A
Project Report On

Vehicle Sales Purchase and Management System

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CERTIFICATE

This is to certify that the practical / term work carried out in the subject of

System Design Practice and recorded in this journal is the

Bonafide work of

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Abstract

The success and final outcome of this project required a lot of guidance and assistance from many people and we are extremely privileged to have got this all along the completion of our project. All that we have done is only due to such supervision and assistance and we would not forget to thank them.

We respect and thank to Associate Prof. Dr. Malay S. Bhatt for providing us an opportunity to do the project work in SDP and giving us all support and guidance, which made us complete the project duty. We are extremely thankful to him for providing such a nice support guidance by taking keen interest in our project, although he had busy schedule managing the lectures.

We would also like to express our special thanks of gratitude to our HOD Prof. C. K. Bhensdadia who gave us the golden opportunity to do this wonderful project on the topic: Online Car Sales and Management System. We would also like to thank him for including such things in curriculum making it more interesting and useful practically.

Finally, we would like to thank each and every person who was there around us helping more or less in our project and keeping us motivated to work hard and complete the project. We would also thank them for inspiring us and sharing their ideas and views to make this project a success.

Yours sincerely,
Dev Patel (CE094).
Hardik Parikh (CE089),

1. Introduction of the Project:

a. Need of the Project:

In such challenging times when people are forced to stay indoors and for this situation The solution to the car industry is to shift to the digital platform, to minimize loss to Their business, now our project fills the gap of this 'digital platform', here we are Providing impartial service to every customer at the same time business to the car Dealers and manufacturer.

b. Advantages:

By being everything online, anyone can access the required information at anytime, anywhere, so this saves a lot of troubles to the customers of physically visiting every car dealer and thus saves precious time of the customers. At the other hand it gives the car dealers the reach outside there area, city, and thus they can expand their business. In short it is *win-win* solution for both customers as well as the car dealers.

c. Limitations:

Currently our project is at educational level and thus it cannot be scaled at the industry level. At the same time the scope of the requirements may not be applicable to each and every

d. Future Extensions:

Mentioned Later in this document.

2. Software Requirements Specifications (SRS):

a. Introduction

i. Purpose

This Document encases the idea and implementation of Online Car Sales and Inventory Management System.

ii. Intended Audience and Reading Conventions

This Document is intended for application designers, software testers, users and
project managers.

iii. Product Scope

This Document specifies requirements for a simple application that allows user to:

- Login and Register via proper source.
- Manage his/her profile.

- Search for a car.
- Place order for a car.
- View Inventory.
- View favorite cars.
- View Popular Cars.

b. Overall Description

i. Product Perspective

This system by providing online interface to customers, sales manager and to manufacturer will make process of buying and managing easy and transparent.

ii. Product functions

This system will allow customers to search, compare and buy a car. Sales Manager of particular showroom can view the inventory and also place order. Manufacturer will be able to view all pending orders, past orders that are completed along with statistics of a car, a showroom etc. all at same destination.

iii. User Classes and Characteristics

Users in this application would be customers, sales manager, manufacturer and admin, along with developers and testers.

iv. Operating Environment

Minimum Hardware requirements:

Windows, Linux or MacOS with i3+ processor

Min: 2GB RAM, 4GB+ RAM recommended, Internet or LAN connection

Minimum Software requirements:

Support for HTML5, CSS3, JS, JQuery, dotnet

v. Design and Implementation Constraints

Web browser needs to be opened externally, application does not provide this support. Also system needs to have permanent internet connection.

vi. Assumptions and Dependencies

There should be permanent internet or LAN connection. Users trust in service should be implicit.

c. Functional Requirements

i. Manage User

This Module will handle user registration, authentication and even user role.

1. Register User

This module will register a user to our app.
Input: Username, email, password.
Output: Acknowledgement of registration.

2. Authenticate User

This module will authenticate user.
Input: Username, password.
Output: Message about user validation, in case of success redirection to home page according to the type of user.

ii. Manage User Profile

1. Show User Details

This module will display user details to the authenticated user.
Input: User's Selection
Output: User Details

2. Update User Details

This module will change user details.
Input: Updated user details.
Output: Acknowledgement about the same

3. View Order History

This module will allow customer to view their past orders (if any).
Input: User's Selection
Output: Order history.

iii. View Car Listings

This module will manage car listings.

1. Browse Listings

This module will browse and display all the available cars.
Input: User's Selection
Output: List of the available cars.

2. Search by name

This module will perform search of the car by name and will display appropriate details.
Input: Name of the car to search
Output: Search Result or appropriate message in case no result is found.

3. Filter Listings

This module will perform filtering of the listing based on some parameter such as filtering by price, name, date of launch, popularity.
Input: User's selection and appropriate value (if required in case of price)
Output: Filtered Listing.

4. Compare Two Car

This module will perform comparison of the two cars selected by the user.

Input: Selection of two cars to compare and/or the parameter of comparison.
Output: Parameter wise Comparison table

5. *Place Order (only for customers)*

This module will place order of a particular car.
Input: Car that is to be purchased.
Output: Appropriate message to sales manager and customer, along with necessary update done in the inventory.

iv. Manage Inventory

This module will perform Inventory management. Here the intended user is Sales Manager

1. *Order a car*

This module will place order of the car to the manufacturer.
Input: Car which is to be placed for order.
Output: Appropriate message to sales manager and manufacturer

2. *Confirm Order of customer*

This module will allow sales manager to confirm the order placed by a customer.
Input: Car whose order is to be confirmed.
Output: Appropriate message to the customer, acknowledgement message to sales manager and necessary update in the inventory.

3. *View statistics*

This module will allow sales manager to view the statistics for a particular car, for a particular time period.
Input: User's Selection
Output: Statistics as per user's selection.

4. *Order History*

This module will allow sales manager to view his /her showrooms past orders.
Input: User's Selection
Output: History of order along with its details.

v. Manage Catalogue

This module will allow the manufacturer to manage the catalogue of cars it manufacturers. Intended user of this module is the manufacturer.

1. *Add a car*

This module will allow manufacturer to add a new car to the catalogue.
Input: Details of the car
Output: Acknowledgement to the manufacturer.

2. *Update a car detail*

This module will allow the manufacturer to update the details of the car.
Input: After selecting a car, details of the car that are to be updated.
Output: Acknowledgement message to the manufacturer.

3. *Delete a car*

This module will allow the manufacturer to delete the car which it has stopped manufacturing.
Input: Selected car.
Output: Acknowledgement message to the manufacturer.

4. *Confirm order of sales manager*

This Module will allow manufacturer to confirm any outstanding order placed by the sales manager.
Input: Selection of the order that is to be confirmed.
Output: Acknowledgement message to the manufacturer, and appropriate message to the sales manager.

d. Other Non-Functional Requirements

i. Performance Requirements

Each operation on this application is estimated to take 10-30*ms* as per net coverage.

ii. Safety Requirements

Each User must abide by policies set by this application

iii. Security Requirements

The security of the application is our utmost priority.

iv. Software Process model

Iterative Waterfall Model

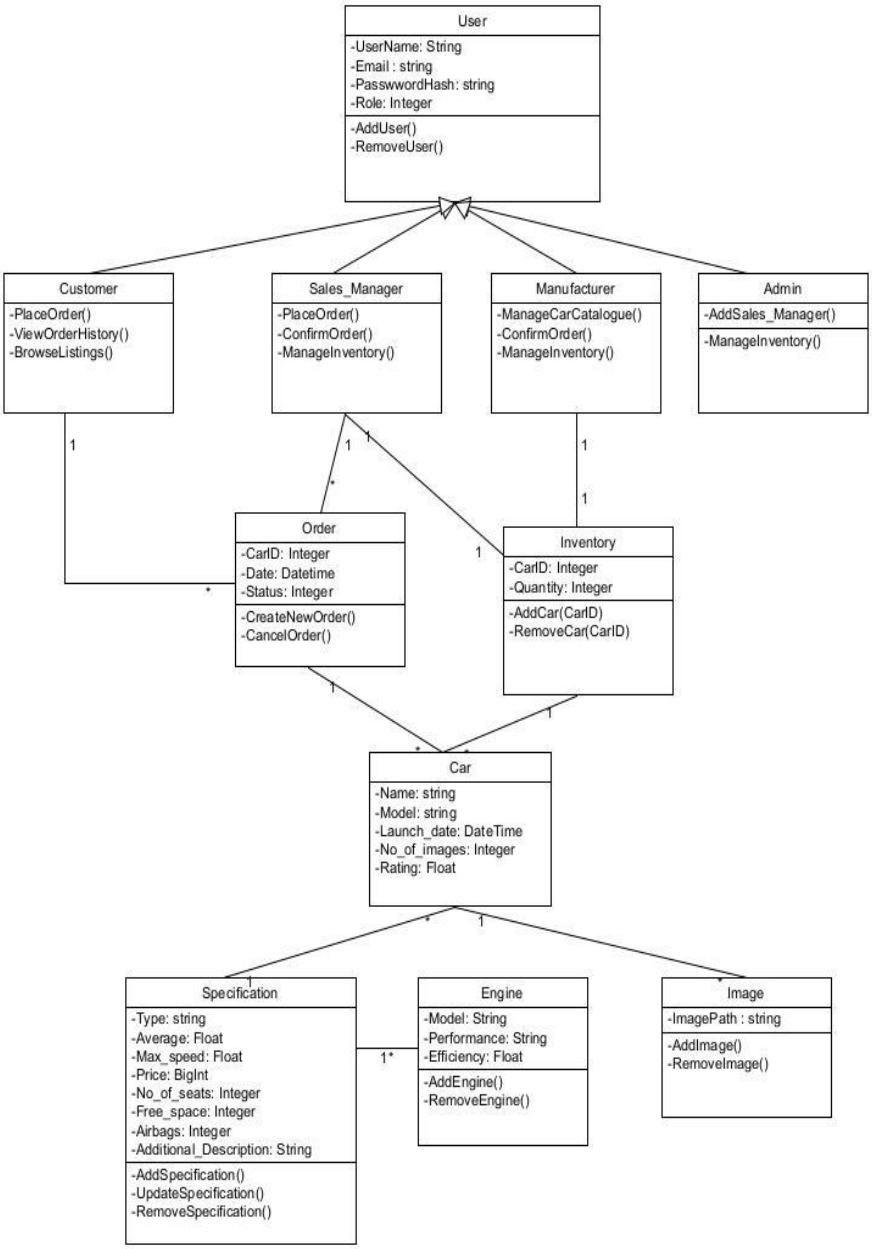
3. Design of project

System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. One could see it as the application of systems theory to product development. There is some overlap with the disciplines of system analysis, systems architecture and system engineering. If the broader topic of product development "blends the perspective of marketing, design, and manufacturing into a single approach to product development", then design is the act of taking marketing into and creating the design of the product to be manufactured. Systems design is therefore the process of defining and developing systems to specified requirements of the user. Until 1990s system design had a crucial and respected role in data processing industry. In the 1990s standardization of hardware and software resulted in the ability to build modular systems. The increasing importance of software running on a generic platforms has enhanced the discipline of the software engineering.

Object-oriented analysis and design methods are becoming the most widely used methods for computer systems design. The UML has become the standard language in object-oriented analysis and design. It is widely used for modeling the software systems.

a. UML Diagrams

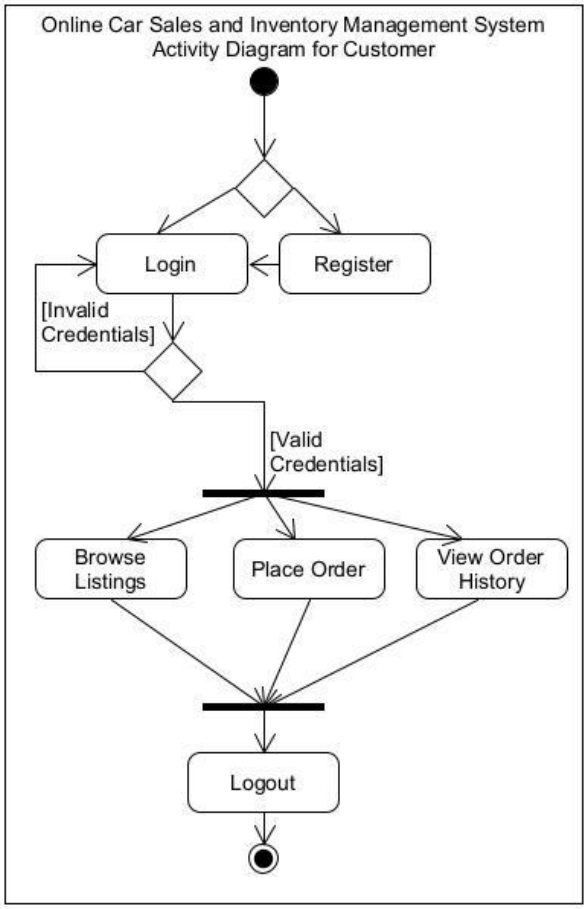
i. Class Diagram



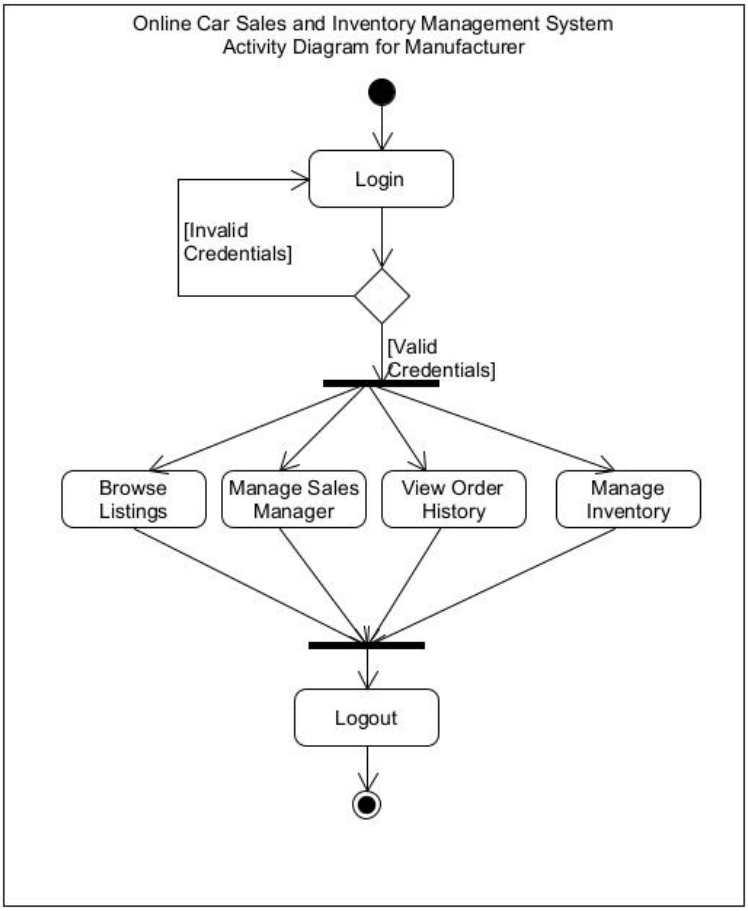
ii. Use Case Diagram

iii. Activity Diagram:

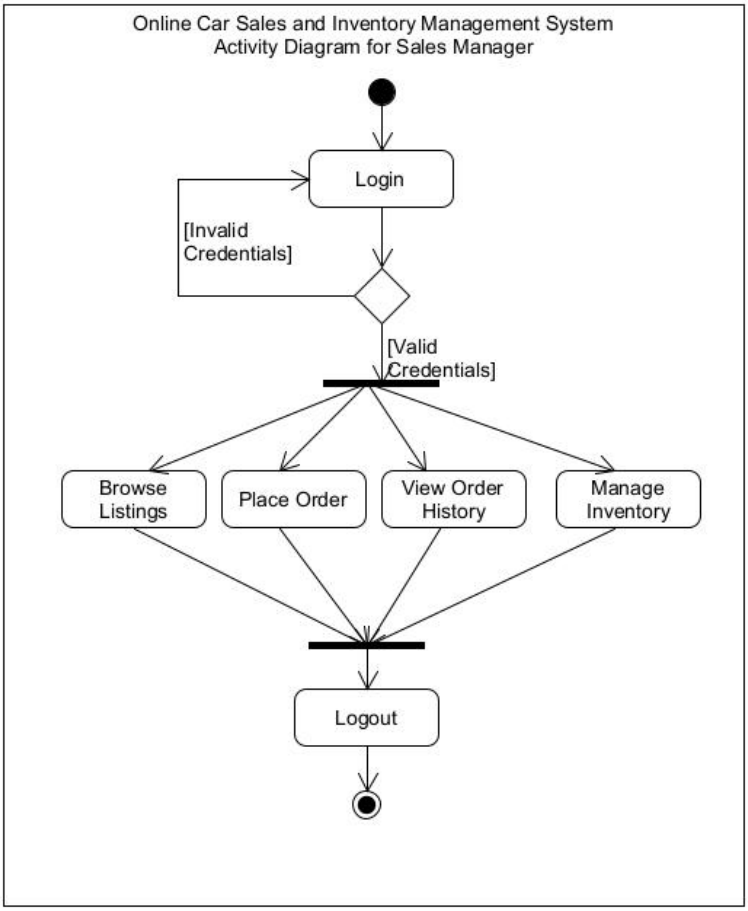
1. For Customer



2. *For Manufacturer*

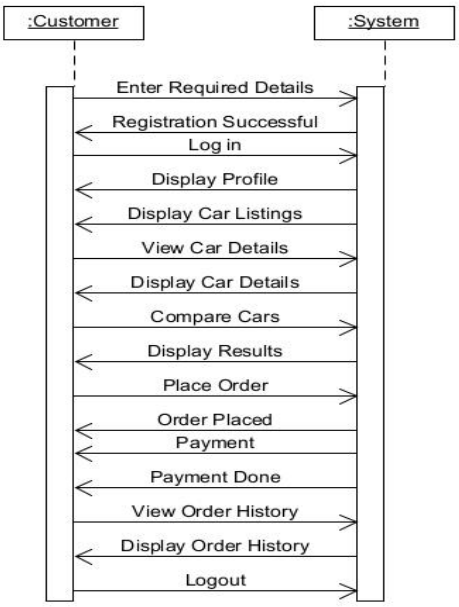


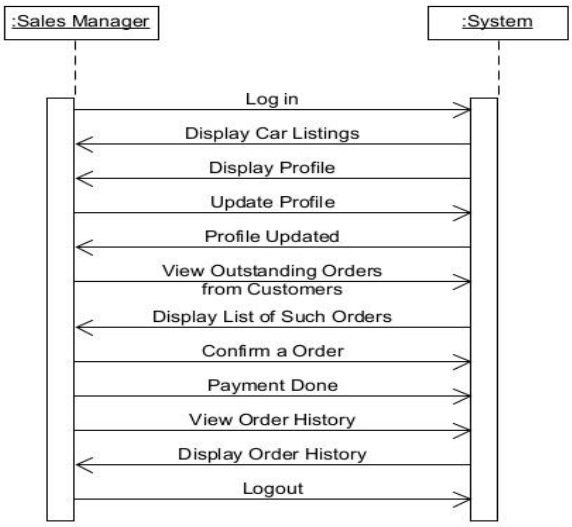
3. *For Sales Manager*



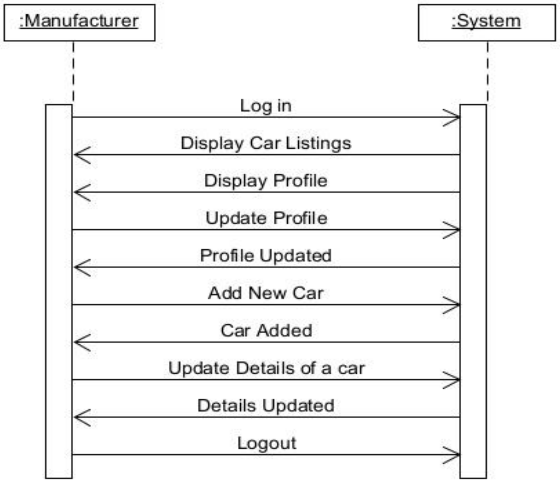
iv. Sequence Diagram

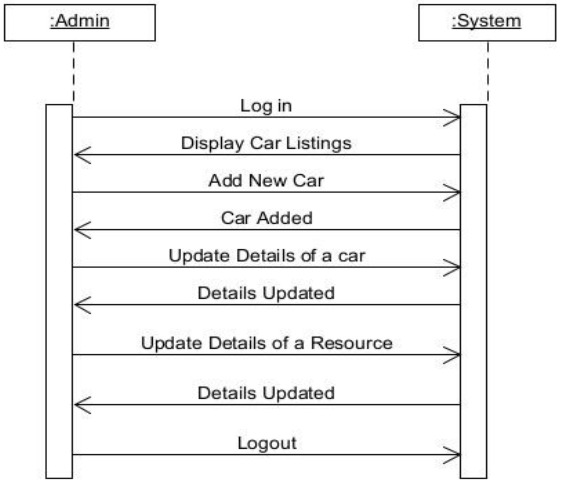
1. For Customer and Sales Manager



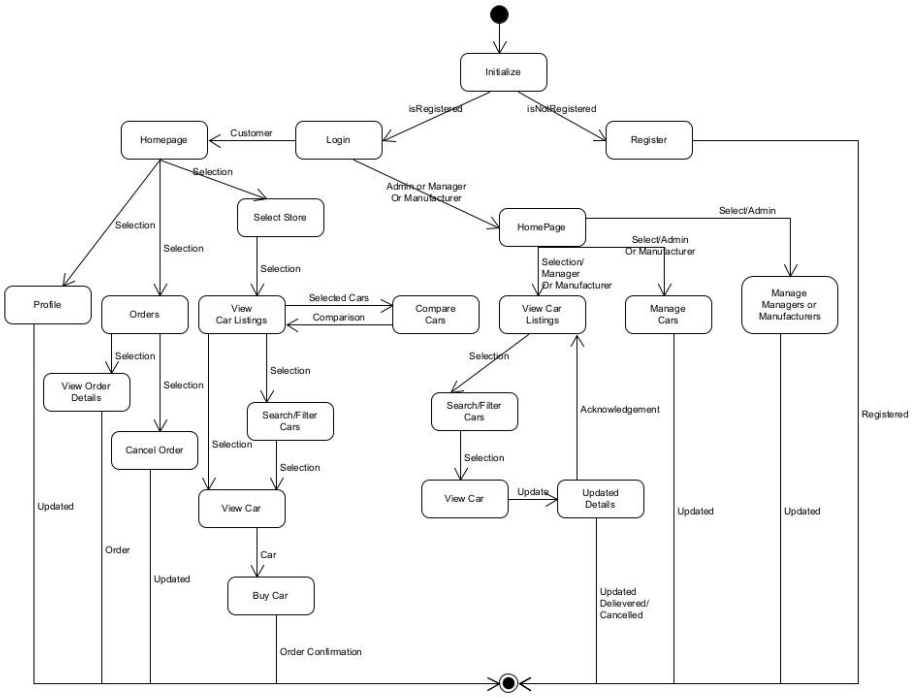


2. For Manufacturer and Admin

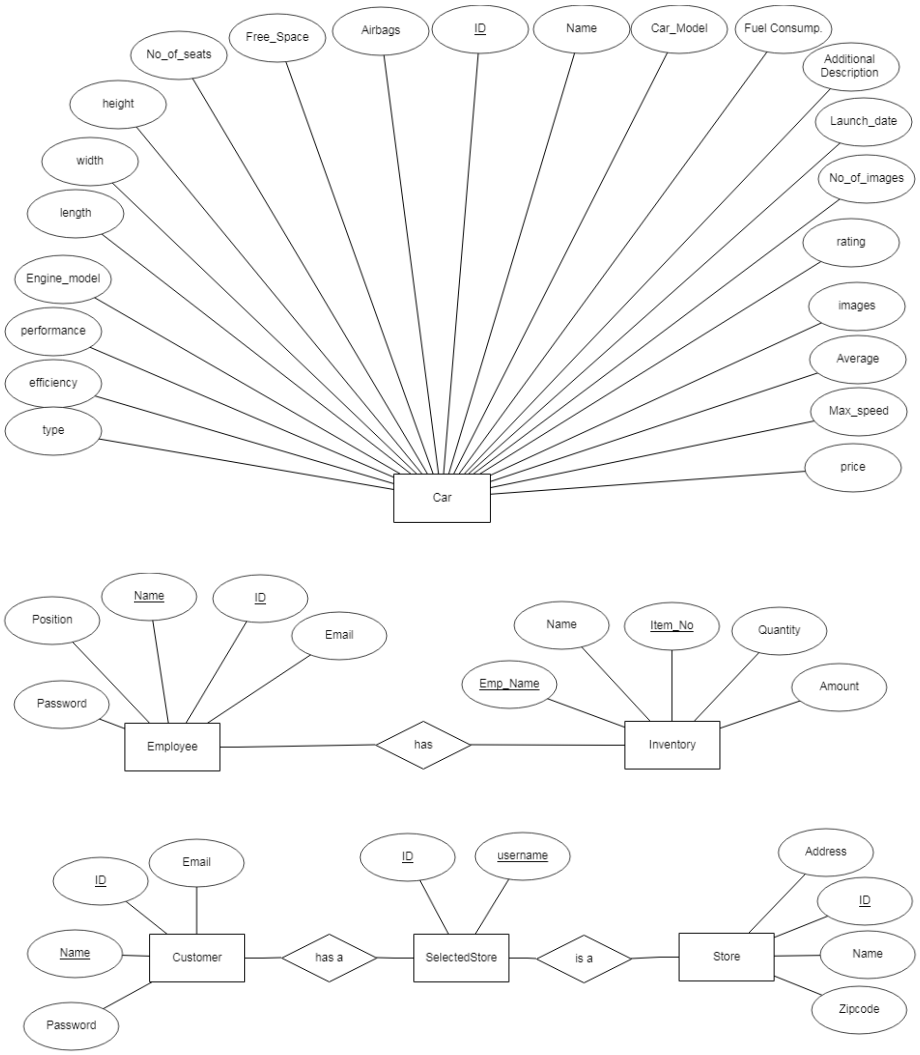




v. State Diagram



vi. E-R Diagram



vii. Data Dictionary

1. Car

Name	Data Type
ID	Int
Name	nvarchar(MAX)
Car_Model	nvarchar(MAX)
Launch_date	Datetime2(7)
No_of_images	Int
Rating	Real
Images	nvarchar(MAX)
Average	Real
Max_speed	Real
Price	bigint
Airbags	Int

Free_space	Int
No_of_seats	Int
height	real
Width	real
Length	real
Engine_model	nvarchar(MAX)
performance	nvarchar(MAX)
Efficiency	real
Type	Int
Fuel Consumption Type	Int
Additional Description	nvarchar(MAX)

2. Employee

Name	Data Type
ID	Int
Name	nvarchar(MAX)
Email	nvarchar(MAX)
Position	Int
Password	nvarchar(MAX)

3. Inventory

Name	Data Type
Item_No	Int
Name	nvarchar(MAX)
Quantity	Int
Emp_name	nvarchar(MAX)
Amount	Int

4. Customer

Name	Data Type
ID	Int
Name	nvarchar(MAX)
Password	nvarchar(MAX)
Email	nvarchar(MAX)

5. Store

Name	Data Type
ID	Int
Name	nvarchar(MAX)
Address	nvarchar(MAX)
Zipcode	nvarchar(MAX)

6. SelectedStore

Name	Data Type
ID	Int
UserName	nvarchar(MAX)

4. Implementation Detail

a. Modules Created.

i. Car Module:

In this module everything right from creating the car to editing it to deleting, along with ordering it is maintained. Only Admin and Manufacturer will be able to manage Car.

ii. Employee Module

This module is for working on employees, this will enable appropriate user to manage the users of the system. Also, this module is only for Admin of the system.

iii. Inventory Module

This module is for Admin, Manufacturer and Sales Manager, where they can manage there inventory of cars.

iv. Order Module

This module is responsible for handling the orders from customers (or Sales Manager). Also, this is the module where sales manager (or Manufacturer) will be able to view and complete the pending orders.

v. Store Module

In this module Admin will be able to manage the stores. thi

b. Function prototypes which implements major functionality

- Login and Register via proper source
- Manage his/her profile.
- Search for a car.
- Place order for a car.
- View Inventory.

5. Testing

In this project testing has been done manually. Following are the test cases for the system

TestCaseID	Test Case Description	Expected Result	Tested by	Date Tested	Test Case Status
Registration					
1	Key-in credentials on the registration page. Logged in as Admin	Send login credentials through mail	Dev Patel	20/02/2021	Passed
2	Key-in credentials on the registration page.	Display login Page.	Dev Patel	20/02/2021	Passed

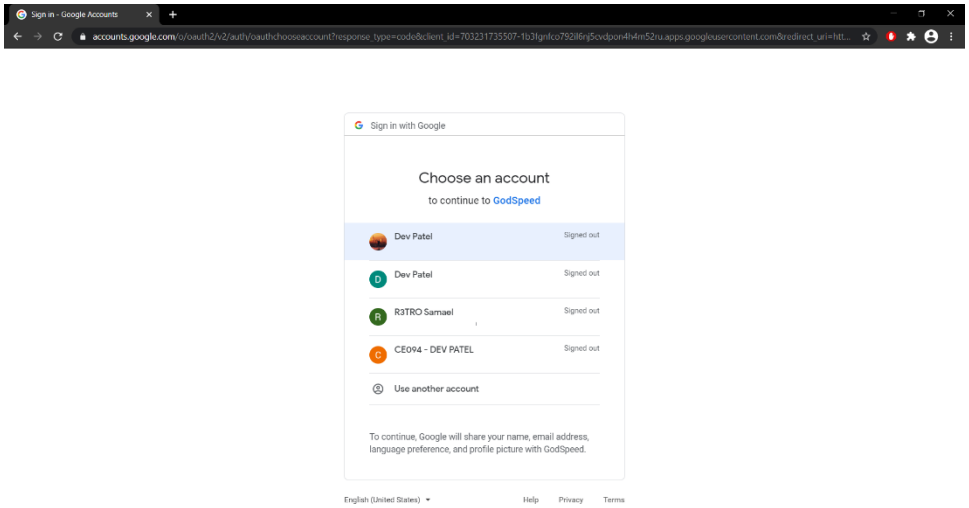
	Logged in as customer				
3	Key-in logged in as admin, register new manufacturer, sales manager	Send login credentials through mail	Dev Patel	20/02/2021	Passed
4	Key-in Try to register, logged in as manufacturer, sales-manager	Display error message	Dev Patel	20/02/2021	Passed
Login					
5	Key-in Login credentials, either not valid credentials or empty fields	Display error message	Dev Patel	20/02/2021	Passed
6	Key-in Correct login credentials of customer	Display Home Page of customer	Dev Patel	20/02/2021	Passed
7	Key-in Correct login credentials of manufacturer	Display Home Page of manufacturer	Dev Patel	20/02/2021	Passed
8	Key-in Correct login credentials of sales manager	Display Home Page of sales manager	Dev Patel	20/02/2021	Passed
9	Key-in Correct login credentials of admin	Display Home Page of admin	Dev Patel	20/02/2021	Passed
Add/Update/Delete a Car					
10	Key-in add/update/delete a car to car listings, logged in as manufacturer, admin.	Display acknowledgement message.	Hardik Parikh	20/02/2021	Passed
11	Key-in add/update/delete a car to car listings, logged in as customer, Sales Manager.	Display error message	Hardik Parikh	20/02/2021	Passed

TestCaseID	Test Case Description	Expected Result	Tested by	Date Tested	Test Case Status
View a Car					
12	Key in: Admin, Customer, Manufacturer, Sales Manager can view a car.	Display car details.	Hardik Parikh	20/02/2021	Passed
Manage Store					
13	Key in: Add/update/delete details of store. Logged in as admin.	Display appropriate acknowledgement message.	Dev Patel	06/03/2021	Passed
14	Key in: Add/update/delete details of store. Logged in as manufacturer/sales manager/customer	Display error message	Dev Patel	06/03/2021	Passed
Manage Inventory					
15	Key in: Manage inventory. Logged in as manufacturer, sales manager.	Display corresponding message	Dev Patel	06/03/2021	Passed
16	Key in: manage Inventory. Logged in as customer/ admin	Display error message	Dev Patel	06/03/2021	Passed
Place Order					
17	Place order, logged in as customer, sales manager. All details entered are valid & sufficient stock is available	Display acknowledgement message.	Dev Patel	06/03/2021	Passed
18	Place order, logged in as customer, sales manager. All details entered are valid & sufficient stock isn't available.	Display error message	Dev Patel	06/03/2021	Passed
19	Place order, logged in as manufacturer, admin.	Display error message	Dev Patel	06/03/2021	Passed
20	Search by name of car.	Display details of car if found.	Dev Patel	06/03/2021	Passed

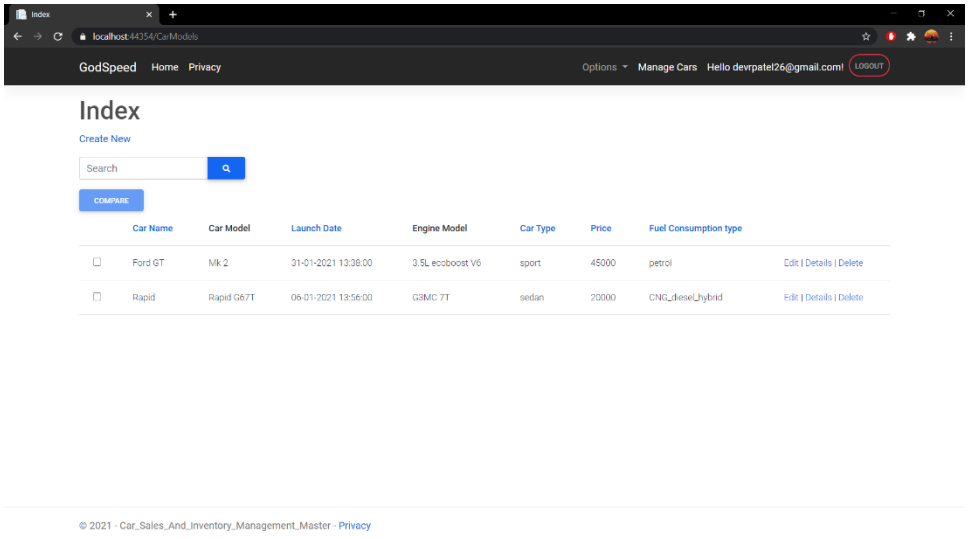
21	Search by name of car.	Display error message if no such car found.	Dev Patel	06/03/2021	Passed

6. Screenshots of working project:

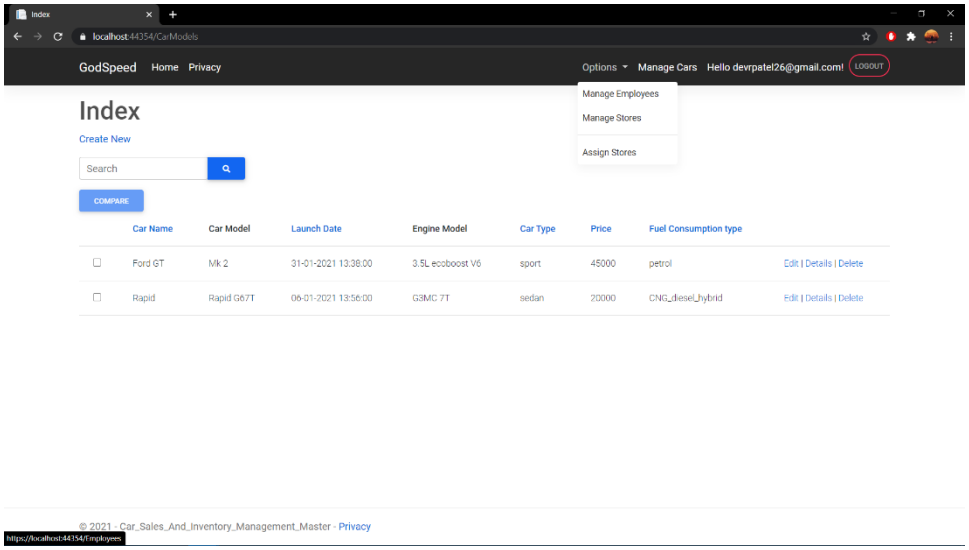
a. Admin



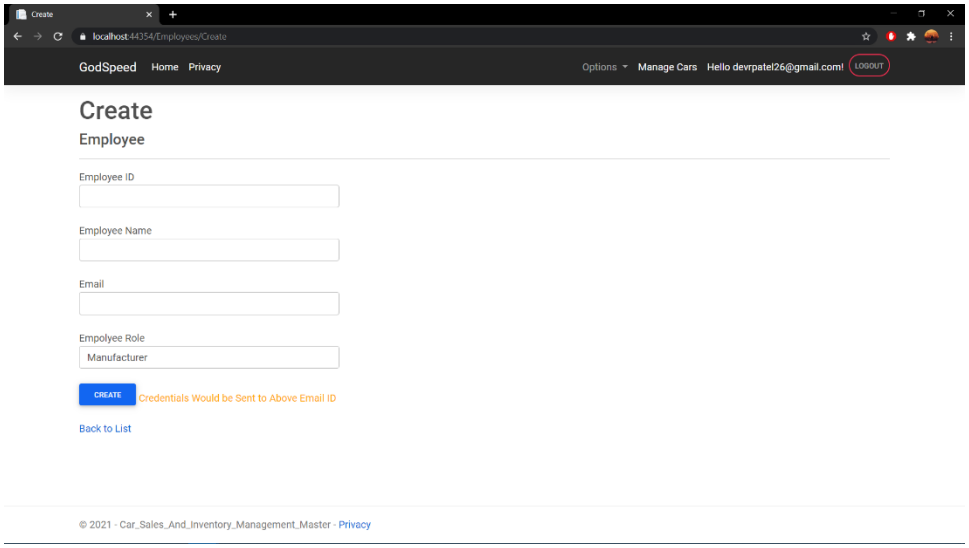
Admin Login



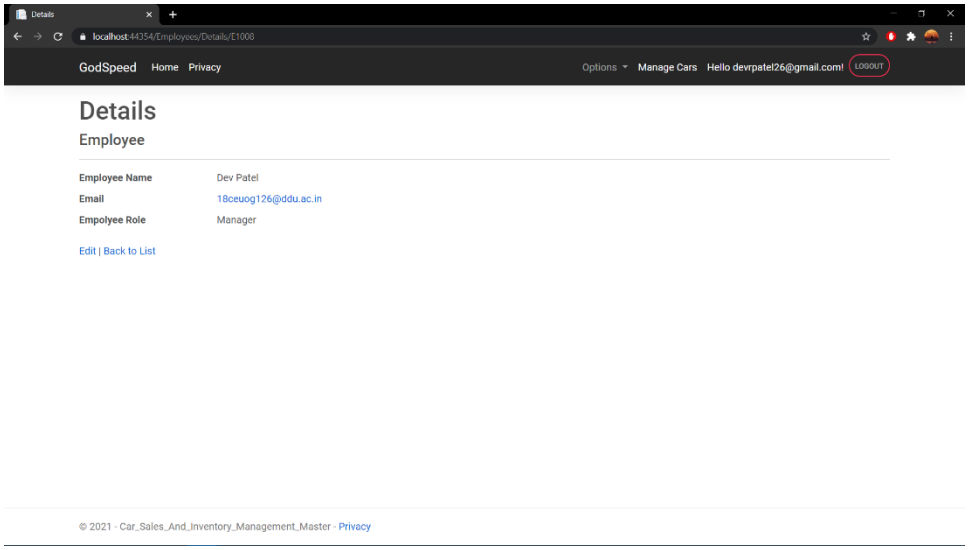
Admin Index page



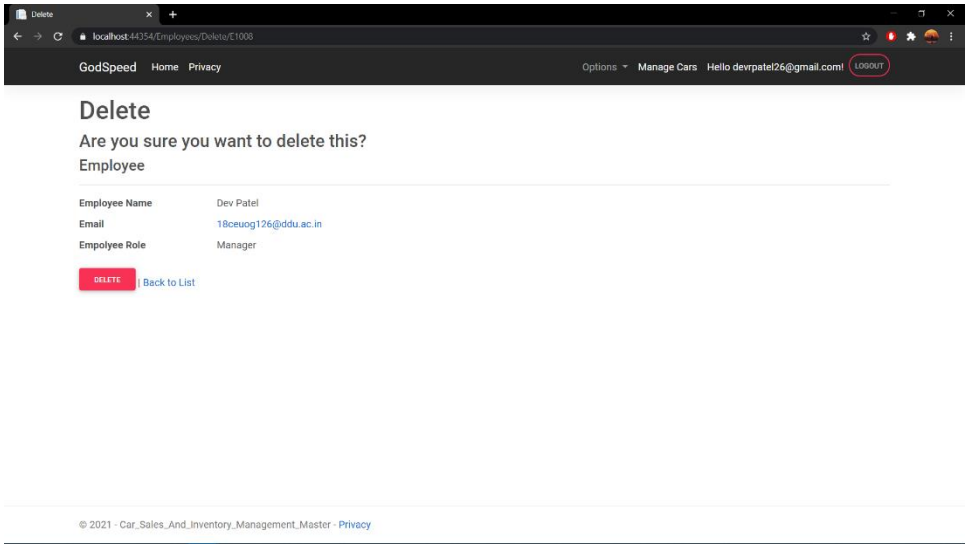
Options for Admin



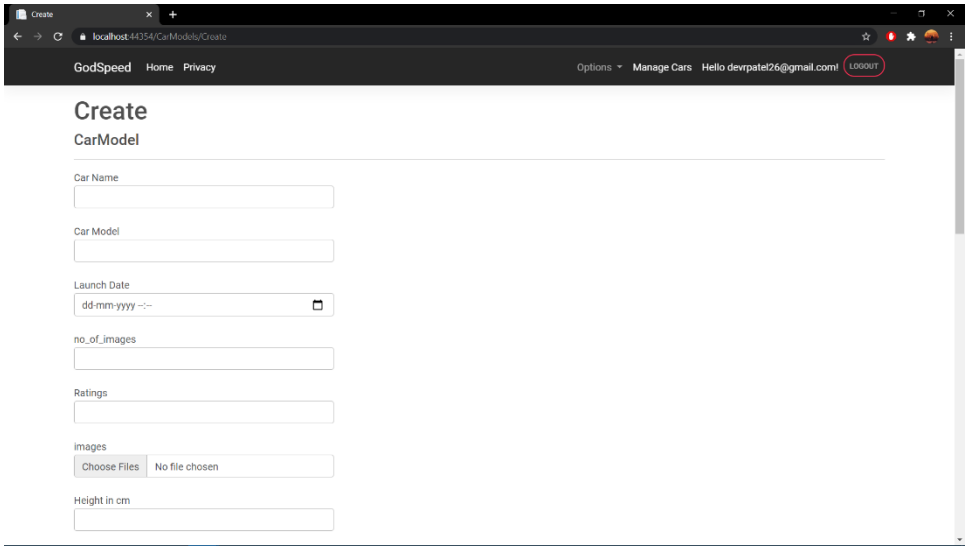
Create Employee



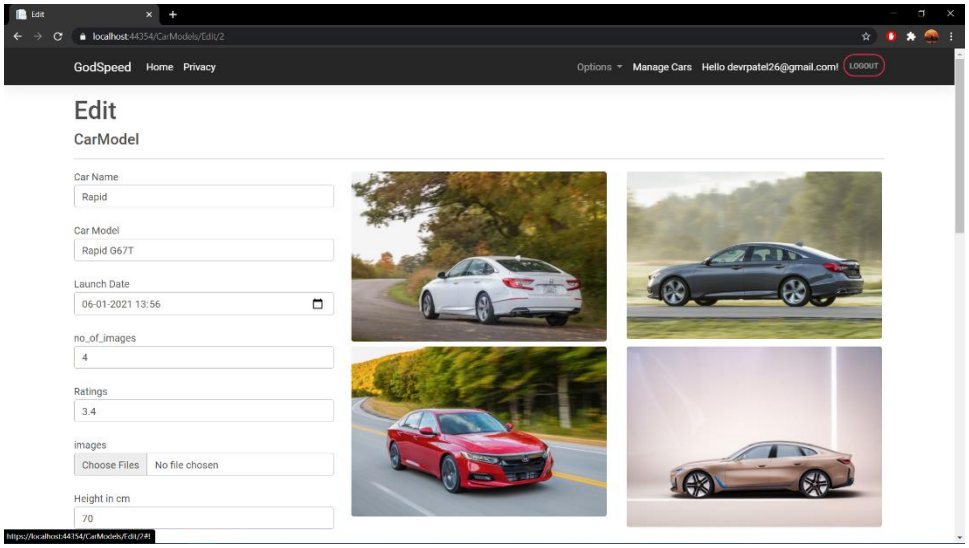
View details of employee



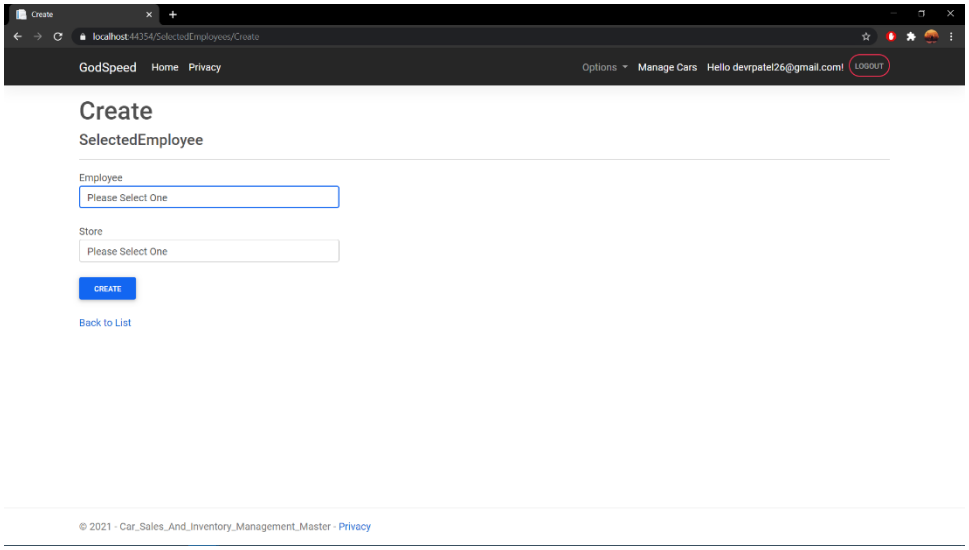
Delete Employee



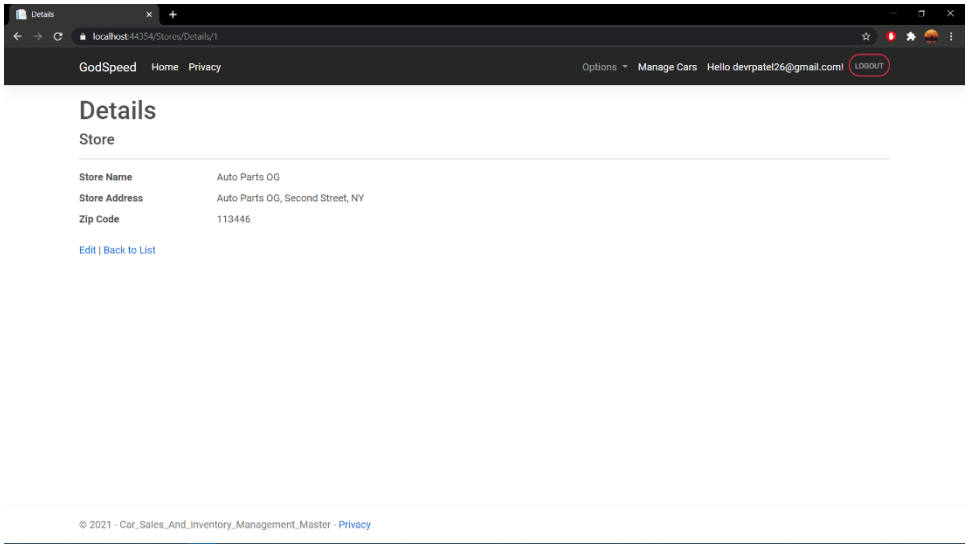
Admin create Car



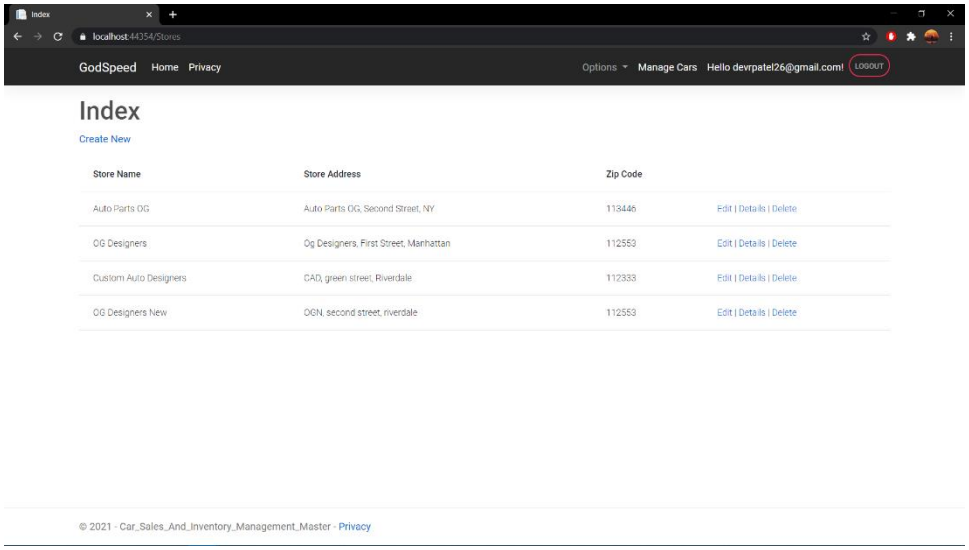
Admin Car Edit



Admin Store Create

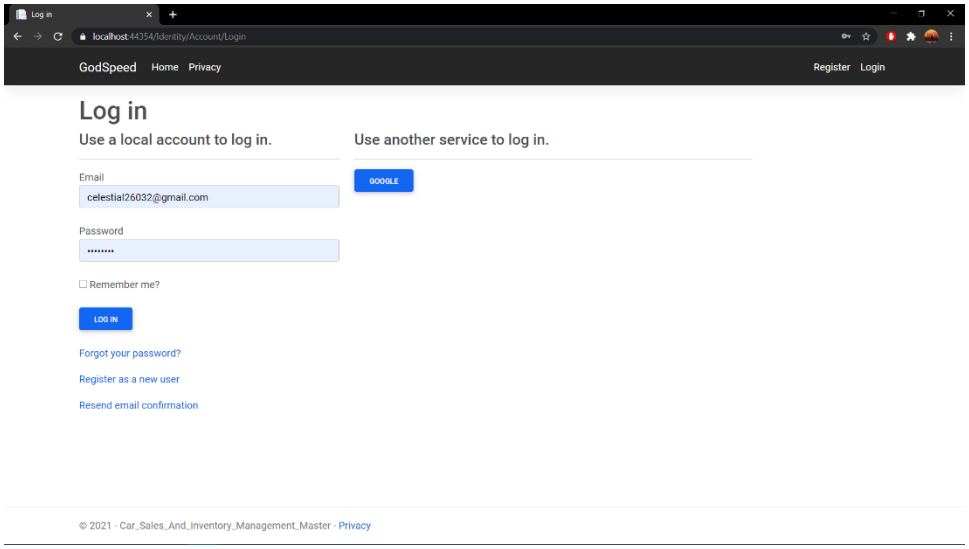


Admin Store Details

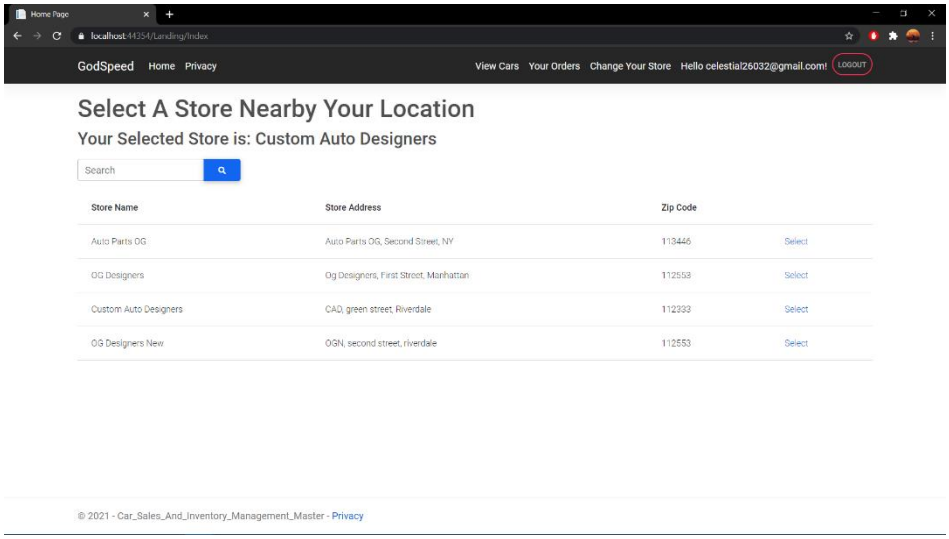


Admin Store Index page

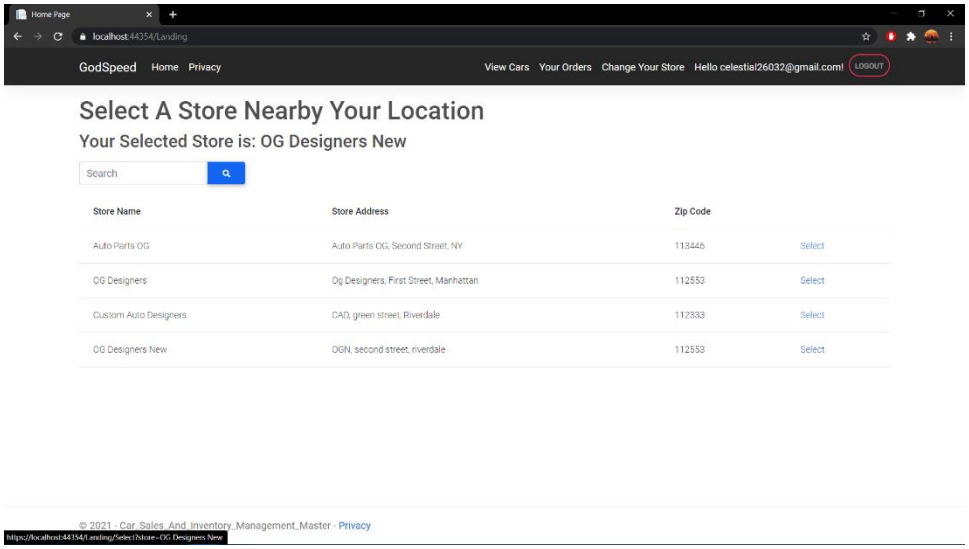
b. Customer



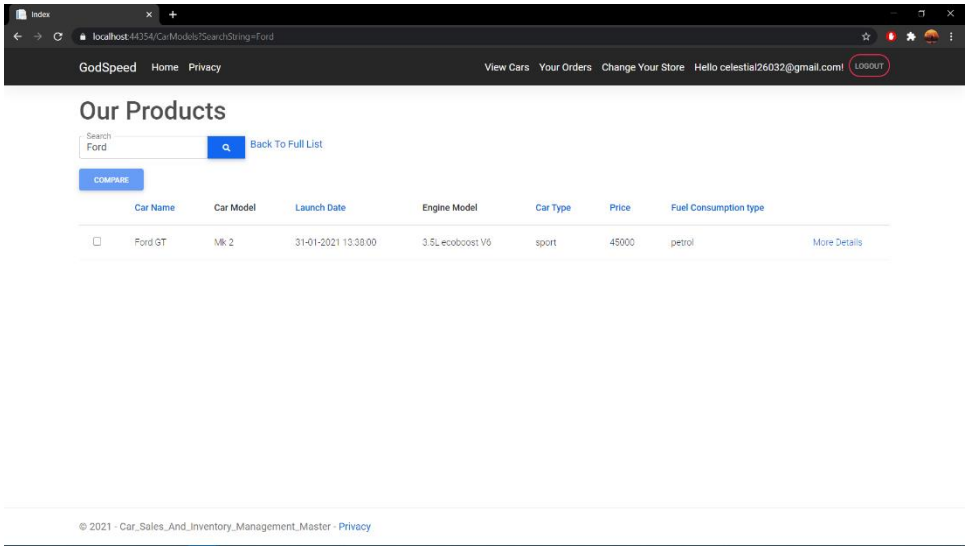
Customer Login



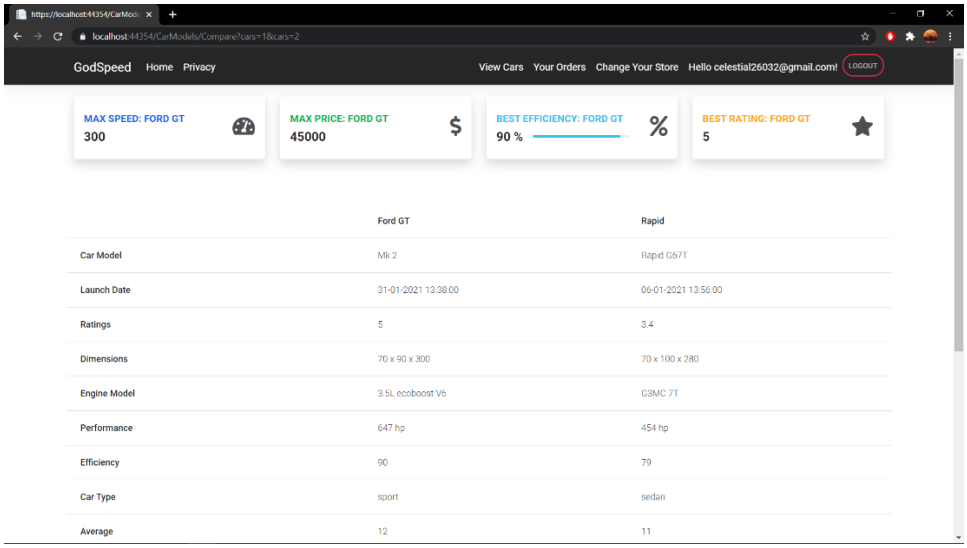
Customer selects store (Current Selection: *Custom Auto Designers*)



Customer selects store (Current Selection: *OG Designers*)

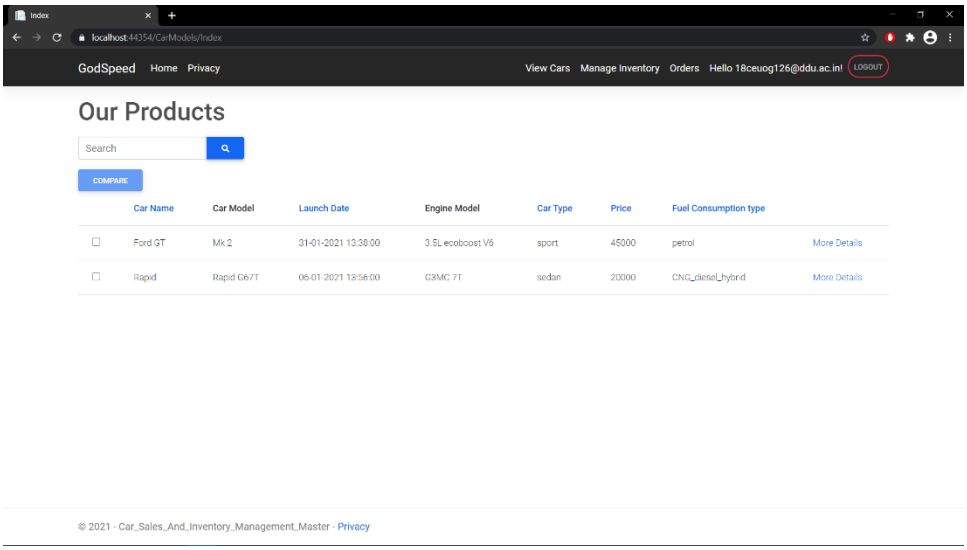


Customer can search car by name

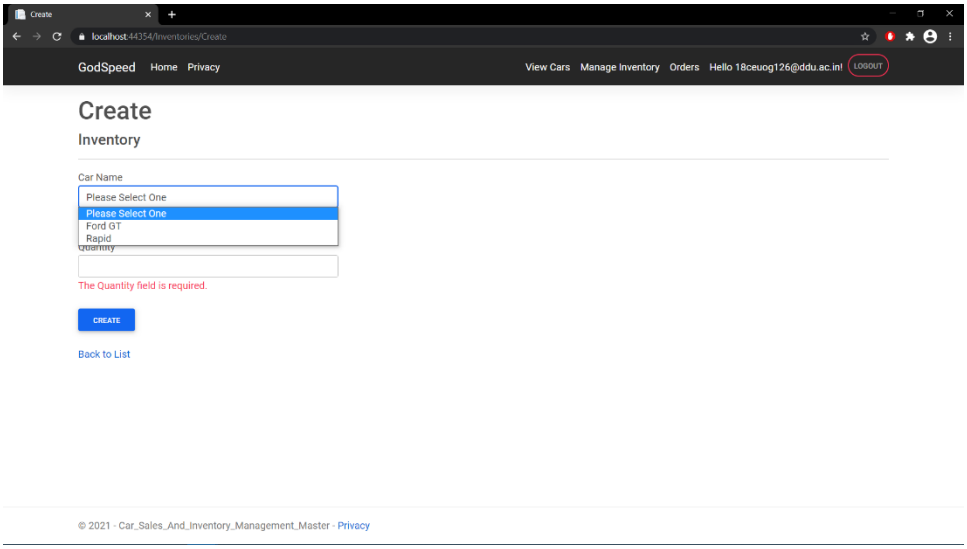


Customer can compare cars (max up to 3 cars)

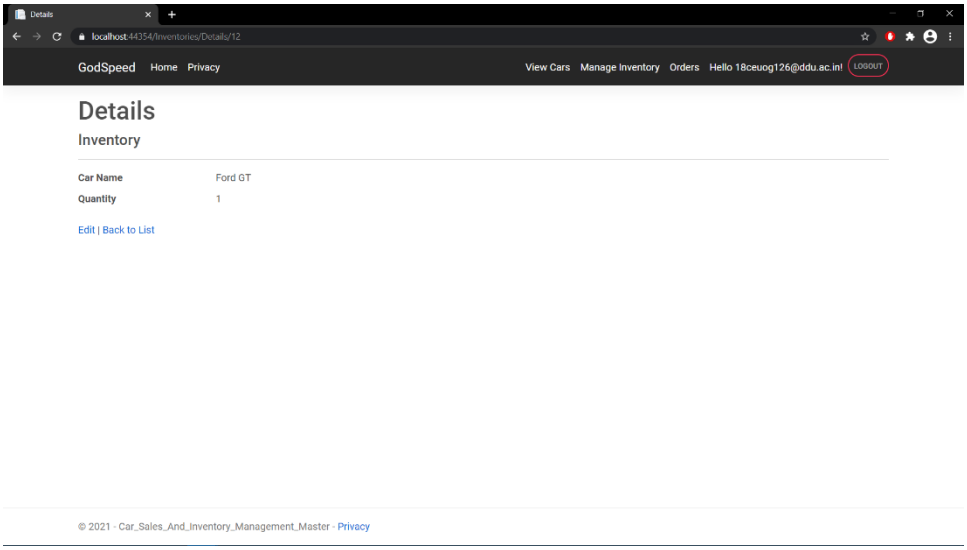
c. Sales Manager OR Manufacturer



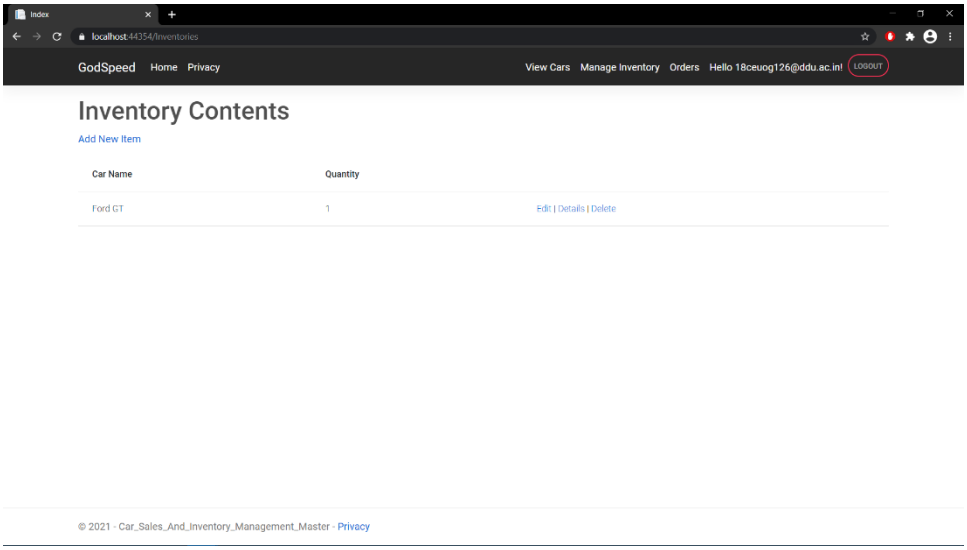
Manager Index



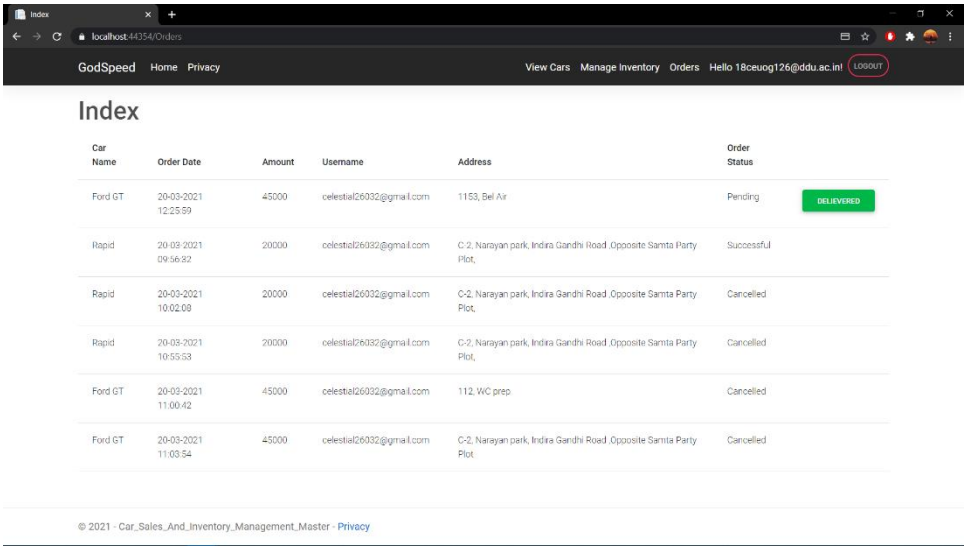
Inventory create



Inventory details



Inventory index



Orders page *(Pending and completed)*

7. Conclusion

In this system customers will be able to register themselves and than they will be able to search, compare and buy cars. Admin, manufacturer and sales manager collectively will be managing the details of cars, stores and manufacturer as well as the manager will be able to view the pending as well as previous orders. They will be able to complete the pending orders.

8. Limitation and Future Extension

In this system no third party API for payment is used. So it is not possible to pay online. In future, for the real world scenario this can be extended. Along with this, it is assumed that car is always delivered to customer by some agent. In future we can extend this system where there will be delivery agents whose status will be visible to customer.

9. Bibliography

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