INVENTORY MANAGEMENT SYSTEM FOR RETAILERS

TEAM ID: PNT2022TMID20394

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INTRODUCTION

1.1Project Overview

An inventory management system (or inventory system) is the process by which you track your goods throughout your entire supply chain, from purchasing to production to end sales. It governs how you approach inventory management for your business. When it comes to monitoring and maintaining stocked items, Inventory management system is used to check whether the company assets, raw materialsand supplies, or finished goods that are ready to be sent to vendors or end users. Inventory managementsystem is the combination of technology (hardware and software) and processes and procedures. It can be used to construct a checklist, bill of materials, and other documentation connected to production in the industrial sector. To prevent products overstock and outages, businesses utilize inventory management software. It is a tool for organizing inventory data, which was previously typically kept in hard copy. Inventory are items that a business keeps on hand while producing the product and its component parts for sale. the variety of forms that finished goods and inventory might take. The goal of inventory management is to maintain inventory at the lowest cost possible given the objectives to ensure ongoing provisions for ongoing activities. While making judgments on inventory management, a compromise must be reached between several cost factors. It may include the expenses associated with providing inventory, inventory keeping, and expenditures brought on by insufficient stocks.

1.2Purpose

- Tracking the movement of goods between places
- Delivering goods into a warehouse or another place.
- Monitoring product sales and stock levels.
- Avoiding product damage and obsolescence.
- Avoiding losing out on sales due to stock shortages.
- Gathering, packing, and delivering goods from a warehouse.
- Sustaining a balance between excessive and insufficient inventory.
- For a cost secretarial plan to be successful, there must be proper control of accounts and equipment from the time that information is placed with the provider until they have beensuccessfully used in manufacturing.

2. LITERATURE SURVEY

2.1Existing problem

Dave Piasecki [1] (2001) He concentrated on several inventory model calculations using the EOQ method to determine the best buy quantity. He draws attention to the fact that many businesses do not adopt the EOQ model due to the subpar outcomes brought on by erroneous data entry. He claims that the EOQ is an accounting formula that establishes the point at which the costs associated with ordering and stock inventory are the least. He emphasises that the EOQ approach and the JIT approach are compatible. He goes on to explain the EOQ model calculation, which takes into account factors including annual unit utilisation, order cost, and carrying cost. Finally, he suggests a number of actions to take when putting the EOQ model into practise. This literature's weakness right now is that it doesn't go into more detail on the relationship between EOQ and JIT.

Sambasiva Rao. K [2] (2002) According to his study on materials management in the public sector shipbuilding industry, he assesses the effectiveness of materials management and pinpoints some of the challenges it faces. This investigative technique makes use of 68 documents as evidence and a survey of professional opinion. He assesses the current purchasing procedures and the lead times associated with stock item acquisition, and he makes recommendations to shorten the lengthy wait times. His investigation suggests that all of the engineering divisions need more stock in terms of monthly production costs. Additionally, he draws attention to a few issues with materials management, including the availability of surplus and non-moving commodities and their disposal, long lead times, and an over-reliance on imports.

Gaur, Fisher and Raman [3] (2005) They looked at retailing organisations' firm-level inventory behaviour in their investigation. They collected data from 311 publicly traded retail companies between the years 1987 and 2000 to examine the relationship between stock turnover and factors such as gross margin, capital intensity, and sales surprise. Everyone saw that stock total turnover for retailers was inversely correlated with gross margins and favourably correlated with capital intensity with sales surprise.

S. Singh [4] (2006) evaluation of stock control exercises at IFFCO, a single fertilizers firm. He statistically investigated inventory patterns and stock levels in relation to consumption, sales, and other variables, along with growth on these variables. He came to the conclusion that stock component increases increase in the stock's percentage of current assets Stores having spares received extra consideration to account for any additional purchases that might follow. Indian Farmers Fertilizer

Cooperative Limited (IFFCO) and National Fertilizer Limited are two chemical companies that Pradeep Singh (2008) attempted to investigate (NFL). He came to the conclusion that the general state of the IFFCO/NFL working fund is satisfactory. However, given the IFFCO situation, there is a need for inventory to be improved.

Capkun, Hameri and Weiss [5] (2009) Using capital information from a sizable sample of US- based production units over a 26-year period, from 1980 to 2005, statistical analysis was done to determine the relationship between stock levels and fund position in manufacturing enterprises. They claimed that there was a strong correlation between profitability and the performance of the inventory and its constituentparts.

Gaur and Bhattacharya [6] (2011) Aimed to research the relationship between the financial success of Indian manufacturing enterprises and the performance of inventory items such raw materials, work in progress, and finished goods. The study found that while raw material inventory and work-in-progress had little bearing on business performance, finished goods inventory was inversely related to it. They emphasised the need to attempt to concentrate on individual inventory components rather than the entire inventory in order to manage it effectively. They came to the conclusion that managers who don't pay attention to inventory performance may struggle to compete.

Enejeetal [7] (2012) He studied how the raw stock inventory management system with margin of the beer company had changed in Nigeria between 1989 and 2008 using data that had been collected for analysis from the annual reports of the sampled brewery firms. Brewers' management of their raw material inventory was modelled using profitability metrics. In the investigation, the Ordinary Least Squares (OLS) method applied as a multiple regression model was used.
According to research, the profitability of the brewery businesses in Nigeria is highly influenced by the local variable raw stock inventory managing system's design, which captures changes of effective management of raw stock inventory on behalf of the company in terms of their margin.

Nyabwanga and Ojera [8] (2012) Their research concentrate relationship among inventory management with business performance of smallscale enterprises (SSEs), in Kisii Municipality, Kisii County,Kenya. They used a cross-sectional survey study based on a small sample size of 79 SSEs. The study inferred that inventory comprised the maximum portion of working capital, and improper management of working capitalwas one of the major reasons of SSE failures. The empirical results disclosed that a positive significant relationship existed between business performance and inventory management practices with inventory budgeting having the maximum influence on business.

Sahari, Tinggi and Kadri [9] (2012) They concentrated on the relationship between the inventory management system and business success as it related to funding capacity. For that purpose, they searched
82 sample construction firms in Malaysia between the years of 2006 and 2010. They came to the conclusion that inventory management is favourably connected with company performance using the regression and correlation analysis methodologies. The findings also suggest a favourable relationship between inventory control and capital intensity.

Soni [10] (2012) Made a thorough analysis of the inventory management procedures used in Punjab's engineering goods industry. The investigation was conducted utilising a panel data set and a sample of 11 companies during a five-year period, from 2004 to 2009. The success of an industry is determined by the appropriate and prompt flow of inventories. In contrast to increases in current assets and net working capital,she came to the conclusion that inventory size only slightly increased during the time. Half of the working capital was made up of inventories, which were overstocked as a result of low inventory turnover, particularly for completed items and raw materials. Inventory levels increase as sales increase and the marketis in good shape. **Lwiki et al [11]** (2013) A review of all eight sugar production companies in Kenya revealeda generally favourable association between all inventory management techniques. It has been demonstrated that certain performance indicators depend on the sophistication of inventory management techniques. They found a significant relationship between Return on Equity, a lean inventory strategy, and strategic supplier alliances. As a result, they came to the conclusion that inventory management methods might be said to be a function of the performance of sugar enterprises.

Panigrahi [12] (2013) His analysis suggests that the inventory management techniques employed by Indiancement companies and their effects on working capital efficiency. The study also looked into the connectionbetween inventory conversion

days and profitability. The study found that there must be an antagonistic relationship between the conversion period of inventory and profit margin over a ten-year period, from 2001to 2010, utilising a sample of the top five cement businesses in India.

Madishetti and Kibona [13] (2013) It was discovered that a small- or medium-sized enterprise's (SMEs) profitability benefits from an inventory management strategy that is adequately conceived and implemented.They looked at how inventory management affected the profitability of SMEs as well as the relationship between inventory conversion time and profitability. They used information from financial records for the years 2006 to 2011 to analyse a sample of 26 Tanzanian SMEs. To ascertain the effect of the inventory conversion period on gross operating profit, regression analysis was used. The findings made it evident thatthere was a strong negative linear link between inventory conversion time and profitability.

Srinivas Rao Kasisomayajula [14] (2014) Inventory Management in the Commercial Vehicle Industry in India is the subject of his research. Five representative businesses were chosen for the study. The analysis came to the conclusion that there is a substantial association between inventory and sales for all units in the commercial vehicle market. An organization's health must be maintained and improved through effective inventory management. The profitability of the company will increase with effective inventory management.

Edwin Sitienei and Florence Memba [15] (2015) Conducted a study on the impact of inventory management on the Kenyan cement industry's profitability. According to the study's findings, the inventoryconversion duration and gross profit margin are inversely connected. Increases in sales, which indicate a larger firm, enrich the firm's inventory levels, which boost profits because of the right amount of inventory on hand. In order to increase profitability and lower inventory expenses associated with keeping too much stock in warehouses, organizations inventory systems must maintain optimal inventory levels.

2.2 References

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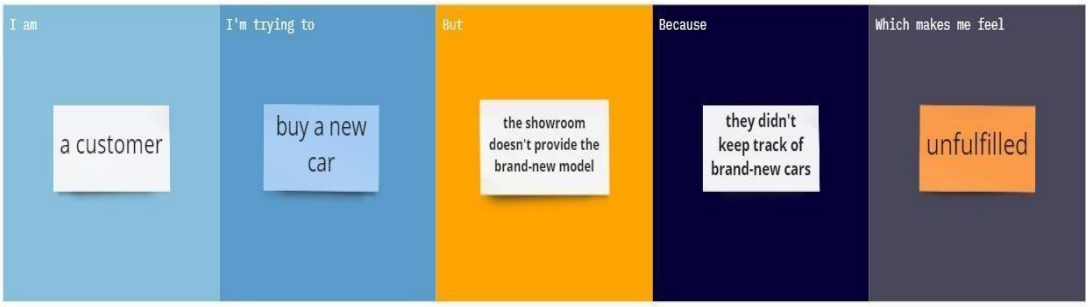
2.2Problem Statement Definition

PROBLEM STATEMENT 1

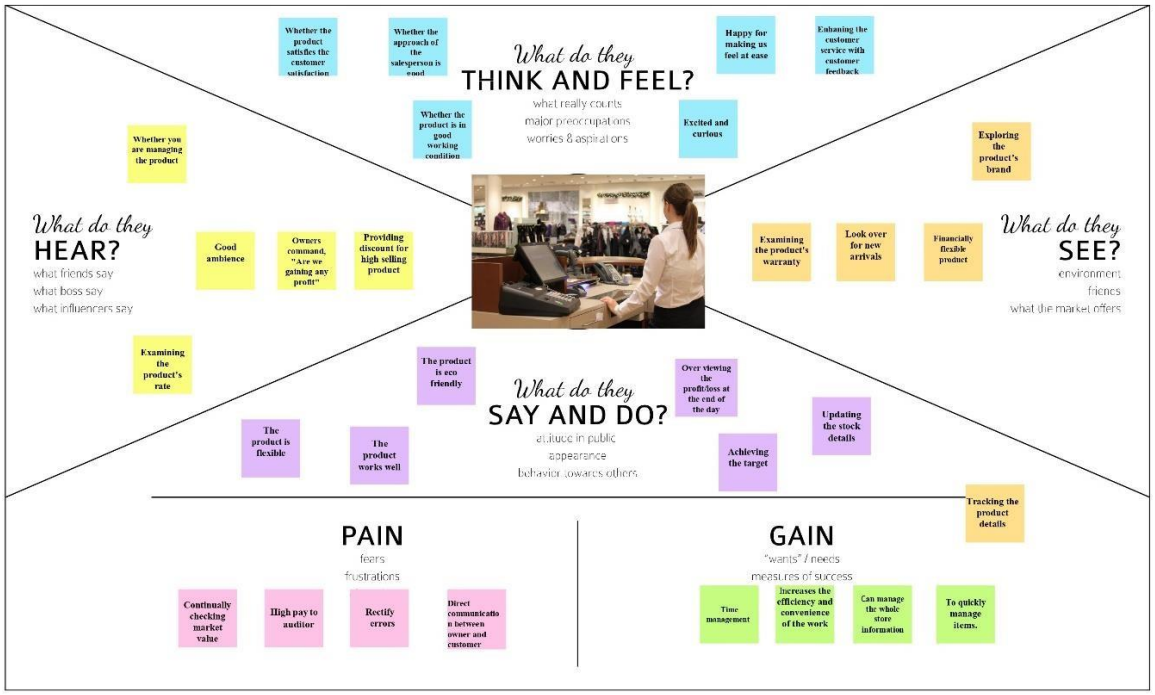
PROBLEM STATEMENT 2



3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

The core empathy map, which aids in identifying and describing the user's wants and pain points, is expanded upon in an empathy map canvas. Additionally, this data is useful for enhancing user experience. Teams employ user insights to map out what matters to, impacts, and how their target audience presents themselves. Using this data, personas are then developed to assist teams in visualizing and empathizing with users as people rather than just as a general marketing demographic or account number.

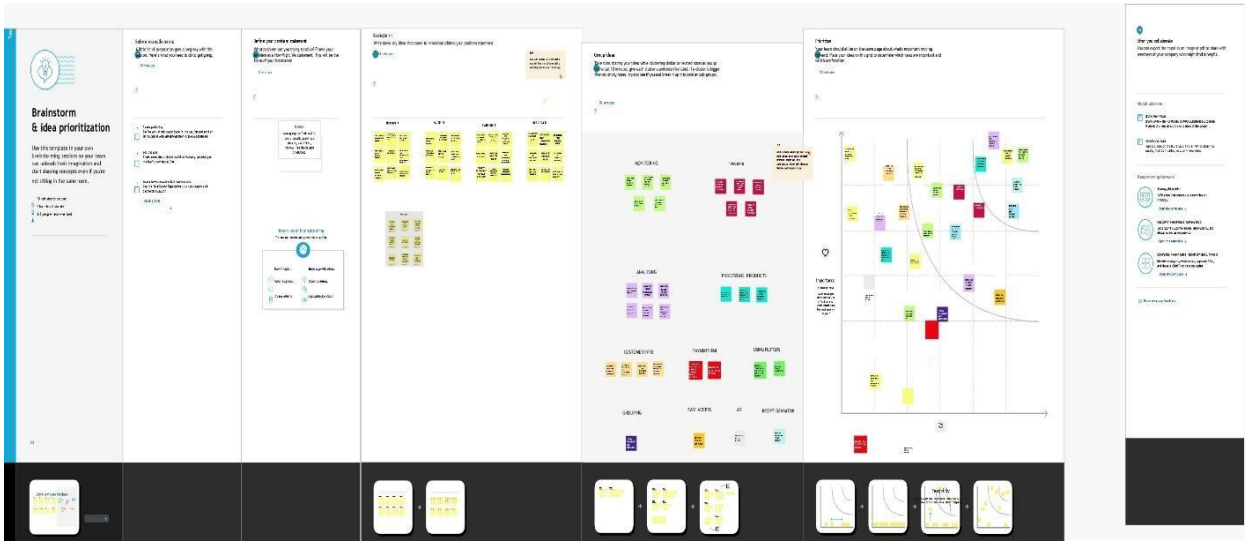


Empathy Map Canvas

3.2 Ideation & Brainstorming

Ideation fundamentally refers to the entire creative process of coming up with and sharing new ideas. Ideation is creative thought that usually aims to solve a problem or offer a better way to do something. It includes coming up with new ideas, developing current ideas, and determining how to put new ideas into effect.

Ideation and brainstorming, a particular method for producing fresh ideas, are frequently closely related activities. When brainstorming, a group of people are usually brought together to generate either new, broad ideas or suggestions for how to handle a particular situation or problem.



Ideation &
Brainstorming

3.3 Proposed Solution

Making an application for retailers to maintain their inventory supplies and manage purchases, sales,stocks, etc. is the challenge that needs to be solved.

Solution description

The solution is to create an application that tracks and manages stock levels for their own product lines. The retailers create their accounts by verifying their information and entering their product stock/inventory. When finished, they can log into the application to view their supplies, sales, and change their stocks when restocking, among other things. They can identify which stocks are in high demand, and when those stocks are in danger of running out, they are alerted so they can restock them.

Uniqueness

Since we have information on stock sales, we can estimate which stocks will be the most popular so that shops may refill up on those items first. Regression analysis and historical sales data within our application can be used to retrieve the data. By containerizing using a Docker application, maintenance and development can also be made simpler.

Customer Satisfaction

Using the information from our application, we can buy and refill only the stocks that are needed, reducing excess stocks in the inventory that could result in product waste. We can also observe which goods are selling well and which are not doing as well as anticipated. We can request the necessary quantity of inventories from vendors and suppliers and initiate better arrangements with them as we will be aware of which

products are required in large quantities.

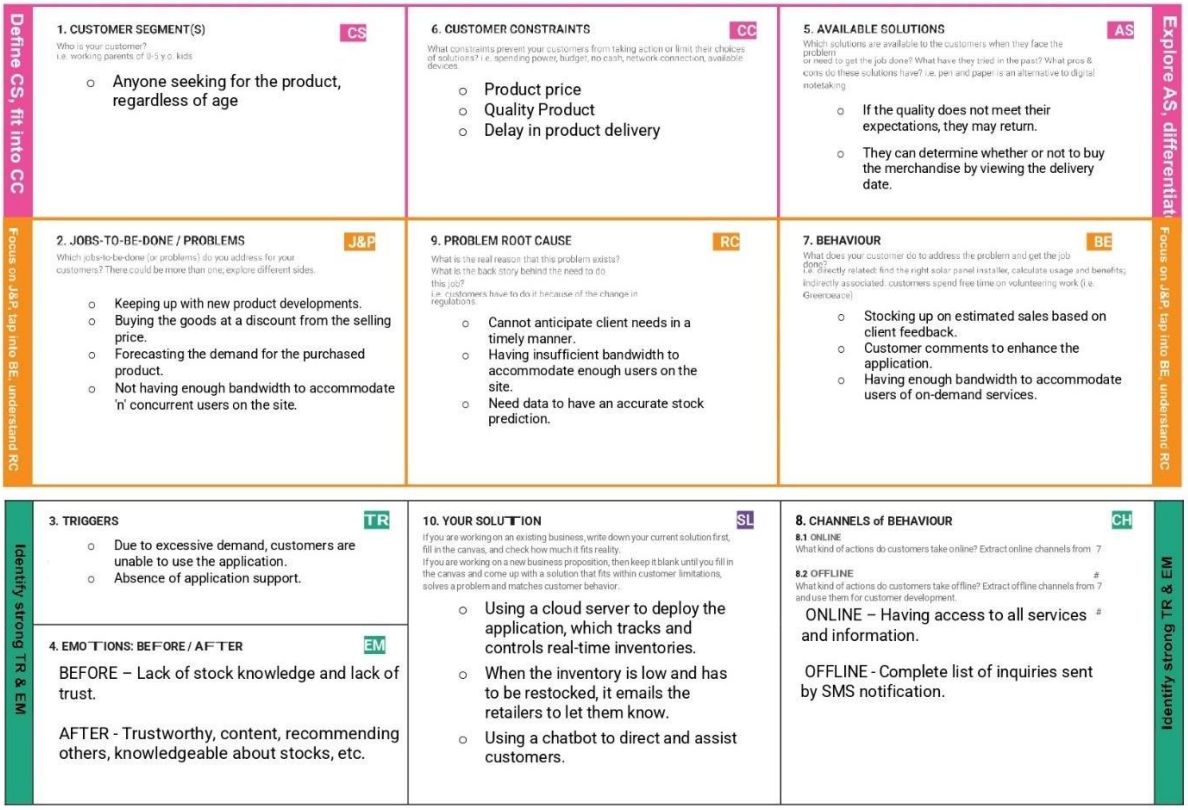
Business Model (Revenue Model)

By analyzing the predicted products that have a higher likelihood of being purchased in large quantities and eliminating unnecessary redundant products that may be excess when not ordered in the right amount, retailers can order the fast-moving products and the appropriate number of stocks from suppliers andvendors.

Scalability of the Solution

Through virtualization, scalable cloud architecture is made possible. Unlike actual machines, which have processors, memory, and other physical hardware that determines their resources and performance. Thevirtual machines we utilize on the IBM Cloud are very scalable and adaptable. Users of Kubernetes can scale the containers in accordance with changing application requirements. Via command lines, changing the number is simple.

3.4Problem Solution fit



4. REQUIREMENT ANALYSIS

4.1Functional requirement

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Sign in	Sign in to the application by LinkedIn/Gmail, Usernameand Password.
FR-4	Dashboard	Can view the product details and offers.
FR-5	Booking	The required products are selected and booked.
FR-6	Shipping	To track the delivery details of the selected product.
FR-7	Restocking	Ordering more products when the stock is low.

4.2Non-Functional requirements

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	✓ Creating a learning curve into the site'sdesign and development. ✓ Having a user-friendly, straightforwardwebsite. Beautiful-looking website. ✓ Making the website responsive forconsumers on both desktops and mobile devices.

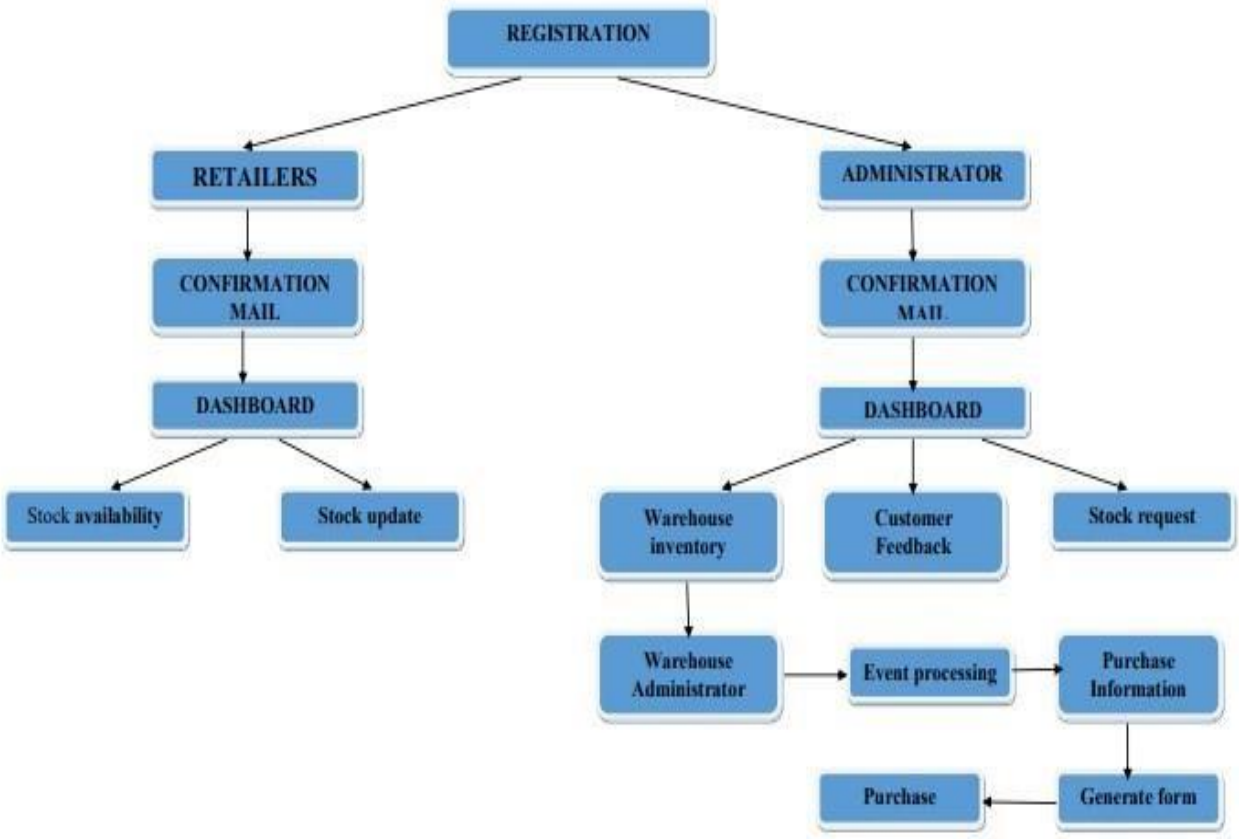
NFR-2	**Security**	✓ Strong security is necessary to prevent hackers from accessing the accounts or data of authorized users. To demonstrate authentication and authorization, log in systems is utilized. ✓ Utilizing OTP can improve security. ✓ Cookies-based security mechanism for user authentication and enhanced website user ✓ experience
NFR-3	**Reliability**	✓ When the website is active, it should be able to manage the necessary number of users without slowing or causing any inconvenience to the user. ✓ While running the apps, there should be few mistakes. ✓ It should be accessible even during disasters.
NFR-4	**Performance**	✓ This has the advantage of cutting down the time needed for aisle and product searches, among other conveniences. ✓ It decreases expenses, saves time during restocking, and forecasts the top-selling goods. ✓ Due to the business's streamlined management system, it is more productive ✓ and profitable.

NFR-5	**Availability**	✓ To provide high availability of database servers and performances, this employs IBM ✓ DB2.
NFR-6	**Scalability**	✓ Due to DB2's excellent scalability, coding can be created and developed quickly, and new features can be added without much difficulty. ✓ High-scalability IBM Container is utilised in the Docker registry. ✓ Any new functionality can be added by reusing the code.

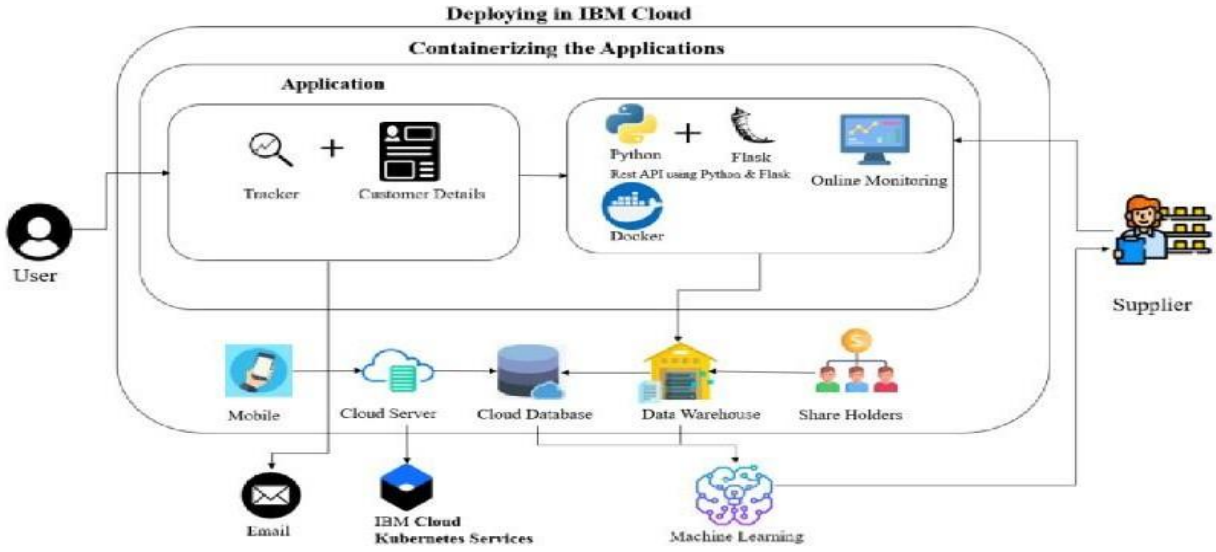
5. PROJECT DESIGN

5.1Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2Solution & Technical Architecture



5.3User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1

		USN-3	As a user, I can registerfor the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can registerfor the application through Gmail	I can register & access the dashboard by using my Gmail.	Medium	Sprint-3
	Login	USN-5	As a user, I can log intothe application by entering email & password	I can login with registered email and password.	High	Sprint-4
	Dashboard	USN-6	As a user, I have access to both the currently available products and the out-of-stock products.	Once logged in, you may view the inventory.	High	Sprint-4
	Restocking Product	USN-7	As a user, I can refill theproducts and add items that aren't already in theinventory.	Retailers have the option to refill and update their inventory when the products are not available.	Medium	Sprint-5
Customer Care Executive	Request for customer care	USN-8	As a user, I have accessto the customer service administrators and can ask questions about my	Users can get assistance andsupport from executives	Medium	Sprint-3

			concerns.	by contacting customer care.		
Administrator	Collecting Feedback	USN-9	As a user, I have the ability to give feedback forms outlining any suggestions for enhancingor correcting any problems that I have.	Users can provide administrators withinput on problems or enhancements.	Medium	Sprint-5

6. PROJECT PLANNING & SCHEDULING

6.1Sprint Delivery Schedule

Product Backlog, Sprint Schedule, and Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Point	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by using my email & password and confirming my login credentials.	3	High	Inbasudan S, Jayabal S, Jagadeeswaran U, Harshavardhan M, Ashwath K
Sprint-1		USN-2	As a user, I can login through my E-mail.	3	Medium	Inbasudan S, Jayabal S, Jagadeeswaran U, Harshavardhan M, Ashwath K
Sprint-1	Confirmation	USN-3	As a user, I can receive my confirmation email once I have registered for the application.	2	High	Inbasudan S, Jayabal S, Jagadeeswaran U, Harshavardhan M, Ashwath K
Sprint-1	Login	USN-4	As a user, I can log into the authorized account by entering the registered	3	Medium	Inbasudan S, Jayabal S, Jagadeeswaran U, Harshavardhan M, Ashwath K

			email and password.			
Sprint-2	Dashboard	USN-5	As a user, I can view the	4	High	Inbasudan S, Jayabal S, Jagadeeswaran U, Harshavardhan M, Ashwath K
Sprint-2	Stocks update	USN-6	As a user, I can add products which are not available in the inventory and restock the products.	3	Medium	Inbasudan S, Jayabal S, Jagadeeswarn U, Harshavardhan M, Ashwath k

Sprint-3	Sales prediction	USN-7	As a user, I can get access to sales prediction tool which can help me to predict better restock management of product.	6	Medium	Inbasudan S, Jayabal S, Jagadeeswaran U, Harshavardhan M, Ashwath K
Sprint-4	Request for customercare	USN-8	As a user, I am able to request customer care to get in touch with theadministrators and enquire the doubts and problems.	4	Medium	Inbasudan S, Jayabal S, Jagadeeswaran U, Harshavardhan M, Ashwath K
Sprint-4	Giving feedback	USN-9	As a user, I am able to send feedback forms reporting any ideas for improving or resolving any issues I am facing toget it resolved.	3	Medium	Inbasudan S, Jayabal S, Jagadeeswaran U, Harshavardhan M, Ashwath K

6.2Reports from JIRA

Project Tracker, Velocity:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned	Sprint Release Date (Actual)

					End Date)	
Sprint -1	11	6 Days	24 Oct 2022	29 Oct 2022	11	29 Oct 2022
Sprint -2	7	6 Days	31 Oct 2022	05 Nov 2022	7	05 Nov 2022
Sprint -3	6	6 Days	07 Nov 2022	12 Nov 2022	6	12 Nov 2022
Sprint -4	7	6 Days	14 Nov 2022	19 Nov 2022	7	19 Nov 2022

Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

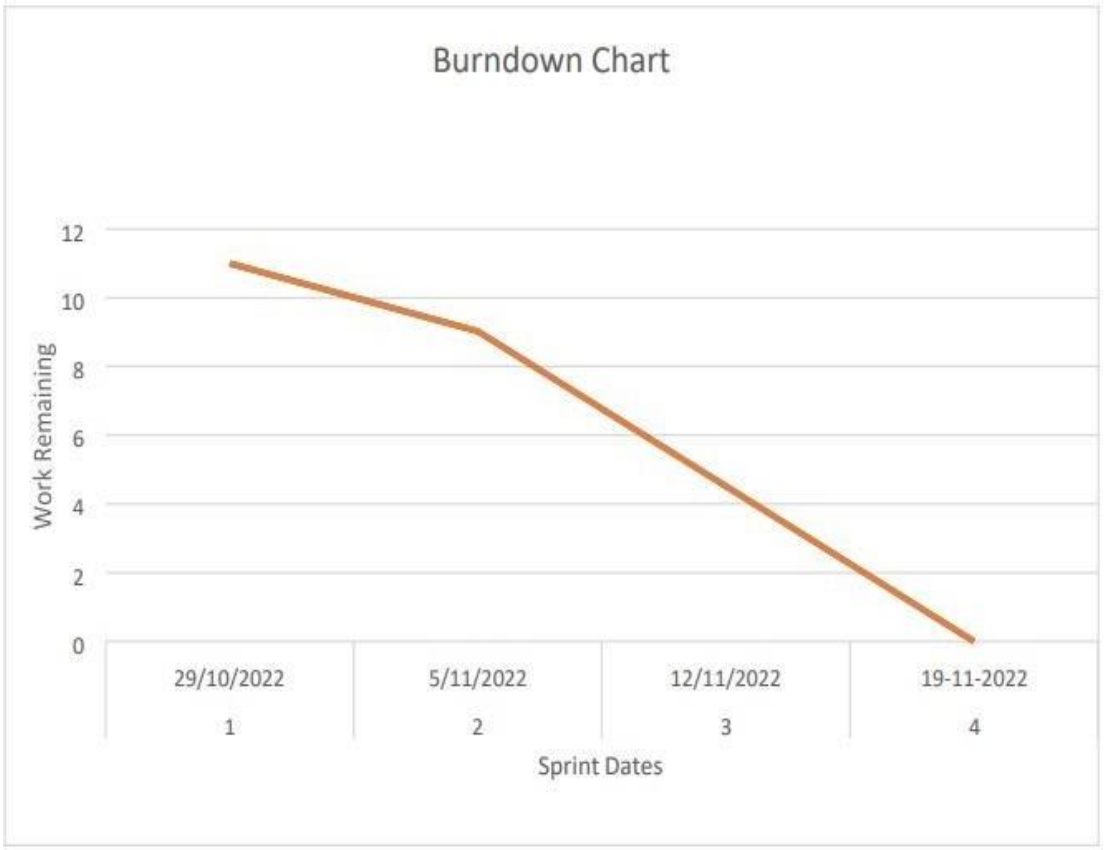
$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

Our velocity should be:

$$\text{AV} = \frac{11+7+6+7}{24} = \frac{31}{24} = 1.29$$

Burndown Chart:

A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development



methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

7. CODING & SOLUTION

7.1Feature 1

1. Purchase Order System

   Purchase orders in the system and send them directly from system to vendors.

2. Customer Reporting

   Customer can report their problems.

3. Efficiency Manage Inventory

   Manage the Inventory & Expire Date is simple. Effective control and reduces losses due towaste.

4. Backorders

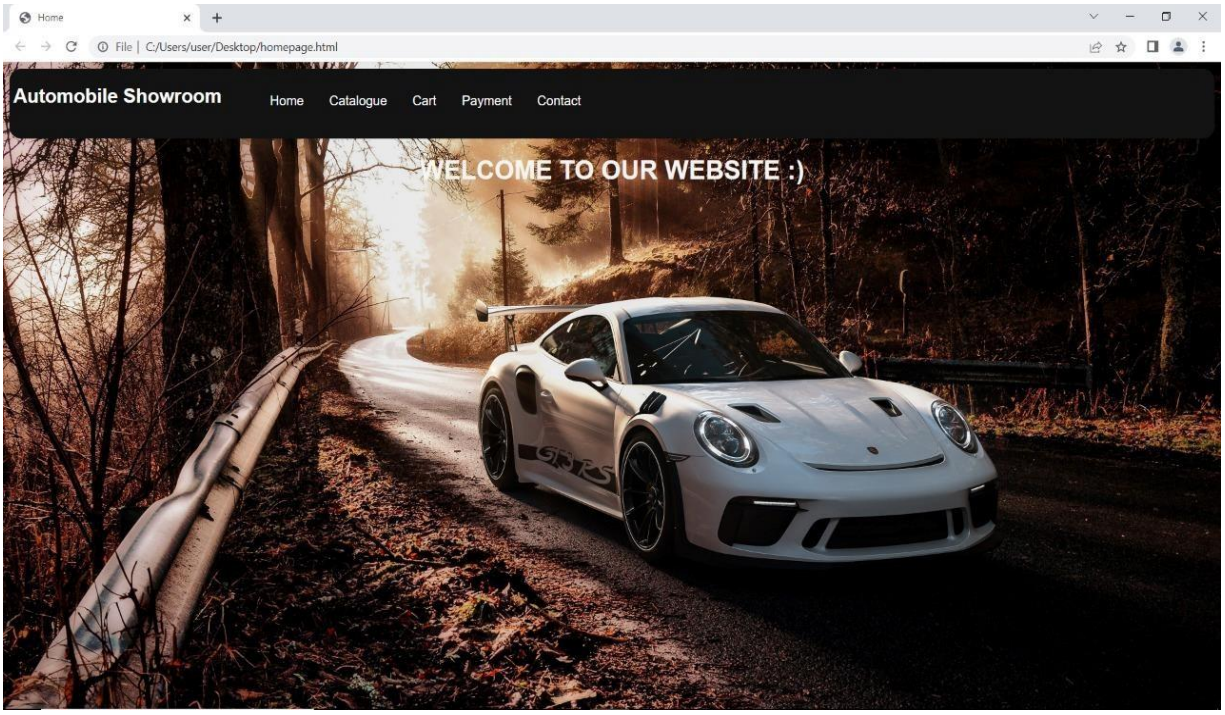
   Backorders for unreceived orders or partial unreceived orders.

5. Invoice

   Generate invoices for orders that can be emailed.

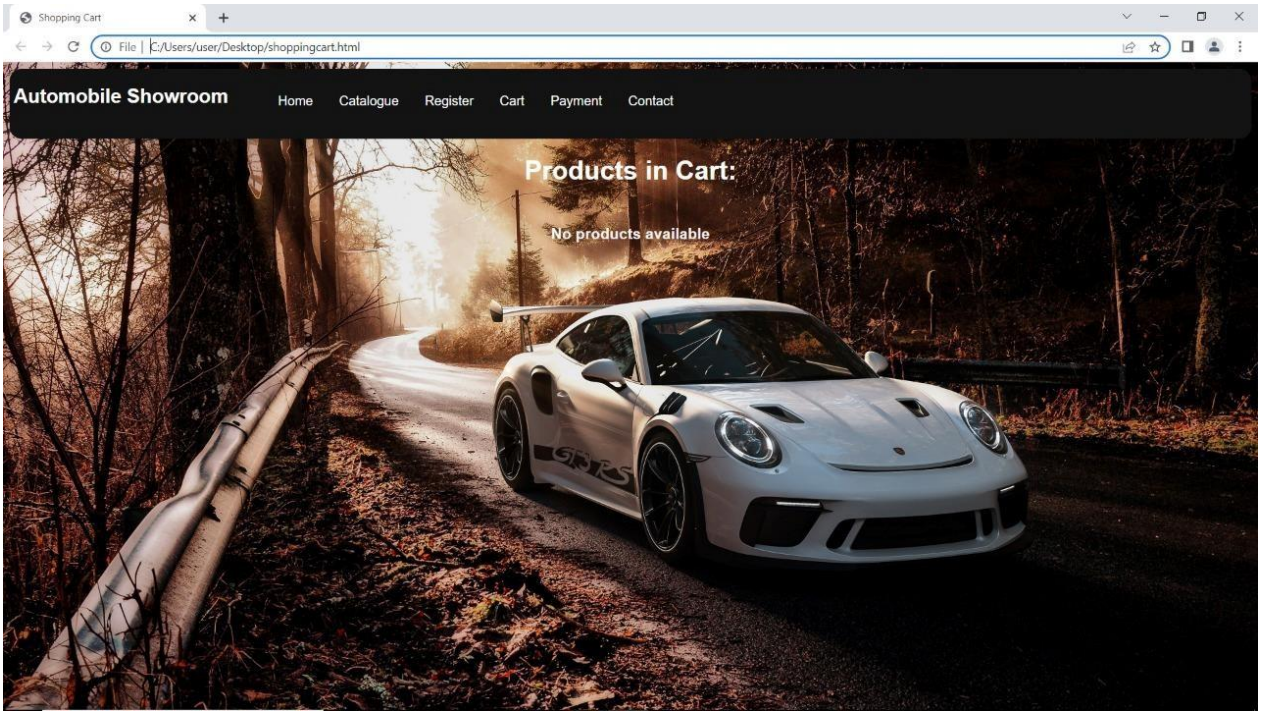
8. TESTING

8.1Test Cases

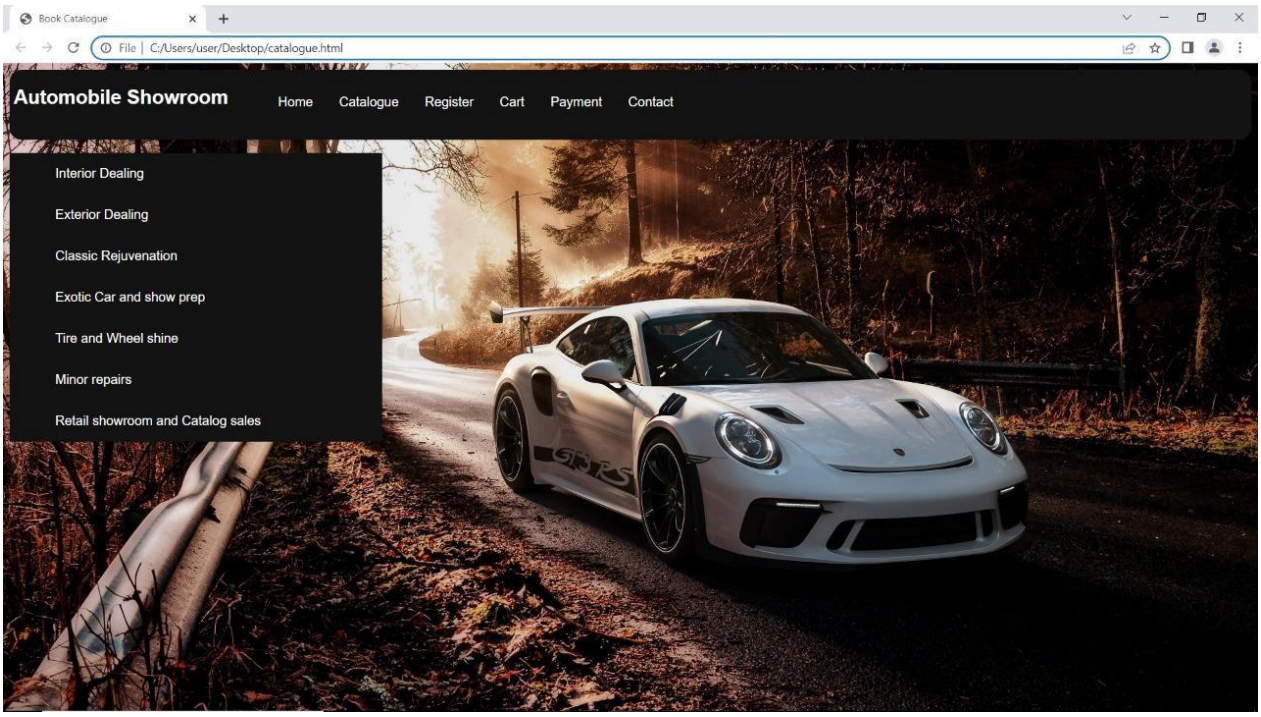


Sprint 1

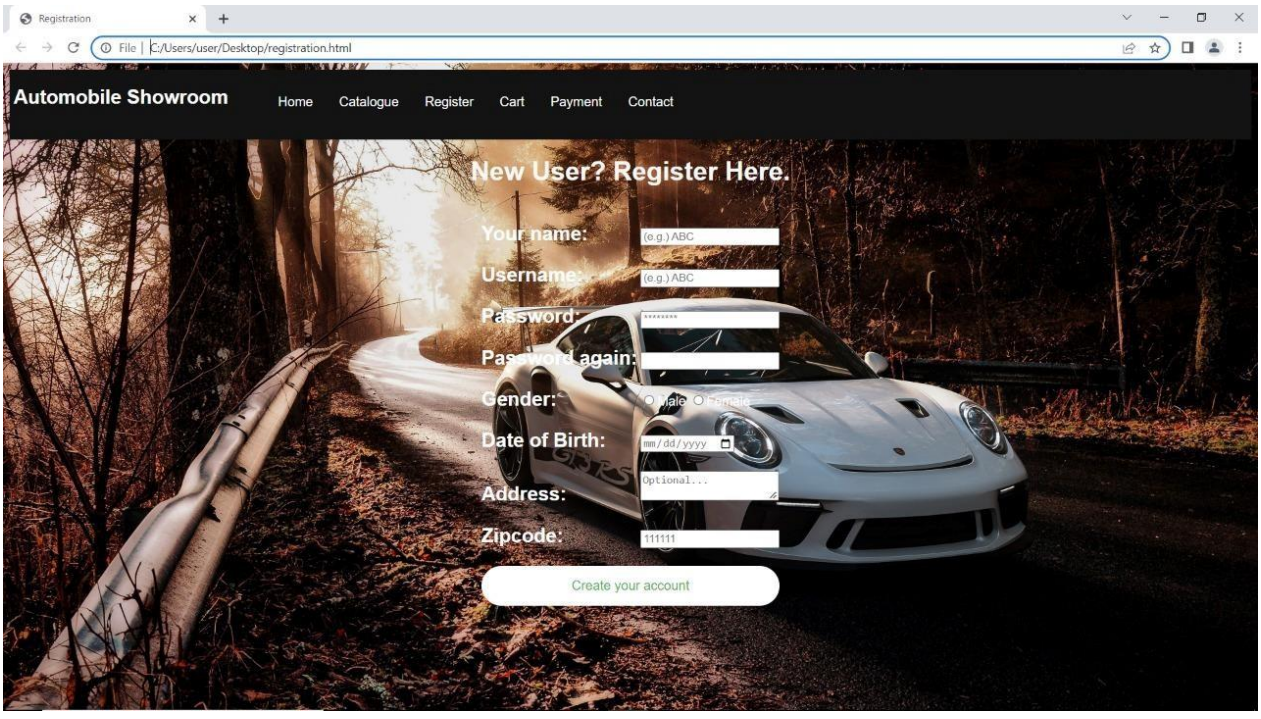
Home Page



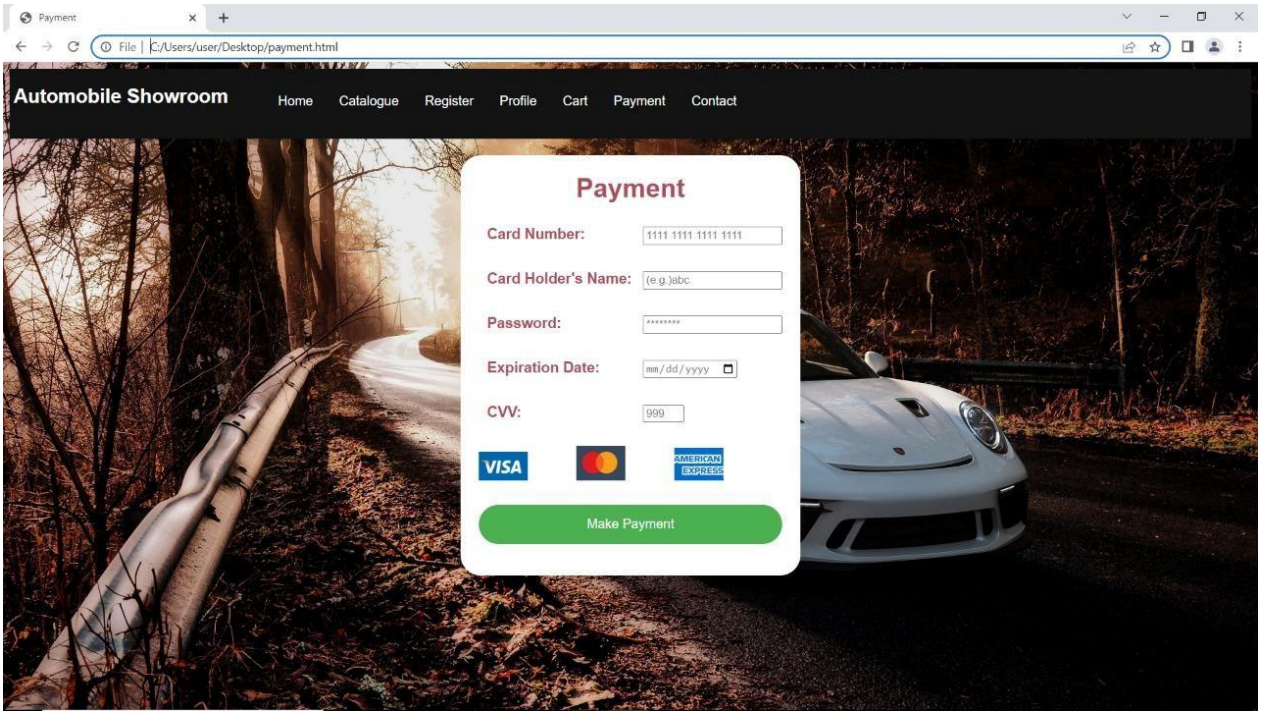
Card Page



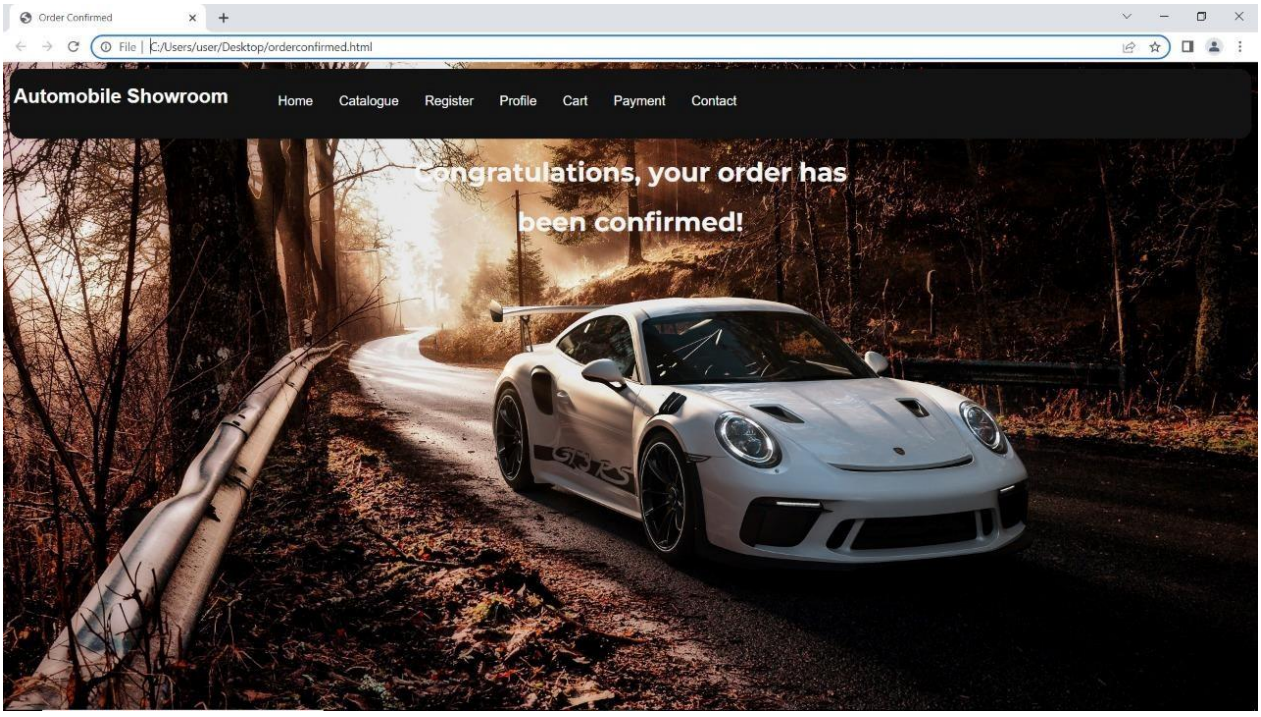
Catalog Page



Registration Page

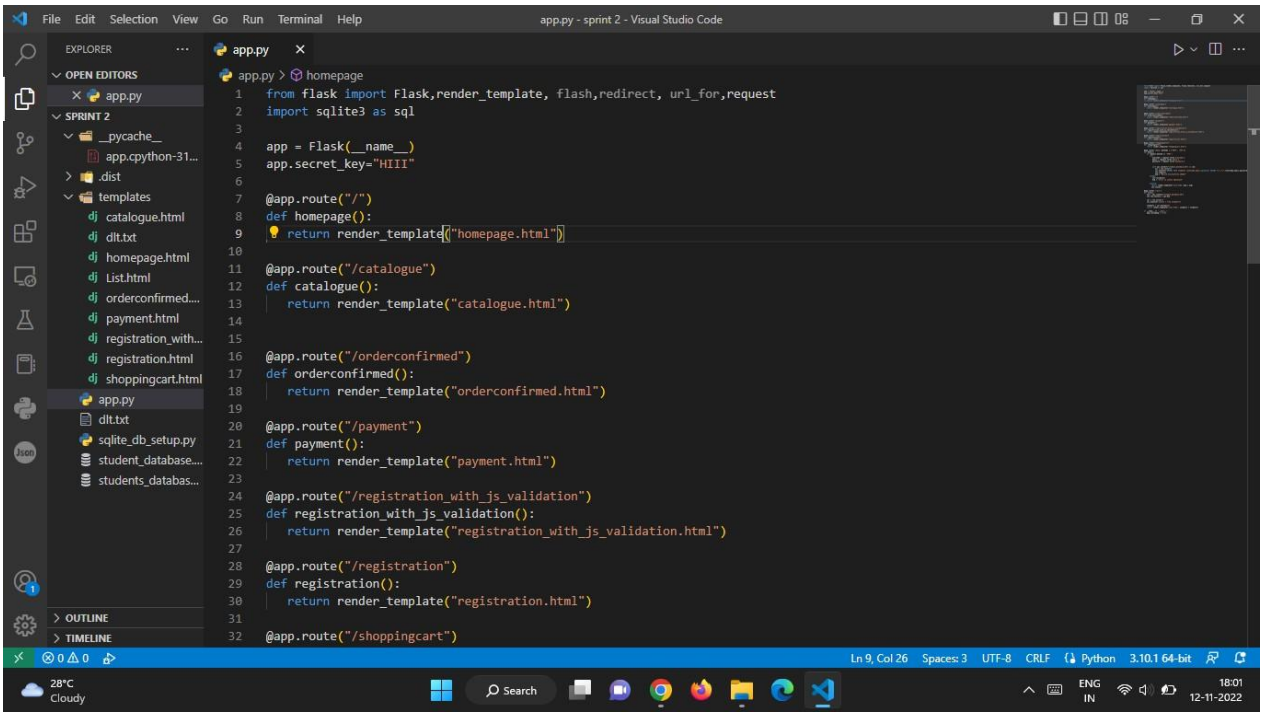


Payment Page

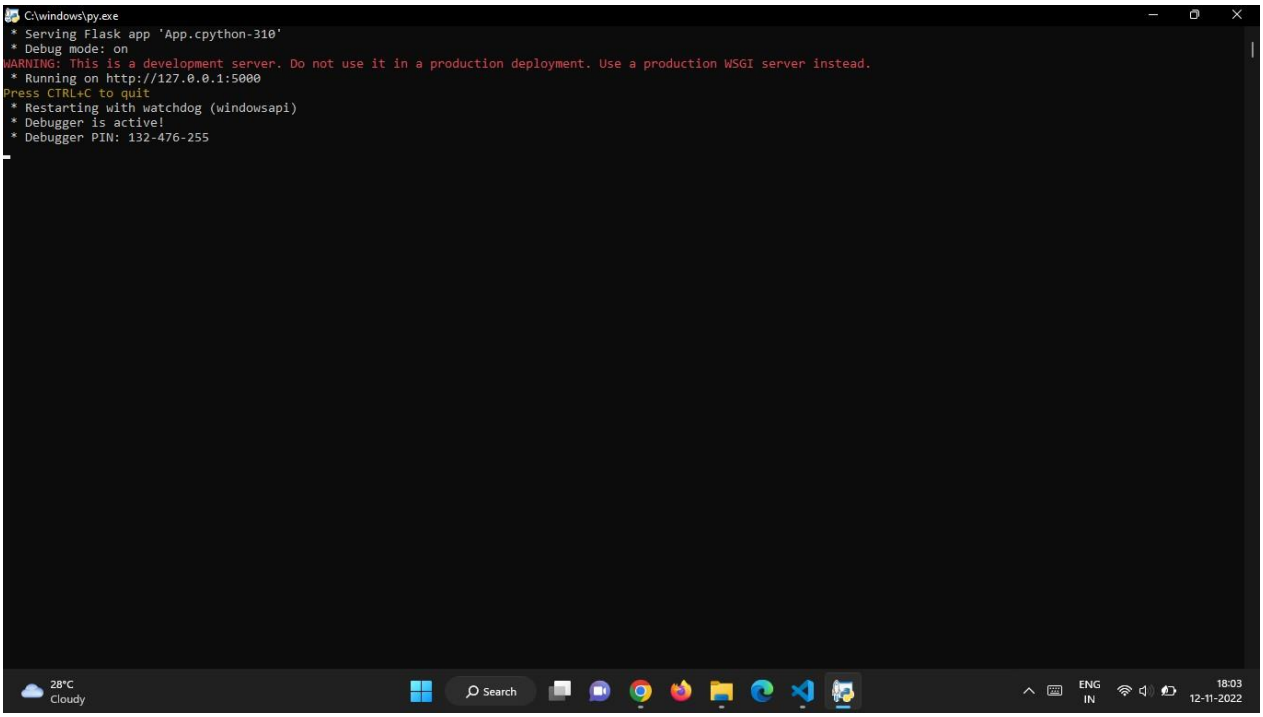


Oder Confirmation Page

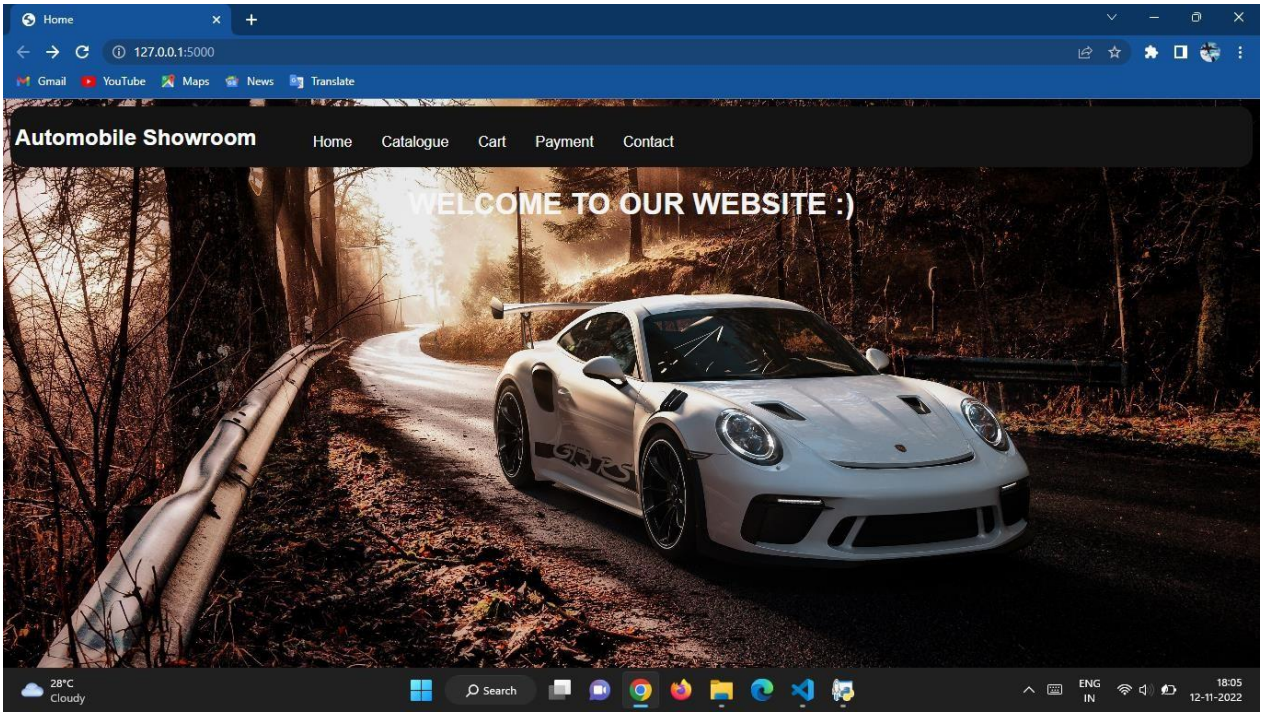
Sprint-2



Coding

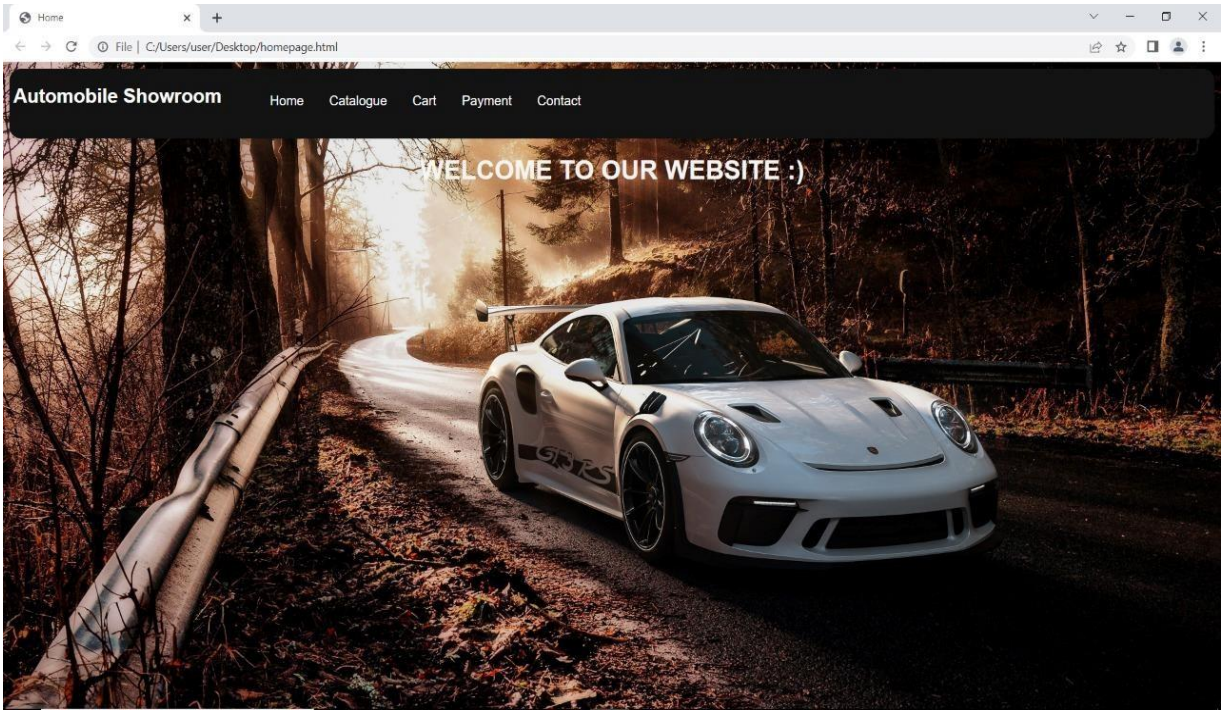


Terminal

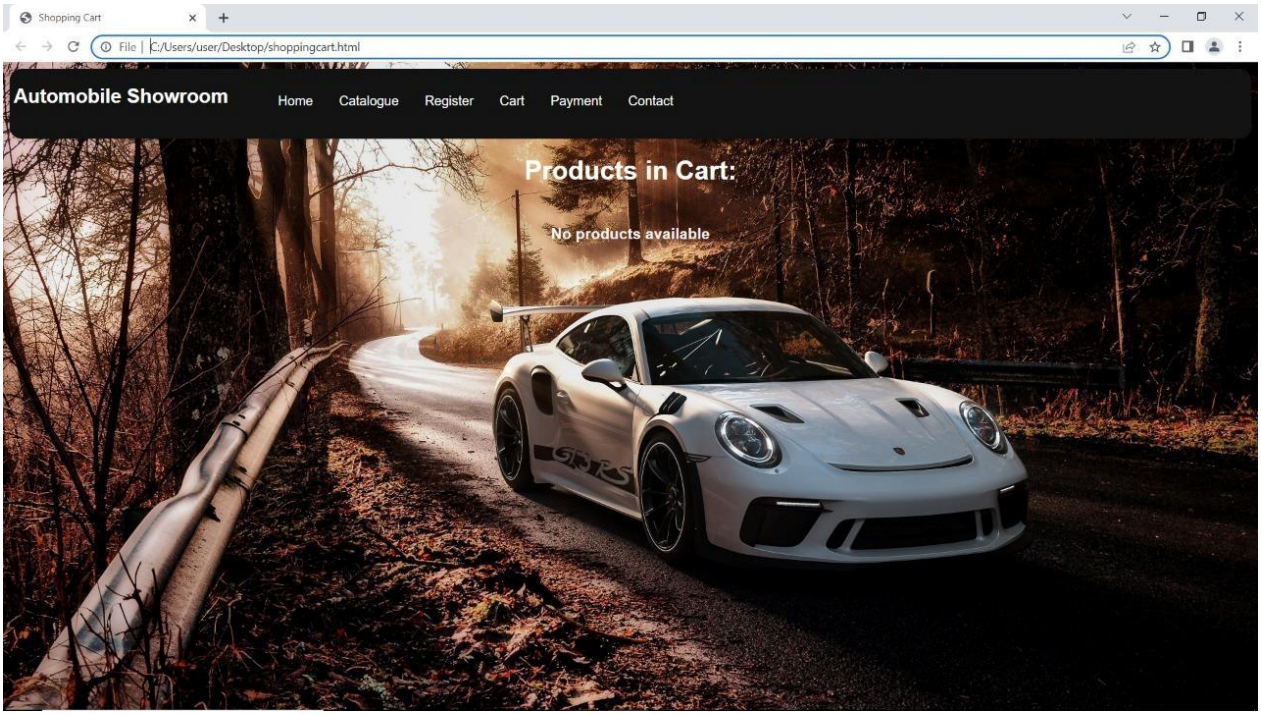


Redirected Page

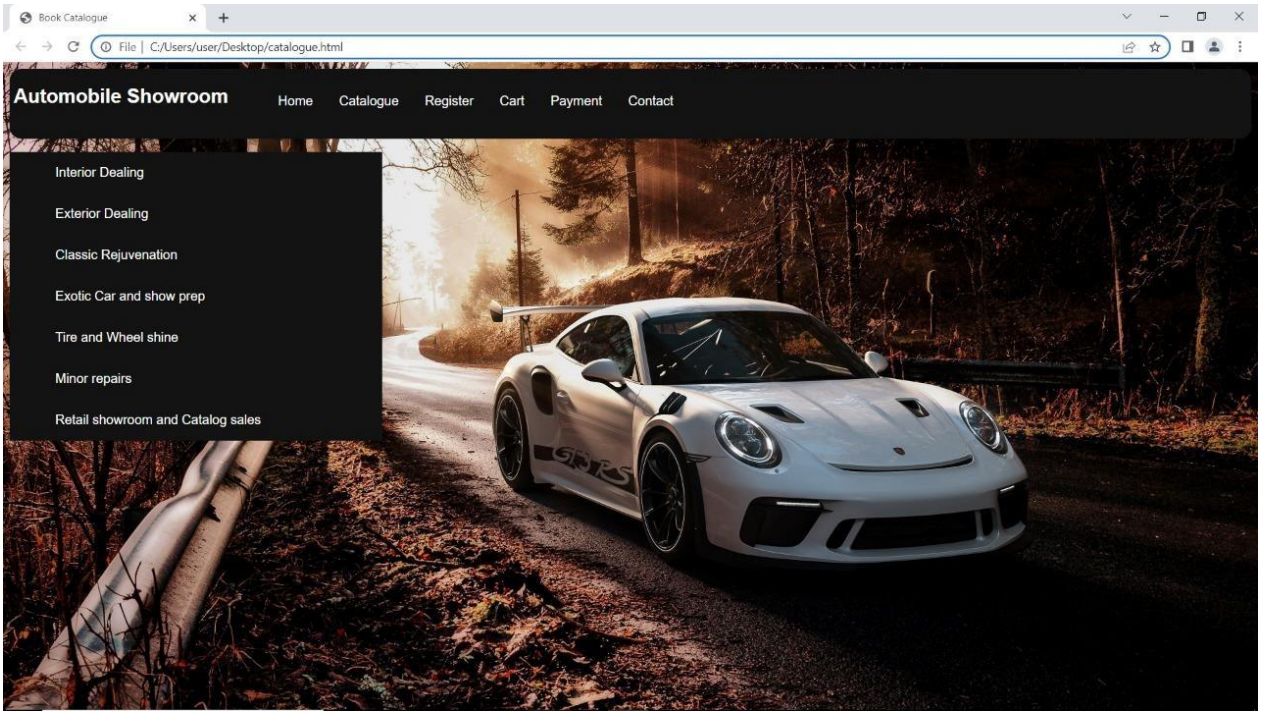
Sprint-3



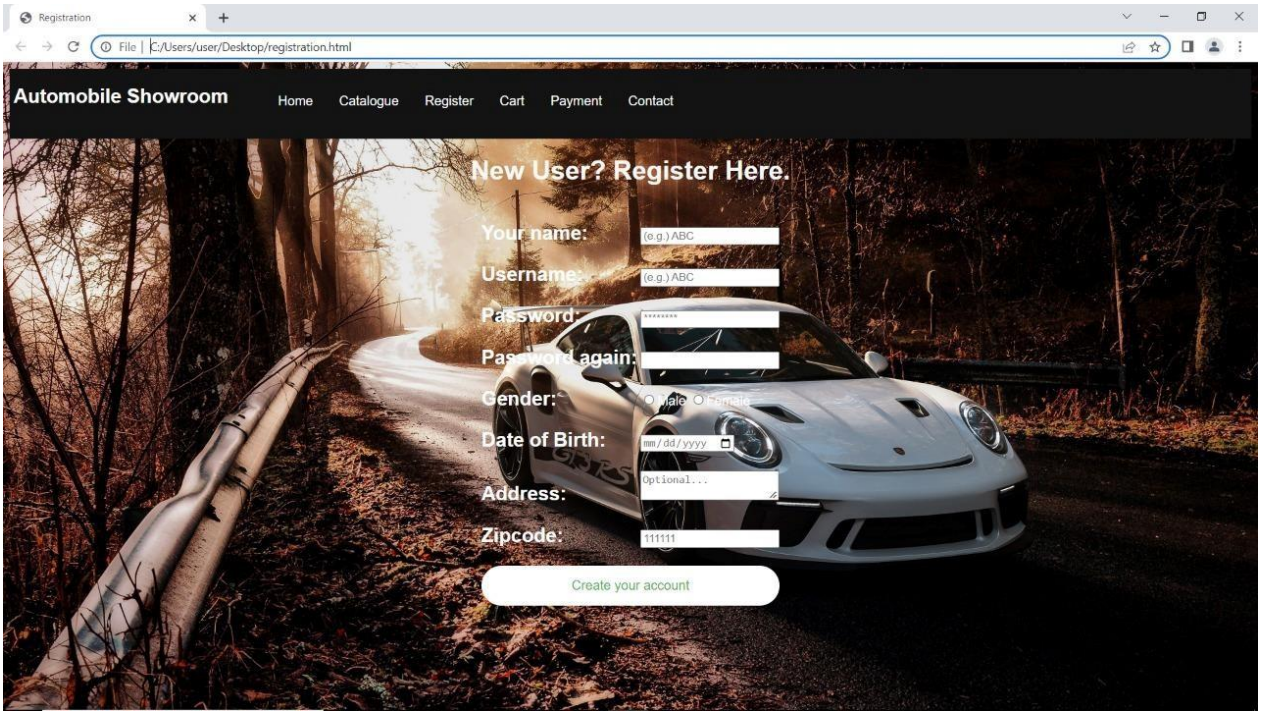
Home Page using Flask



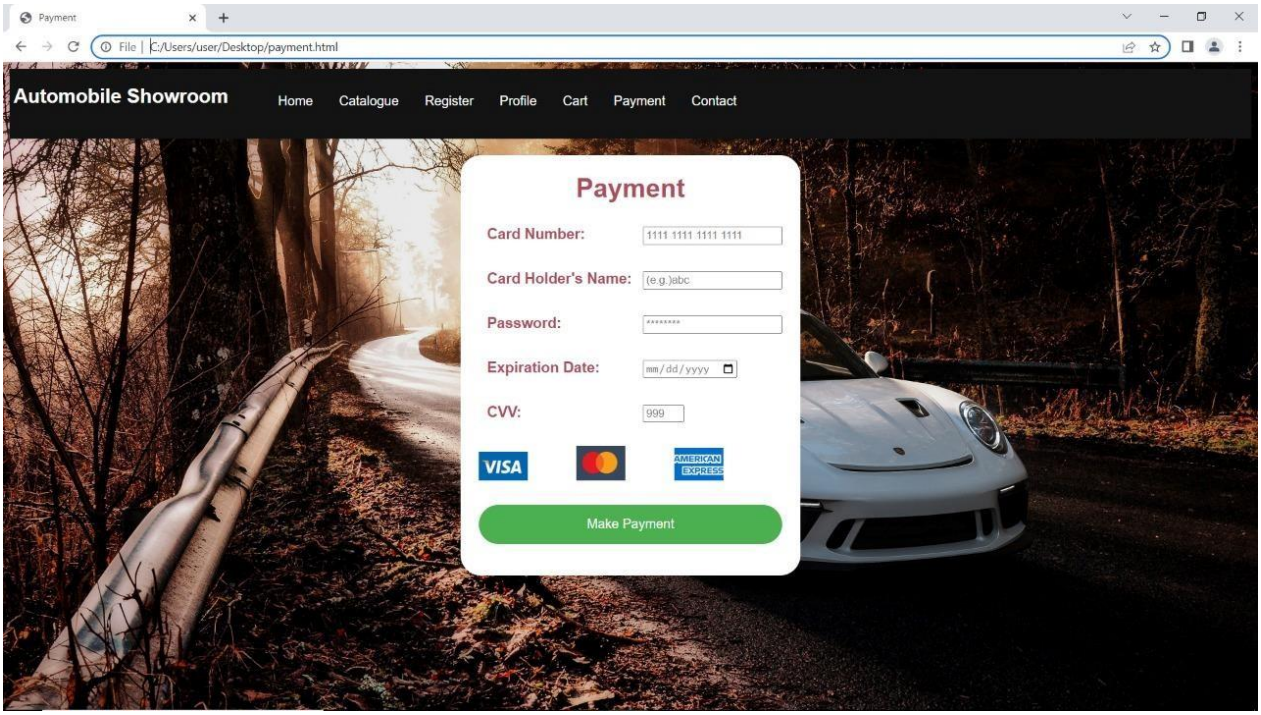
Card Page using Flask



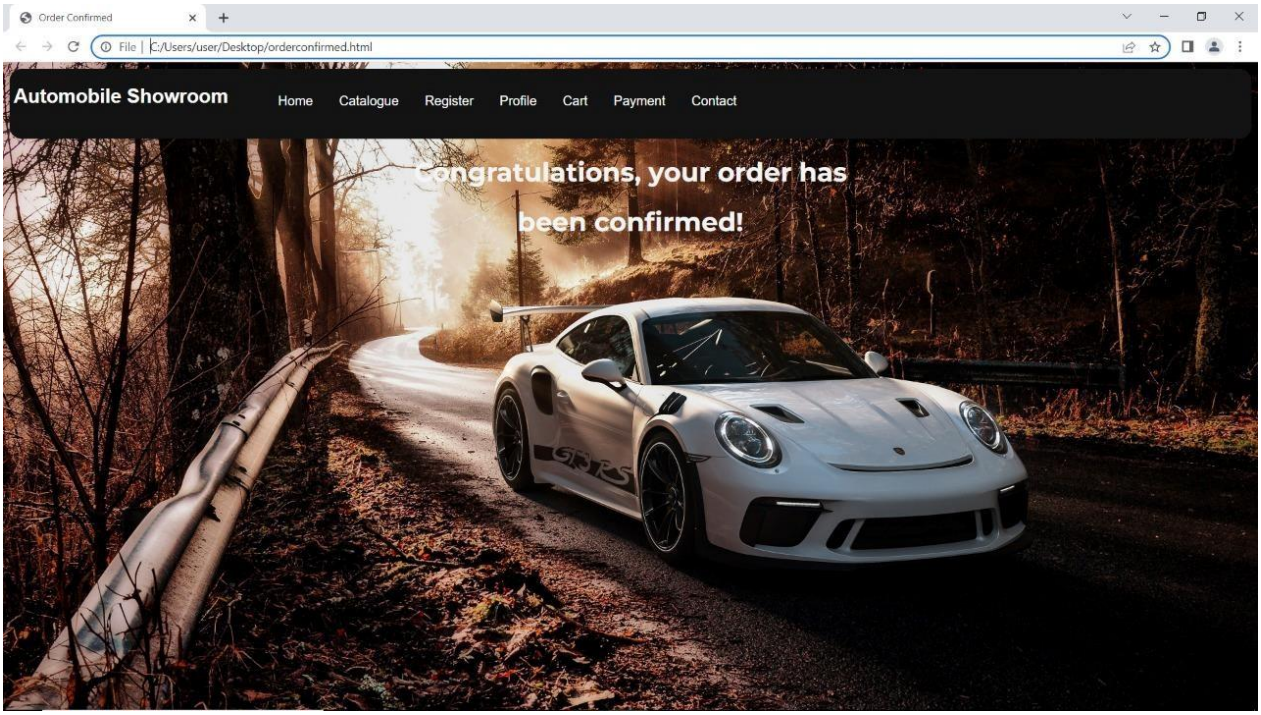
Catalog Page using Flask



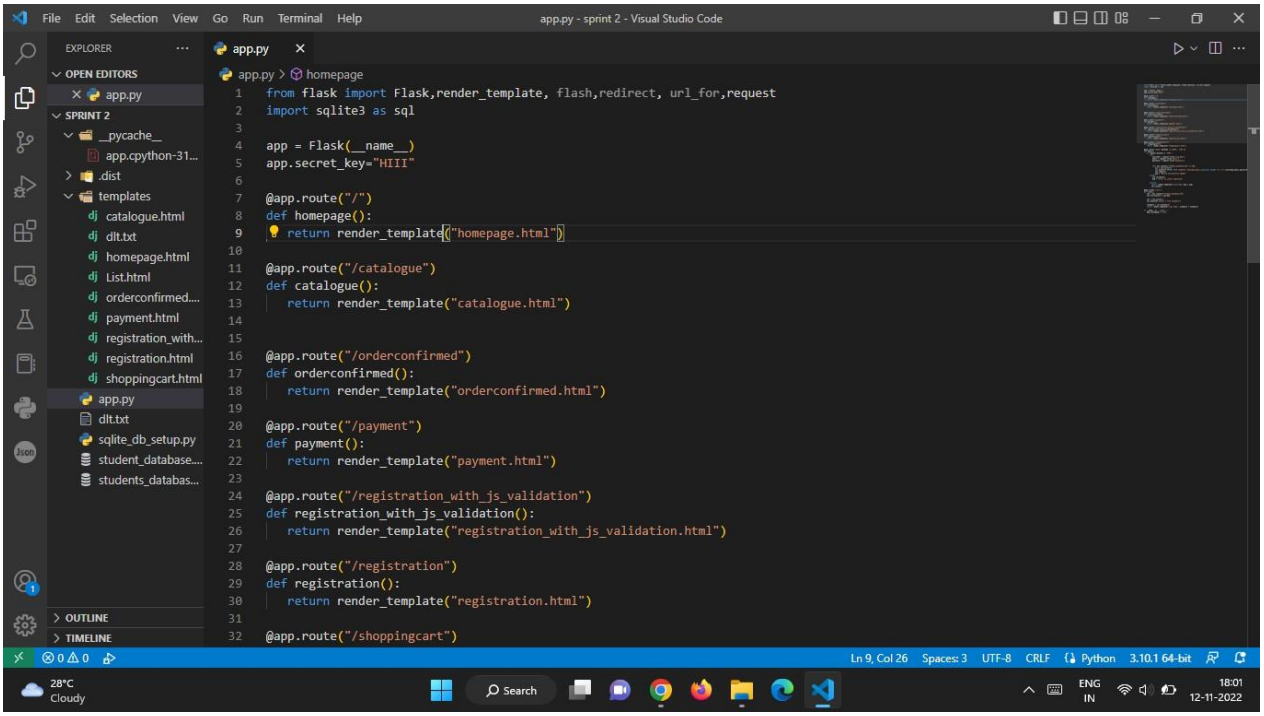
Registration Page using Flask



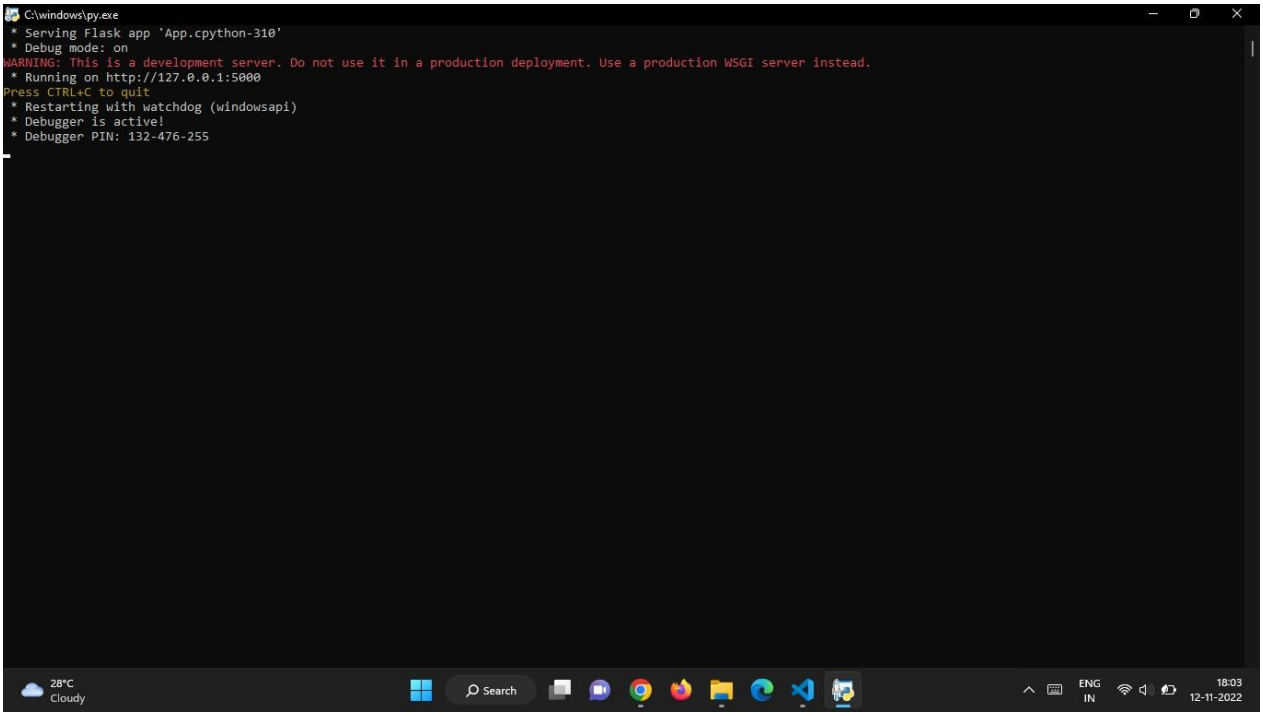
Payment Page using Flask



Oder Confirmation Page
using Flask

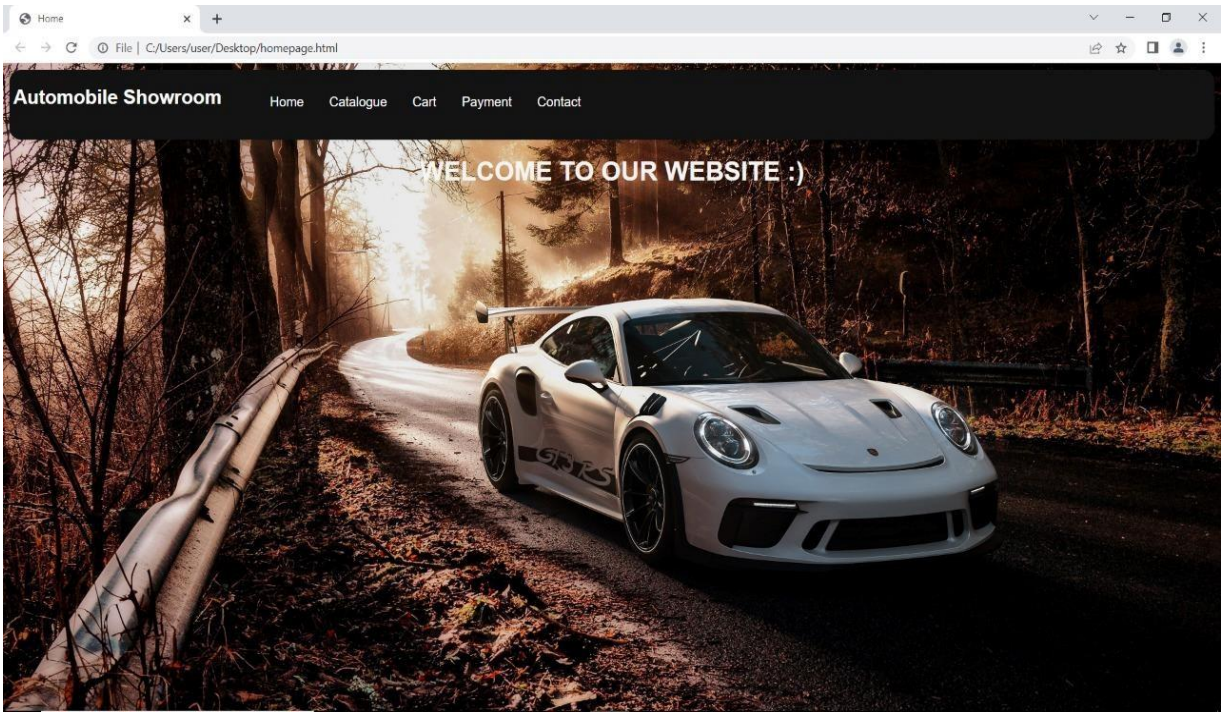


Coding

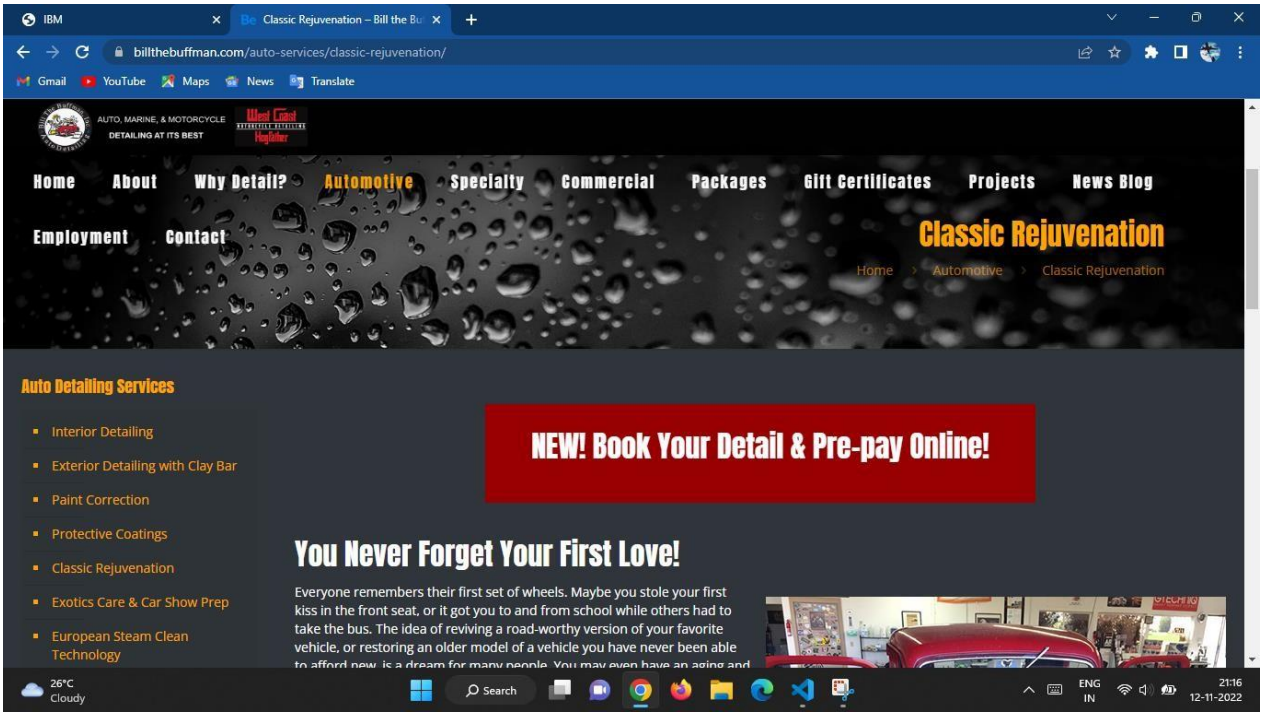


Terminal

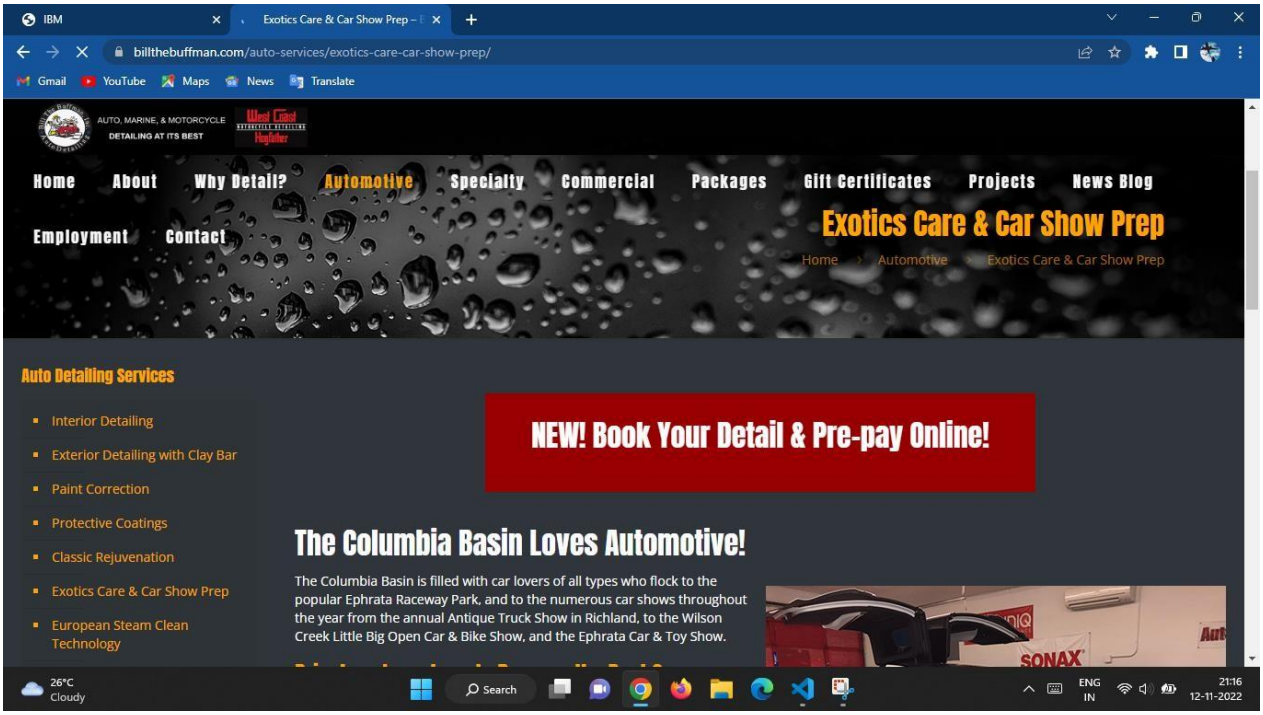
Sprint-4



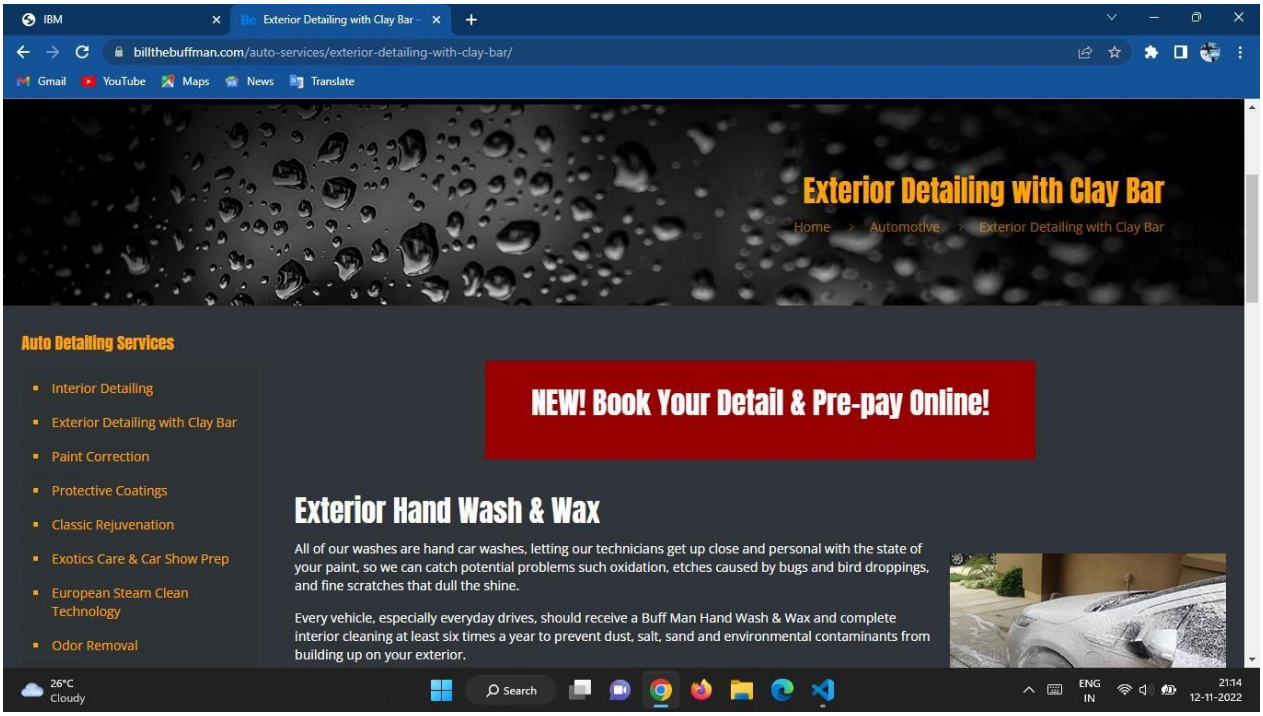
Home Page using Flask



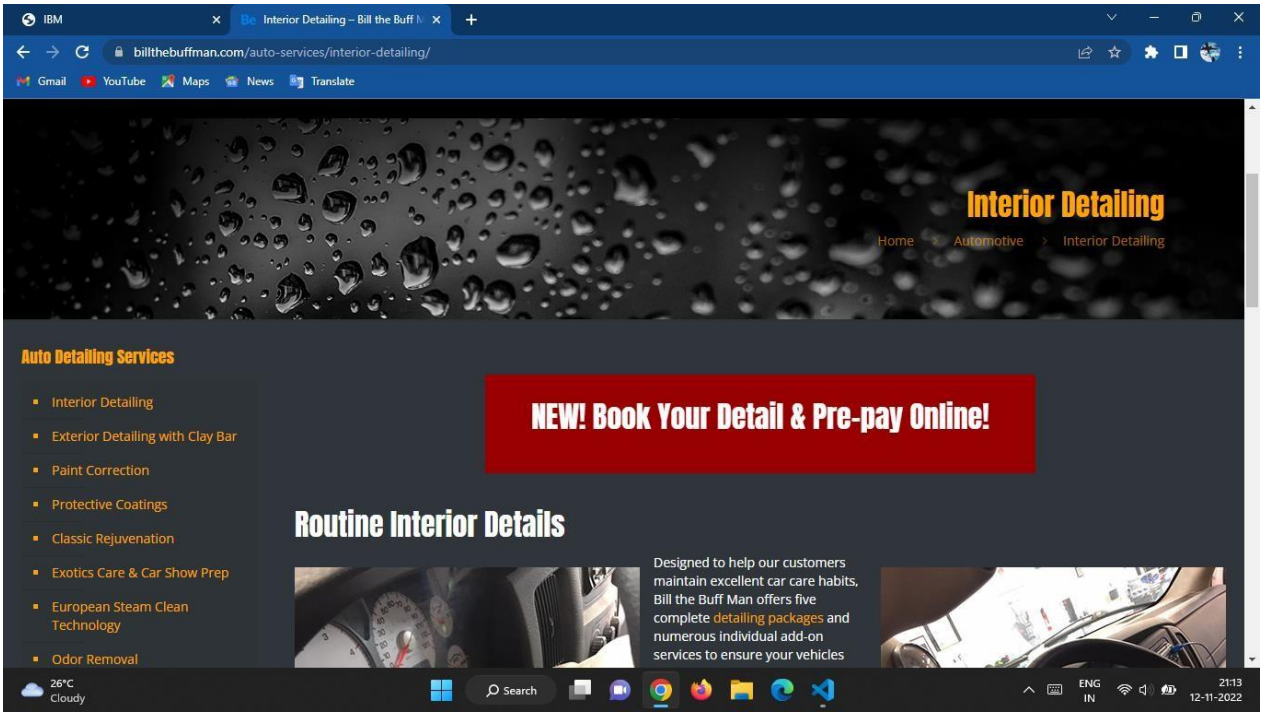
Classic Rejuvenation page



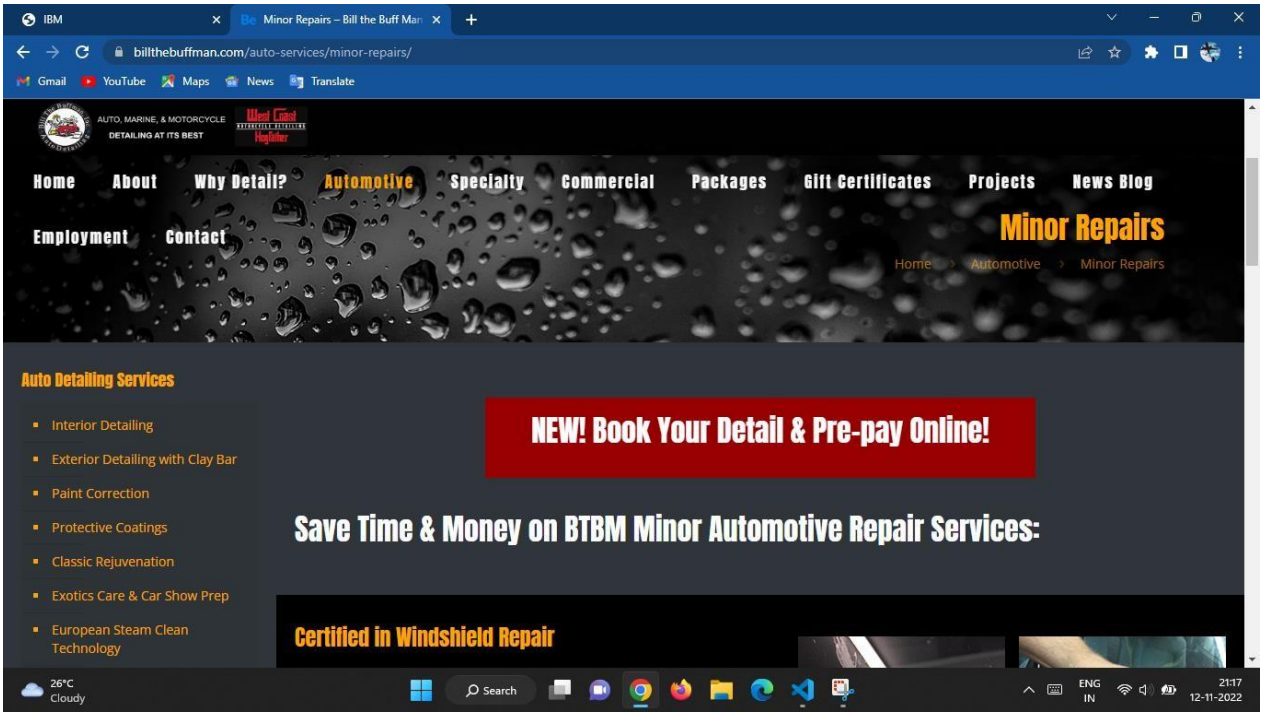
Exotic Car and show prep page



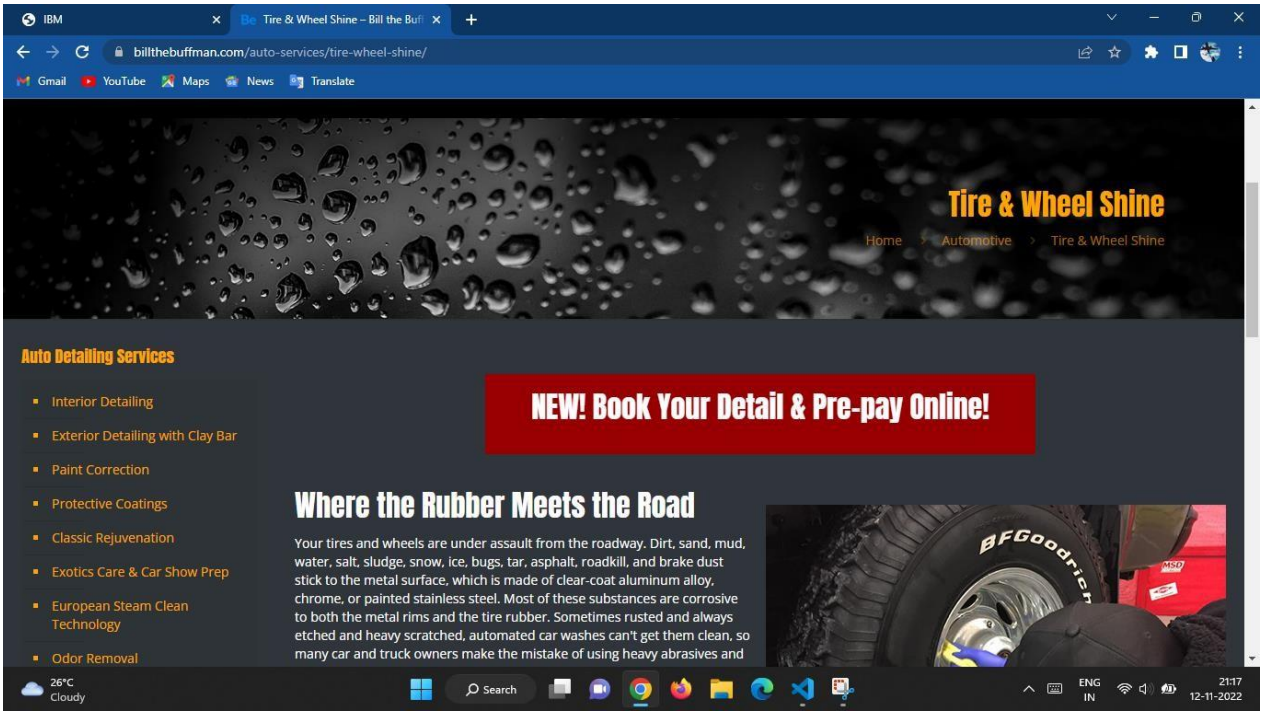
Exterior Detailing with clay bar page



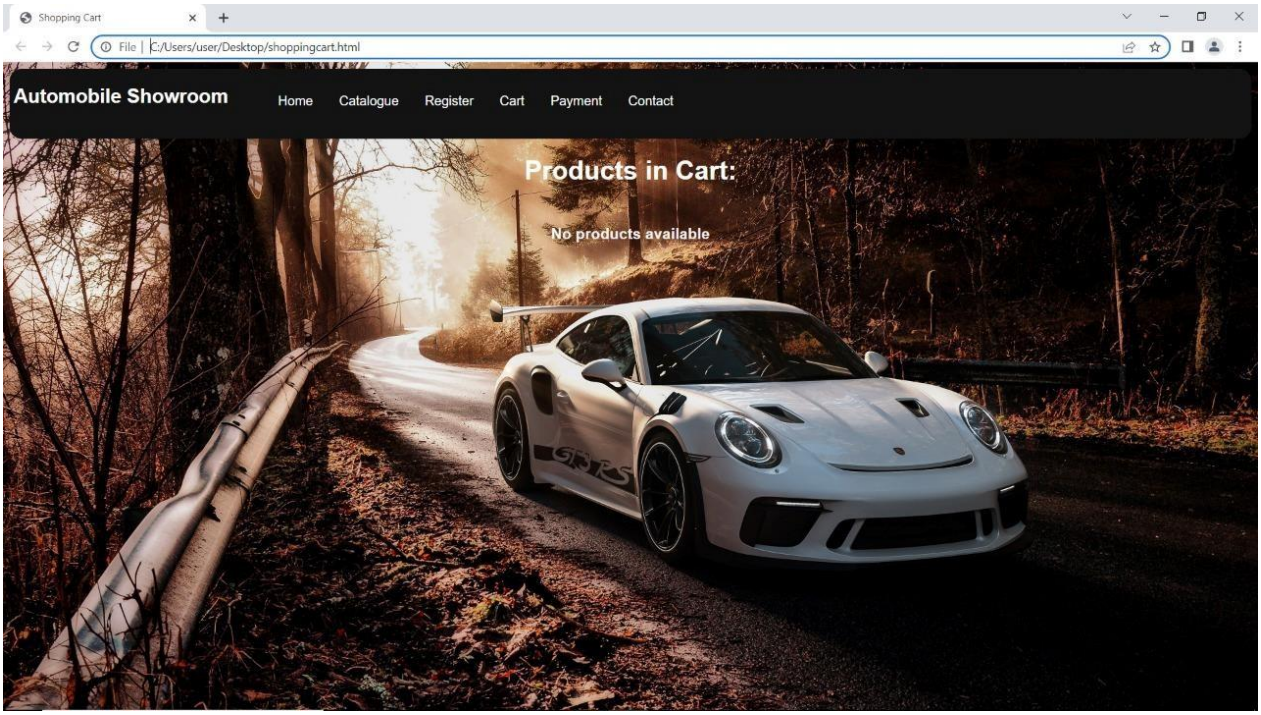
Interior Detailing page



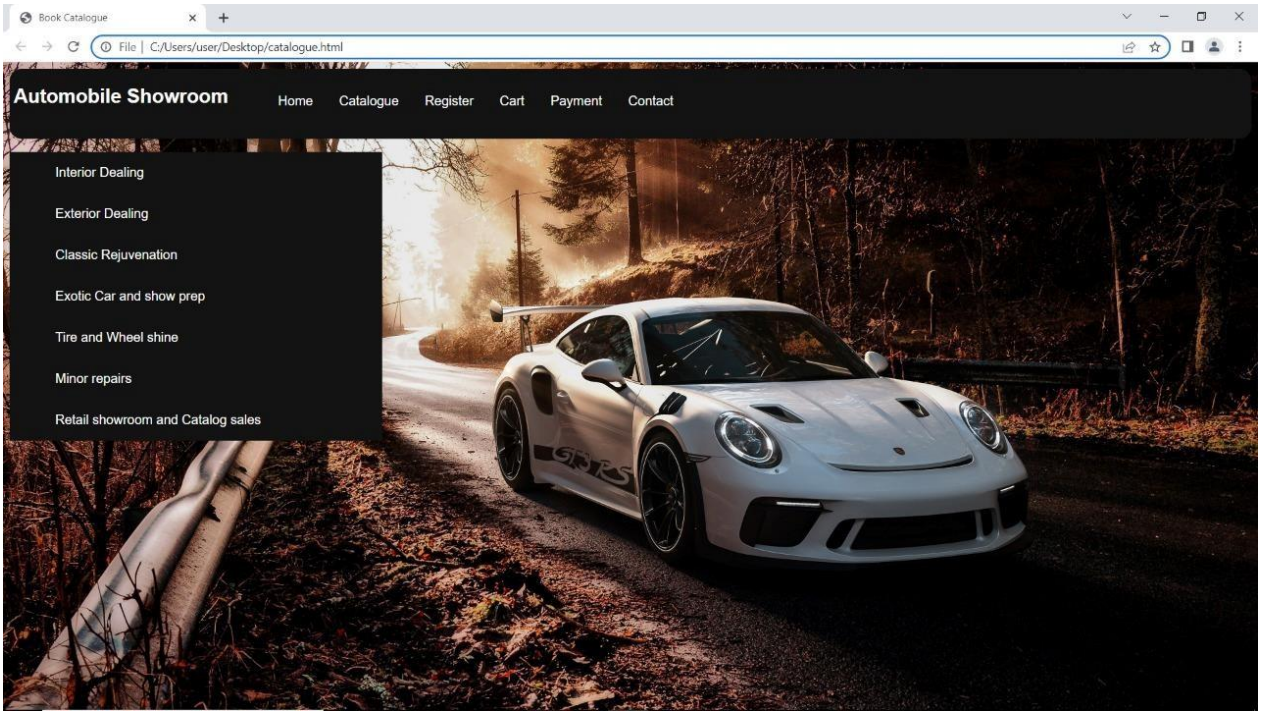
Minor Repairs page



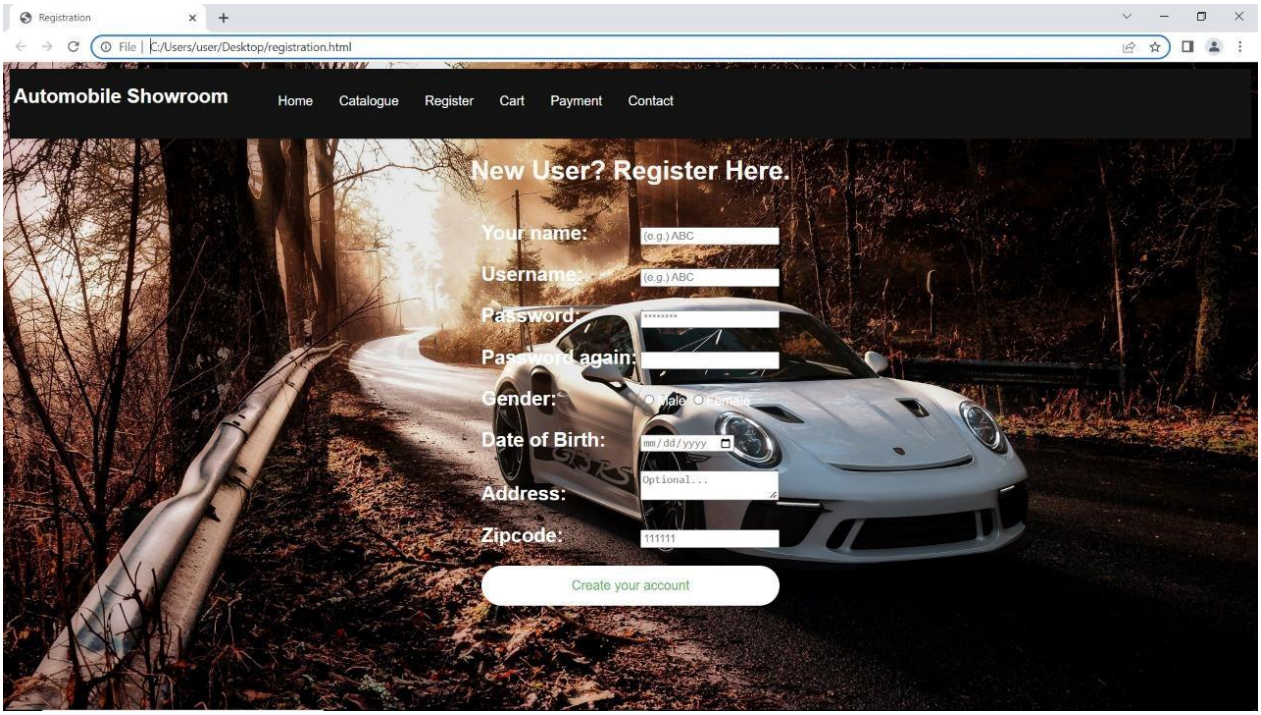
Tire and Wheel shine page



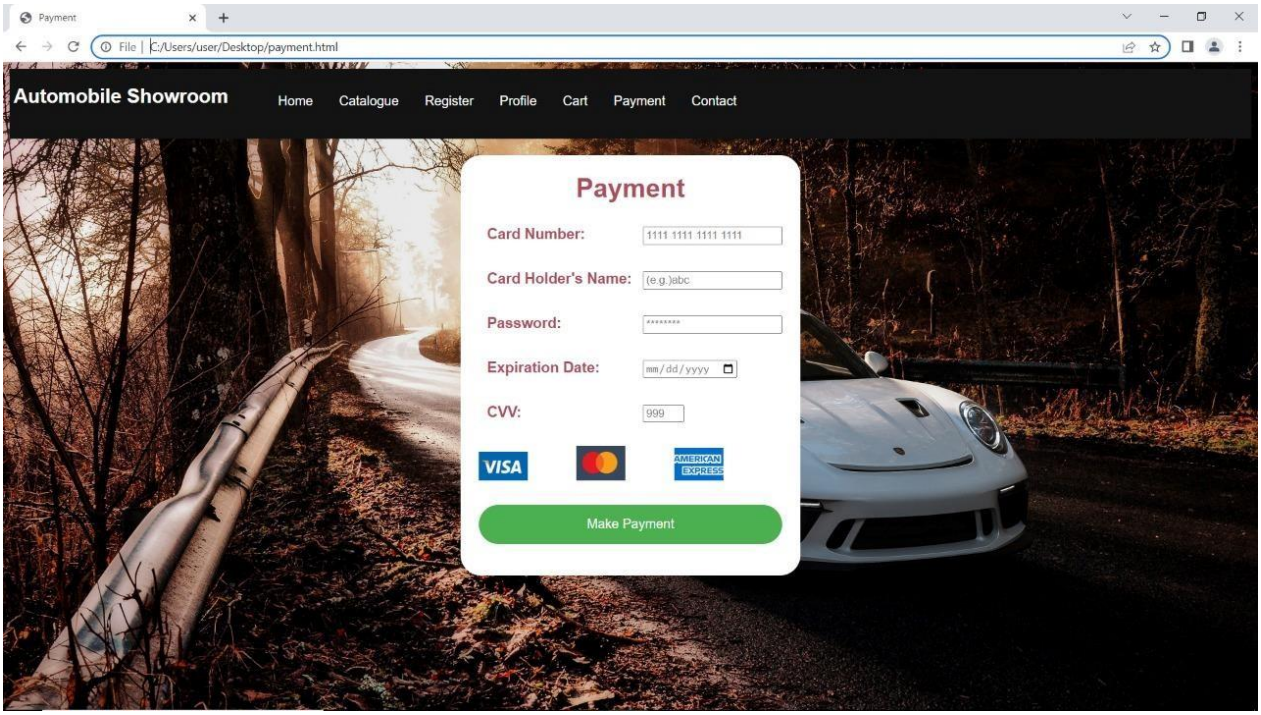
Card Page using Flask



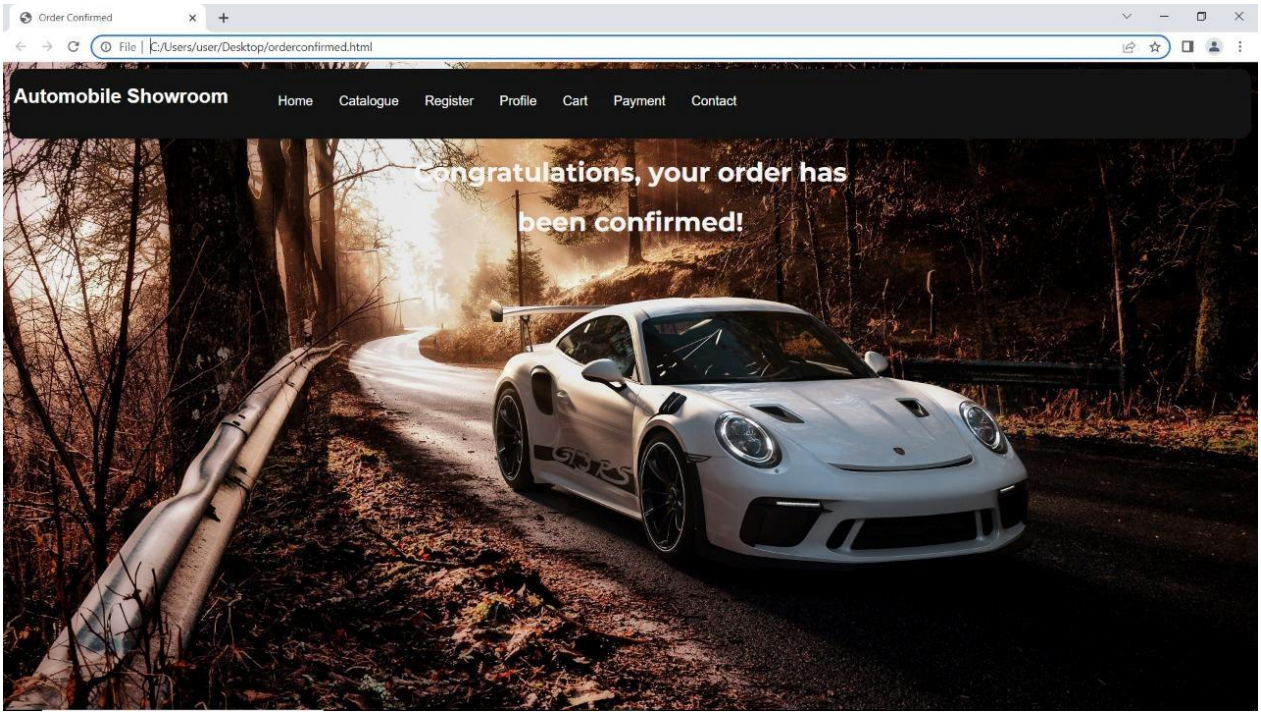
Catalog Page using Flask



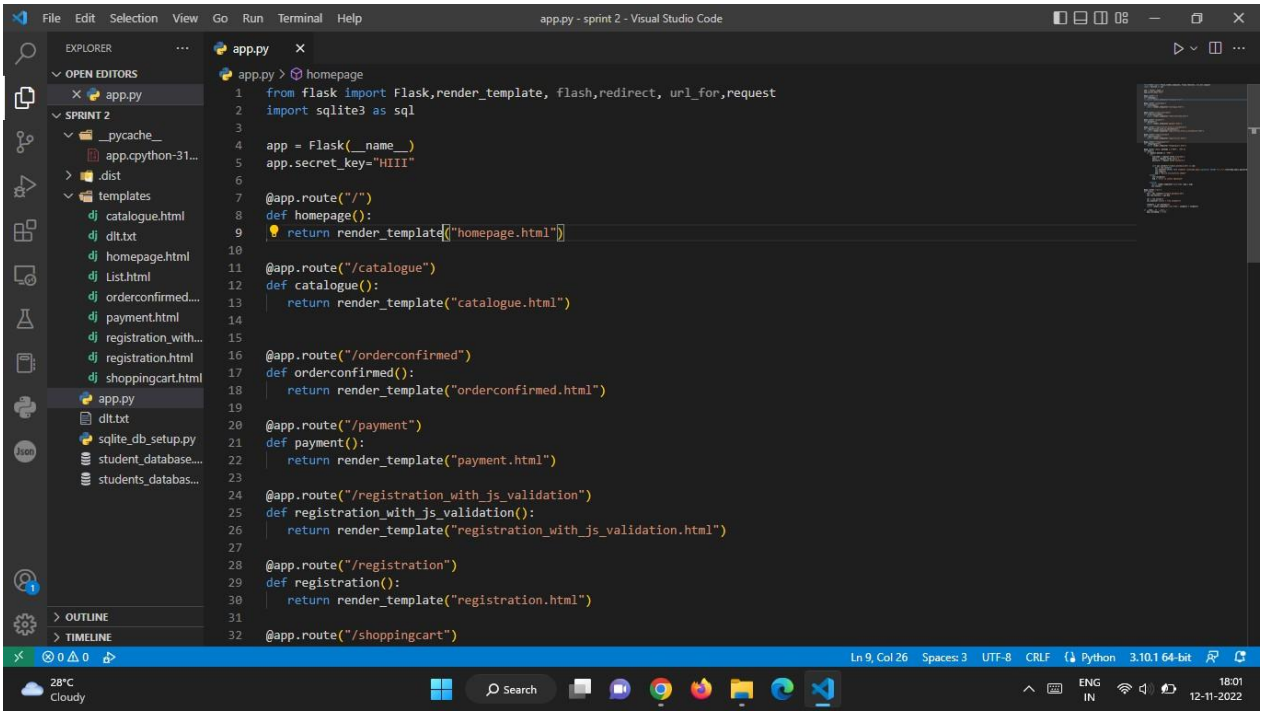
Registration Page using Flask



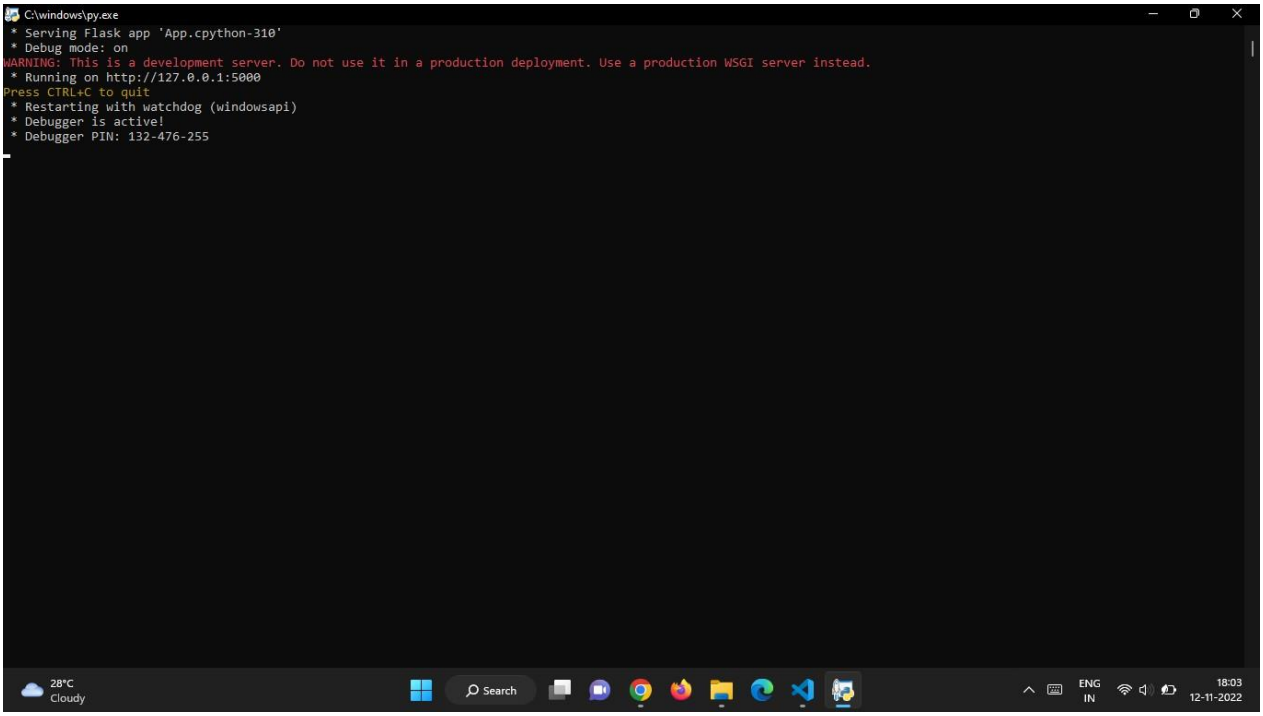
Payment Page using Flask



Oder Confirmation Page
using Flask

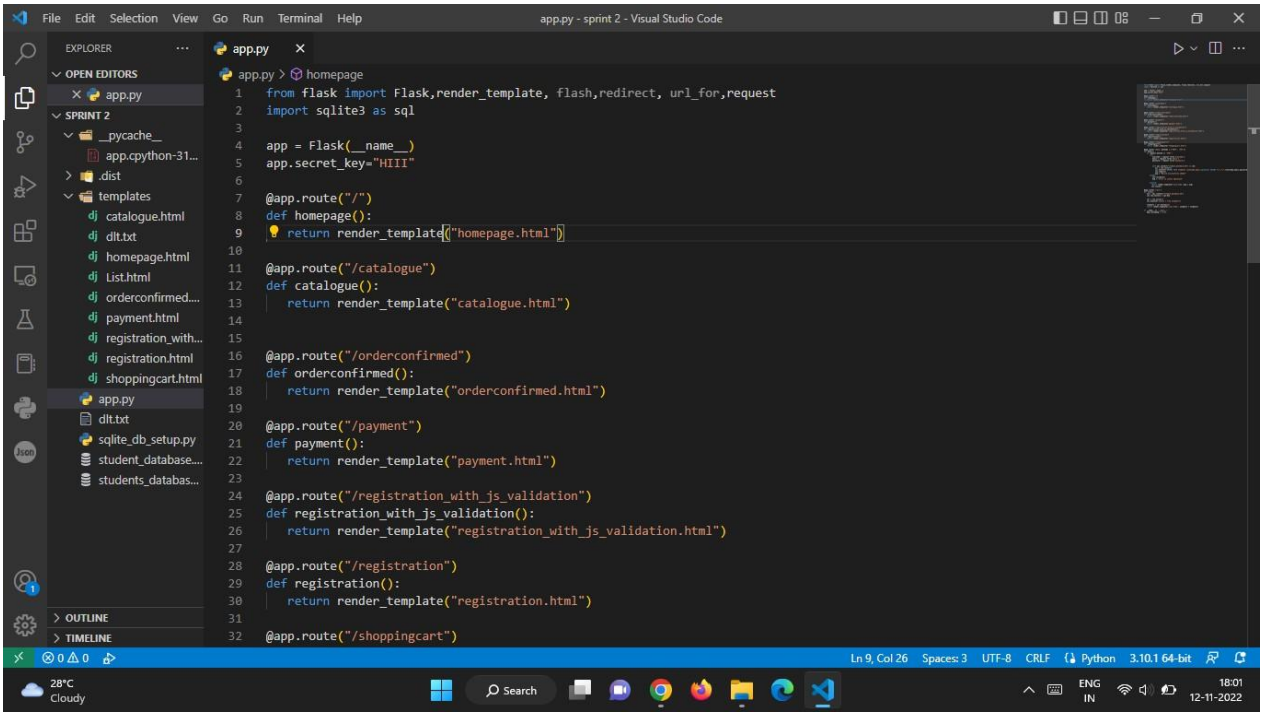


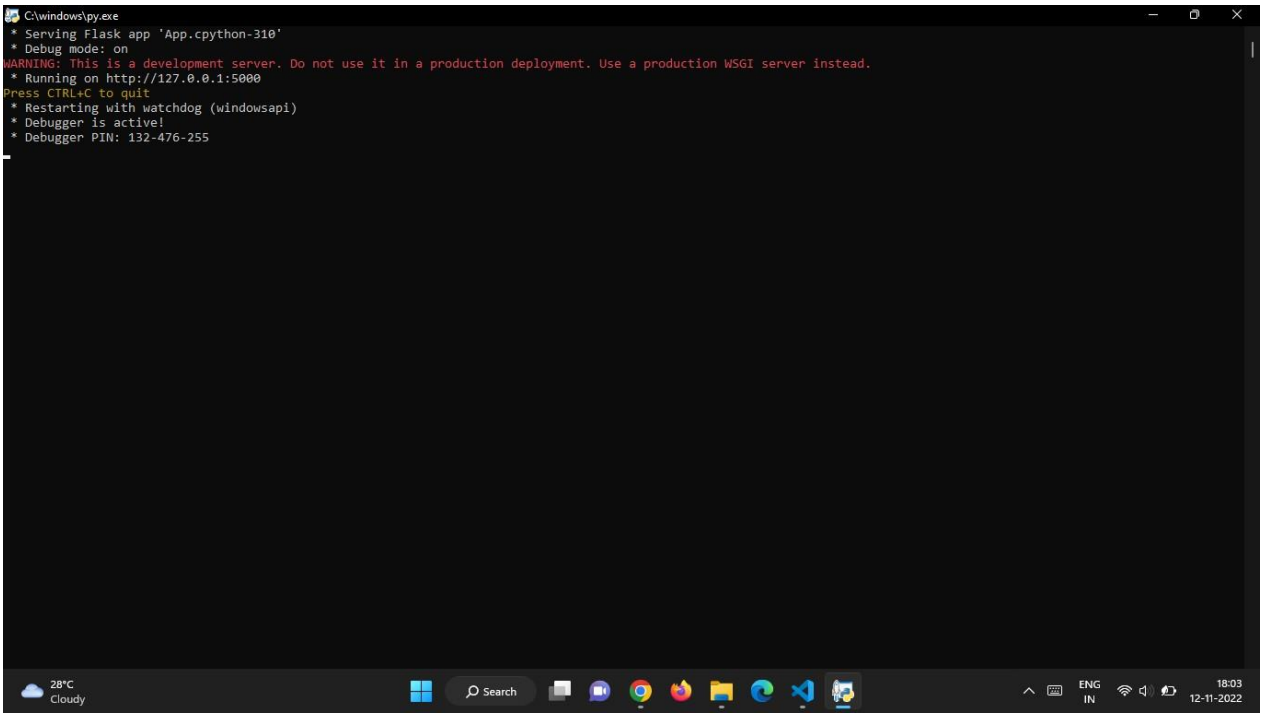
Coding



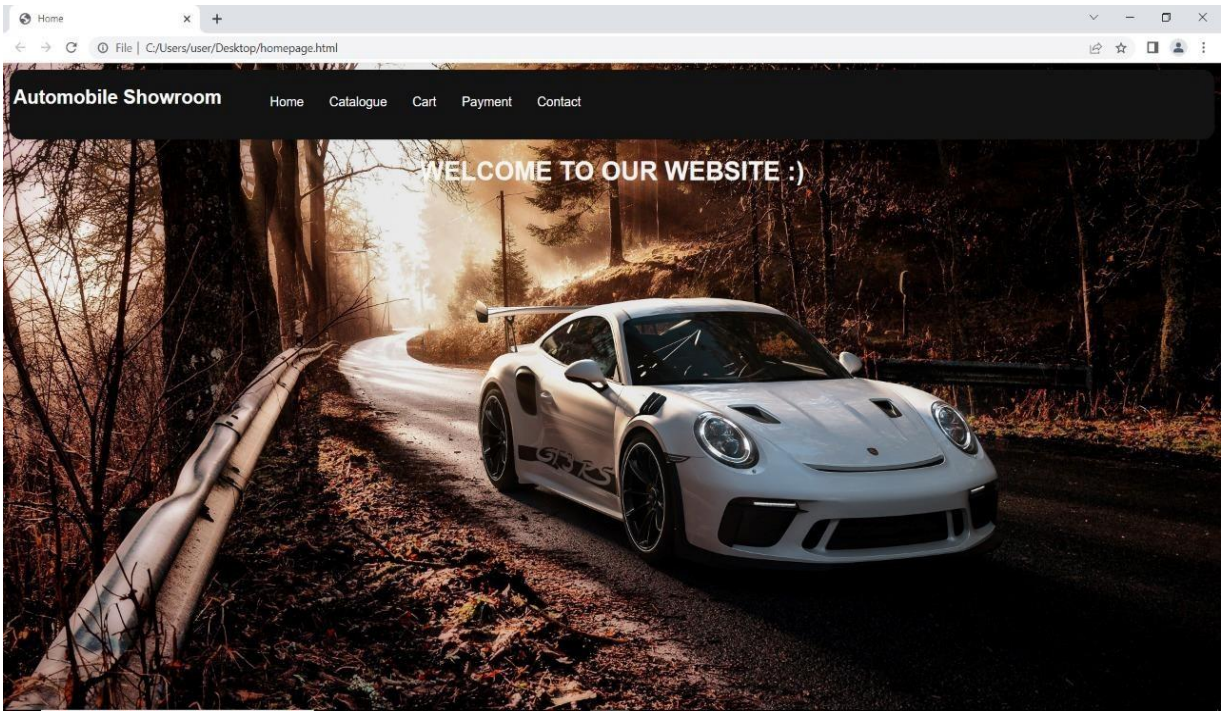
Terminal

8.2User Acceptance Testing

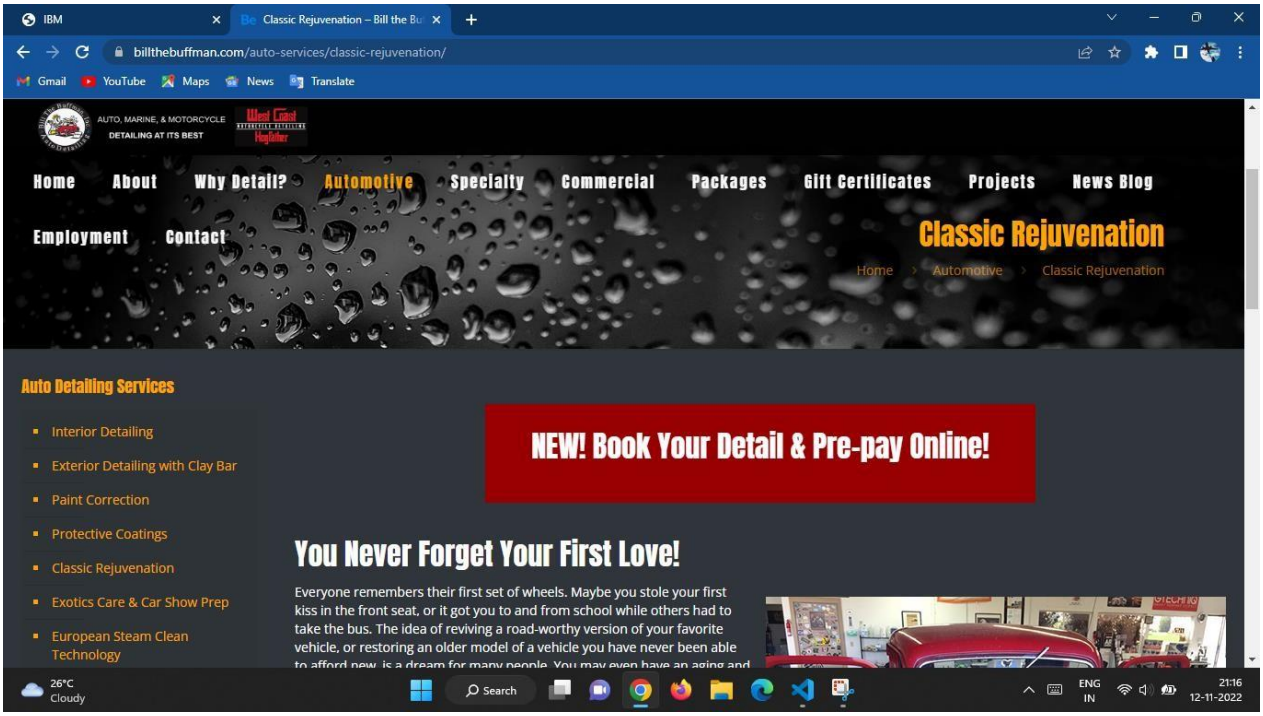




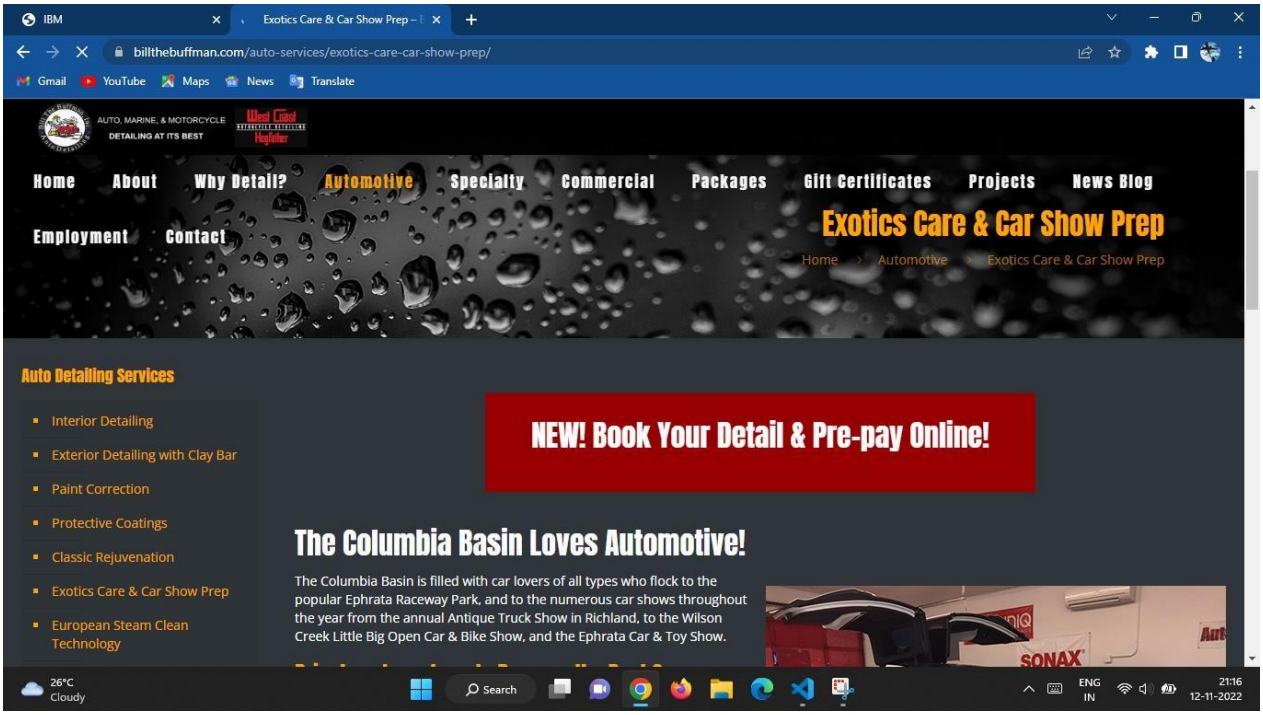
Terminal



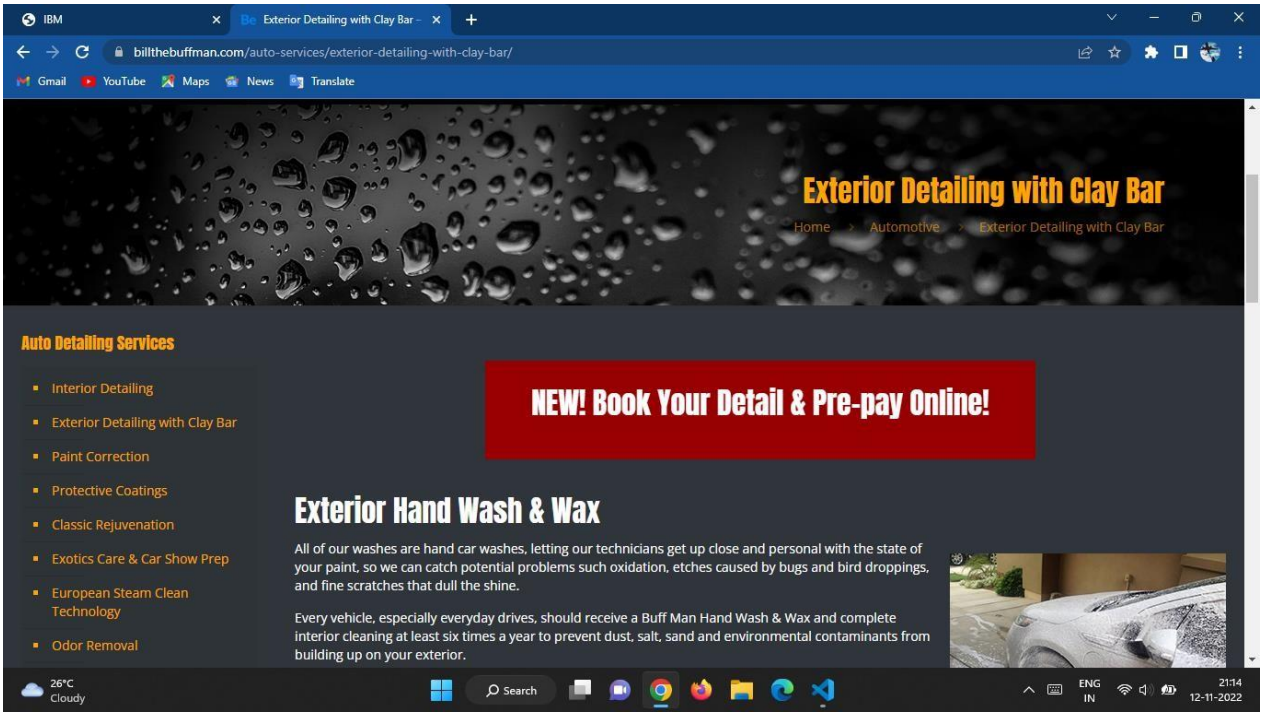
Home Page using Flask



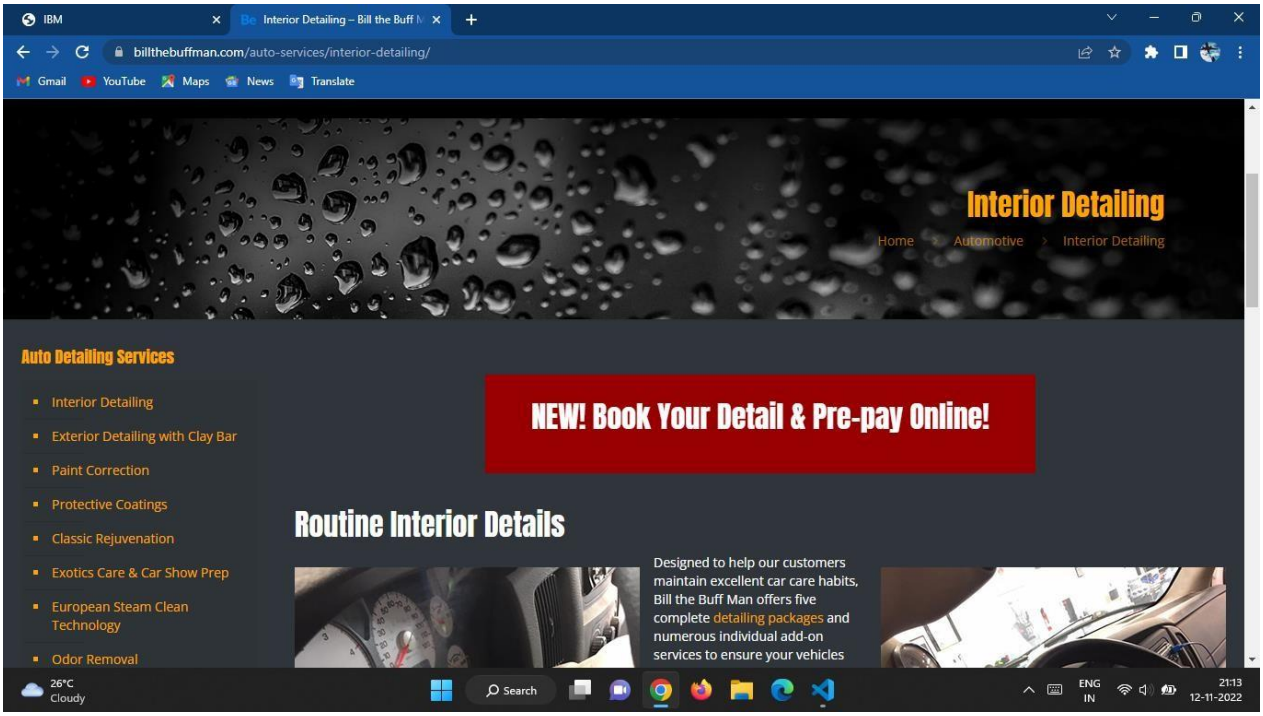
Classic Rejuvenation page



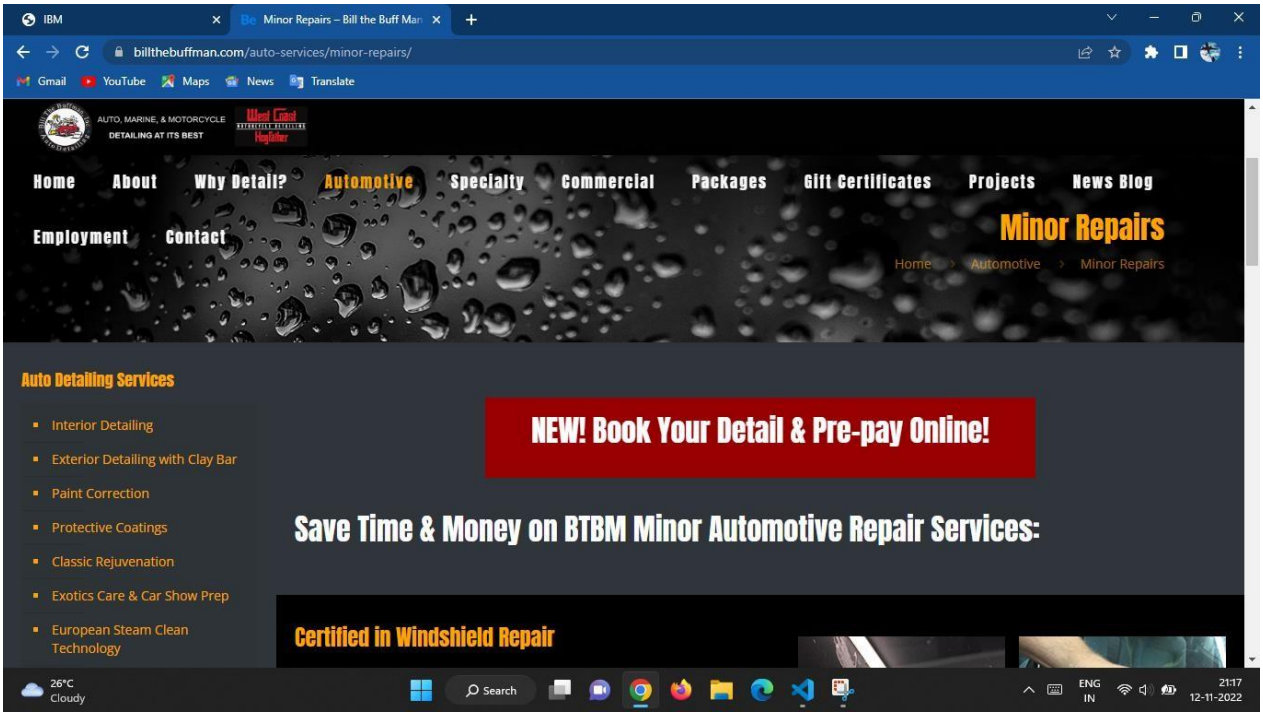
Exotic Car and show prep page



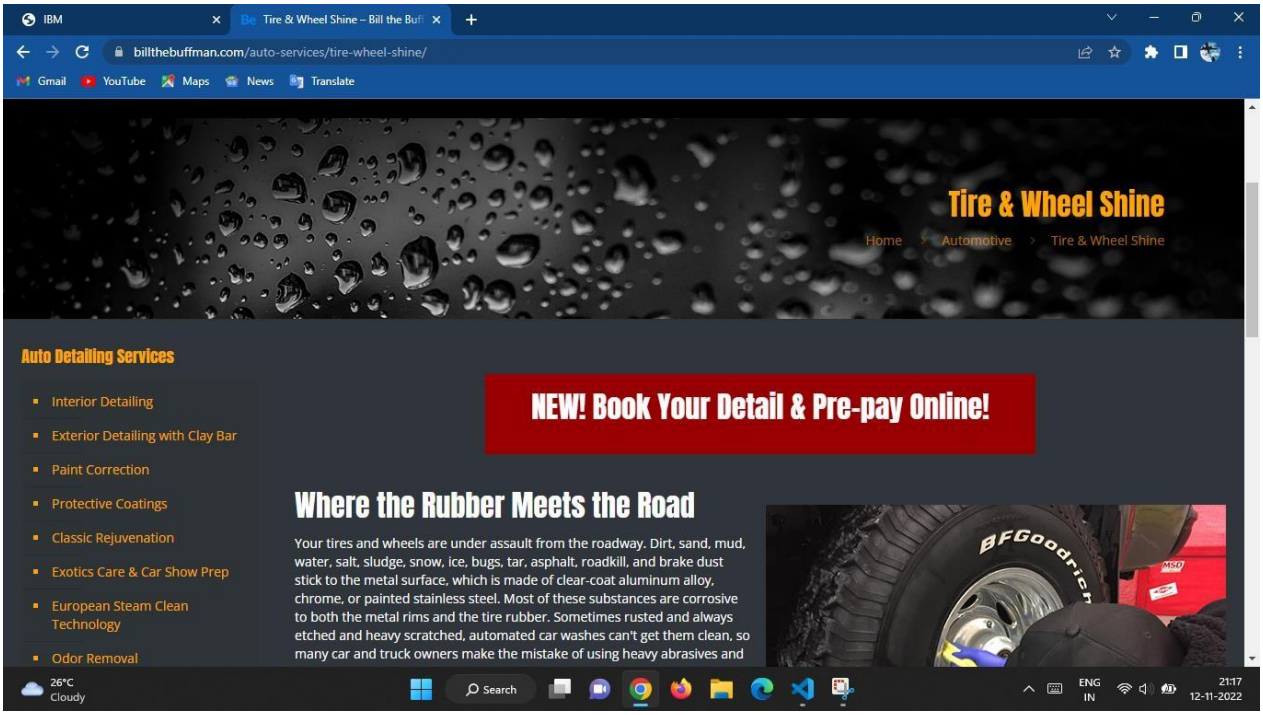
Exterior Detailing with clay bar page



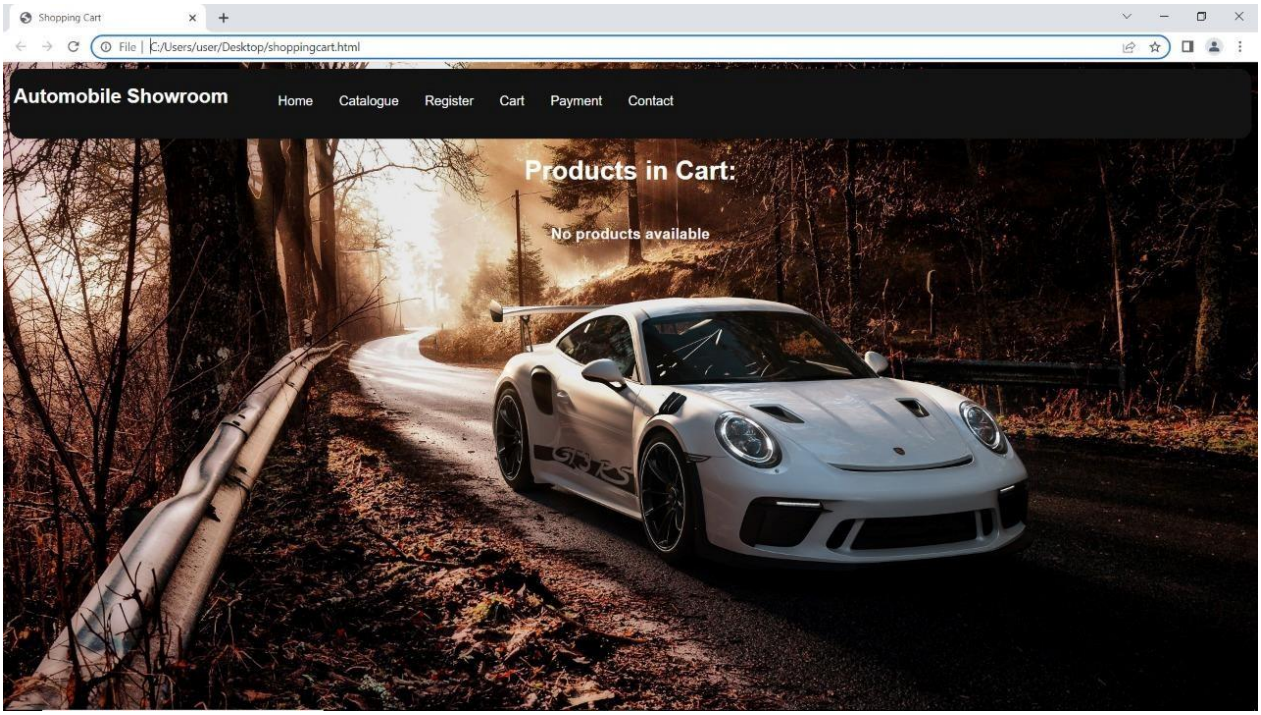
Interior Detailing page



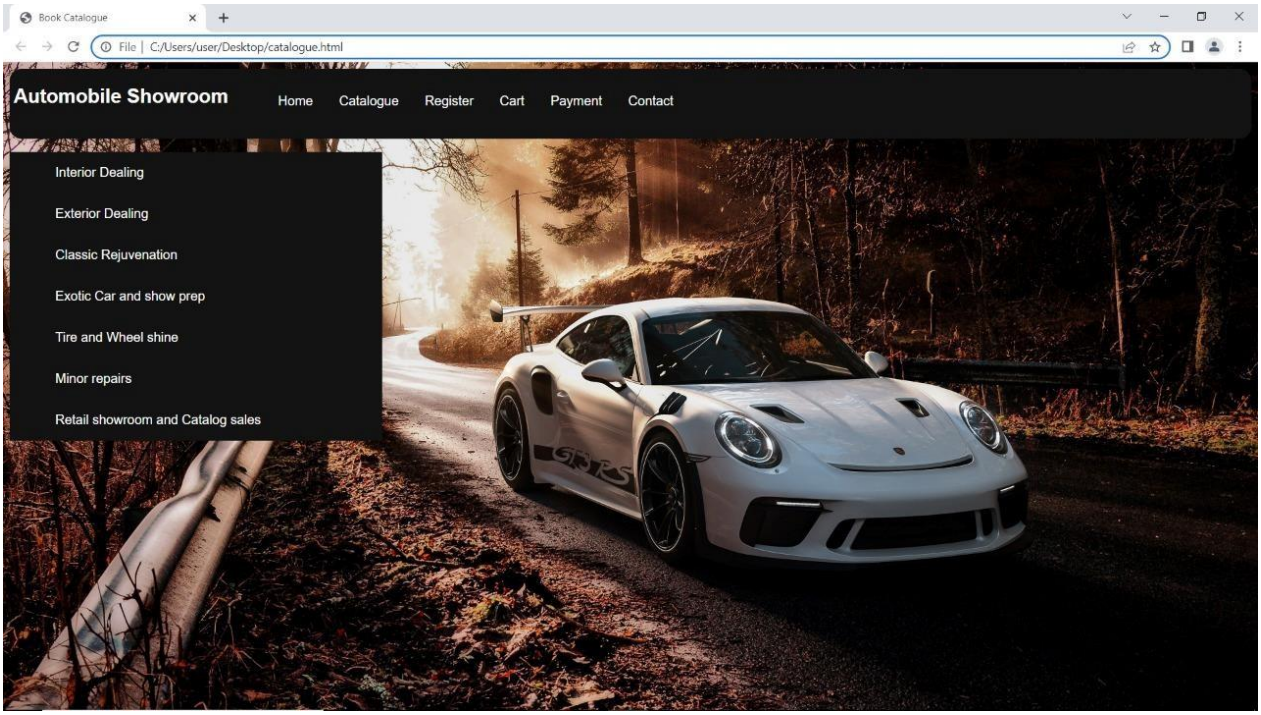
Minor Repairs page



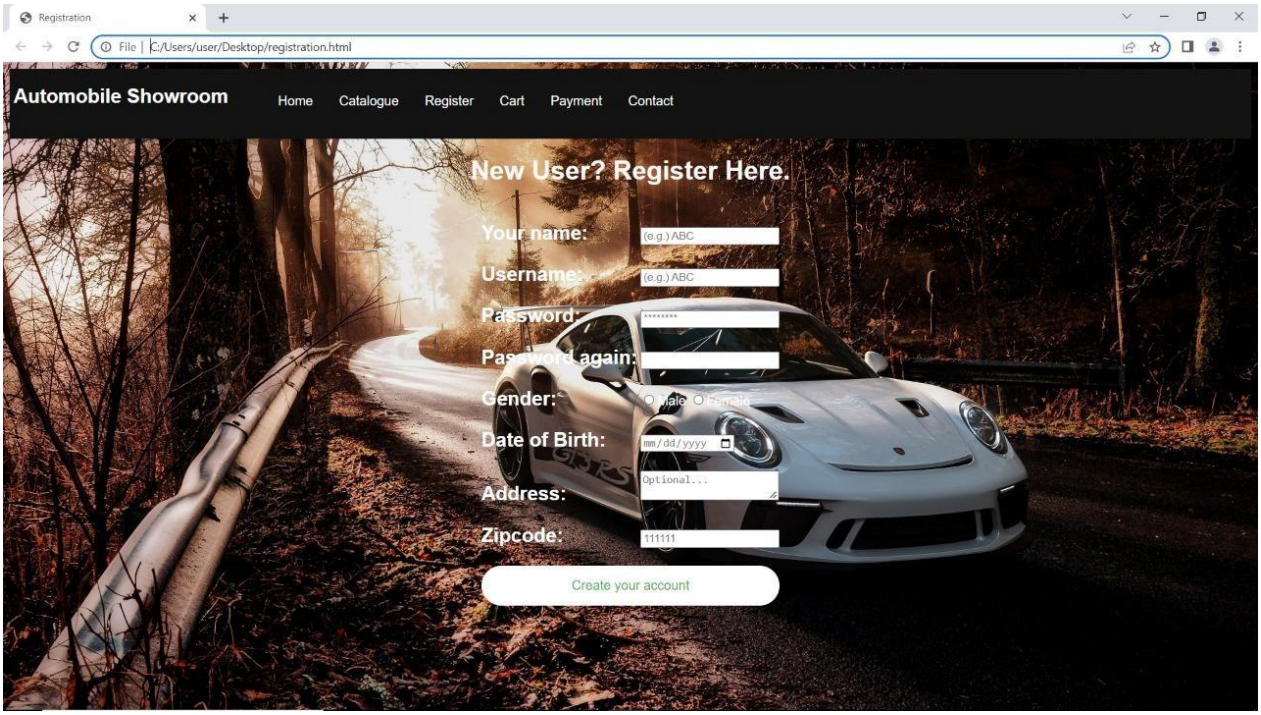
Tire and Wheel shine page



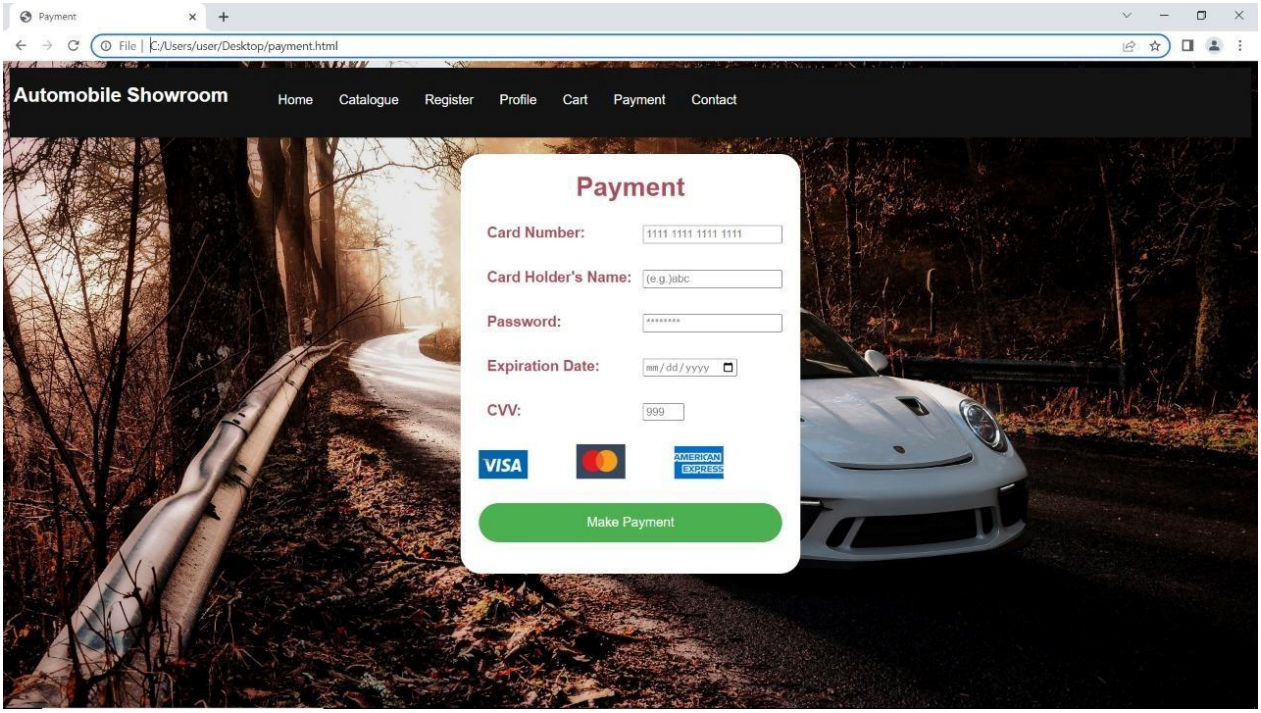
Card Page using Flask



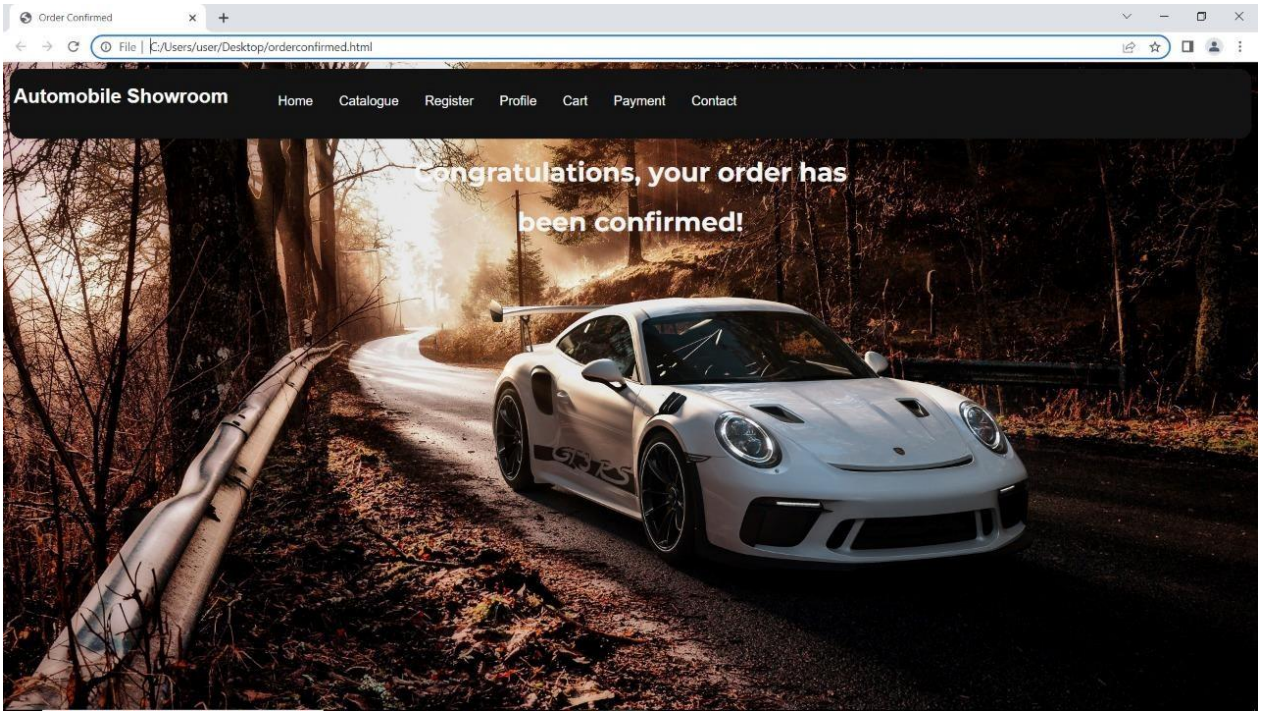
Catalog Page using Flask



Registration Page using Flask



Payment Page using Flask



Oder Confirmation Page
using Flask

9. RESULTS

9.1 Performance Metrics

- Accuracy

  The accuracy metric is one of the simplest Classification metrics to implement, and it can be determined as the number of correct predictions to the total number of predictions.

- Confusion Matrix

  A confusion matrix is a tabular representation of prediction outcomes of any binary classifier, which is used to describe the performance of the classification model on a set of test data when true values are known. The confusion matrix is simple to implement, but the terminologies used in this matrix might be confusing for beginners.

10. ADVANTAGES & DISADVANTAGES

Advantages

- Improved customer service
- Cloud-based solution
- Order Fulfillment
- Harness Customer Loyalty and Retention
- Helps move vehicles through the service bay quicker
- Mitigate Risks with Added Security
- Maximize Profit

Disadvantages

- System Clash
- Reduced Physical Audits
- No solution to improve or eliminate bottlenecks in the service cycle

11.CONCLUSION

Taking proper care of our record is crucial in every business, no matter how big or little, we must understand. We must educate ourselves about the idea of effective inventory management and its applications because we can see that managers do not fully grasp it. A company's inventory management system is one of the reasons for its failure. Many customs to combat failure are present, and we can start from this point. Modern technologies can support us in managing and keeping an eye on our inventory. We may learn, put new ideas into practice, and assess our company**.**

12.FUTURE SCOPE

- Collaboration with supply chain partners, coupled with a holistic approach to supply chain management, will be key to effective inventory management.
- The nature of globalization will change, impacting inventory deployment decisions dramatically.

13.APPENDIX

Source Code

catalogue.html

```
<html>

 <head>
 <title>Book Catalogue</title>
   <style>
 .menu{
   background-color:
   #131413;padding:
   0px;
   margin: 0px;
   border-radius: 15px;
 }
 ul {
   list-style-type: none;
   overflow: hidden;
   background-color:
   #131413;
 }

 .menu
 li {
 float:lef
 t;
 }

 .menu li a {
   display: inline-
   block;color:
   white;
   text-align:
   center; padding:
```

```
    14px 16px; text-
    decoration: none;
  }

  a:hover {
    background-color: #4CAFFF;
  }

  h2{
   color:whi
   te;
  }
  .menuleft:hover{
    background-color: #4CAFFF;
  }
  .menuleft{
   padding:0px
   5px;
  }

  body{
  font-family:sans-serif;
  background-image:
                    url(https://newevolutiondesigns.com/images/freebies/4k
-car-wallpaper- 3.jpg);
  background-position:
  center;background-
  size: cover;
  }
  .button {
    background-color:
    white;color:
    #4CAF50;
    border: none;
    padding: 15px
    32px; text-align:
    center; text-
```

```
  decoration:
  none;display:
  inline-block;
  font-size: 16px;
  margin-right:
  0px; border-
  radius: 55px;
}

.required-tracking
  li a{display:
  flex;
  color: white;
  text-align:justify;
  padding:16px;
  text-decoration:
  none;font-
  weight: 500;
}
.button:hover{
  background-color:
  #4CAFFF;color:white;
}


.footer{
width:
100%;
height: 5%;
}
  </style>
</head>

<body bgcolor="#4CAF50">

<div class="menu" style="float:top; width: 100%; height:11%;">
  <div class="menuleft" style="float:left;">
```

```
        <a href="registration_with_js_validation.html" class="logo">
        <h2 style="float:left;">Automobile Showroom</h2>
        </a>
        </div>
        <div class="menuright" style="float:left;">
        <ul>
          <li><a href="homepage.html" id="menufirstelement">Home</a></li>
          <li><a href="catalogue.html">Catalogue</a></li>
          <li><a href="registration_with_js_validation.html">Register</a></li>
          <li><a href="shoppingcard.html">Cart</a></li>
          <li><a  href="payment.html">Payment</a></li>
          <li><a href="contact.html">Contact</a></li>
        </ul>
        </div>
      </div>
      <div class="full" style="float:center;display:inline;">
      <div class="scrollable menu-content" style="float:left; width:30%;">
                  <ul class="required-tracking" data-tracking-
id="clp_books_clp/CategoryList_0-1_catergorylinks" >
                        <li> <a href="#">Interior Dealing</a></li>
              <li> <a href="#">Exterior Dealing</a></li>
              <li> <a href="#">Classic Rejuvenation</a></li>
              <li> <a href="#">Exotic Car and show prep</a></li>
              <li> <a href="#">Tire and Wheel shine</a></li>
              <li> <a href="#">Minor repairs</a></li>
              <li> <a href="#">Retail showroom and Catalog sales</a></li>
                        </ul>
          </div>



      </body>
      </html>
```

homepage.html

```
<html>

<head>
<title>Home</title>
<!--<link rel="stylesheet" type="text/css" href="registration.css">-->
<style>
.menu{
  background-color:
  #131413;padding:
  0px;
  margin: 0px;
  border-radius: 15px;
}
ul {
  list-style-type: none;
  overflow: hidden;
  background-color:
  #131413;
}

li {
float:le
ft;
}

li a {
  display: inline-
  block;color:
  white;
  text-align:
  center; padding:
  14px 16px; text-
  decoration: none;
}
```

```
a:hover {
  background-color: #4CAFFF;
}

#roundedcorners
  { border-radius:
  25px;
  border: 2px solid
  white;padding:
  20px;
  width:
  200px;
  height:
  150px;
  margin-bottom:
  20px;margin-
  top: 100px;
  margin-right:
  100px; float:
  right;
  background-color: white;
}

.button {
  background-color:
  #4CAF50;border:
  none;
  color:  white;
  padding: 15px
  32px; text-align:
  center; text-
  decoration:
  none;display:
  inline-block;
  font-size: 16px;
  margin-right:
  0px; border-
```

```
    radius: 55px;
  }
  h4{
  font-size:
  18px; color:
  #4CAF50;
  }
  h2{
   color:whi
   te;
  }
  .menuleft:hover{
    background-color: #4CAFFF;

  }
  .menuleft{
   padding:0px
   5px;
  }
  h4{
  display: block;
  padding: 3px
  10px;
  }

  th{
   color:#4CAF
   50; font-size:
   24px; font-
   weight: bold;
  }
  body{
  font-family:sans-serif;
  background-image:
                    url(https://newevolutiondesigns.com/images/freebies/4k
-car-wallpaper- 3.jpg);
  background-position:
```

```
center;background-
size: cover;
}

.footer{
width:
100%;
height: 5%;
}

.button:hover{
  background-color: #4CAFFF;
}
</style>
</head>

<body>
<div class="menu" style="float:top; width: 100%; height:11%;">
  <div class="menuleft" style="float:left;">
  <a href="registration_with_js_validation.html" class="logo">
  <h2 style="float:left;">Automobile Showroom</h2>
  </a>
  </div>
  <div class="menuright" style="float:left;">
  <ul>
    <li><a href="homepage.html" id="menufirstelement">Home</a></li>
    <li><a href="catalogue.html">Catalogue</a></li>
    <li><a href="shoppingcart.html"> Cart</a></li>
    <li><a href="payment.html">Payment</a></li>
    <li><a href="contact.html">Contact</a></li>
  </ul>
  </div>
</div>
<p><center><h1 style="color:whitesmoke">WELCOME TO OUR WEBSITE :)
</h1></center></p>
```

```
</body>
</html>
```

Orderconfirmed.html

```
<html>
<head>
<title>Order Confirmed</title>
<!--<link rel="stylesheet" type="text/css" href="registration_with_js_validation.css">-->
<link href='https://fonts.googleapis.com/css?family=Montserrat:700' rel='stylesheet'
type='text/css'>
<style>
.menu{
  background-color: #131413;
  padding:
  0px;
  margin:
  0px;
  border-radius: 15px;
}
ul {
  list-style-type: none;
  overflow: hidden;
  background-color:
  #131413;
}

li {
float:le
ft;
}

li a {
  display: inline-
  block;color:
  white;
  text-align:
```

```
  center; padding:
  14px 16px; text-
  decoration: none;
}

a:hover {
  background-color: #4CAFFF;
}

#roundedcorners
  { border-radius:
  25px;
  border: 2px solid
  white;padding:
  20px;
  width:
  200px;
  height:
  150px;
  margin-bottom:
  20px;margin-
  top: 100px;
  margin-right:
  100px; float:
  right;
  background-color: white;
}

.button {
  background-color:
  #4CAF50;border:
  none;
  color: white;
  padding: 15px
  32px;
```

```
  text-align:
  center; text-
  decoration:
  none;display:
  inline-block;
  font-size: 16px;
  margin-right:
  0px; border-
  radius: 55px;
}
h4{
font-size:
18px; color:
#4CAF50;
}
h2{
 color:whi
 te;
}
.menuleft:hover{
  background-color: #4CAFFF;

}
.menuleft{
 padding:0px
 5px;
}
h4{
display: block;
padding: 3px
10px;
}

th{
 color:#4CAF
 50; font-size:
 24px; font-
```

```
 weight: bold;
   border-style:
}
body{
font-family:sans-serif;
background-image: url(https://newevolutiondesigns.com/images/freebies/4k-car-wallpaper-3.jpg);background-position: center;
background-size: cover;
}

.footer{
width:
100%;
height: 5%;
}
.button:hover{
   background-color: #4CAFFF;
}
.login{
   background-color:
   none; border-radius:
   280px 20px;
   font-family: 'Montserrat', sans-serif;
}
</style>
</head>

<body>
<div class="menu" style="float:top; width: 100%; height:11%;">
   <div class="menuleft" style="float:left;">
   <a href="registration_with_js_validation.html" class="logo">
   <h2 style="float:left;">Automobile Showroom</h2>
   </a>
   </div>
   <div class="menuright" style="float:left;">
   <ul>
```

```
      <li><a href="homepage.html" id="menufirstelement">Home</a></li>
      <li><a href="catalogue.html">Catalogue</a></li>
      <li><a href="registration_with_js_validation.html">Register</a></li>
      <li><a href="userpro.html">Profile</a></li>
      <li><a href="shoppingcart.html"> Cart</a></li>
      <li><a href="payment.html">Payment</a></li>
      <li><a href="contact.html">Contact</a></li>
   </ul>
   </div>
</div>
<center>
<div class="login" style="width: 90%; height:59%;">
   <center>
   <h1 style="color:whitesmoke">Congratulations, your order has</h1>
   <h1 style="color:whitesmoke">been confirmed!</h1>
   </center>
</div>
</center>

</body>
</html>
```

Split_db.py

```
import sqlite3
conn =
sqlite3.connect('student_database.d
b')print("Opened database
successfully")
conn.execute('CREATE TABLE customers ( username TEXT, email TEXT,
password TEXT )')print("Table created successfully")
conn.close()
```

app.py

```
from flask import Flask,render_template, flash,redirect,
url_for,requestimport sqlite3 as sql
app = Flask(_name_)
app.secret_key="HIII"

@app.route(
"/")def
homepage():
        return render_template("homepage.html")

@app.route("/catalo
gue")def
catalogue():
        return render_template("catalogue.html")
@app.route("/orderconfi
rmed")def
orderconfirmed():
  return
render_template("orderconfirmed.htm
l")@app.route("/contact")
def contact():
  return
render_template("contact.html"
)@app.route("/payment")
def payment():
  return render_template("payment.html")

@app.route("/registration_with_js_v
alidation")                              def
registration_with_js_validation():
  return
render_template("registration_with_js_validation.h
tml") @app.route("/registration")
def registration():
  return
render_template("registration.html
")@app.route("/shoppingcart")
```

```
def shoppingcart():
  return
render_template("shoppingcart.html
")    @app.route('/data',methods     =
['POST', 'GET'])def data():
  if request.method == 'POST':
    try:
      username =
      request.form['username']
      email = request.form['email']
      password =
      request.form['password']
      with sql.connect("student_database.db") as con:
        cur = con.cursor()
        cur.execute("INSERTINTO      students     (username,email,password)
                                  VALUES(?,?,?)",(username,email,password) )
        con.commit()
        msg = "Record successfully
    added!"except:
      con.rollback()
      msg = "error in insert
    operation"finally:
      return
      render_template("List.html",msg =
      msg)con.close()

@app.route('/
list')def list():
  con                                  =
  sql.connect("student_database.d
  b")con.row_factory = sql.Row
  cur = con.cursor()
  cur.execute("select * from
  students")

  students = cur.fetchall()
  return render_template("List.html", students = students)
```

```
if__name_== '_
  main_':
  app.run(debug =
  True)
```

Contact.css

```
* {
   margin: 0;
   padding: 0;
   border-size: border-box;
  }

  html, body
   { height:
   100vh;
   background: #666666;
   font-family: 'Balsamiq Sans', sans-serif;
  }

  body {
   display:
   flex;
   align-items:
   center; justify-
   content: center;
   background-image: url(https://newevolutiondesigns.com/images/freebies/4k-
   car-wallpaper-3.jpg);background-position: center;
   background-size: cover;
  }


  .card  {
   height:
   50%;
   width: 50%;
```

```
 padding: 30px 90px 90px
 90px; border: 6px solid
 rgba(0, 0, 0, 0.3);
 box-shadow: 20px 20px 0 rgba(0,
 0, 0, 0.3);border-radius: 50px;
 position: relative;
}

.card h2 {
 color:
 white; font-
 size: 40px;
 text-transform: uppercase;
}

.card .row {
 position:
 relative;
 width: 100%;
 display: grid;
 grid: auto / auto auto;
 grid-template-columns: repeat(auto-
 fit,minmax(40%, 1fr));grid-gap: 20px;
}

.card .row .col
 { position:
 relative;
 width: 100%;
 margin: 30px 20px
 40px 0;transition:
 0.5s;
}

.card .row .form-
 group {position:
 relative; width:
```

```
 100%;
 height:
 10px;
 color:
 white;
}

.card .row .form-group input,
.card .row .form-group
 textarea {position:
 absolute;
 width: 90%;
 height: 100%;
 background-color:
 white;outline:
 none;
 font-size: 24px;
 padding: 10px 0 10px
 20px; border: 5px solid
 rgba(0, 0, 0, 0.3);
 box-shadow: 10px 10px 0 rgba(0,
 0, 0, 0.3);color: white;
 border-radius: 50px;
}

.card .row .form-group label {
line-height: 40px;color: white;
 font-size: 24px;
 margin: 0 0 0
 30px; display:
 block; pointer-
 events: none;
}

.row .col:nth-
 child(6) {
 margin-top:
```

```
 64px;
}

.card .row .form-group input:focus,
.card .row .form-group
 textarea:focus {border: 5px
 solid #ffffff;
 transition: all 0.5s;
}

.card .row
 input[type="submit"] {
 border: 5px solid rgba(0, 0,
 0, 0.3);
 box-shadow: 10px 10px 0 rgba(0,
 0, 0, 0.3);padding: 10px;
 height: 100%;
 width:
 50%;
 cursor:
 pointer;
 outline:
 none;
 background:
 transparent; text-
 transform:
 uppercase;color:
 white;
 line-height:
 40px;font-
 size: 24px;
 font-weight:
 700;
 border-radius:
 45px;transition:
 all 0.4s;
}
```

```
.card .row
 input[type="submit"]:hover {
 border: 5px solid rgba(255,
 255, 255, 1);color: black;
 transition: all 0.4s;
}

@media screen and (max-width: 900px) {
 .card .row {
  grid-template-columns: repeat(auto-fit,minmax(70%, 1fr));
 }

 .card {
  padding: 20px;
 }

 .card h2 {
  font-size: 34px;
 }

 .card .row
  input[type="submit"] {
  width: 100%;
 }
}
```

GitHub & Project Demo Link

GitHub Link

https://github.com/IBM-EPBL/IBM-Project-13711-1659526887

Project Demo Link

https://drive.google.com/file/d/1-3IQtDWxgxpAr_9k1UAxH5Fe03vfEpNd/view?usp=share_link