

Car and Car Part E-commerce Website

Group 9

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Introduction

This project redefines car sales by automating the entire process beginning from selection and ending in a successful deal. This application enhances the customer car shopping experience by keeping a constant focus on the customer's requirements and satisfaction.

Highlights of this application are:

- Customers can become a member by creating a profile within the application.
- Providers can also become members to sell their products.
- There is an admin which maintains all the profiles and can view the current statistics.
- Login authentication using MySQL database.
- Customers can search for the car or car part they have in mind using various criteria and start their filtering process by viewing the exact cars and what they have to offer as specified by the search results.
- Multiple dealers can have their cars showcased with all details and customer can browse and select through them.
- Apart from cars, customers can also buy/sell various car parts.
- Providers can also buy/sell various car parts.
- A secure billing channel is maintained.

The web application will be a channel partner and become point of contact to sell cars available in the provider car lot. A major challenge to be overcome is to bridge the gap between various technologies used by different partner dealerships and provide a single point of access to the end consumer.

The application does not intend to limit its partnerships to select few dealerships but instead requires that the solution be flexible and scalable to add and remove providers. One of the ways the requirement can be satisfied is to provide a web-service to provide a unified method to access information available in their own database along with information obtained via the adaptation layer.

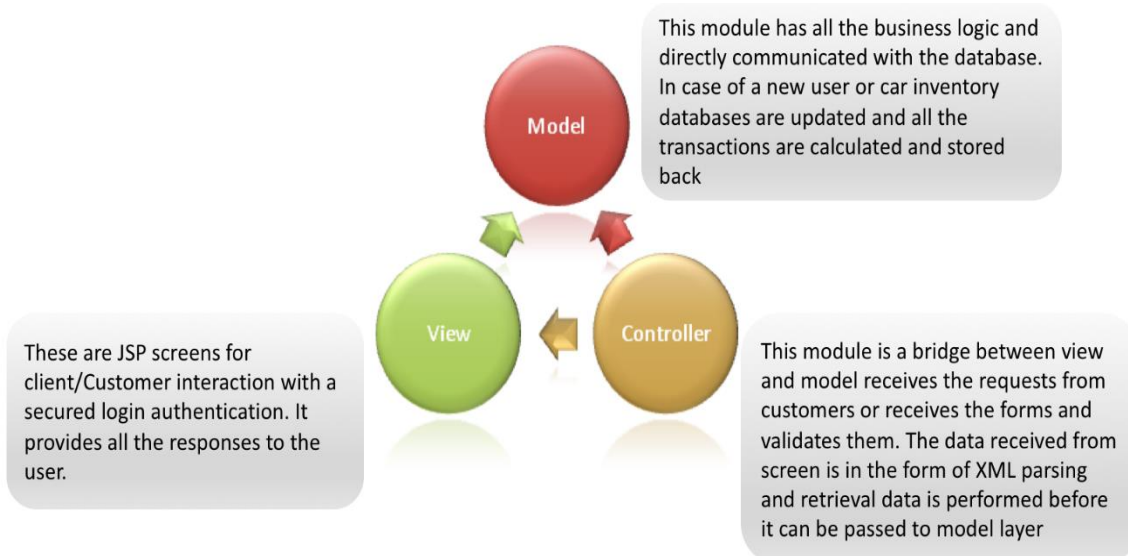




Technologies

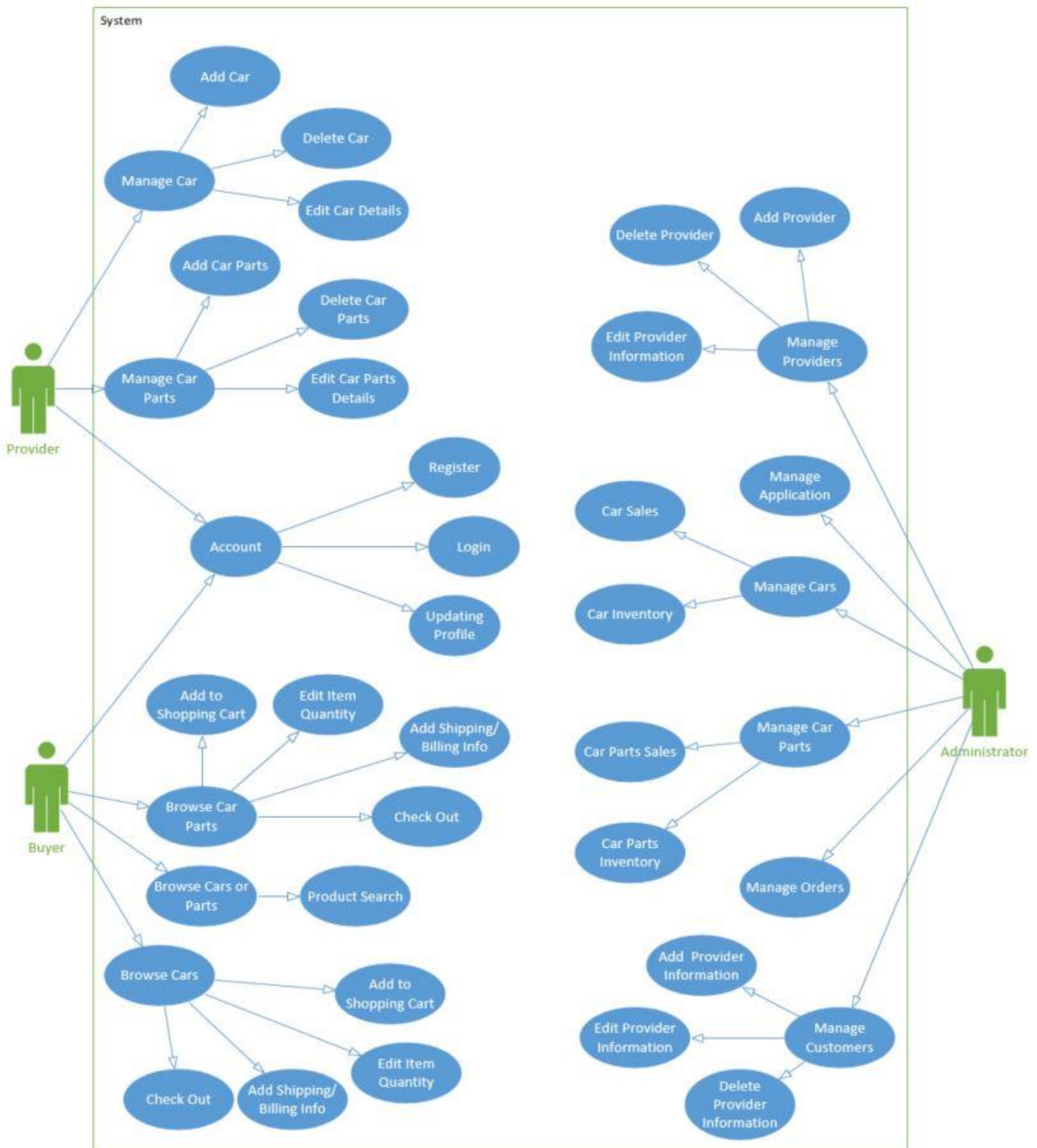
The web application created is a 3 tier MVC (Model, View, Controller) architecture

- **Model – MySQL Database**
 - The layer interacting with the database performing all MySQL related operations and business logic.
- **View – JavaServer Pages (JSP)**
 - JSP pages with all the presentation logic for the end user.
- **Controller – Java Servlets**
 - Java Servlets act as an interaction bridge between view and model.
- **Server – Tomcat (Java Servlet Container)**
 - Tomcat implements several Java EE specifications including Java Servlets and JavaServer Pages (JSP), WebSocket etc.
- **RESTFUL services – GET, POST, PUT, DELETE**
 - GET is used to retrieve user information like their profile information or products that they posted.
 - POST is used to write data into the database like registration or add new car posts.
 - PUT is used to edit any current information in the database like editing customer profile, or current car posts.
 - DELETE is used to delete information from the database like users or car posts.



Requirement Specification Document (RSD)

Unified Modeling Language - Use Case Diagram





Requirements Table

Login and Signup

ID	Description	Version	Completed
1.0	Using Email/Phone Number for Authentication	1.0	Yes
1.1	Authentication using MySQL Database	1.0	Yes
1.2	Check user input for the right data type	1.0	Yes
1.3	User friendly interface	1.0	Yes

Customer Management

ID	Description	Version	Completed
2.0	Will be able to register and login	1.0	Yes
2.1	Will be able to update profile	1.0	Yes
2.2	Can browse through the cars and the parts	1.0	Yes
2.3	Customer can add to cart	1.0	Yes
2.4	Customer can add/remove items from cart	1.0	Yes
2.5	Customers can input payment information	1.0	Yes
2.6	Customers can checkout	1.0	Yes
2.7	Customer can filter the cars and car parts	1.0	Yes
2.8	Customers can view order and sales history	1.0	Yes
2.9	Customers can add, edit or remove posts	1.0	Yes

Provider Management

ID	Description	Version	Priority
3.0	Will be able to register and login	1.0	Yes
3.1	Will be able to update profile	1.0	Yes
3.2	Will be able to post and products/services online	1.0	Yes
3.3	Can add, edit and remove and posts	1.0	Yes
3.4	Can browse other products from competitors	1.0	Yes
3.5	Easy to use interface	1.0	Yes
3.6	Can view order and sales history	1.0	Yes

Billing Management

ID	Description	Version	Completed
4.0	Provide invoice to customers from orders	1.0	Yes
4.1	Add, edit, remove, and search through all invoices	1.0	Yes
4.2	Can be updated in case of returns and refunds	1.0	Yes
4.3	Save user's billing data safely in a database	1.0	Yes



Inventory Manager

ID	Description	Version	Completed
5.0	Store Car and Car Posts information	1.0	Yes
5.1	Add, Edit, Remove and search through inventory	1.0	Yes
5.2	Update inventory according to orders and posts	1.0	Yes

Service Register

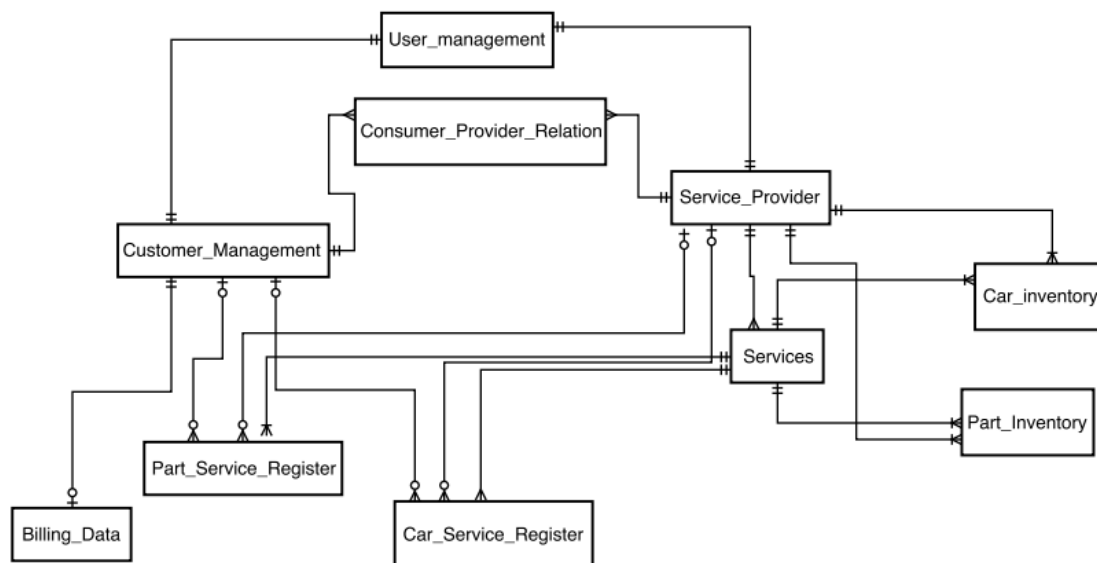
ID	Description	Version	Complete
6.0	Keeps track of posts by customers and providers	1.0	Yes
6.1	Keeps track of orders from customers and providers	1.0	Yes
6.2	Update inventory from orders and posts	1.0	Yes
6.3	Update Customer and Provider information per transaction	1.0	Yes
6.4	Store dates of purchases and posts	1.0	Yes
6.5	Store status of each car and car parts	1.0	Yes

Design Phase



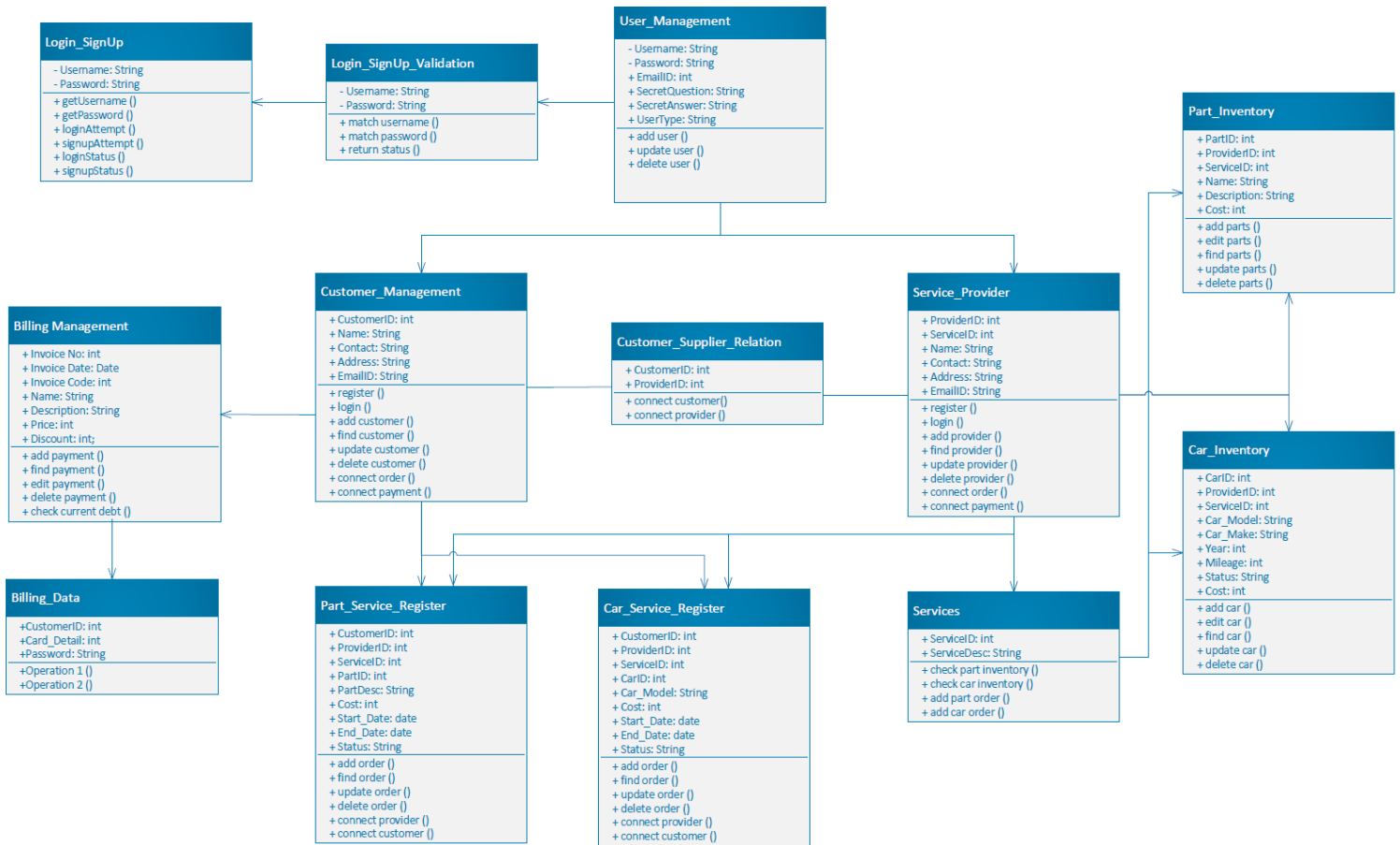
- User management module for registration and user based logins(Consumer, Provider, admin).
- Customer Management module for creating a profile and selecting various services.
- Billing module for performing charging algorithms for all the services used.
- Maintaining an inventory of all the cars for sale from all the registered providers.
- Maintaining inventory for car parts for sale.

Entity Relationship Diagram



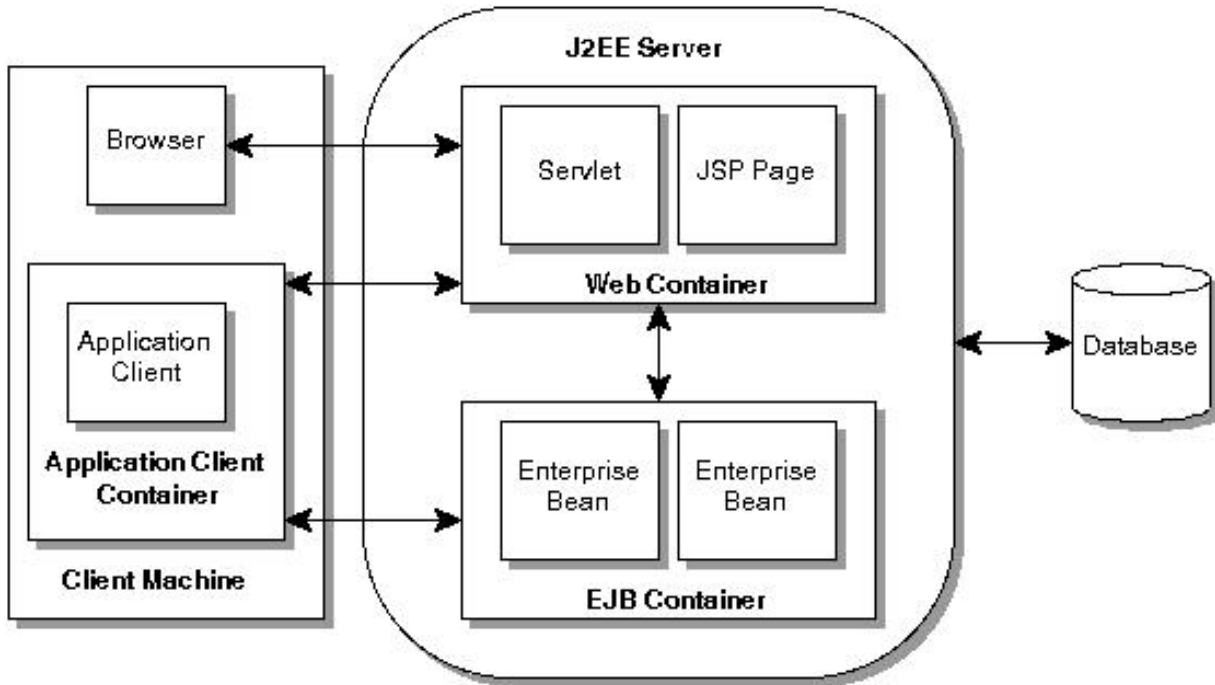


UML Class Diagram





High Level Architecture Diagram



Running the Application

Please use these login credentials to see different pages:

Users	Username	Password
Customer	Pshukla5	Vikas@1627
Provider	vikasm	456
Admin	admin	admin

Screenshots

Homepage



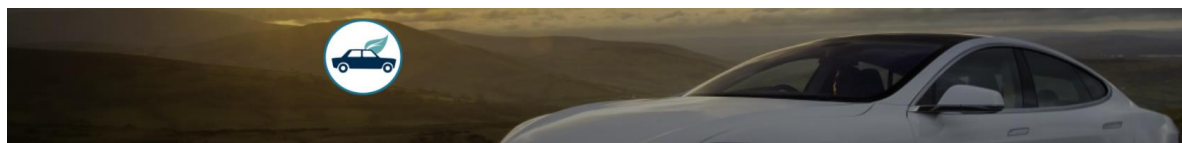
OUR MISSION

Auto Part a leading two-sided digital automotive marketplace that creates meaningful connections between buyers and sellers. Launched in 1998 and headquartered in Chicago, the company empowers consumers with resources and information to make informed buying decisions around The 4Ps of Automotive Marketing.

Product, Price, Place and Person, by connecting advertising partners with in-market car shoppers and providing data-driven intelligence to increase inventory turn and gain market share. A pioneer in online automotive classifieds, the company has evolved into one of the largest digital automotive platforms, connecting thousands of local dealers across the country with millions of consumers.

Through trusted expert content, on-the-lot mobile features and intelligence, millions of new and used vehicle listings, a comprehensive set of pricing and research tools, and the largest database of consumer reviews in the industry, Cars.com is transforming the car shopping experience.

Login

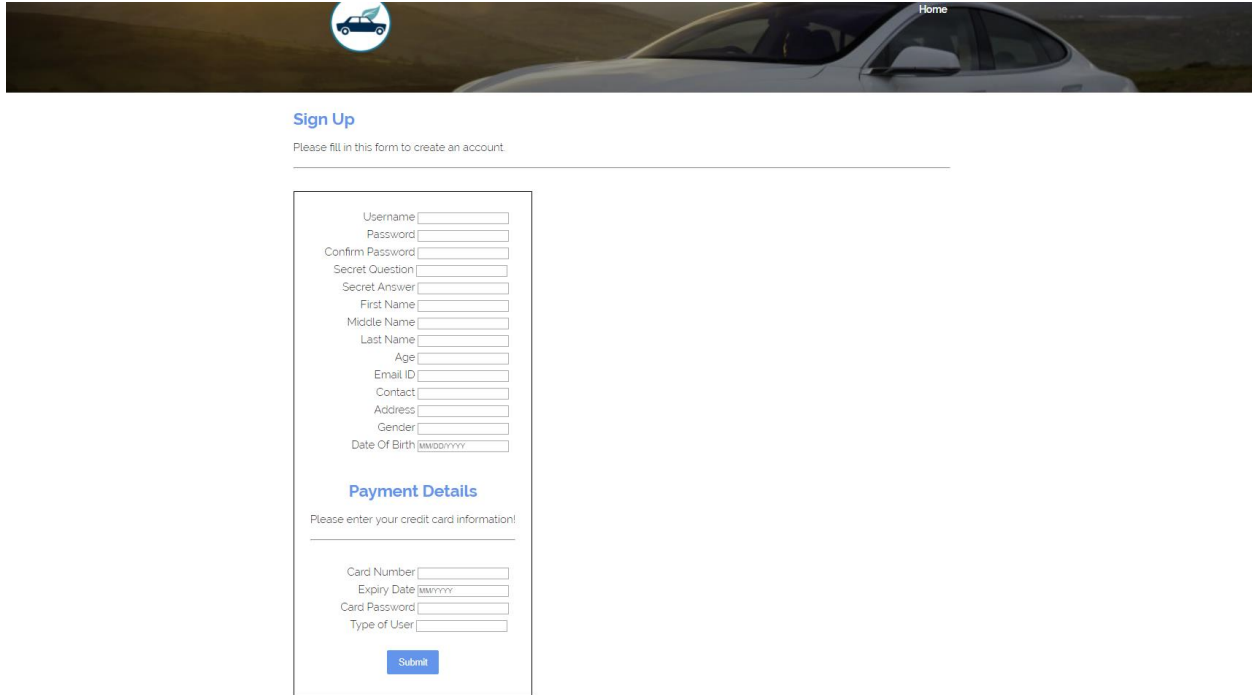


Date/Time: 2018-04-25 08:30

Username
Password
[Forgot Password??](#)



Register New User



[Home](#)

Sign Up

Please fill in this form to create an account.

Username:
 Password:
 Confirm Password:
 Secret Question:
 Secret Answer:
 First Name:
 Middle Name:
 Last Name:
 Age:
 Email ID:
 Contact:
 Address:
 Gender:
 Date Of Birth:

Payment Details

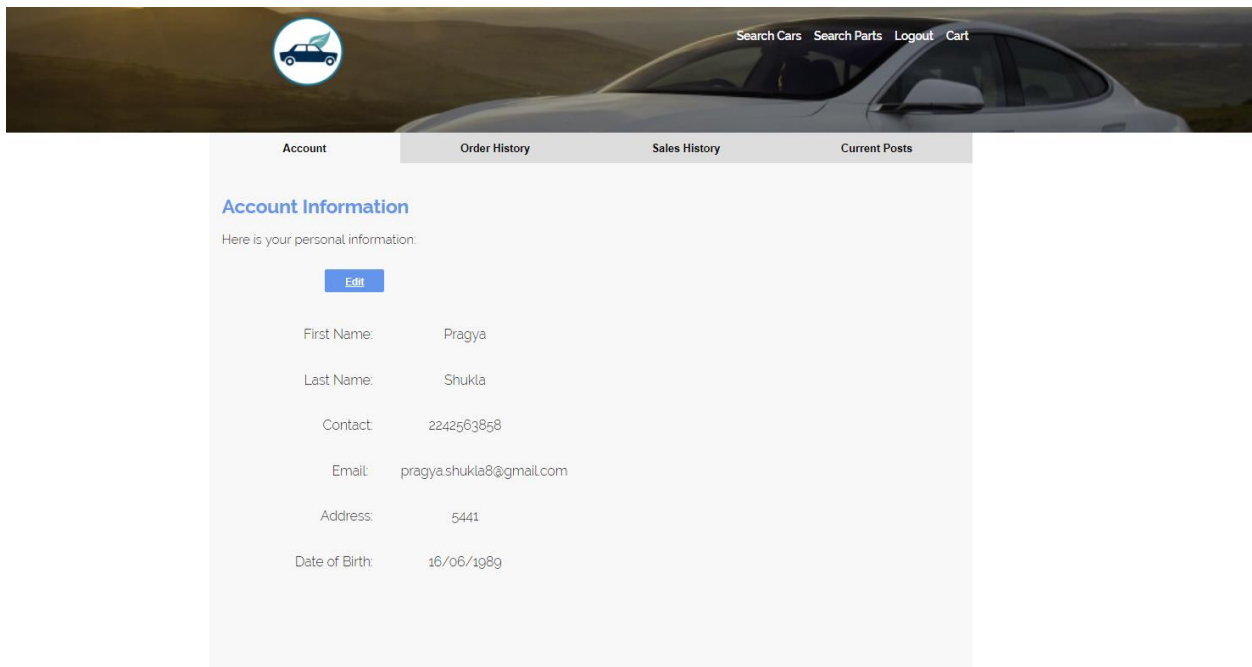
Please enter your credit card information!

Card Number:
 Expiry Date:
 Card Password:
 Type of User:

[Submit](#)

Customer

Customer Profile and Account Information



[Search Cars](#) [Search Parts](#) [Logout](#) [Cart](#)

[Account](#) [Order History](#) [Sales History](#) [Current Posts](#)

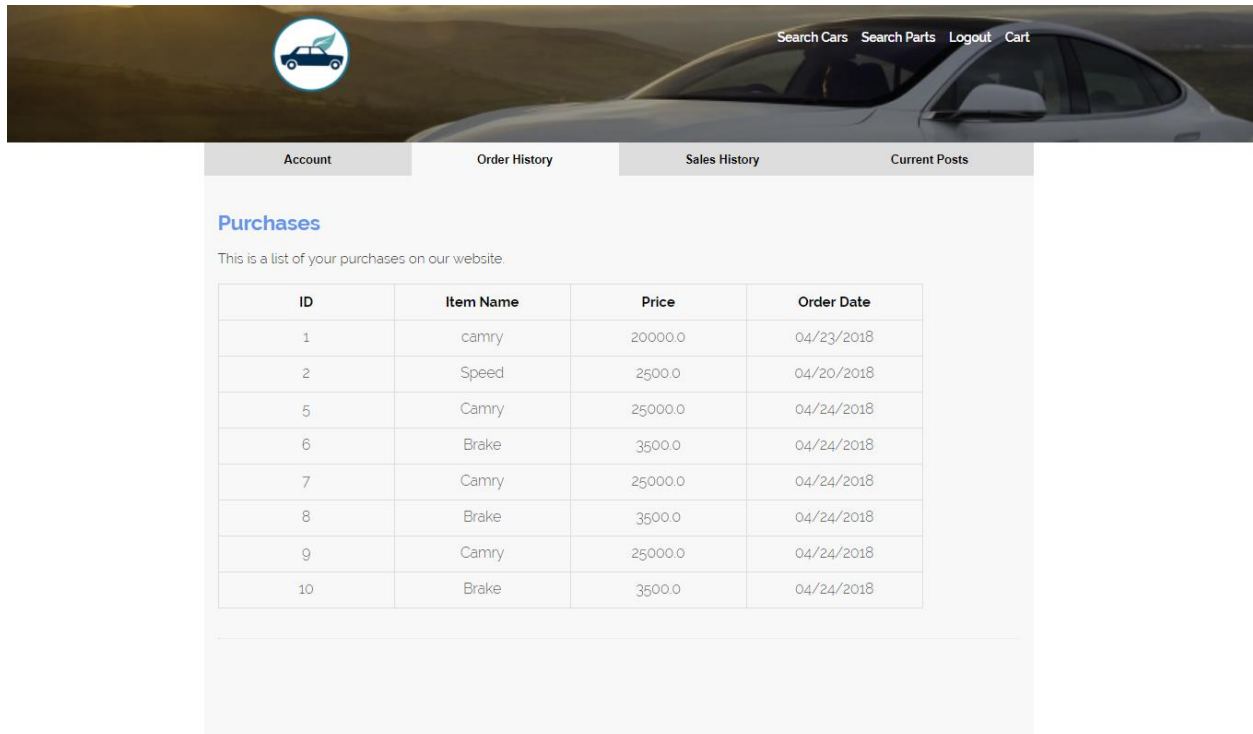
Account Information

Here is your personal information:

[Edit](#)

First Name: Pragya
 Last Name: Shukla
 Contact: 2242563858
 Email: pragya.shukla8@gmail.com
 Address: 5441
 Date of Birth: 16/06/1989

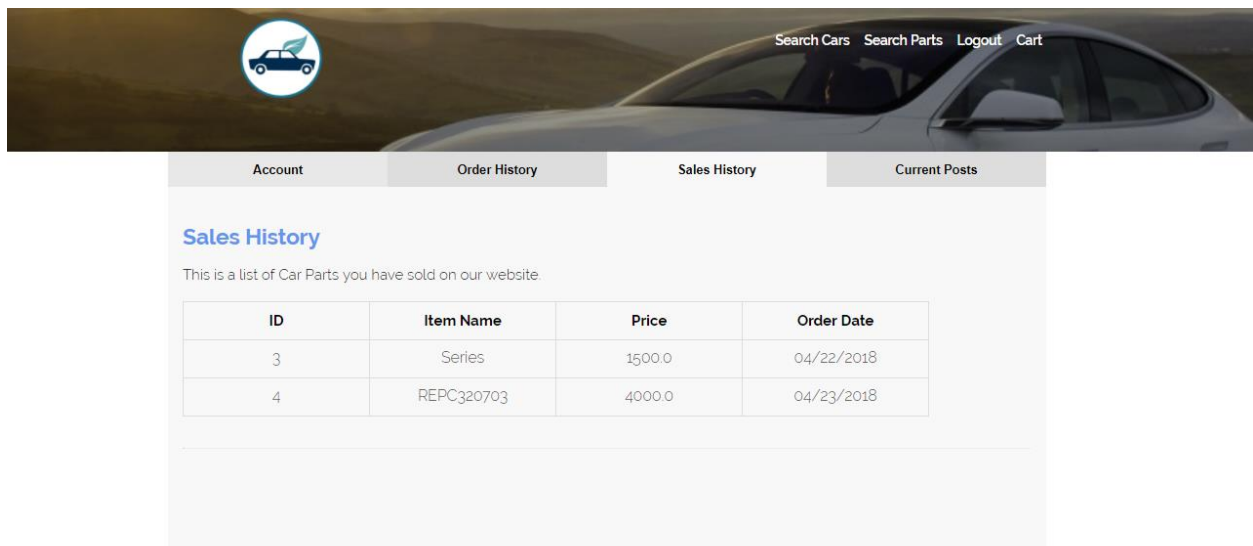
Customer - Order History



The screenshot shows a web application interface for a customer's order history. At the top, there is a navigation bar with a car icon and links for 'Search Cars', 'Search Parts', 'Logout', and 'Cart'. Below the navigation bar, there is a tabbed interface with four tabs: 'Account', 'Order History' (which is selected), 'Sales History', and 'Current Posts'. The 'Order History' tab displays a section titled 'Purchases' with a subtext 'This is a list of your purchases on our website.' Below this, there is a table with four columns: 'ID', 'Item Name', 'Price', and 'Order Date'. The table contains 10 rows of data, showing a sequence of purchases for 'camry' and 'Brake' parts.

ID	Item Name	Price	Order Date
1	camry	20000.0	04/23/2018
2	Speed	2500.0	04/20/2018
5	Camry	25000.0	04/24/2018
6	Brake	3500.0	04/24/2018
7	Camry	25000.0	04/24/2018
8	Brake	3500.0	04/24/2018
9	Camry	25000.0	04/24/2018
10	Brake	3500.0	04/24/2018

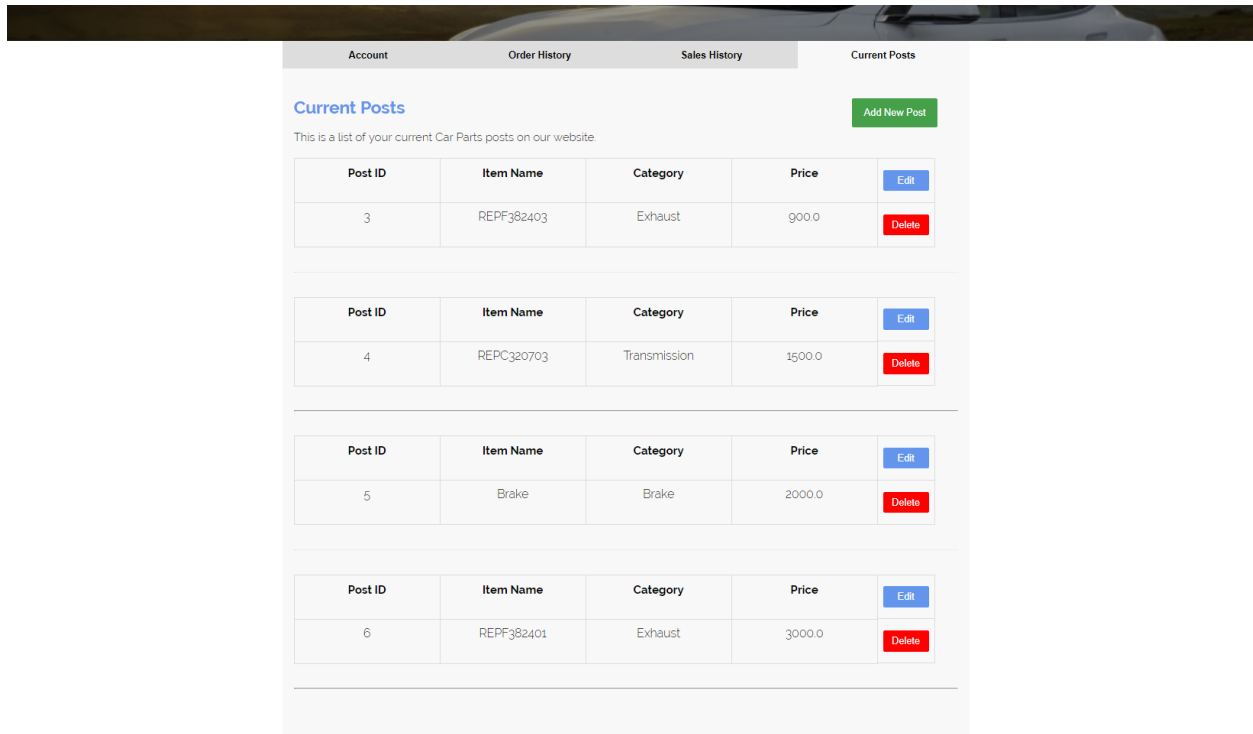
Customer - Sales History



The screenshot shows a web application interface for a customer's sales history. At the top, there is a navigation bar with a car icon and links for 'Search Cars', 'Search Parts', 'Logout', and 'Cart'. Below the navigation bar, there is a tabbed interface with four tabs: 'Account', 'Order History', 'Sales History' (which is selected), and 'Current Posts'. The 'Sales History' tab displays a section titled 'Sales History' with a subtext 'This is a list of Car Parts you have sold on our website.' Below this, there is a table with four columns: 'ID', 'Item Name', 'Price', and 'Order Date'. The table contains 2 rows of data, showing sales for 'Series' and 'REPC320703' parts.

ID	Item Name	Price	Order Date
3	Series	1500.0	04/22/2018
4	REPC320703	4000.0	04/23/2018

Customer - Current Posts (Car Part Posts)

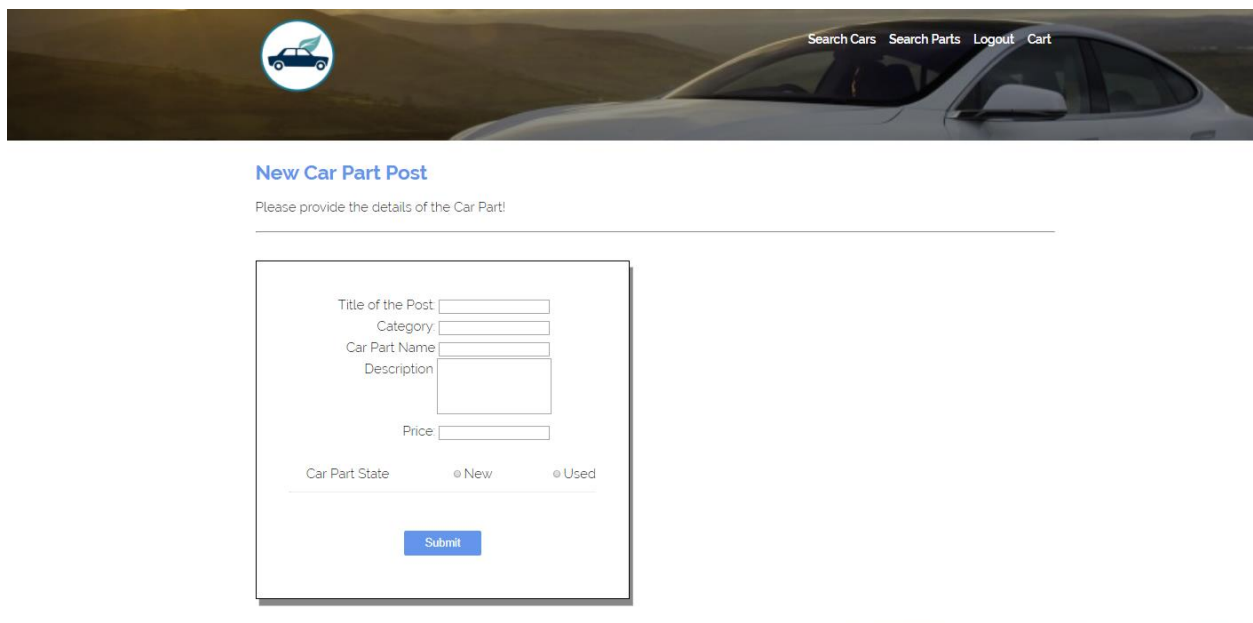


Current Posts [Add New Post](#)

This is a list of your current Car Parts posts on our website.

Post ID	Item Name	Category	Price	
3	REPF382403	Exhaust	900.0	Edit Delete
4	REPC320703	Transmission	1500.0	Edit Delete
5	Brake	Brake	2000.0	Edit Delete
6	REPF382401	Exhaust	3000.0	Edit Delete

Customer - Add New Post (Car Part to be sold)



New Car Part Post

Please provide the details of the Car Part!

Title of the Post:

Category:

Car Part Name:


Description:

Price:

Car Part State: ☐ New ☐ Used


[Submit](#)

Customer - Edit Current Post


Search Cars Search Parts Logout Cart

Edit Car Part Post

Please provide the details of the Car Part!



Title:

Car Part Name:


Description:

Type:

Price:

Car Part State: ☒ New ☐ Used

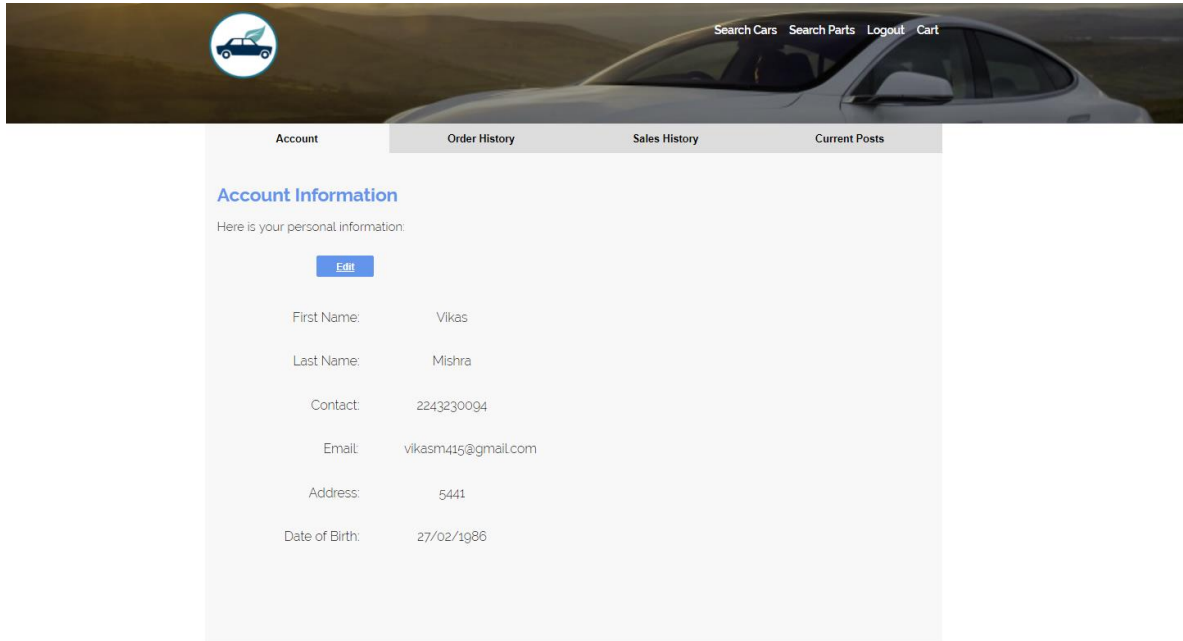
Customer - Delete Current Post


Search Cars Search Parts Logout Cart

Account	Order History	Sales History	Current Posts
<h3>Current Posts</h3> <p>This is a list of your current Car Parts posts on our website.</p> <p><input type="button" value="Add New Post"/></p>			
Post ID	Item Name	Category	Price
3	REPF382403	Exhaust	900.0
			<input type="button" value="Edit"/> <input type="button" value="Delete"/>
Post ID	Item Name	Category	Price
4	REPC320703	Transmission	1500.0
			<input type="button" value="Edit"/> <input type="button" value="Delete"/>
Post ID	Item Name	Category	Price
5	Brake	Brake	2000.0
			<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Provider

Provider Profile and Account Information



Search Cars Search Parts Logout Cart

Account Order History Sales History Current Posts

Account Information

Here is your personal information:

[Edit](#)

First Name: Vikas

Last Name: Mishra

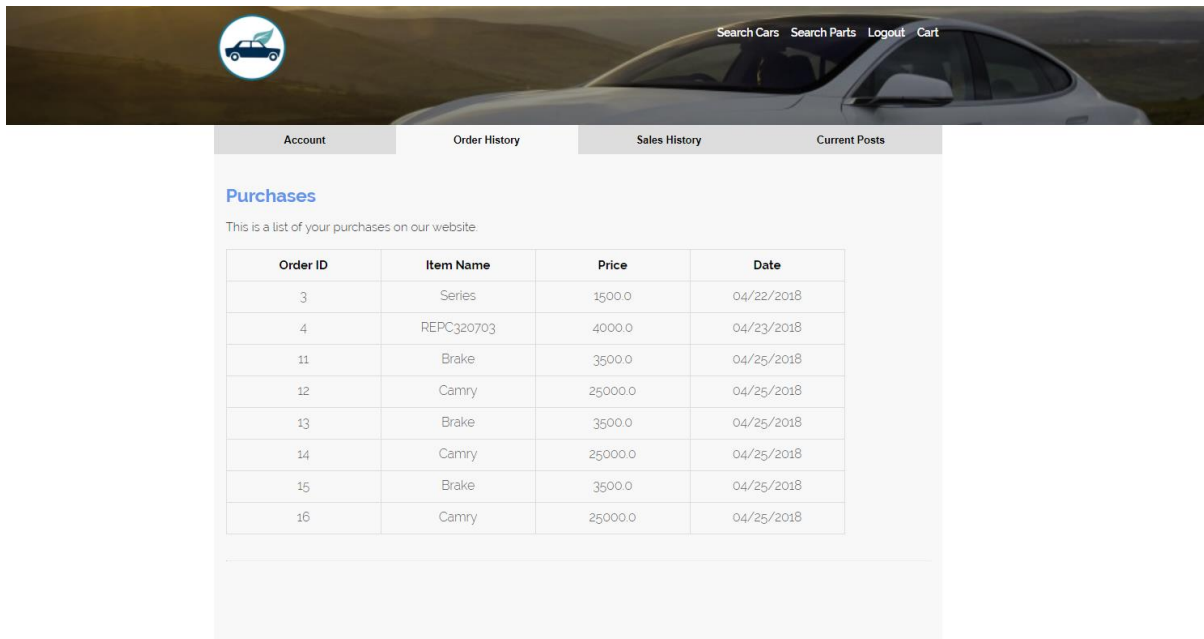
Contact: 2243230094

Email: vikasm415@gmail.com

Address: 5441

Date of Birth: 27/02/1986

Provider - Order History



Search Cars Search Parts Logout Cart

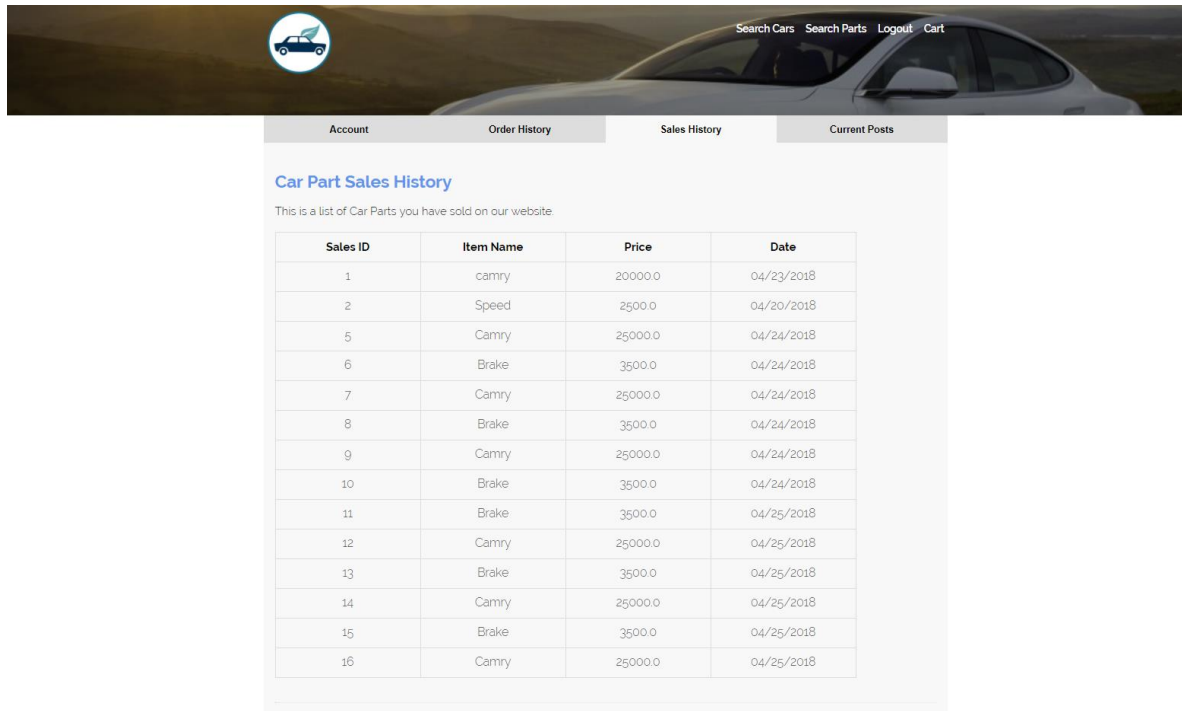
Account Order History Sales History Current Posts

Purchases

This is a list of your purchases on our website:

Order ID	Item Name	Price	Date
3	Series	1500.0	04/22/2018
4	REPC320703	4000.0	04/23/2018
11	Brake	3500.0	04/25/2018
12	Camry	25000.0	04/25/2018
13	Brake	3500.0	04/25/2018
14	Camry	25000.0	04/25/2018
15	Brake	3500.0	04/25/2018
16	Camry	25000.0	04/25/2018

Provider - Sales History



Search Cars Search Parts Logout Cart

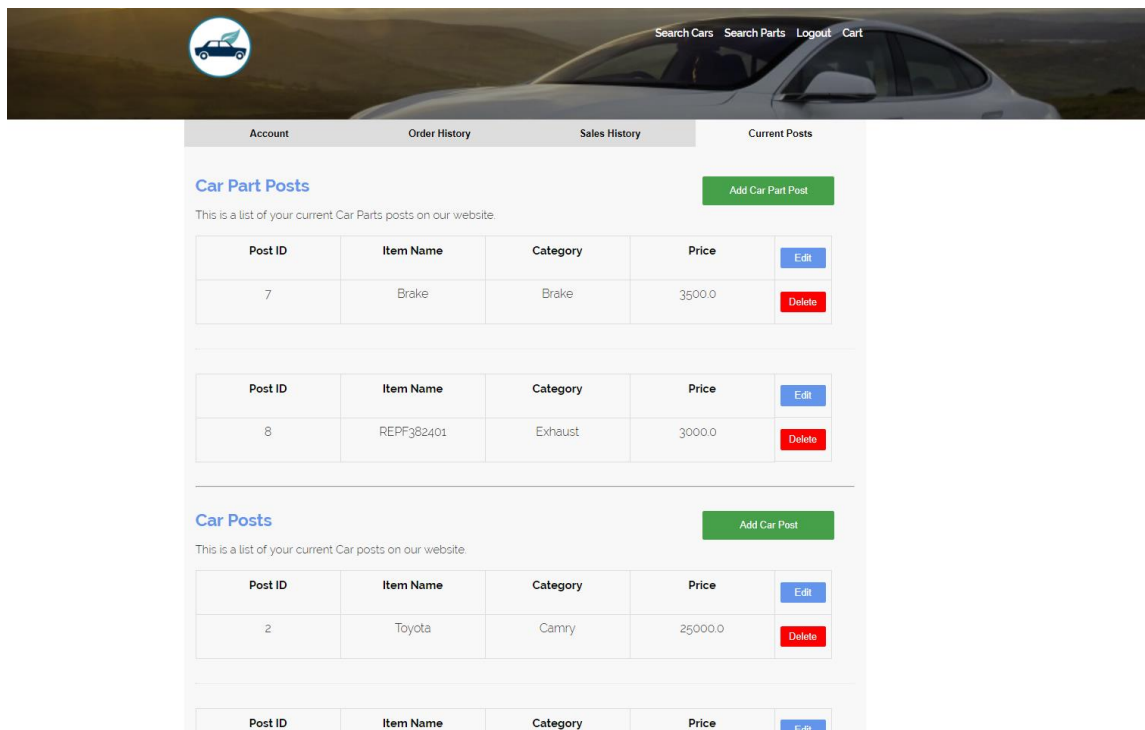
Account Order History **Sales History** Current Posts

Car Part Sales History

This is a list of Car Parts you have sold on our website.

Sales ID	Item Name	Price	Date
1	camry	20000.0	04/23/2018
2	Speed	2500.0	04/20/2018
5	Camry	25000.0	04/24/2018
6	Brake	3500.0	04/24/2018
7	Camry	25000.0	04/24/2018
8	Brake	3500.0	04/24/2018
9	Camry	25000.0	04/24/2018
10	Brake	3500.0	04/24/2018
11	Brake	3500.0	04/25/2018
12	Camry	25000.0	04/25/2018
13	Brake	3500.0	04/25/2018
14	Camry	25000.0	04/25/2018
15	Brake	3500.0	04/25/2018
16	Camry	25000.0	04/25/2018

Provider - Current Posts



Search Cars Search Parts Logout Cart

Account Order History Sales History **Current Posts**

Car Part Posts

This is a list of your current Car Parts posts on our website.

Add Car Part Post

Post ID	Item Name	Category	Price	Edit	Delete
7	Brake	Brake	3500.0	Edit	Delete

Post ID	Item Name	Category	Price	Edit	Delete
8	REPF382401	Exhaust	3000.0	Edit	Delete

Car Posts

This is a list of your current Car posts on our website.

Add Car Post

Post ID	Item Name	Category	Price	Edit	Delete
2	Toyota	Camry	25000.0	Edit	Delete

Post ID	Item Name	Category	Price	Edit
---------	-----------	----------	-------	------

Provider - Add Car Part Post



New Car Part Post

Please provide the details of the Car Part!

Title of the Post:

Category:

Car Part Name:

Description:

Price:

Car Part State: ☐ New ☐ Used

Provider - Add Car Post



New Car Post

Please provide the details of the vehicle!

Title:

Description:

Year:

Make:

Model:

Color:


Consumption:

Price:

KM Run:

State of the Car: ☐ New ☐ Used


Provider - Edit Car Part Post



[Search Cars](#)
[Search Parts](#)
[Logout](#)
[Cart](#)

Edit Car Part Post

Please provide the details of the Car Part!



Title:

Car Part Name:

Description:


Type:

Price:

Car Part State:
☐ New
☒ Used

Submit


Provider - Edit Car Post



[Search Cars](#)
[Search Parts](#)
[Logout](#)
[Cart](#)

Edit Car Post

Please edit the details of your Car Post



Title:

Description:

Year:
Make:
Model:
Color:
Consumption:
Price:
KM Run:

Car Part State:
☒ New
☐ Used

Submit

Provider - Delete Post

Car Part Posts

Add Car Part Post

This is a list of your current Car Parts posts on our website:

Post ID	Item Name	Category	Price	Edit
7	Brake	Brake	3500.0	Delete

Post ID	Item Name	Category	Price	Edit
8	REPF382401	Exhaust	3000.0	Delete

Car Posts

Add Car Post


This is a list of your current Car posts on our website:

Post ID	Item Name	Category	Price	Edit
2	Toyota	Camry	25000.0	Delete

Post ID	Item Name	Category	Price	Edit
4	Volvo	Vgo	20000.0	Delete

Search


Search Cars



Search Parts Logout Cart


SEARCH CARS

Toyota Civic White Low to High search refresh




ID: 2
Make: Toyota
Model: Camry
Status: New
Price: 25000.0

View Detail



Search Cars – Results

Search Parts Logout Cart

SEARCH CARS

Kia


-Select-

White

-Select-

search


refresh



ID: 3
Make: Kia
Model: K900
Status: Used
Price: 10000.0


View Detail

View Car Detail



Car Post

Please add to cart to buy




Title: 3
Description: hjkhkj

Year: 2016
Make: Kia
Model: K900
Color: White
Consumption: 18
Price: 10000.0
KM Run: 35000.0

Car Part State: ☐ New ☒ Used


Add To Cart

Add Car to Cart



Car Post

Please add to cart to buy




Title: 3

Description: hjkhkj


Year: 2016
Make: Kia
Model: K900
Color: White
Consumption: 18
Price: 10000.0
KM Run: 35000.0

Car Part State: ☒ New ☐ Used

Add To Cart



Search Car Parts



Search Cars Logout Cart

SEARCH CAR PARTS


Select Category ▼

Select Part- ▼

Price Sort ▼

Search

Refresh




ID: 7

Name: Brake


Status: Used

Price: 3500.0

View Detail




Search Car Parts – Results

Search Cars Logout Cart


SEARCH CAR PARTS

Brake Select Part Low to Hig Search Refresh


RESULTS



ID: 7
Name: Brake
Status: Used
Price: 3500.0
[View Detail](#)




View Car Part Detail

Search Cars Search Parts Logout Cart

Car Part Catalogue

Check out our Car Parts!

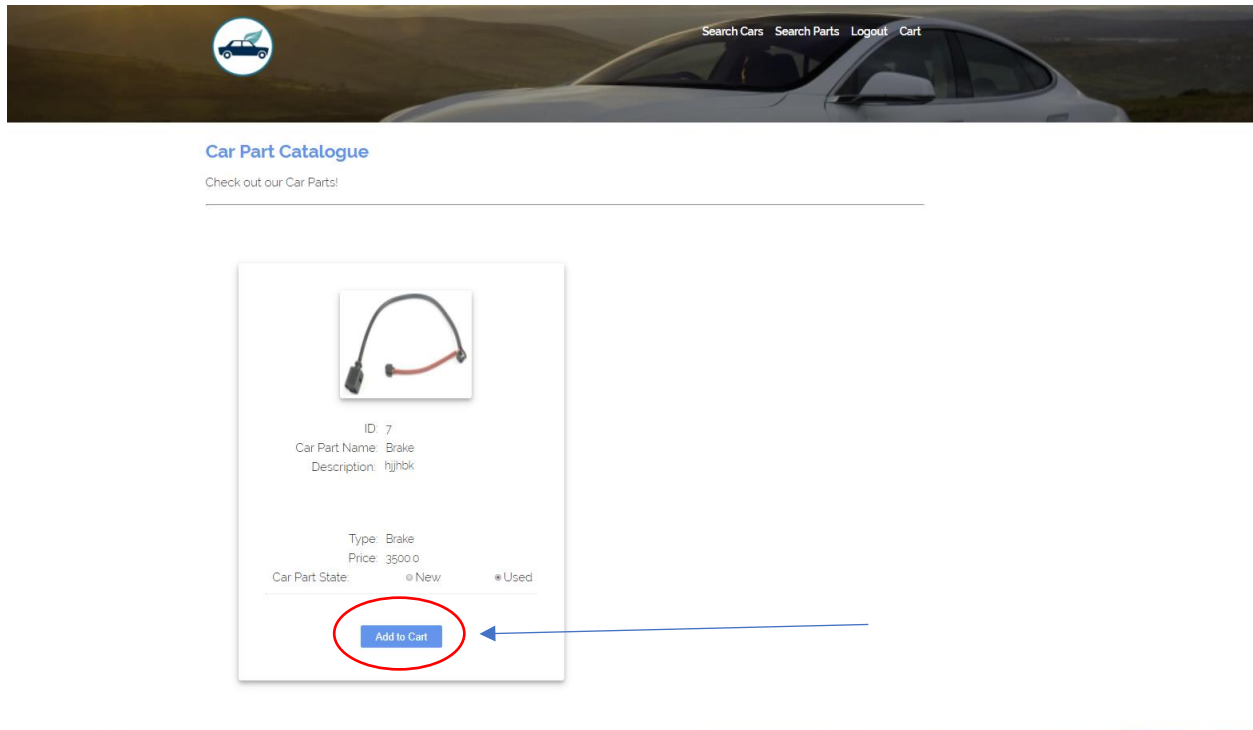


ID: 7
Car Part Name: Brake
Description: hjhbk

Type: Brake
Price: 3500.0
Car Part State: ☒ New ☐ Used

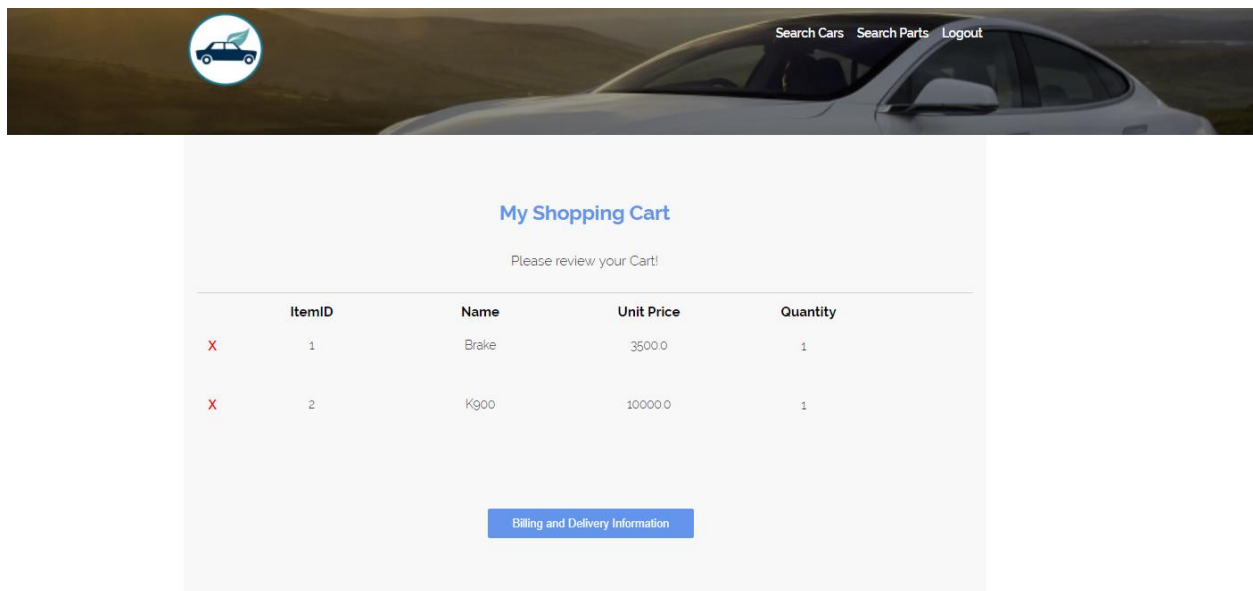
[Add to Cart](#)

Add Car Part to Cart

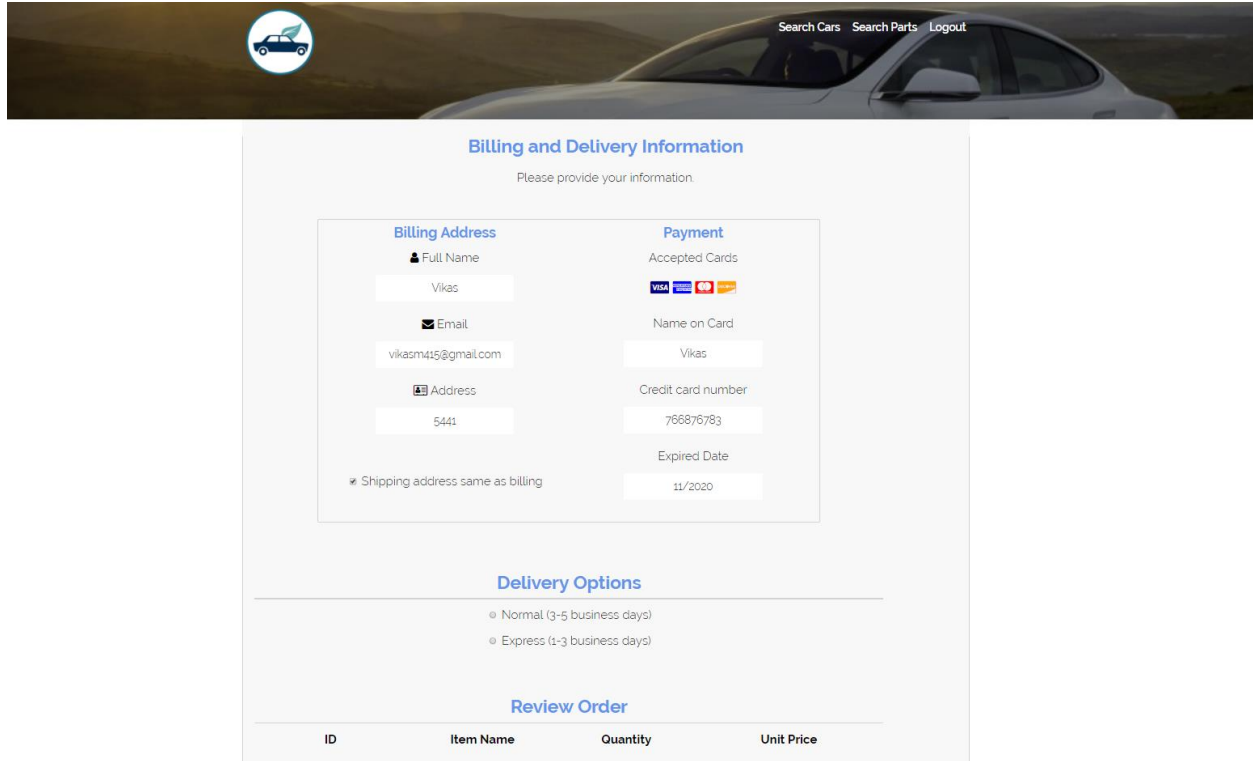


Checkout

View Shopping Cart



Billing and Delivery Information



Billing and Delivery Information
Please provide your information.

Billing Address


Full Name
Vikas

Email
vikasm415@gmail.com

Address
5441

☒ Shipping address same as billing

Payment

Accepted Cards


Name on Card
Vikas

Credit card number
766876783

Expired Date
11/2020

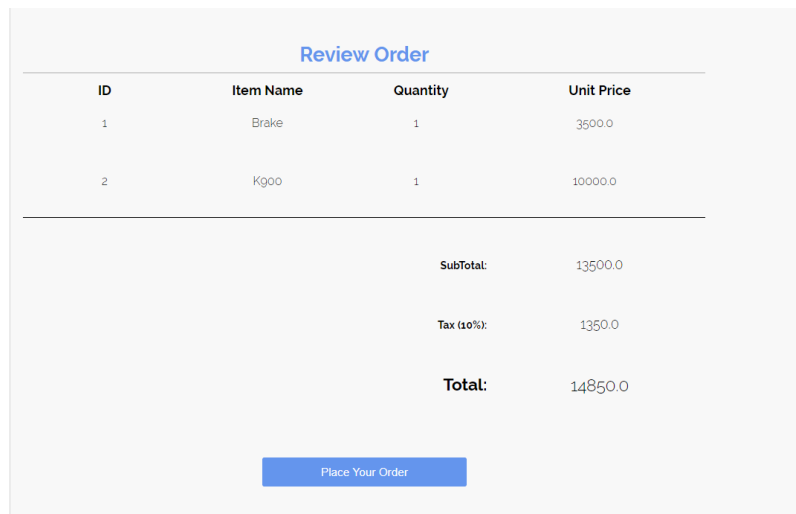
Delivery Options

- ☐ Normal (3-5 business days)
- ☐ Express (1-3 business days)

Review Order

ID	Item Name	Quantity	Unit Price
----	-----------	----------	------------

Review and Place Order



Review Order

ID	Item Name	Quantity	Unit Price
1	Brake	1	3500.0
2	Kg900	1	10000.0

SubTotal:	13500.0
Tax (10%):	1350.0
Total:	14850.0

[Place Your Order](#)

Completed Transaction



Thank you for shopping with us!

You may view your Order Details here:

[Go to Home Page](#)

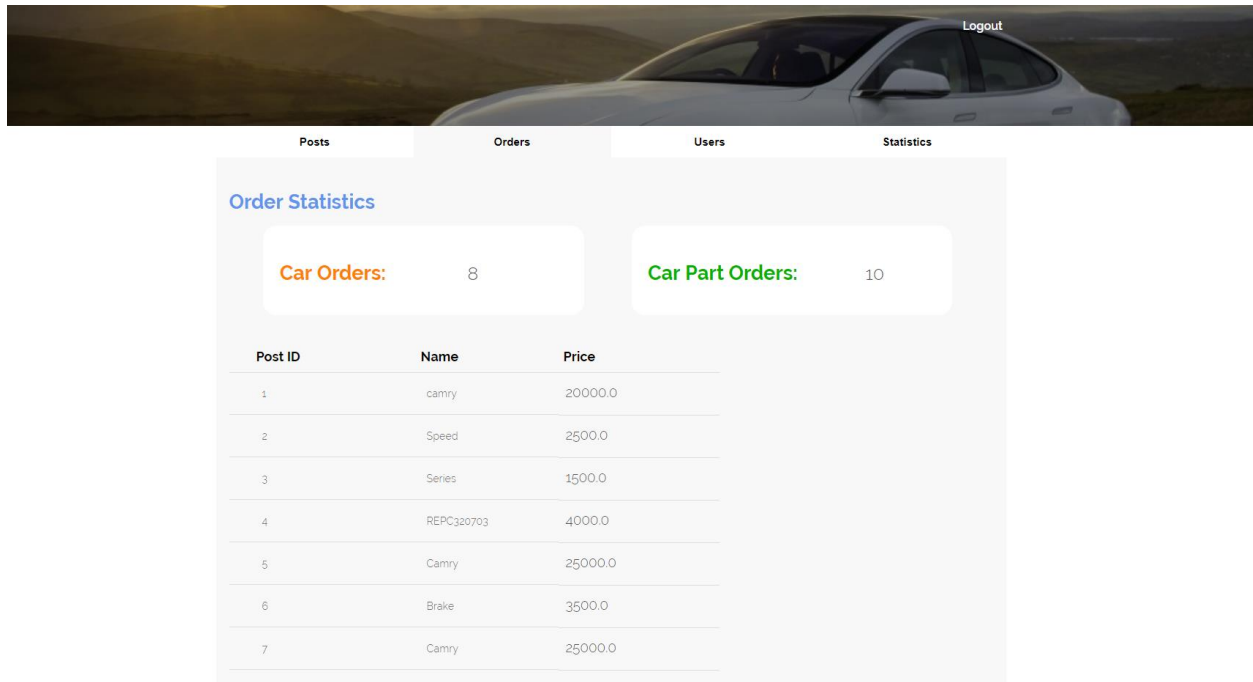
Admin

Admin Page and Posts

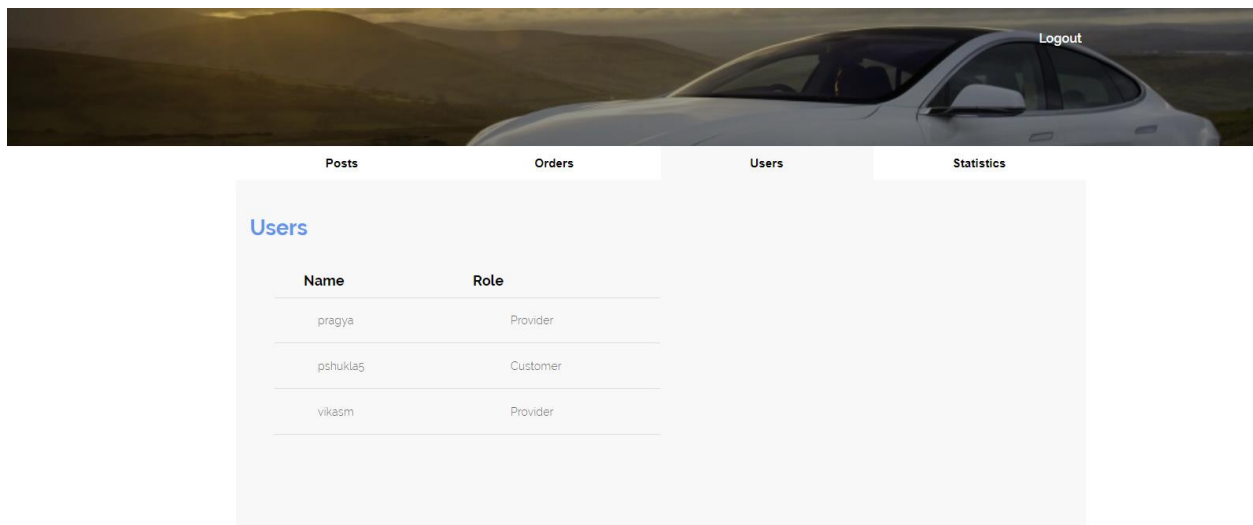


Posts	Orders	Users	Statistics
Post Statistics			
Car Posts: 5		Car Part Posts: 5	
Post ID	Name	Price	
4	REPC320703	1500.0	
5	Brake	2000.0	
6	REPF382401	3000.0	
7	Brake	3500.0	
8	REPF382401	3000.0	
1	Civic	16000.0	
2	Camry	25000.0	
3	Mustang	12000.0	

Orders

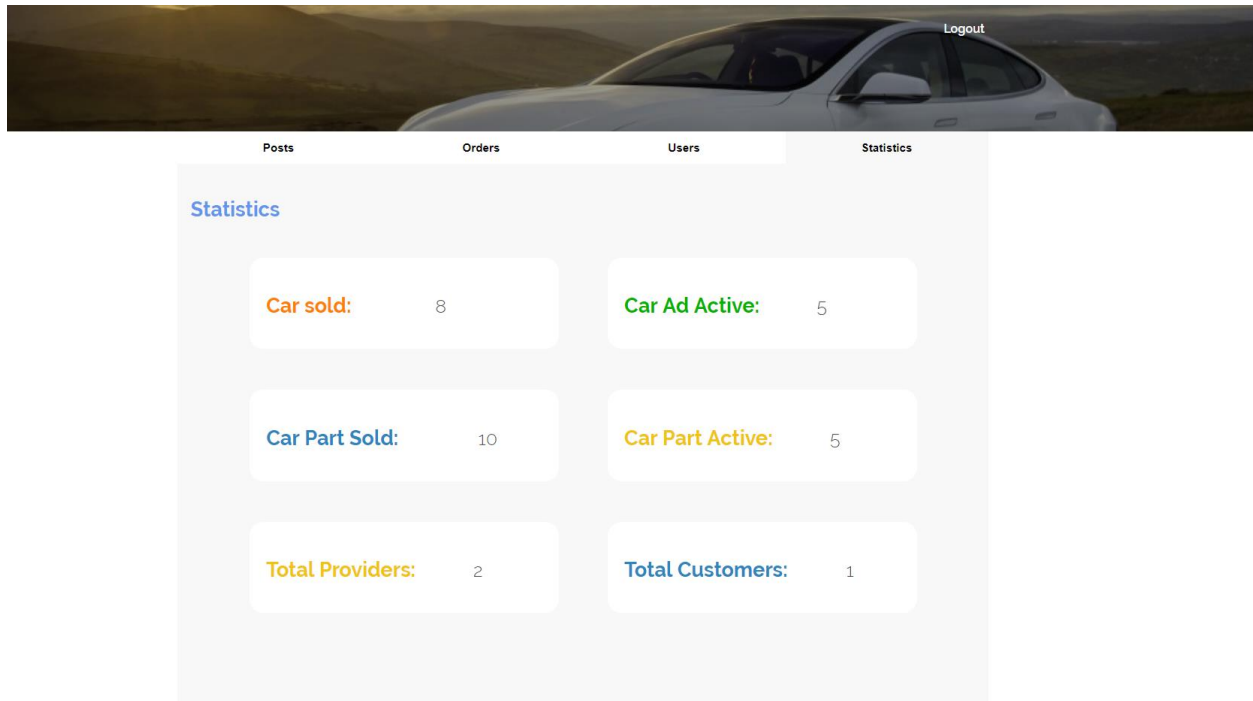


Users



Name	Role
pragya	Provider
pshukla5	Customer
vikasm	Provider

Statistics





Conclusion

What have we achieved:

Our team have managed to complete the goals set prior to this project. We were able to create a functional web application with a basic user flow that allows customers to register/login to browse for car parts and cars to purchase. They are also allowed to sell their car parts by creating new posts. Providers would be using our web application to sell both cars and car parts, additionally they can browse to buy car parts and see what other providers have posted.

Both customers and providers can access their order history, sales history and current posts for reference. The current posts page allows them to add, edit or remove the posts as they wish. Both users can access and change their account information anytime they want.

Our users can search through both cars and car parts posts that are currently available in our database and add them to carts if they would like to purchase these items. Once they are done browsing through the product catalogue, they can view their cart and proceed to checkout. As users are logged in, their billing address and payment details are retrieved from the database, but they can also change it if they wish. After reviewing their information, delivery options and the cart, the user can place their order.

This entire process is functional and ready to be tested with real users.

Future Implementation

1. Social media authentication as this would make it easier for our users to register with us.
2. Implement Graphs and Statistics libraries for our Admin page to help us understand more our users and the information about the web application.
3. Provide a greater variety of model, make and year for cars.
4. Provide a greater selection of car parts and give more detailed information like brands, model numbers and images.
5. Password Hashing to improve security.
6. 2 step verification process with phone number or email address.