CAR RENTAL MANAGEMENT SYSTEM

PROJECT REPORT

Submitted by

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Under the guidance

of

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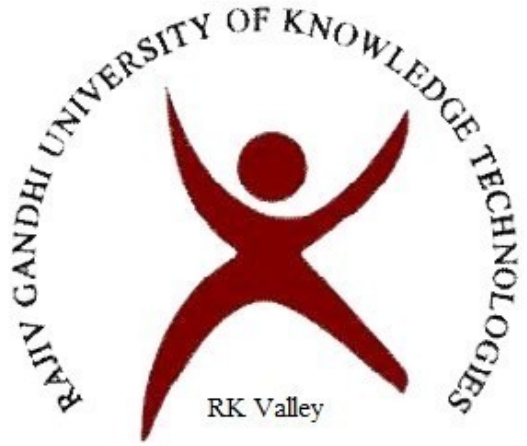

Rajiv Gandhi University of Knowledge and Technologies(RGUKT),
R.K.Valley, Kadapa, Andra Pradesh.

Declaration

We, hereby declares that this report entitled "**Car Rental Management System**" submitted by us under the guidance and supervision of **S.Shalima Sulthana** is a bonafide work. We also declare that it has not been submitted previously in part or in full to this university or other university or institution for the award of any degree or diploma.

We will be solely responsible if any kind of plagiarism is found.

Date: 28-08-2022
Place: RK Valley

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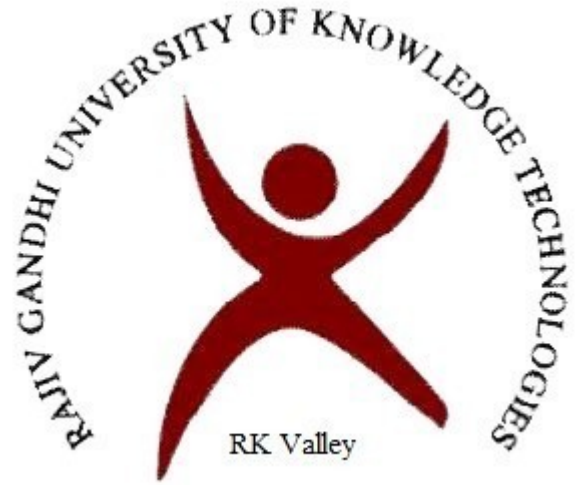

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CERTIFICATE

This is to certify that the project entitled " Car Rental Mangement System" has been submitted to the Department of computer science and enginnering , Rajiv gandhi university of knowledge technologies , Rk valley for the fullfillment of the requirement for the award of the degree of bachelor of technology in "computrer science and engineering" by following students of 3nd year Btech .

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Project Guide Head of the Department

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to my supervisors S.Shalima Sulthana for providing their valuable guidance, comments and suggestions throughout the course of the project, Because of which a whole team was able to learn the minute aspects of a project work.

We are also thankful to everyone who supporeted us to complete this project successfully .

Thank you all

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CHAPTER-1

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.

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, thus increase their return on investment (ROI).
- 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 used same to offer better and improve services to them.
- Group bookings: Allows the customer to book space for a group in the case of weddings or corporate meetings (Event management).

1.3 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.

1.4 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.

1.5 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

CAR RENTAL SERVICES

2.1 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.

2.2 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-3

FUNCTIONAL AND NON-FUNCTIONAL REQUIREMENTS

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:

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.

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.

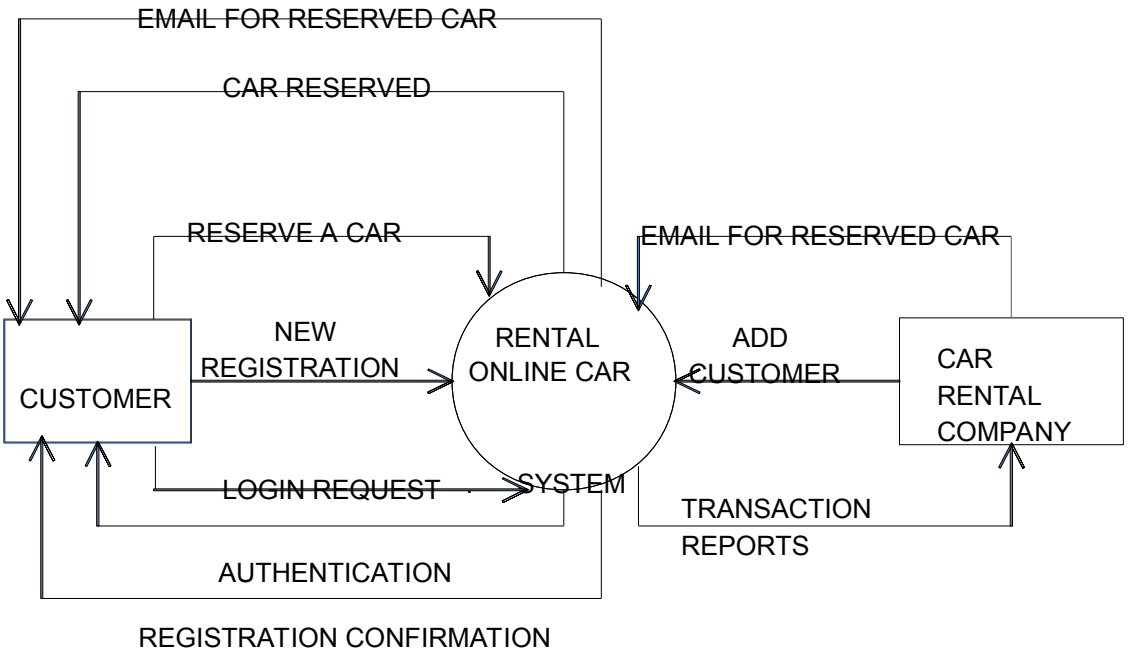
CHAPTER-4

DATA FLOW DIAGRAMS

4.1 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.

Figur



e 4.1 Level 0 DFD of Online Car Rental System

In this diagram, Customer and Car Rental Company are the two entity sets.

Functions of Customer:

- New Registration
- Login Request
- Registration Confirmation by the System
- Reserve Car
- Car Issued by the System
- Email received for Reserved Car

Functions of Car Rental Company:

- Add Customer
- Send E-Mails for Reserved Car
- View Transaction reports

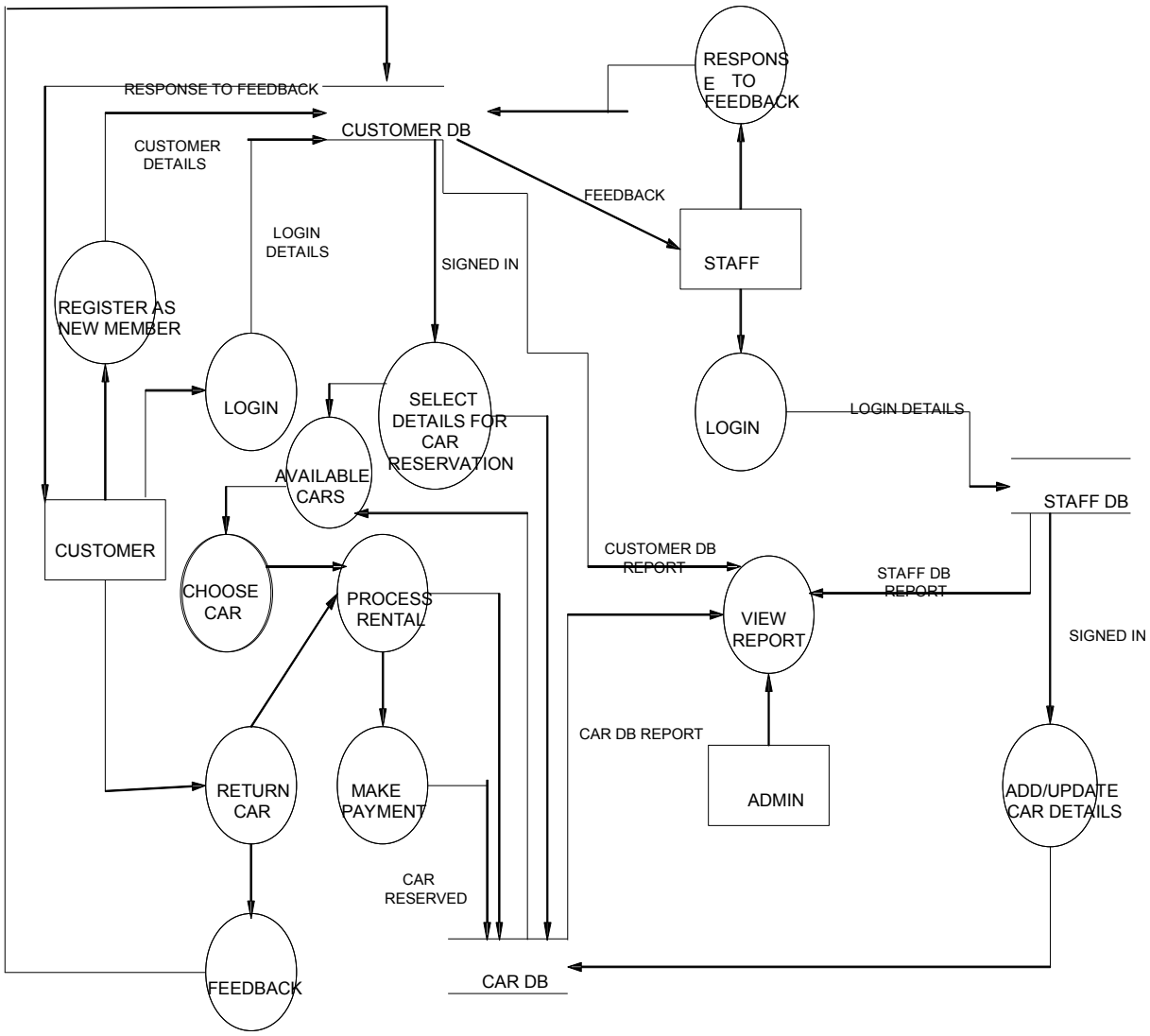


Figure 4.2 Level 1 DFD of Online Car Rental System

CHAPTER-5

USE-CASE DIAGRAMS

5.1 Actor and Use Case Description

Actor and use case description shows the detail description of interaction between the actors and their use cases. The description enables to have a proper understanding of how actor interacts with the system through their use cases.

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 sent to the customer 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. Notification is automatically send to the customer after the task is completed.
	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 (insurance, road tax). 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 described the event by which staff updates the system when customer pick up or when returning car.
Admin	Add new staff	This use case describes the event by which Admin add new staff detail to the company's staff database. It is invoke whenever a new staff join the company.
	View report	This use case is used by the Admin to view transaction report.

Table 5.1 Actors and Use Case Description

5.2 Use Case Diagram

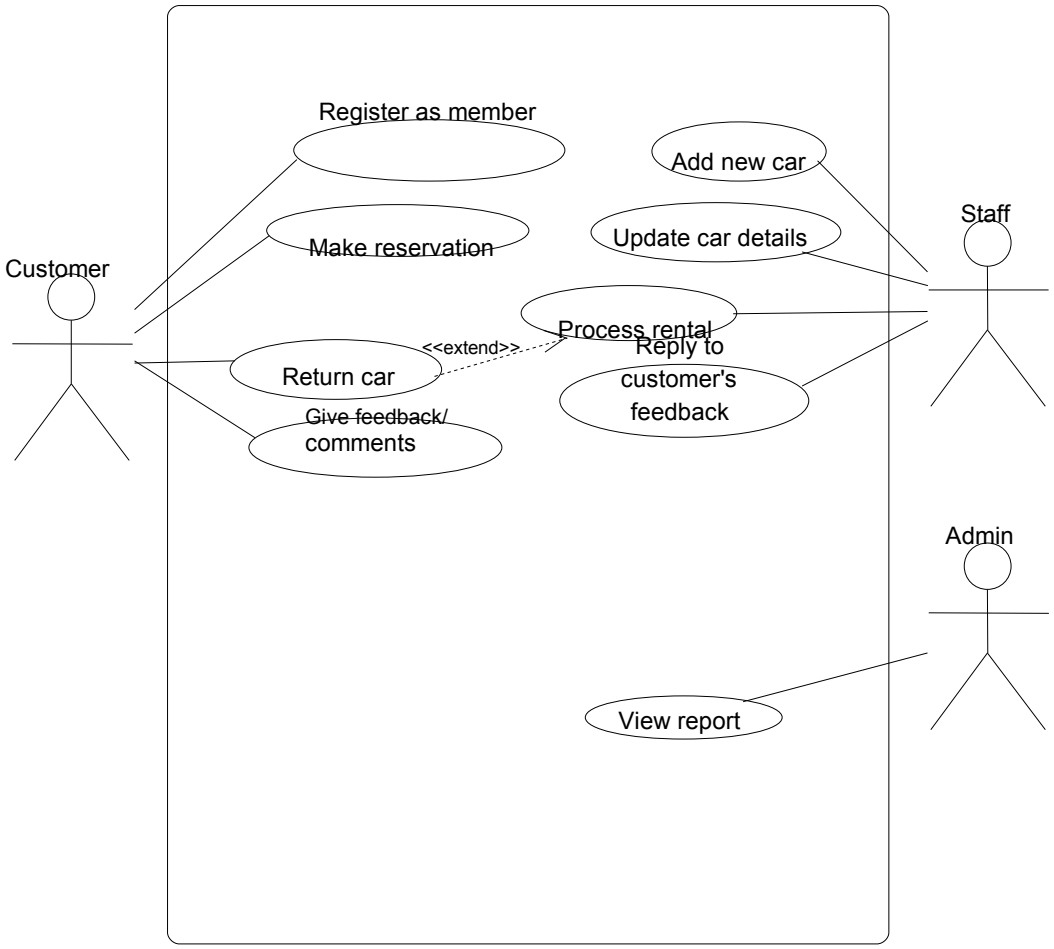


Figure 5.1: E-Car Rental System [use case]

CHAPTER-6

ACTIVITY DIAGRAMS

6.1 Activity Diagram

Activity diagrams graphically represent the sequential business and operational workflows of a system. It is a dynamic diagram that shows the activity and the event that causes the object to be in the particular state. The workflows from activity diagram will serve as guide for system navigation in the final design phase of the system.

6.1.1 Member Registration

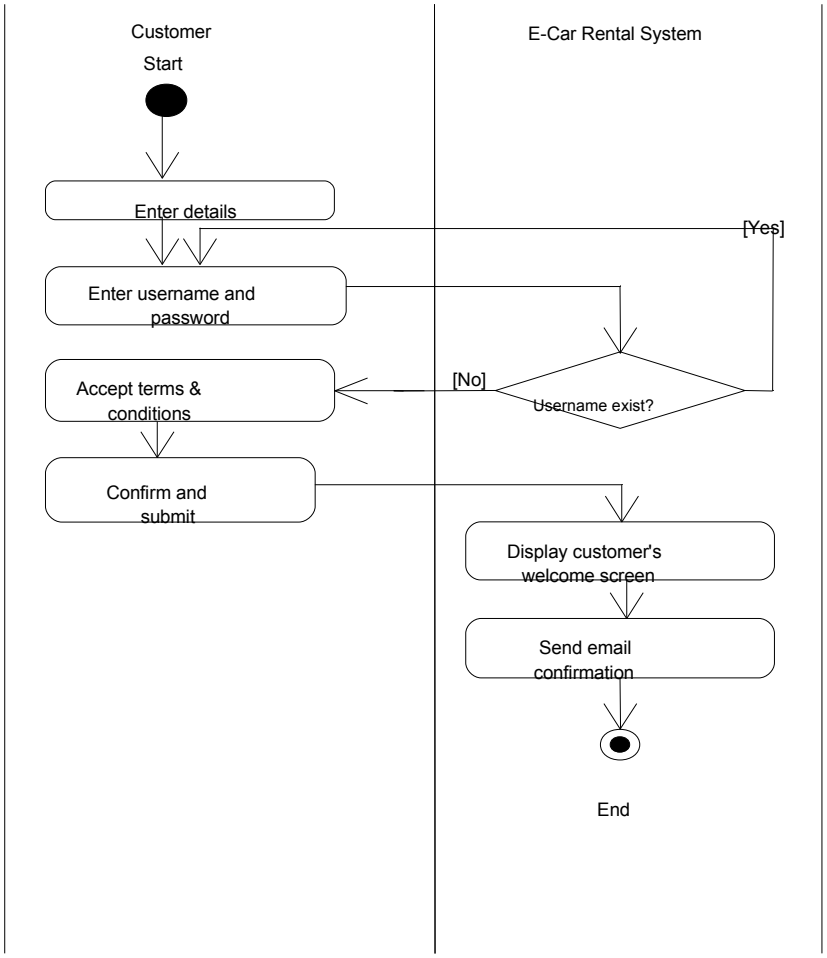


Figure 6.1: Register as member

6.1.2 Profile Modification

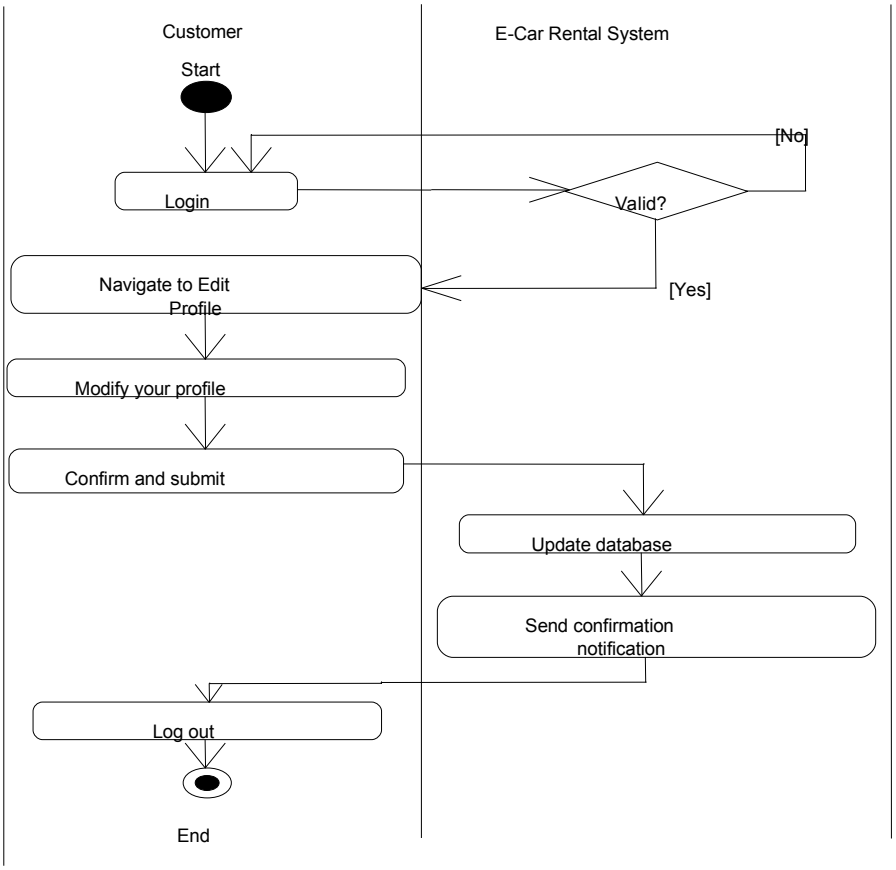


Figure 6.2: Modify profile

6.1.3 Reservation of Car

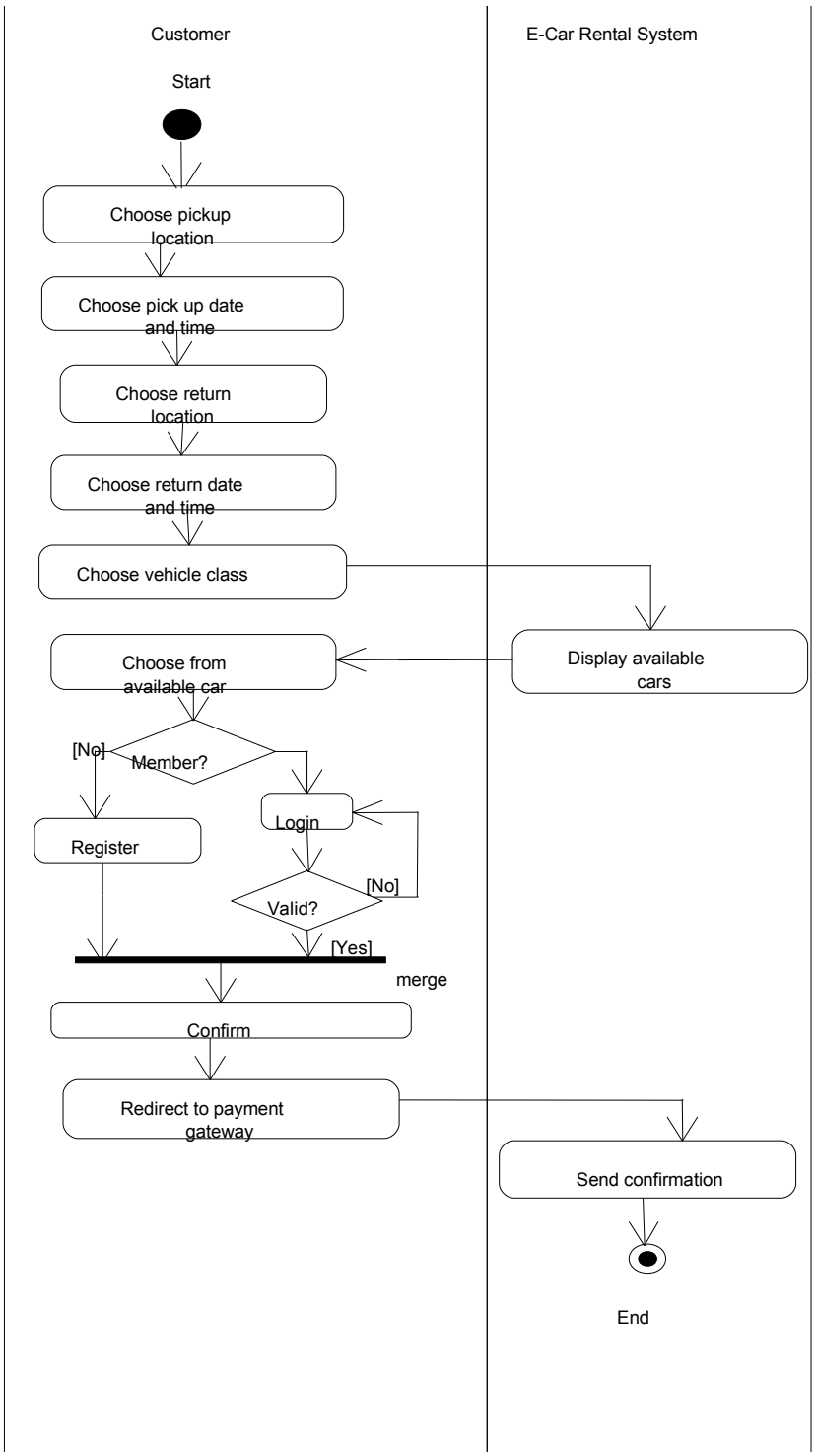


Figure 6.3: Make Reservation

6.1.4 Customer Feedback

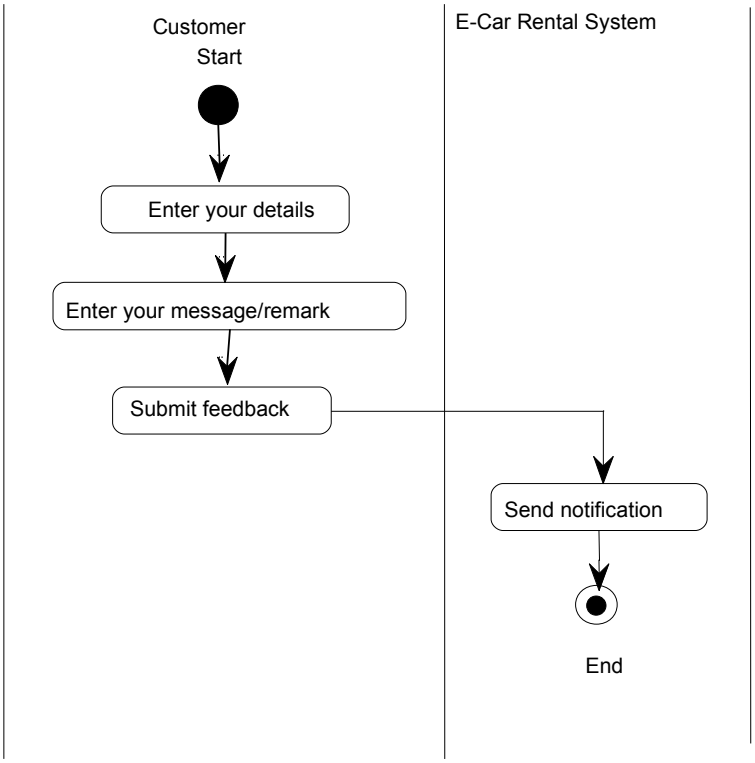


Figure 6.4: Give feedback/comment

6.1.5 Payment of Car Rent

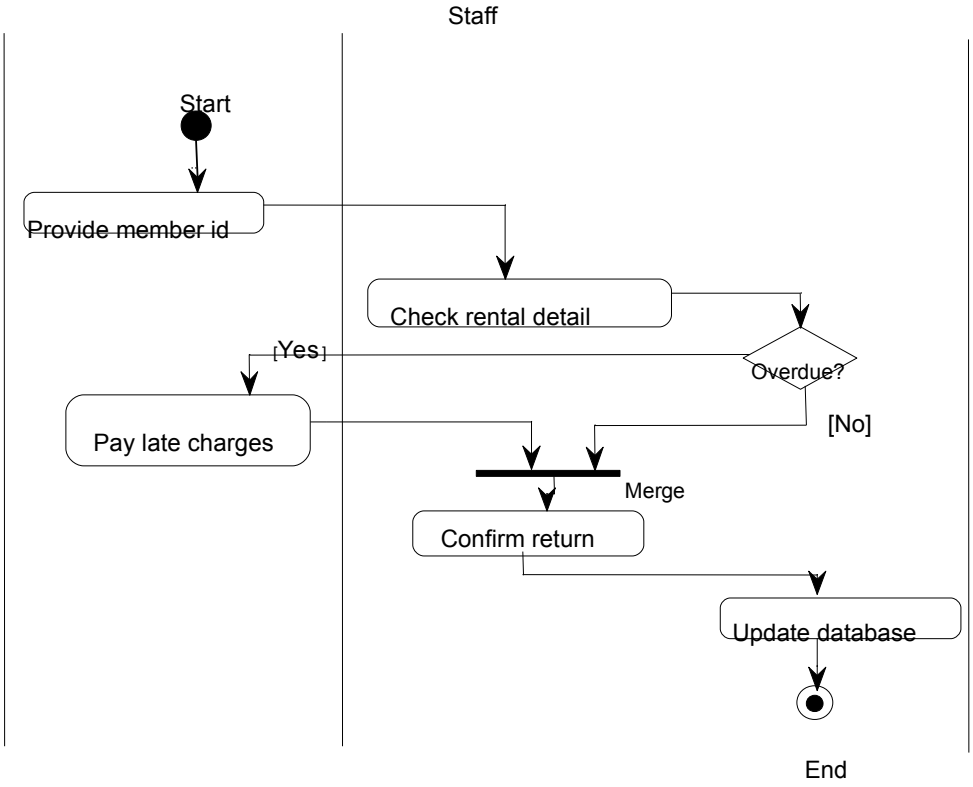


Figure 6.5: Rent a Car

6.1.6 Adding a New Car

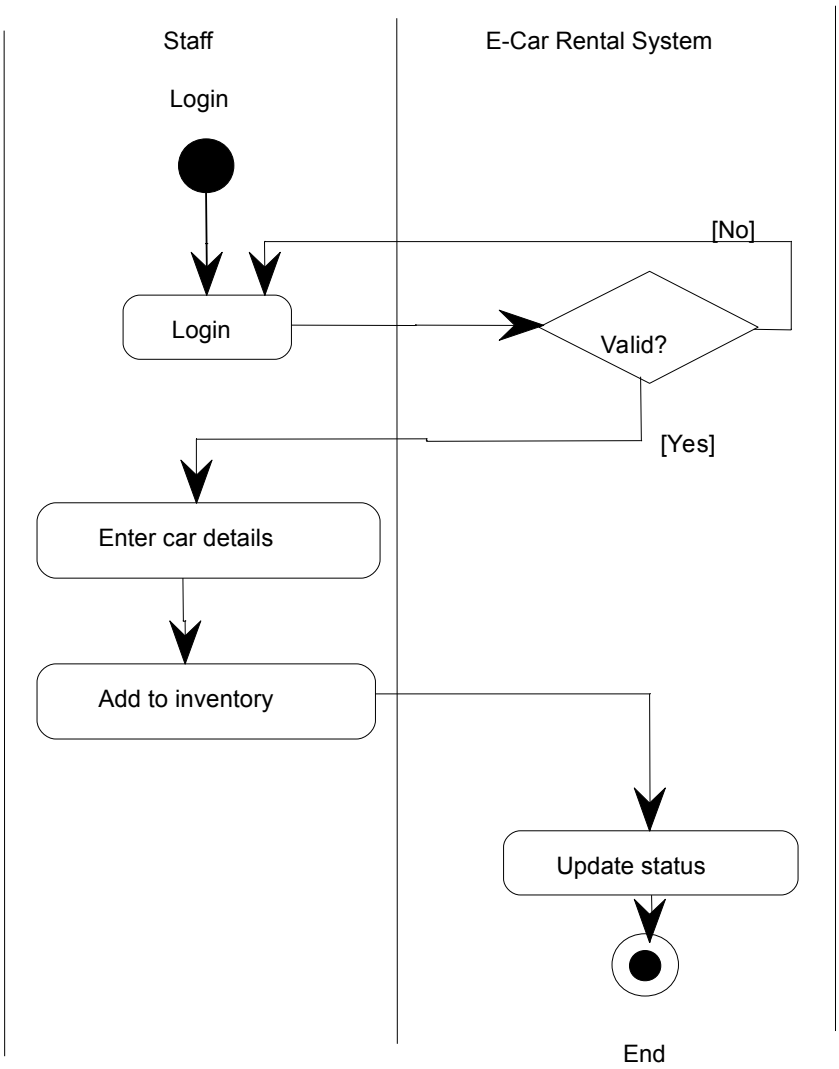


Figure 6.6: Add a New Car

6.1.7 View Report

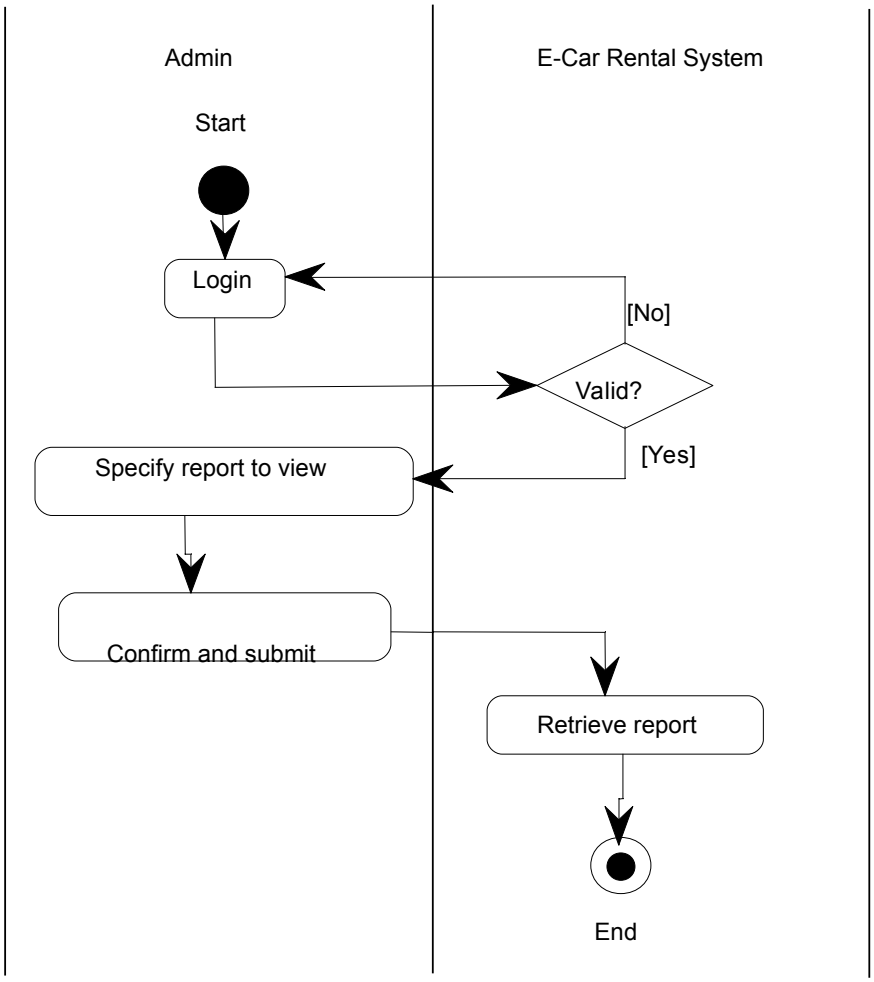


Figure 6.7: View report

CHAPTER-7

SEQUENCE DIAGRAMS

7.1 Sequence Diagram

Sequence diagrams are used to demonstrate the behavior of objects in a use case by describing the objects and the messages they pass. It provides a graphical representation of object interactions over time. Sequence diagrams show an actor, the objects and components they interact with in the execution of a use case. One sequence diagram represents a single Use Case 'scenario' or events. Sequence diagrams show the flow of messages from one object to another, and as such correspond to the methods and events supported by an object.

7.1.1 Member Registration

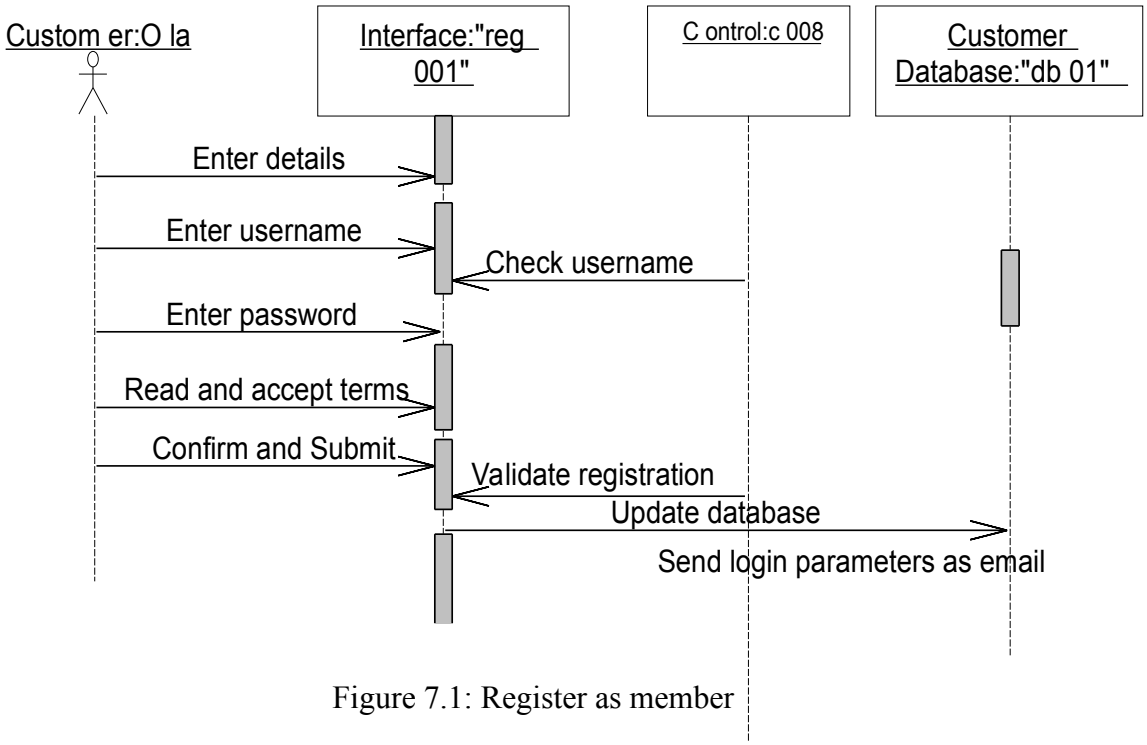


Figure 7.1: Register as member

7.1.2 Reservation of Car

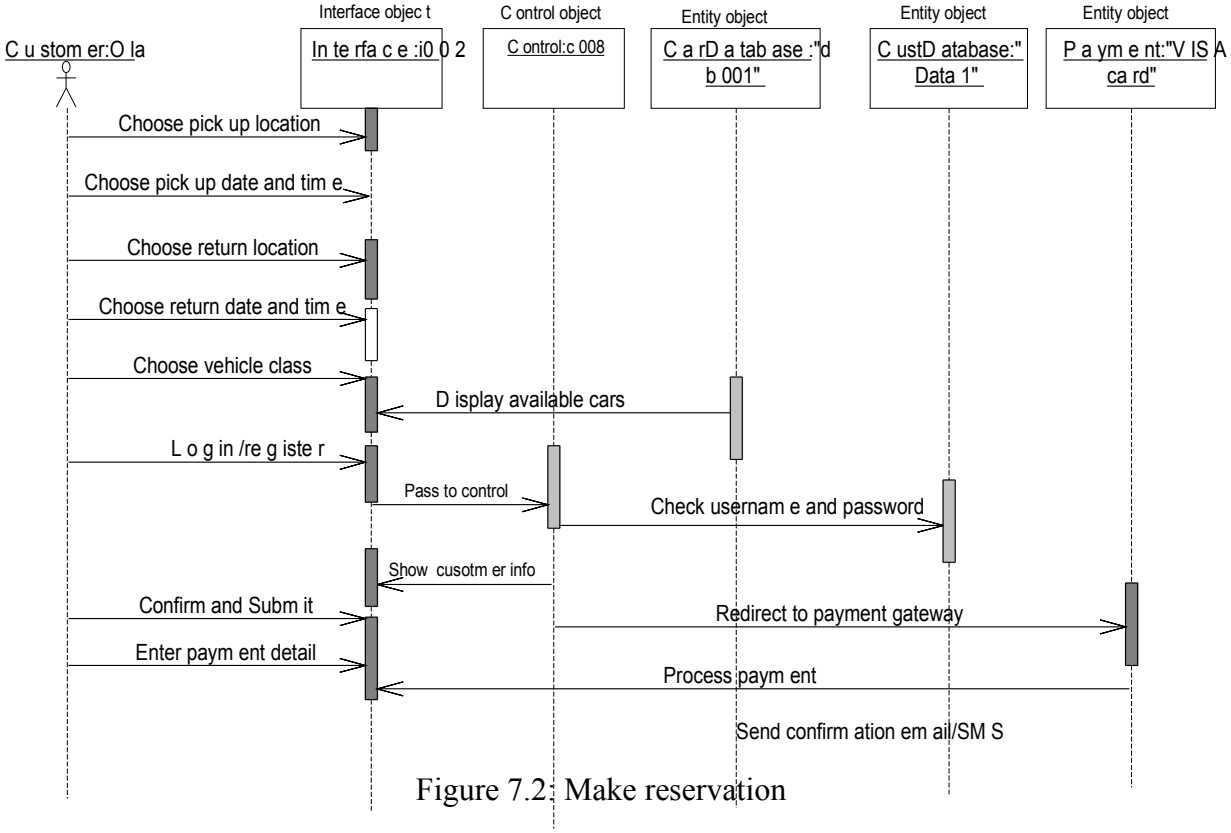


Figure 7.2: Make reservation

7.1.3 Customer Feedback

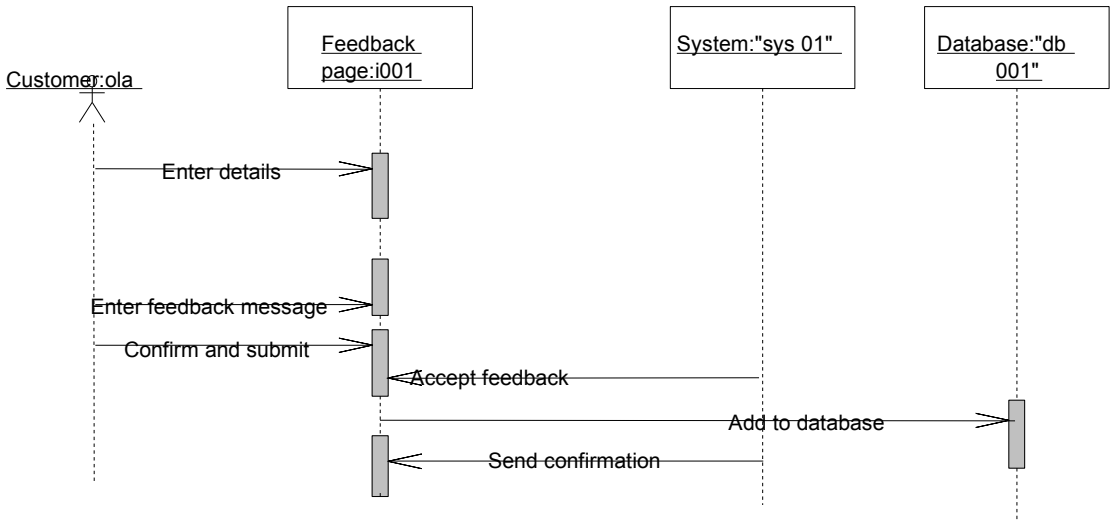


Figure 7.3: Give feedback

7.1.4 Adding a New Car

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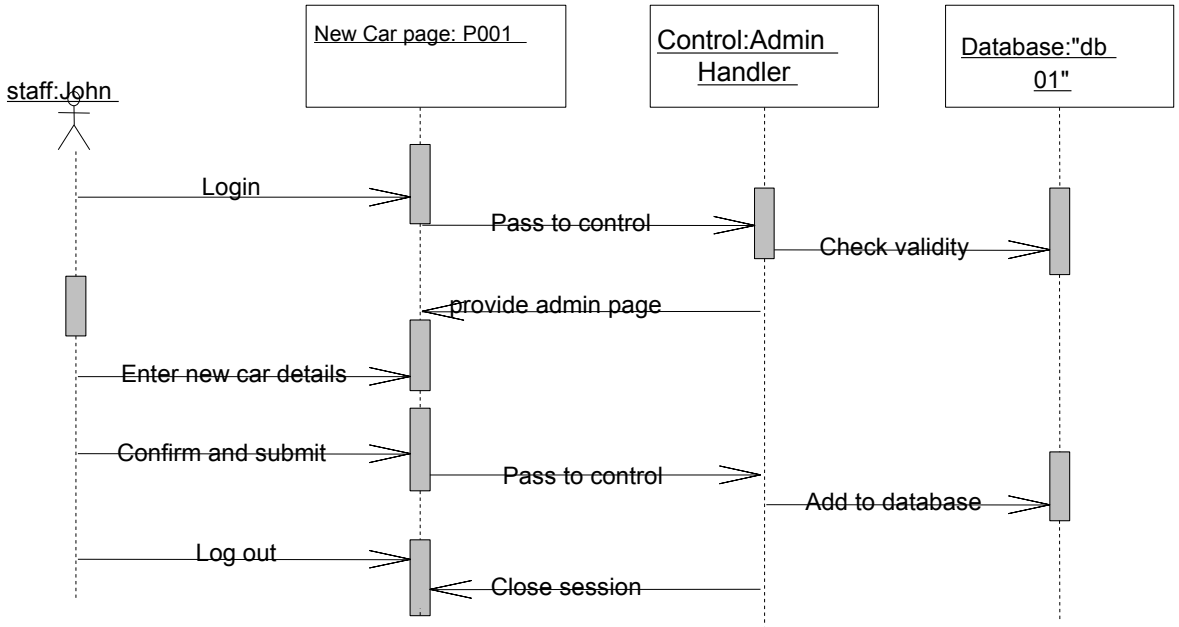


gure 7.4: Add new car

7.1.5 Feedback Response

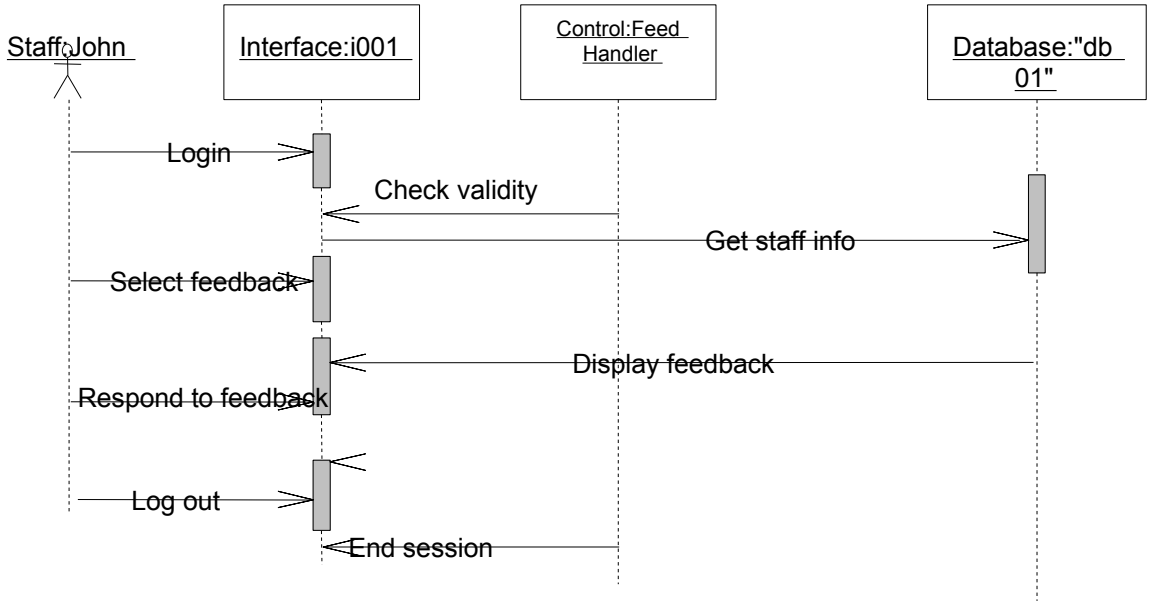


Figure 7.5: Respond to feedback

7.1.6 Return Car and Check Rental Details

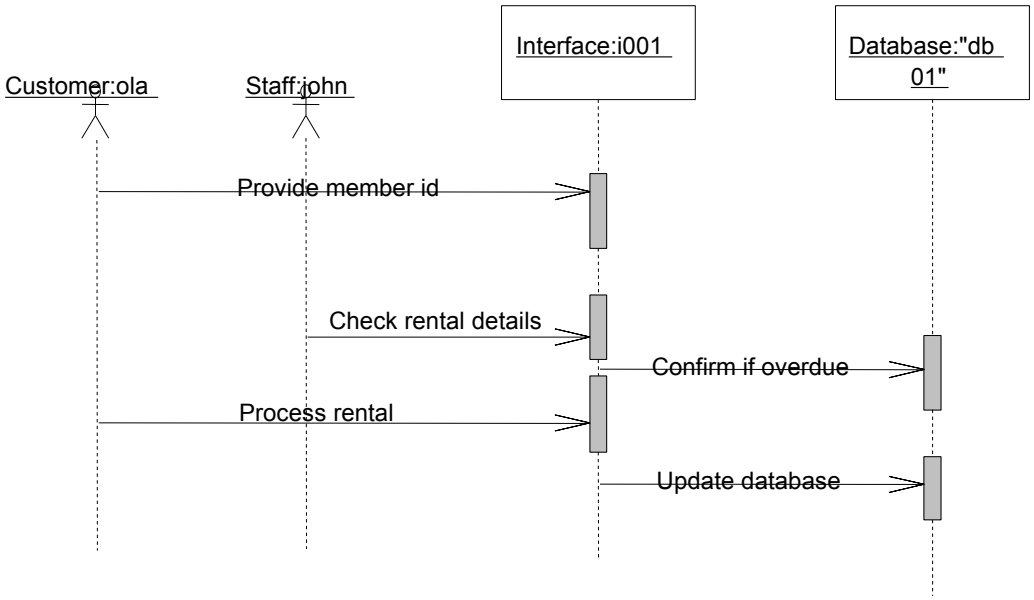


Figure 7.6: Return car

7.1.7 View Report

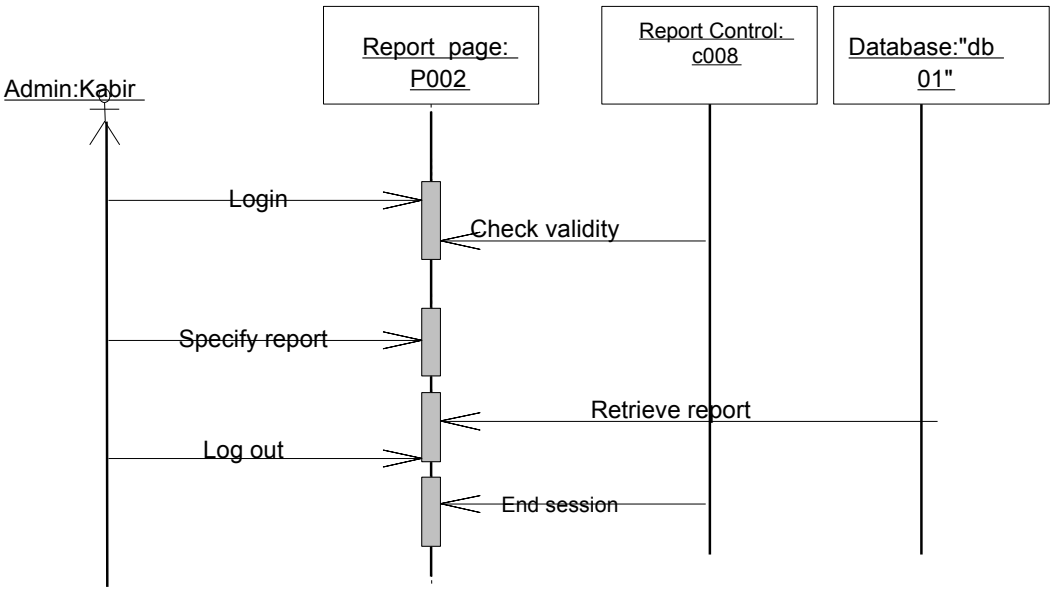


Figure 7.7: View report

CHAPTER-8

CLASS DIAGRAM

8.1 Class Diagram

The class diagram is the main building block, a number of classes are identified and grouped together in a class diagram which helps to determine the statically relations between those objects .

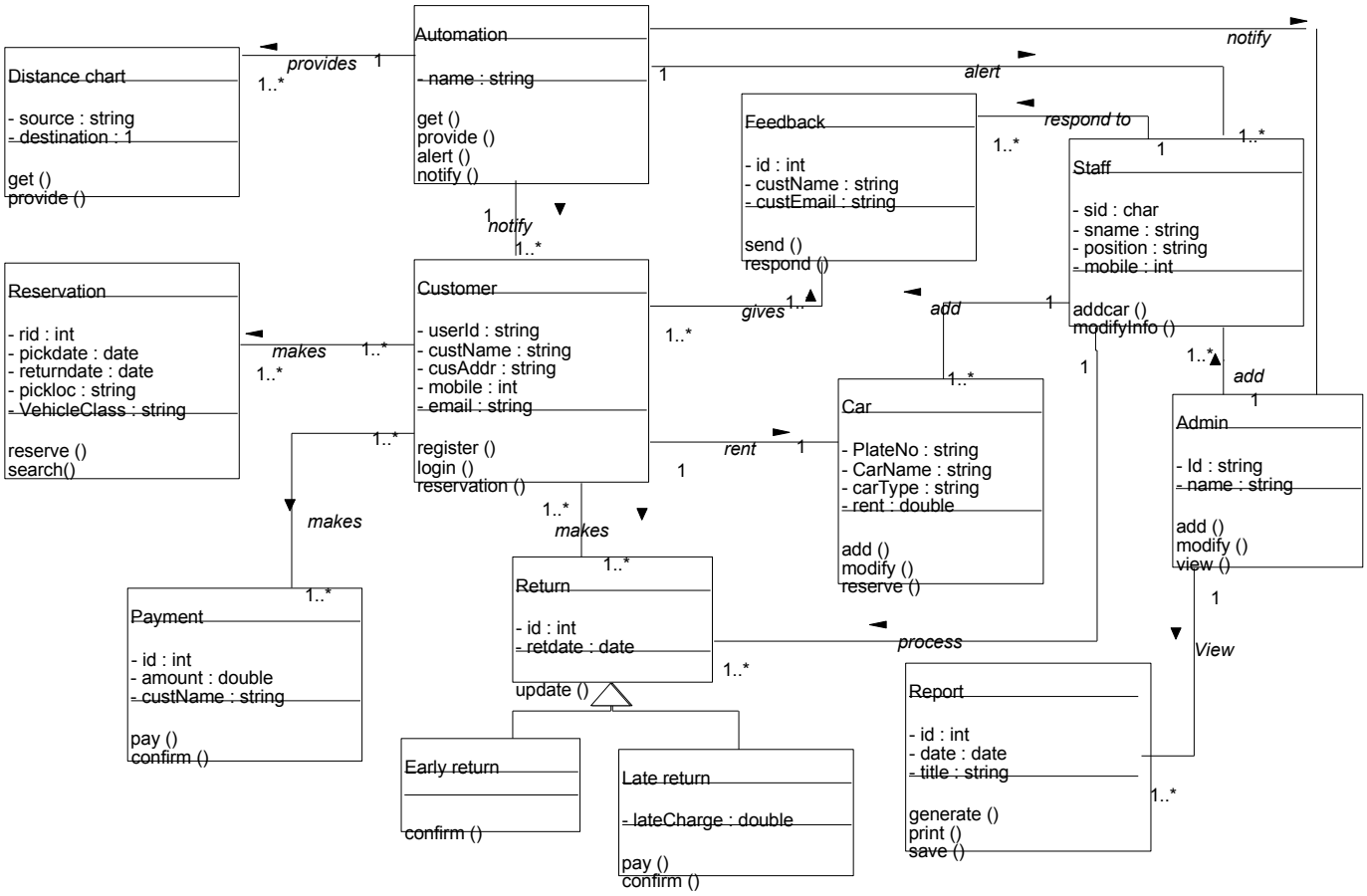


Figure 8.1 Class Diagram of Online Car Rental System

In this Section we will do Analysis of Technologies to use for implementing the project.

4.1 FRONT-END

4.1.1 HTML

Hypertext Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets(CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from aweb server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document

4.1.2 CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML.CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts.This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying

the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

4.1.3 BOOTSTRAP

Bootstrap is a potent front-end framework used to create modern websites and web apps. It's open-source and free to use, yet features numerous HTML and CSS templates for UI interface elements such as buttons and forms. Bootstrap also supports JavaScript extensions.

4.2 BACK-END

4.2.1 PHP

PHP is a server side scripting language that is used to develop Static websites or Dynamic websites or Web applications. PHP stands for Hypertext Pre-processor, that earlier stood for Personal Home Pages. PHP scripts can only be interpreted on a server that has PHP installed. The client computers accessing the PHP scripts require a web browser only. A PHP file contains PHP tags and ends with the extension ".php".

PHP was originally created by Rasmus Lerdorf in 1994.PHP code may be executed with a command line interface (CLI), embedded into HTML code, or used in combination with various web template systems, web content management systems, and web frameworks.

4.2.2 MySql

MySQL is an open-source relational database management system (RDBMS) based on Structured Query Language (SQL).Its name is a combination of "My", the name of co-founder Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language. A relational database organizes data into one or more data tables in which data types may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an
operating system to implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

4.2.3 Javascript

JavaScript is a client scripting language which is used for creating web pages. It is a standalone language developed in Netscape. It is used when a webpage is to be made dynamic and add special effects on pages like rollover, roll out and many types of graphics.

CHAPTER 5 : TESTING

Tests help the developer to verify that the logic of a piece of the program is correct.
Having test coverage of your code helps developers to build new features without having to perform lots of manual testing.

5.1 Unit Testing:

A unit test is a piece of code written by a developer that executes a specific functionality in the code to be tested and asserts a certain behavior or state.
The percentage of code that is tested by unit tests is typically called test coverage.
A unit test targets a small unit of code, e.g., a method or a class.

5.2 Integration Testing:

Integration testing is an approach where modules are developed, and testing of modules always starts at the finest level of the programming hierarchy and continues towards the lower levels. It’s the extension of unit testing. Integration testing takes a smaller unit of unit testing and tests their behavior as a whole.
Advantages:
1. Code Coverage is higher and easy to track.
2. Majorly helps to build real-time use cases during the end to end testing.
3. Easy to integrate

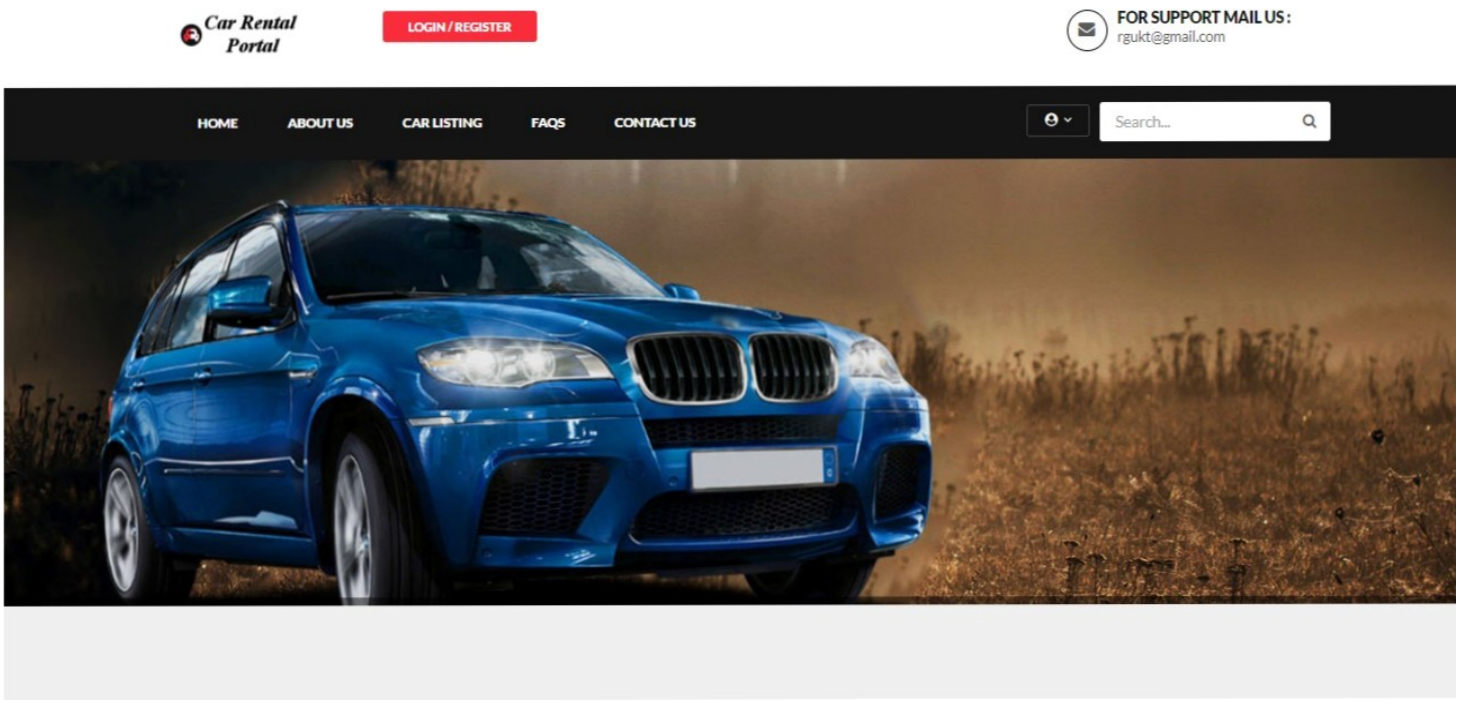
5.3 System Testing:

System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. System testing falls within the scope of black-box testing, and as such, should require no knowledge of the inner design of the code or logic. As a rule, system testing takes, as its input, all of the "integrated" software components that have passed integration testing and also the software system itself integrated with any applicable hardware system(s). The purpose of integration testing is to detect any inconsistencies between the software units that are integrated together (called assemblages) or between any of the assemblages and the hardware. System testing is a more limited type of testing; it seeks to detect defects both within the "inter-assemblages" and also within the system as a whole.

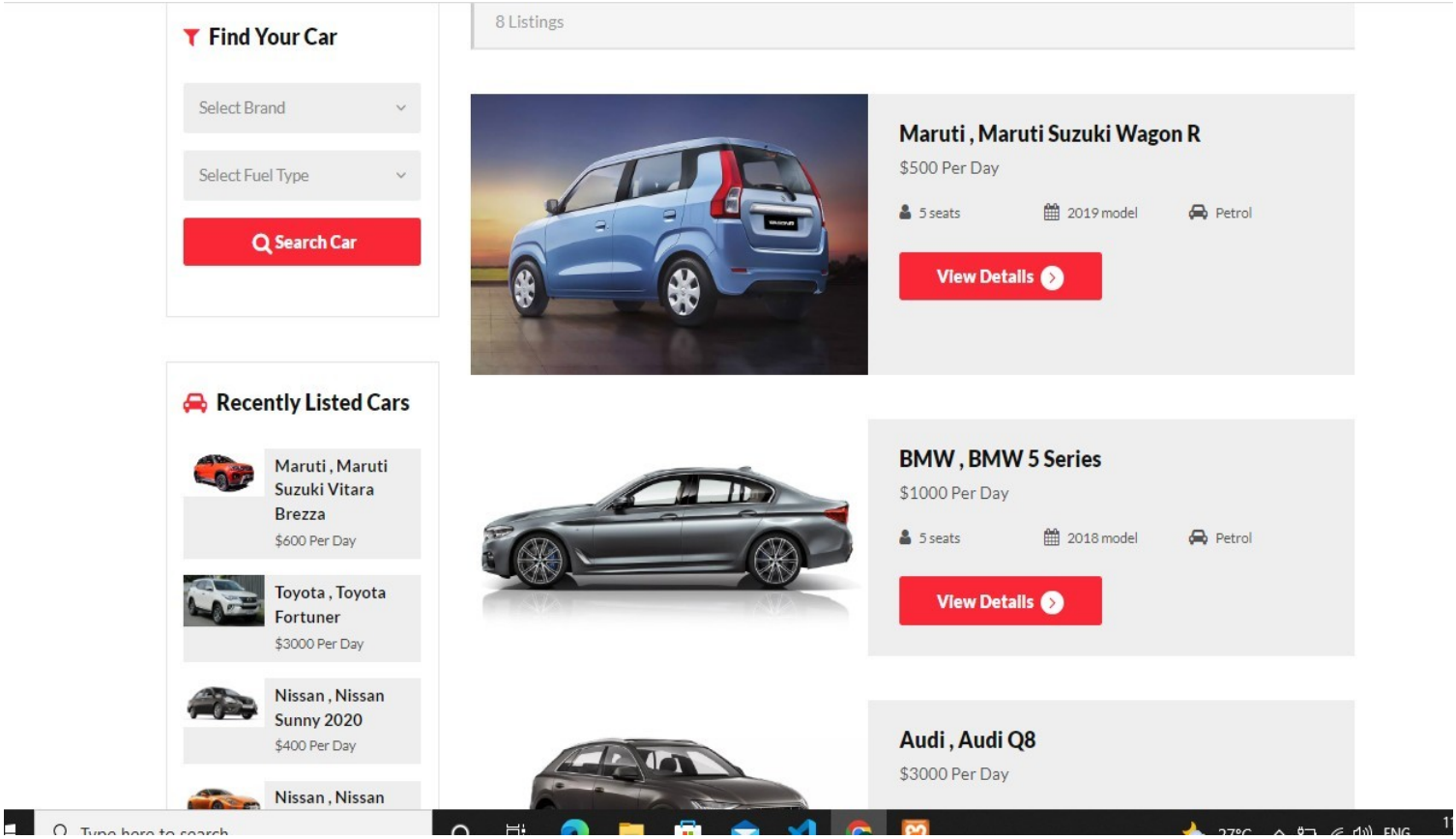
Features:

- When a user want to enter into our site without entering data , it means editing the html code removing required option in the html code. For not to enter in that way we had designed a backend PHP code.
- When a donor wants to donate blood within 3 months before donation then our site won’t allow then to donate blood
- We use MySQL injection Technique for password encryption.

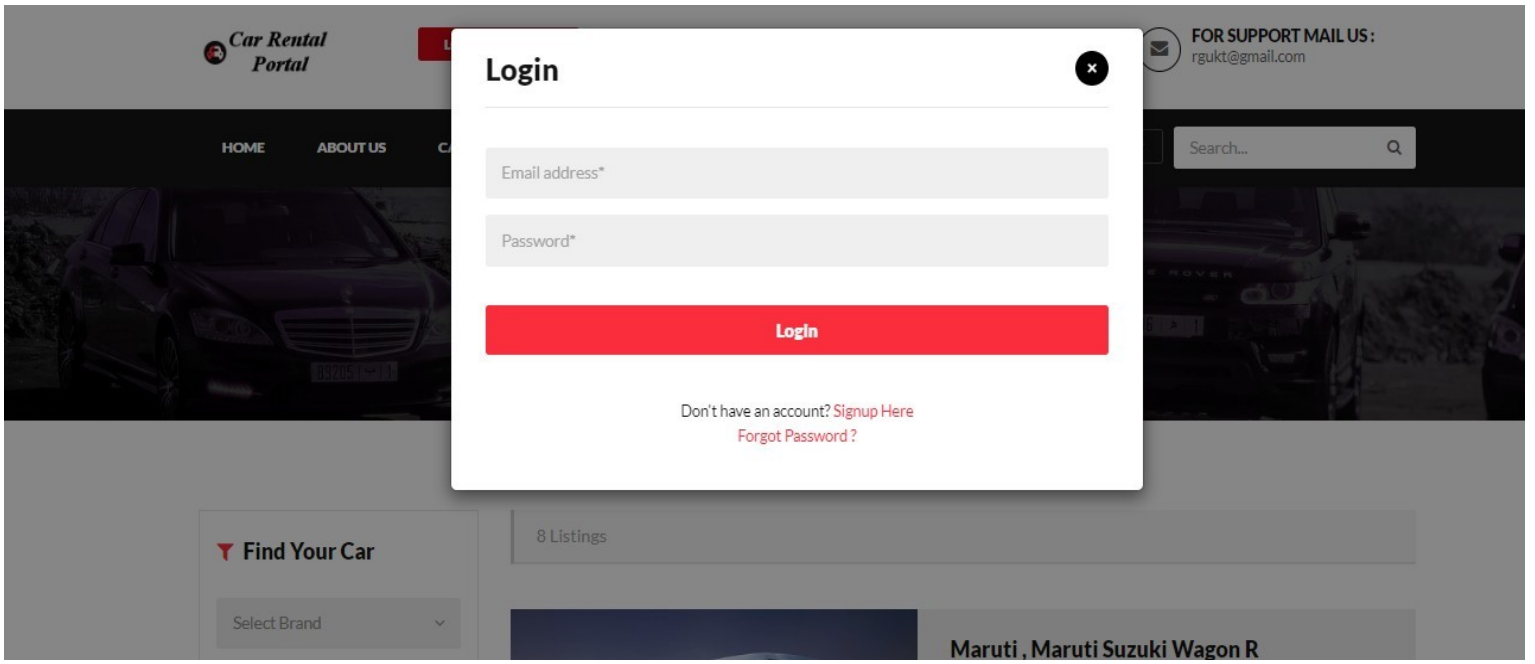
Over view of a project



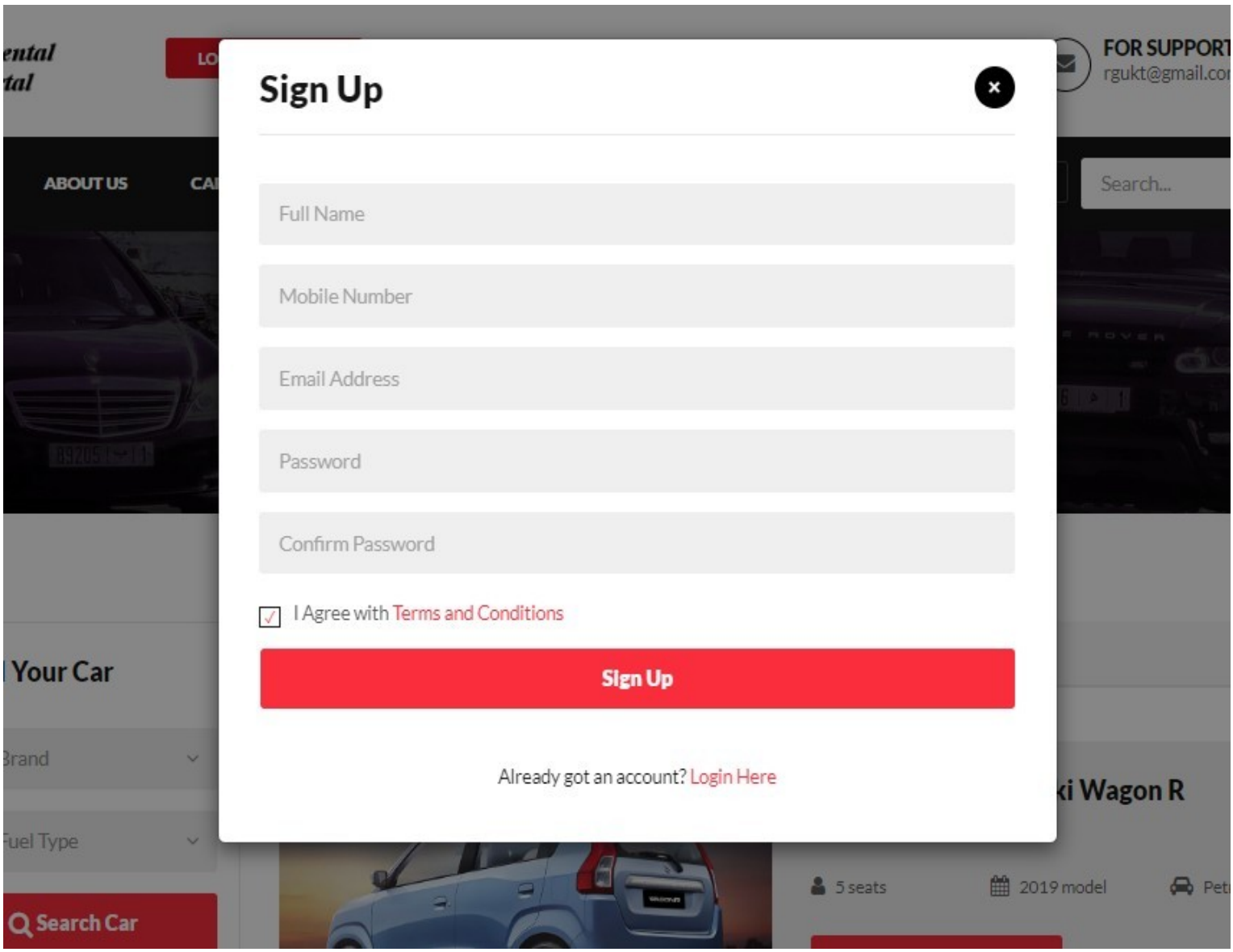
Car listing


Find Your Car
Select Brand
Select Fuel Type
Search Car
Recently Listed Cars
Maruti , Maruti Suzuki Vitara Brezza
$600 Per Day
Toyota , Toyota Fortuner
$3000 Per Day
Nissan , Nissan Sunny 2020
$400 Per Day
Nissan , Nissan
8 Listings
Maruti , Maruti Suzuki Wagon R
$500 Per Day
5 seats
2019 model
Petrol
View Details
BMW , BMW 5 Series
$1000 Per Day
5 seats
2018 model
Petrol
View Details
Audi , Audi Q8
$3000 Per Day

Login of a User



Registration of a User



Details of a User

Profile Settings
Update Password
My Booking
Post a Testimonial
My Testimonials
Sign Out

GENRAL SETTINGS

Reg Date - 2022-09-18 10:44:19

Full Name

ajith

Email Address

ajith34@gmail.com

Phone Number

8667879878

Date of Birth (dd/mm/yyyy)

dd/mm/yyyy

Your Address

Country

User Bookings

Autospot

ajith

Profile Settings
Update Password
My Booking
Post a Testimonial
My Testimonials
Sign Out

MY BOOIKNGS

Booking No #615694145

BMW , BMW 5 Series

Confirmed

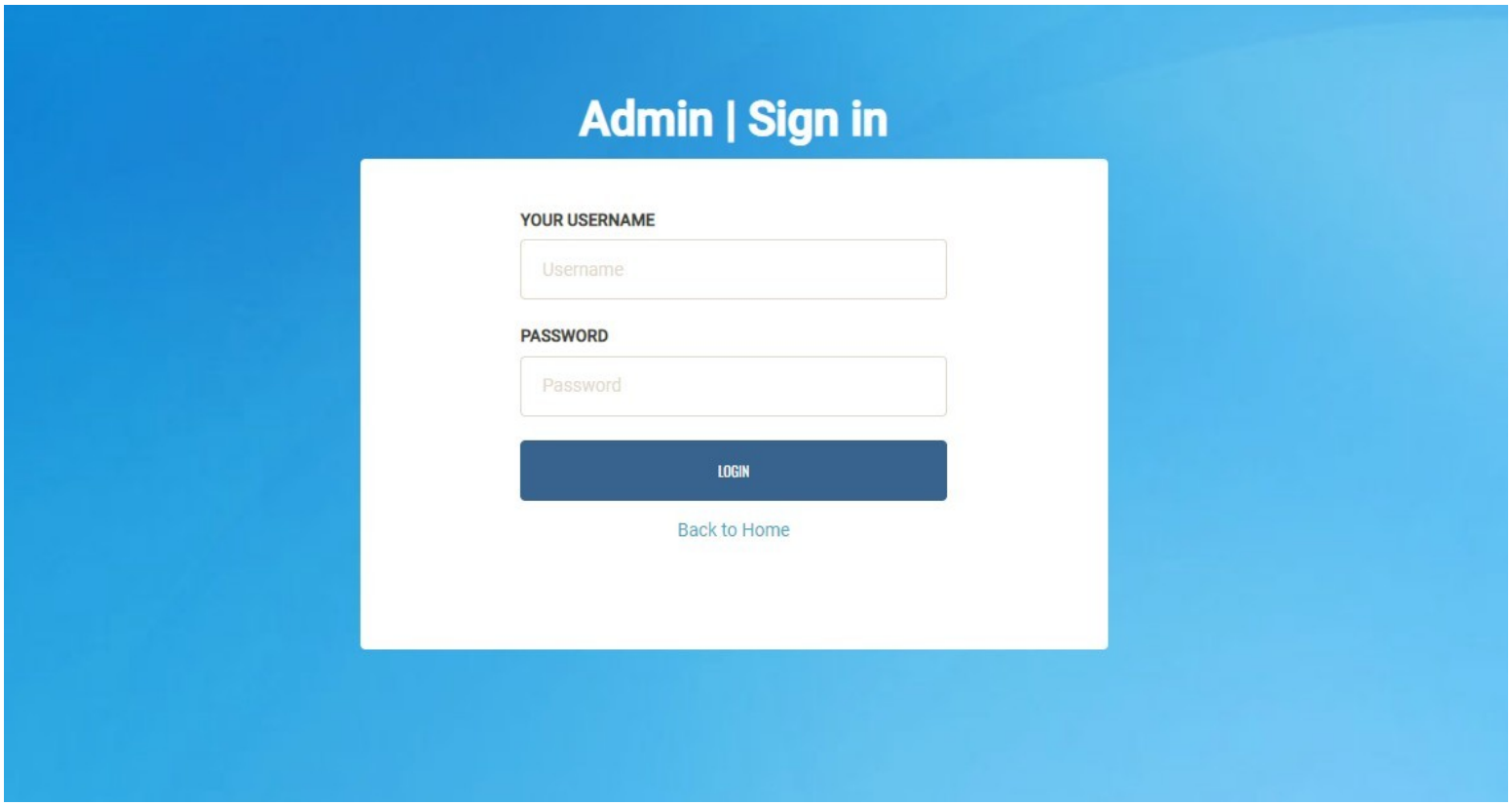
From 2022-09-27 To 2022-09-30

Message: jihi

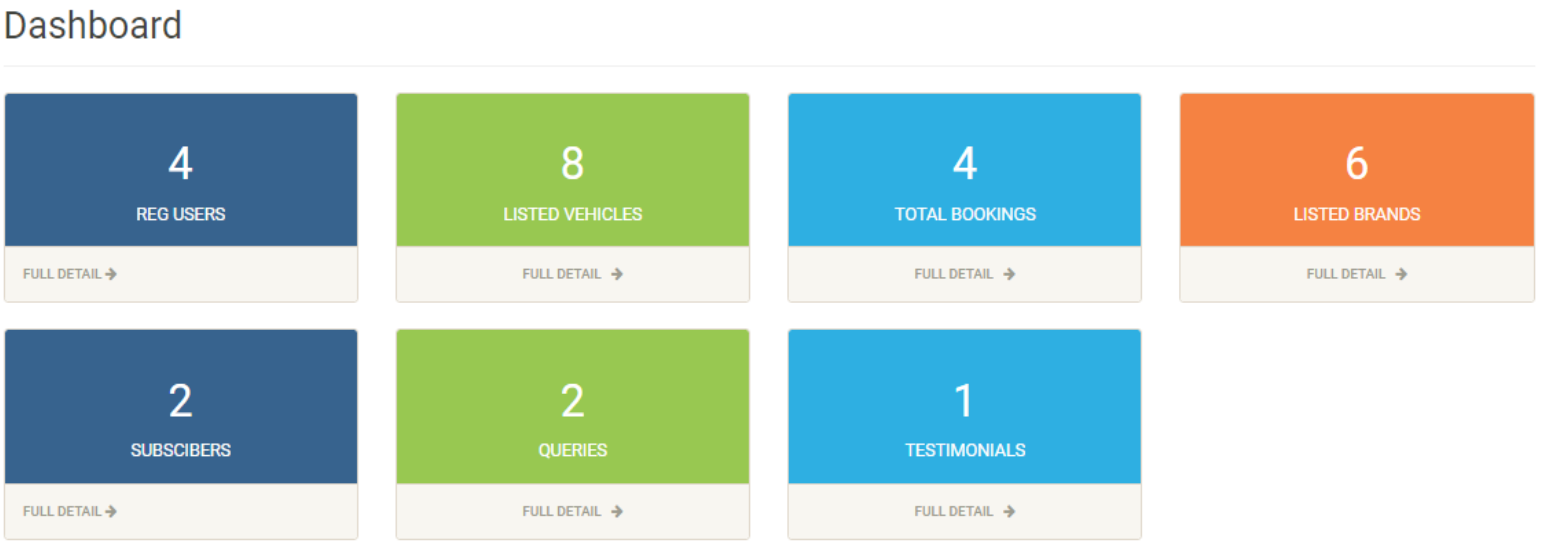
Invoice

Car Name	From Date	To Date	Total Days	Rent / Day
BMW 5 Series, BMW	2022-09-27	2022-09-30	3	1000
Grand Total				3000

Admins login



DashBoard of Admin login



New Bookings

New Bookings

BOOKINGS INFO

Show 10 entries Search:

#	Name	Booking No.	Vehicle	From Date	To Date	Status	Posting date	Action
1	ajith	973060446	Maruti , Maruti Suzuki Wagon R	2022-09-16	2022-09-30	Not Confirmed yet	2022-09-16 00:16:49	View
#	Name	Booking No.	Vehicle	From Date	To Date	Status	Posting date	Action

Showing 1 to 1 of 1 entries PREVIOUS 1 NEXT

Posting a new Car

Post A Vehicle

BASIC INFO

Vehicle Title* Select Brand* Select

Vehical Overview*

Price Per Day(in USD)* Select Fuel Type* Select

Model Year* Seating Capacity*

Upload Images

Image 1 * Choose File No file chosen

Image 2* Choose File No file chosen

Image 3* Choose File No file chosen

Image 4* Choose File No file chosen

Image 5 Choose File No file chosen

Registered Users in Admin Page

Registered Users

REG USERS

Show 10 entries

Search:

#	Name	Email	Contact no	DOB	Address	City	Country	Reg Date
1	Test	test@gmail.com	6465465465		L-890, Gaur City Ghaziabad	Ghaziabad	India	2020-07-07 07:00:49
2	ajith	ajithkumar@gmail.com	8793383983					2022-09-15 23:52:03
3	ajith	ajith@gmail.com	8793383983					2022-09-16 00:16:15
4	ajith	ajith34@gmail.com	8667879878					2022-09-18 10:44:19
#	Name	Email	Contact no	DOB	Address	City	Country	Reg Date

Showing 1 to 4 of 4 entries

PREVIOUS 1 NEXT

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.

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- http://www.imscart.com/car_rental_software.html
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- www.w3schools.com