial Approve by admin

22.Vehicle Parts

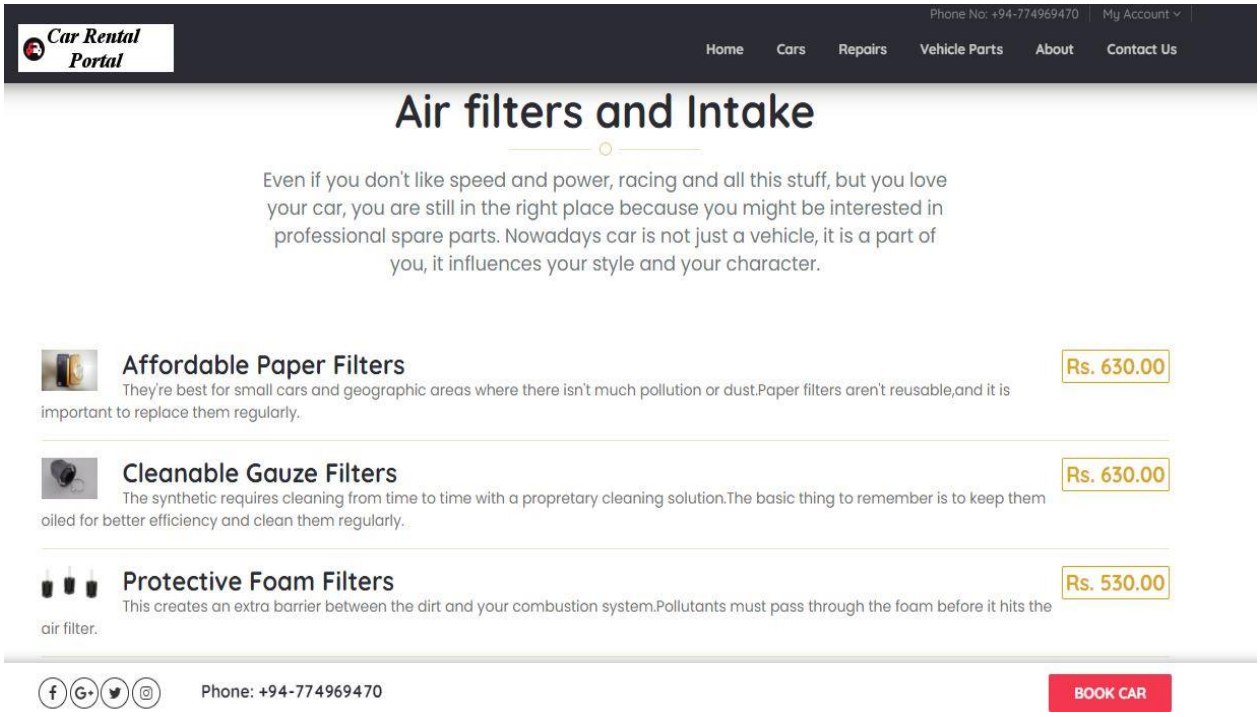

Figure 25 : Vehicle Parts

Chapter 4: Testing and Evaluation

Testing Methodology

Unit testing

We have been successfully completed our system and test each function through unit testing framework and manual testing.

Then we have modify our system as follow**;**

Login

- Adding a condition for password checking
- Check individually use a password field, if it is an invalid login show as an error message.

- When the user is login to the system if there is empty field without filling the field show an error message

Integration Testing

We also did integration testing after integrate units of system, first combine all the interfaces then check form by form.

Here we tested the system by giving it to some people to know whether there is any errors or not.

Black Box Testing

Here when we input the user name and the password relevant user can login to their interface

And also if there is any error in the system, shows an error message**.**

White box Testing

Here we test the system internally, by using debugging with fire bug we check whether the data is save in the database and whether those data can retrieve by the relevant user.

Chapter 5: Project Plan & Conclusion

Task	Time (Weeks)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Finding Topic & requirement gathering															
Proposal Presentation															
Design the system															
Website development phase1& Database development phase 1															
Interim Presentation															
Web development phase2															
Database development phase 2															
Testing & validation															
Final submission & Presentation															
Documentation															

Final System should be delivered before 25th October of 2020

5.1 Individual Contribution

Table 1: Individual contribution

Registration number	Name	Individual Contribution
UWU/CST/17/028	Jebaprashanth J.V.	Vehicle Parts Maintenance Vehicle Maintenance
UWU/CST/17/052	Shankeerthan P.	Forgot Password Car Booking Service Maintenance
UWU/CST/17/054	Shindujah A.	User Dashboard Signup, login and change password. Service Booking.
UWU/CST/17/059	Thenuja A.	User Feedback. User Maintenance. Vehicle Parts Order.

5.2Group Details

GROUP NO: 07

Group Members

Registration number	Name	E-Mail	Contact No
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UWU/CST/17/052	Shankeerthan P.	CST17052@std.uwu.ac.lk	0764673045
UWU/CST/17/054	Shindujah A.	CST17054@std.uwu.ac.lk	0765500557
UWU/CST/17/059	Thenuja A.	CST17059@std.uwu.ac.lk	0763308521

Supervisor/s

Name	E-Mail	Contact No
Mr. K.Charith	charithk@uwu.ac.lk	+94 553560090

Approval Signatures

Date :

Evaluation Panel Member

Date : Date :

---------- ----------

Mr. K. Charith Mr. M.N.T.Nandasena

Project Supervisor Project Coordinator

5.3References

1. W3schools.com. 2020. *HTML Tutorial*. [online] Available at: <http://www.w3schools.com/html/default.asp> [Accessed 21 July 2020].

2. W3schools.com. 2020. *CSS Backgrounds*. [online] Available at: <http://www.w3schools.com/css/css_background.asp> [Accessed 21 July 2020].

3. W3schools.com. 2020. *Javascript Data Types*. [online] Available at: <http://www.w3schools.com/js/js_datatypes.asp> [Accessed 21 July 2020].

4. W3schools.com. 2020. *SQL INSERT INTO Statement*. [online] Available at: <http://www.w3schools.com/sql/sql_insert.asp> [Accessed 21 July 2020].