TITLE:CAR RESALE VALUE PREDICTION

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PROJECT REPORT FORMAT

1.INTRODUCTION:

1.1Project overview:

It is anticipated that sales of used cars and second-hand imported (reconditioned) cars will rise in the face of challenging economic conditions. Leasing a car rather than purchasing one entirely is typical in many affluent nations. After the lease term is up, the buyer will have the option of purchasing the vehicle for its residual value, or anticipated resale value. Therefore, being able to accurately anticipate the salvage value (residual value) of cars is in the best interest of sellers and financiers from a business standpoint. We proposed an intelligent, adaptable, and successful approach based on applying regression algorithms to forecast the car's resale value. An estimation of the vehicle's resale value must be made using a regression model that takes into account the major influencing elements. The solution will be chosen after testing different regression methods, and it will then be integrated into the web-based application that notifies the user of the status of his product. Given the variety of elements that influence a used car's market pricing, determining if the quoted price is accurate, is a difficult undertaking. The goal of this research is to create machine learning models that can precisely forecast a used car's price based on its attributes so that buyers can make educated decisions. On a dataset made up of the sale prices of various makes and models across Indian cities, we put several learning techniques into practice and evaluate them.

1.2 Purpose:

Making a system to forecast car resale value is primarily intended as a way to practice Python using Data Science. The system that forecasts the amount of resale value for cars is based on the user-provided parameters. The car's details are entered into the provided form by the user, and the value at which it will be sold is then forecasted.

2.LITERATURE SURVEY:

2.1.Existing Problem:

According to author Sameer Chand, they have forecasted the cost of vehicles using historical data compiled from daily newspapers. They have made use of the implemented AI strategies to forecast the cost of vehicles. Numerous other calculations, including different straight relapse, k-closest neighbor, gullible based, and some choice tree calculations, have also been used.Each of the four calculations is examined in order to determine which is the best forecasting calculation. They have encountered a few difficulties while looking at the computations, which they have in some manner managed. This paper is more concerned with the relationship between the vendor and the customer, as stated by the authors Pattabiraman.More details, such as the previously mentioned price, mileage, make, model, trim, type, chamber, liter, entryways, voyage, sound, and cowhide, are needed in order to predict the price of four-wheeler. With the aid of a factual inquiry framework and these features, the cost of the vehicle has been

projected for exploratory information analysis.The primary focus of this paper, according to its authors EnisGegic et al., is on gathering various information from web entryways using web scraping techniques. Additionally, those have been put up against the help of various AI calculations to predict the cost of the vehicle in an easy manner. They organized the value according to the various types of value that have already been provided. On different datasets, fake neural networks, SVMs, and arbitrary timberland calculations were used to build classifier models. Richardson provided a different methodology in his postulation study.More robust vehicles will be delivered by the manufacturer, according to his hypothesis. He saw how conventional and crossover automobiles in the field really maintain their motivation over a longer period of time by employing a variety of relapse techniques. This operates according to natural laws and also helps to provide incredibly high energy efficiency. In this paper, Wu et al. show how to forecast car value using a system based on neurofluffy information.They expected a model with comparable results to the basic relapse model by taking into account the accompanying attributes, such as brand, year of production, and type of motor. They also created a specialized framework called ODAV (Optimal Distribution of Auction Vehicles) because it is common for vehicle vendors to sell used cars at the end of the rental year. This framework provides insights into the greatest prices for autos as well as the locations where all of those prices may be found.The K - closest neighbor AI algorithm, which is dependent on relapse models, has been used to forecast the cost of cars. This framework has been used to transact with a larger number of automobiles, making it even more successfully managed.

2.2References:

1. Shonda Kuiper (2008) Introduction to Multiple Regression: How Much Is Your Car Worth?, Journal of Statistics Education, 16:3, DOI:10.1080/10691898.2008.11889579

2. Geurts P. (2009) Bias vs Variance Decomposition for Regression and Classification. In: Maimon O., Rokach L. (eds) Data Mining and Knowledge Discovery Handbook. Sp-ringer, Boston, MA

3. Robert T. (1996) Regression Shrinkage and Selection Via the Lasso. In: Journal of the Royal Statistical Society: Series B (Methodological)Volume58, Issue 1

4. Has tie, Trevor, and Daryl Pregibon. Shrinking trees. AT & T BellLaboratories, 1990.

5. Kim, Tae Kyun. "Understanding one-way ANOVA using conceptualfigures." Korean journal of anesthesiology 70.1 (2017): 22

6. Haynes W. (2013) Tukey's Test. In: Dubitzky W., Wolkenhauer O.,Cho KH., YokotaH . (eds) Encyclopedia of Systems Biology.Springer,New York, NY

7. Jaccard, James, Michael A. Becker, and Gregory Wood. "Pairwise multiple comparison procedures: A review." Psychological Bulletin96.3 (1984): 589.

8. Dupac, Václac, ed. Sampling from a finite population. Marcel Dekker,Incorporated, 1981.

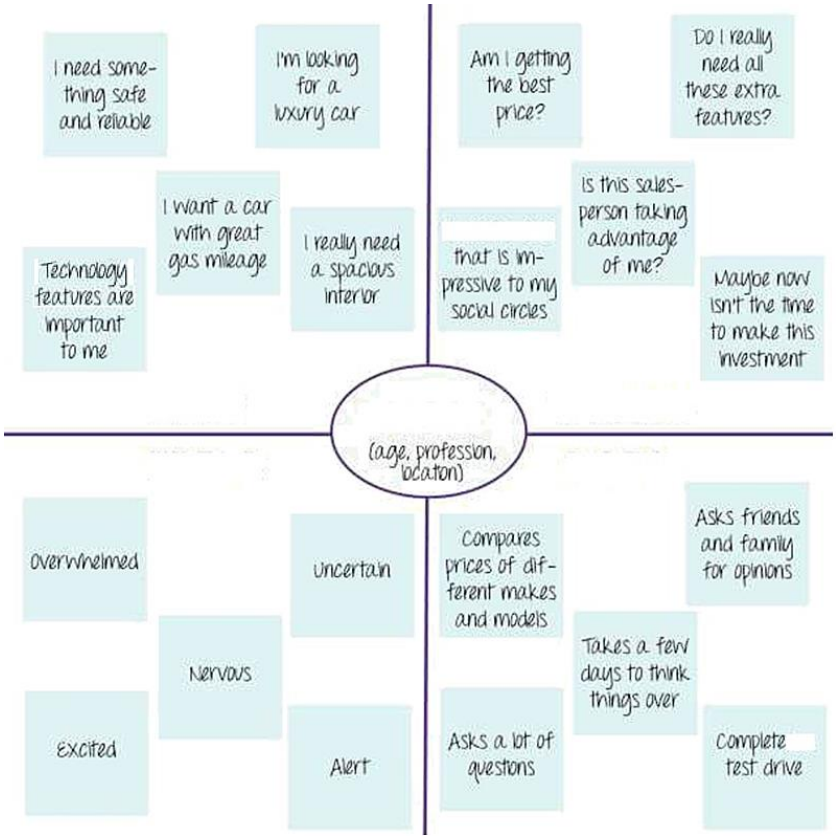
2.3.Probelem statement definition:

The huge requirement of used cars and lack of experts who can determine the correct valuation, there is an utmost need of bridging this gap between sellers and buyers. This project focuses on building a system that can accurately predict the resale value of cars based on minimal features like km s driven, year of purchase, fuel type etc. without manual

or human interference and hence it remains unbiased. In this project we have used machine learning techniques for developing Car resale value prediction systems considering different features of the car. Currently, only few features are used to predict resale value of the car. This can be extended to more features and including more input sets.

3.IDEATION AND PROPOSED SOLUTION:

3.1Empathy map canvas:



3.2.Ideation and brainstorming:

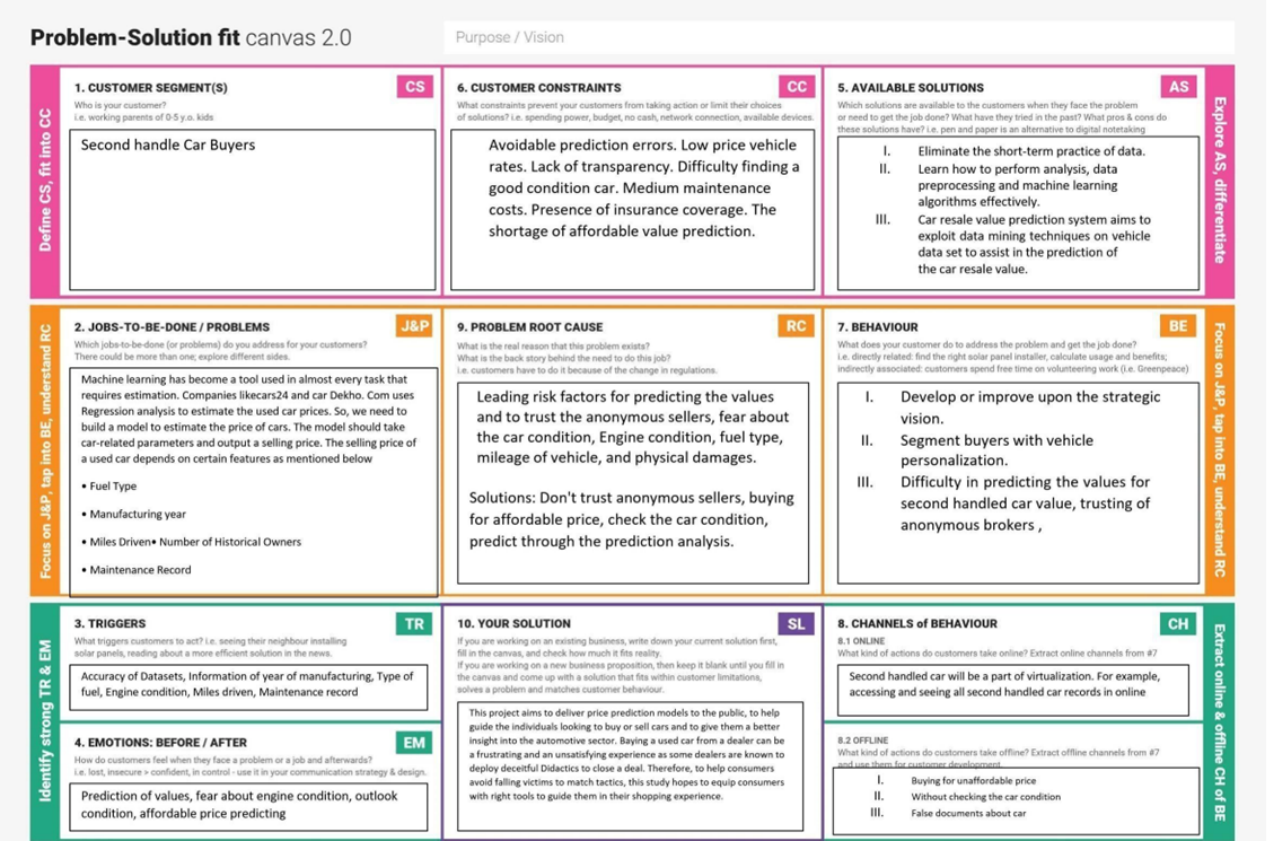
3.3.Proposed solution:

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	The objective of this study is to predict used cars prices using machine learning techniques, by scraping datasets from websites that sell used cars, and analyzing the different aspects and factors that lead to the actual used car price valuation. To enable consumers to know the actual worth of their car or desired car, by simply providing the program with a set of attributes from the desired car to predict the car price. The purpose of this study is to understand and evaluate used car prices and to develop a strategy that utilizes machine learning techniques to predict used car prices.
2	Idea / Solution description	This work will focus on answering the research questions. They all entail a comparison of different ML algorithms for price prediction. This will be accomplished by sourcing and preparing a dataset on which all the algorithms can be trained on and compared fairly. The algorithms selected must therefore be similar enough for the same dataset to be used for all of them. This also means that no large optimization efforts on the dataset will be made to boost the performance, if these changes do not benefit the other models. Maximizing price prediction performance of any one algorithm in ways that do not offer better comparisons is outside the scope of this work.

3	Novelty / Uniqueness	This project aims to deliver price prediction models to the public, to help guide the individuals looking to buy or sell cars and to give them a better insight into the automotive sector. Buying a used car from a dealer can be a frustrating and an unsatisfying experience as some dealers are known to deploy deceitful sale tactics to close a deal. Therefore, to help consumers avoid falling victims to such tactics, this study hopes to equip consumers with right tools to guide them in their shopping experience. Another goal of the project is to explore new methods to evaluate used cars prices and to compare their ac-curacies. Considering this is an interesting research topic in the research community, and in continuing their footsteps, we hope to achieve significant results using more advanced methods of previous work.
4	Social Impact / Customer Satisfaction	Customer satisfaction is seen as an index to find the emotional state of a customer that defines the positive aspirations to define the joy of a customer. The marketers focus mainly on making their customers happy, however, the marketing or servicing tactics or campaigns cannot do this but a positive experience of a user with emotional bonding can do this. Hence, with such motivation, the present study finds how well the customers are happy post sales of a car or servicing of a car. This study finds the customer experiences on how their vehicles are serviced and this defines the measure of satisfaction and customer loyalty. The study conducts a questionnaire survey on 1000 patients at different service centre executives and car owners. The analysis is conducted using SPSS tool to find the positive experience.
5	Business Model (Revenue Model)	We can provide the model for tracking the car price being sold for and we can share the analysed report weekly and monthly through mail.

6	Scalability of the Solution	Efficient use of deep learning such as LSTM (Long short-term memory) or RNN (Recurrent Neural networks) can be implemented once enough data is collected. This can improve accuracy and decrease RMSE drastically. Currently, only few features are used to predict resale value of the car. This can be extended to more features. One can also implement CNN to determine physical condition of the car from images like identifying dents, scratches etc. and thus predicting more relevant resale value of a car

3.4.Problem solution fit:



4.REQUIREMENT ANALYSIS:

4.1.Functional 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 Website
FR-2	User Confirmation	Confirmation via website
FR-3	Car Registration	Registering the car details
FR-4	Value Prediction	Predicting the car resale value

4.2.Non-functional requirement:

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

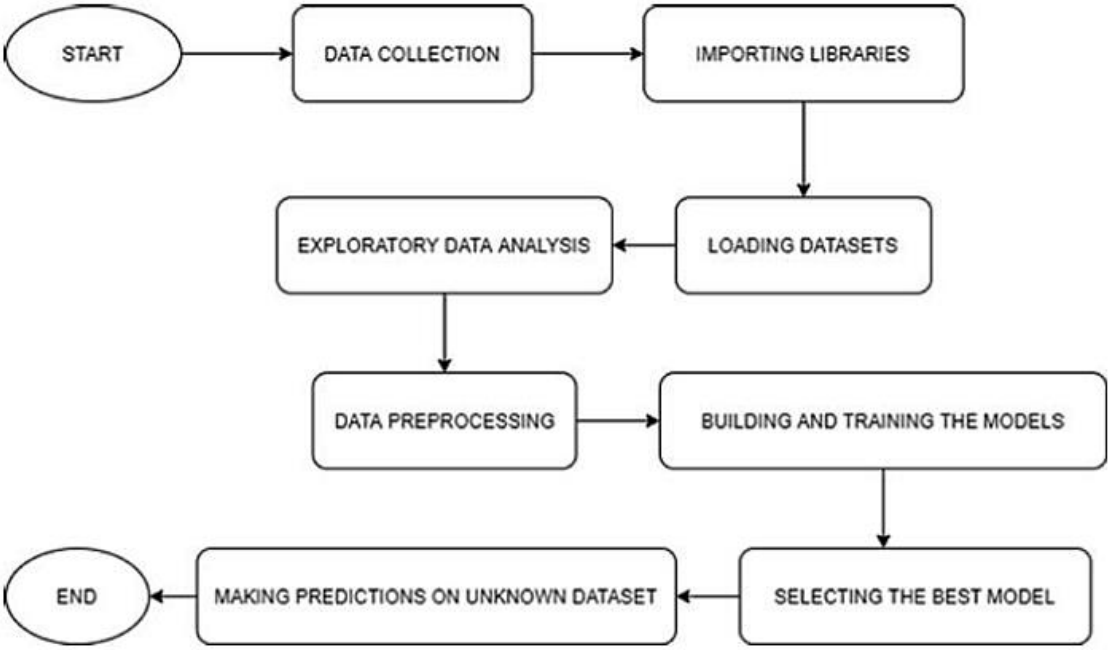
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Predicting the resale value
NFR-2	**Security**	Providing security to the website
NFR-3	**Reliability**	Providing high reliability by predicting values for different types of cars
NFR-4	**Performance**	Providing high performance by using some machine learning techniques
NFR-5	**Availability**	It is used for all types of cars
NFR-6	**Scalability**	Predicting values for different types of cars

5.PROJECT DESIGN:

5.1Data flow diagram:

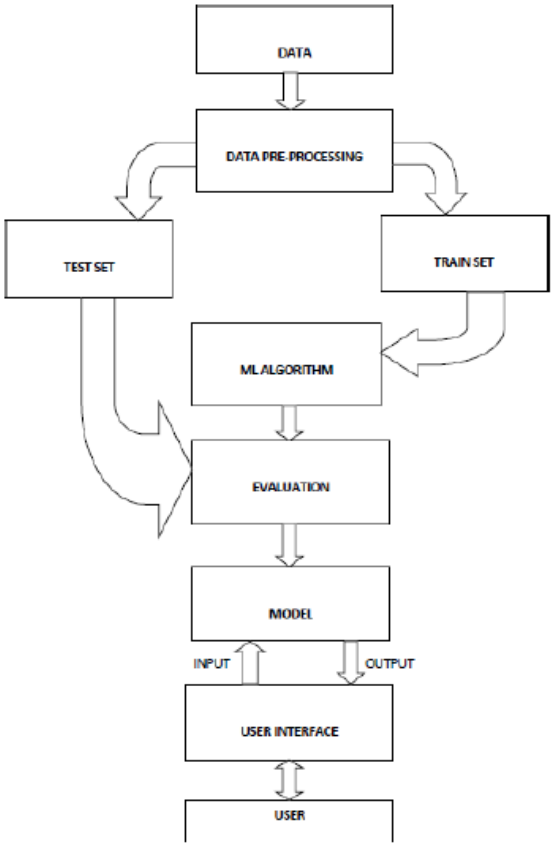
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict theright amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, andwheredata is stored.

flow:

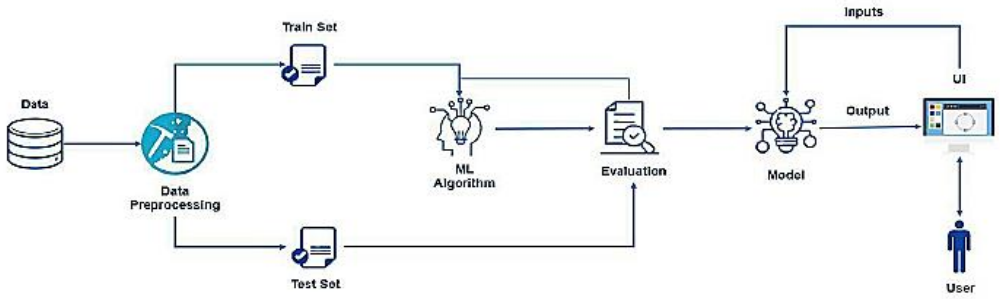


5.2.Solution and technical architecture:

solution architecture:



Technical architecture:



5.3.User stories:

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (user)	I want to buy a used car	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 register for the resource i want	I can access the resources and know about the car varieties and their model and value of the car	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard					
Customer (Web user)						
Customer Care Executive						
Administrator						

6.PROJECT PLANNING AND SCHEDULING:

6.1.Sprint planning and estimation:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

6.2.Sprint delivery schedule:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Pre-process data	USN-1	Collect Dataset	1	Low	Shrinithi V
Sprint-1		USN-2	Import required libraries	1	Low	Vijayalakshmi N
Sprint-1		USN-3	Read and clean data sets	2	Low	Sowmya S S
Sprint-2	Model building	USN-1	Split data into independent and dependent variables	3	Medium	Vijayalakshmi
Sprint-2		USN-2	Apply using regression model	3	Medium	Sowmya
Sprint-3	Application building	USN-1	Build python flask application and HTML page	5	High	Shrinithi & Sowmya
Sprint-3		USN-2	Execute and test	5	High	Vijayalakshmi N
Sprint-4	Training the model	USN-1	Train machine learning model	5	High	Sowmya & Shrinithi
Sprint-4		USN-2	Integrate flask	5	High	Vijayalakshmi

7.CODING AND SOLUTIONING:

7.1. Feature 1 :

- **IoT device**
- **IBM Watson Platform**
- **Node red**
- **Cloudant DB**
- **Web UI**
- **MIT App Inventor**
- **Python code**

7.2.Feature 2:

- **Login**
- **Wokwi**

8.TESTING:

8.1. Test cases:

Verify user is able to see home page?

Verify user is able to navigate to data entry page?

Verify user is able to see data entrypage?

Verify user is able to enter the values in the fileds?

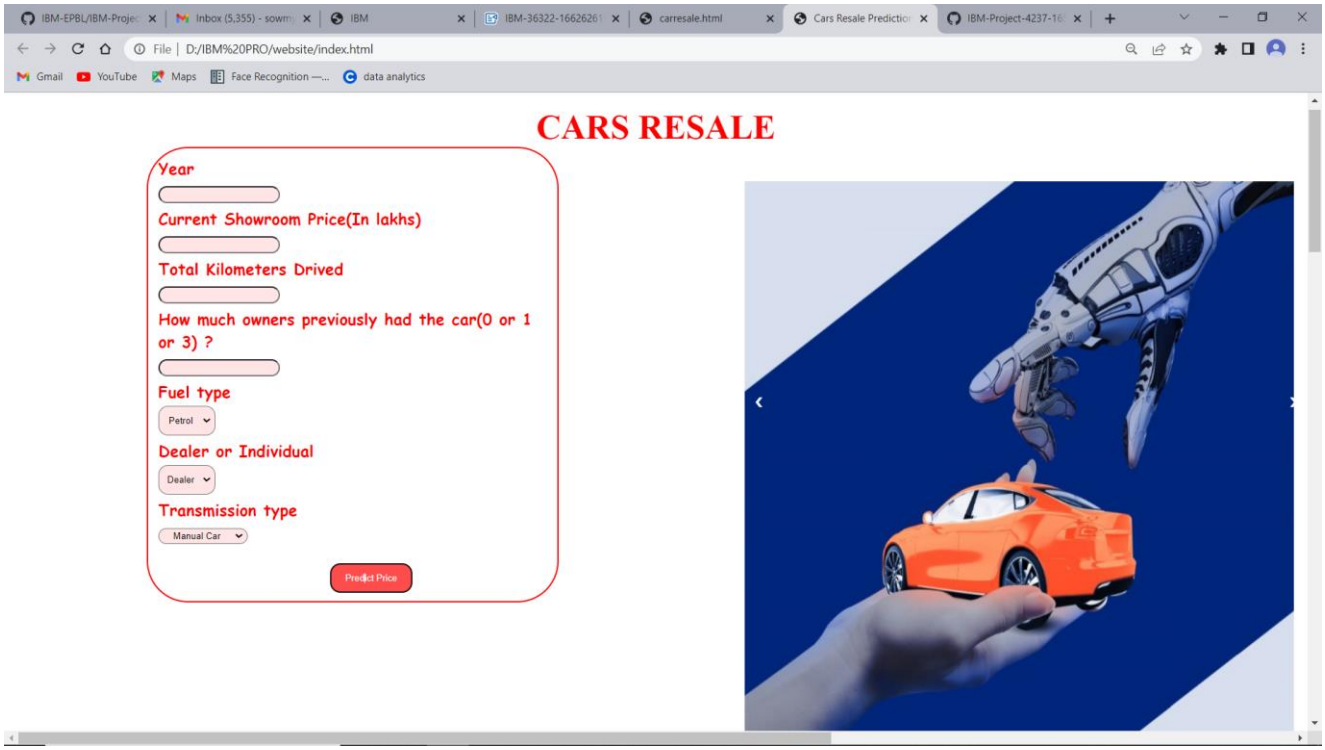
Verify user is able to navigate to the next page?

Verify user is able to view the output display page?

8.2. User acceptance testing:

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TCfor Automation(Y/N)	BUG ID	Executed By
HomePage_TC_001	UI	Home Page	Verify all the UI elements in Home page rendered properly		1. Enter URL and click go 2. Verify all the UI elements displayed or not	-	All the UI elements rendered properly	Working as expected	Pass		N		Sowmya S S
HomePage_TC_002	Functional	Home Page	Verify the Data Entry page can be reachable.		1. Enter URL and click go 2. Verify all the UI elements displayed or not. 3.Press the Check Price button.	-	User should navigate to Data Entry Page	Working as expected	Pass		N		Shrinithi V
DataEntryPage_TC_001	UI	Data Entry Page	Verify all the UI elements in Data Entry page rendered properly		1. Enter URL and click go 2. Verify all the UI elements displayed or not. 3.Press the Check Price button in the home page 4. Verify all the UI elements displayed or not	-	All the UI elements rendered properly	Working as expected	Pass		N		Vijaya lakshmi
DataEntryPage_TC_002	Functional	Data Entry Page	Verify user is able to enter all values		1. Enter URL and click go 2. Verify all the UI elements displayed or not. 3.Press the Check Price button in the home page 4. Verify all the UI elements displayed or not 5. Verify if all values can be entered	2012 12 12 12 Manual Yes Golf Volkswagen Petrol Coupe	User should be able to enter all values in data entry page	Working as expected	Pass		N		Sowmya S S
DataEntryPage_TC_003	Functional	Data Entry Page	Verify the Output Display page can be reachable.		1. Enter URL and click go 2. Verify all the UI elements displayed or not. 3.Press the Check Price button in the home page 4. Verify all the UI elements displayed or not 5. Verify if all values can be entered 6. Press the submit Button	-	User should navigate to Output Display Page	Working as expected	Pass		N		Shrinithi V

9.RESULTS:



9.1 PERFORMANCE METRICS:

The results of our tests were quantified in terms of the R score of our predictions. score is a statistical 2 R 2 measure of how close the data are to the fitted regression line

Learning Algorithm	R^2 Score on Test Data	R^2 Score on Training Data	Training Time
Linear Regression	0.87	0.87	15 minutes
Gradient Boost	0.64	0.64	130 minutes
Random Forest	0.88	0.98	75 minutes
Light GBM	0.81	0.82	104 seconds
XGBoost	0.78	0.81	180 minutes
KMeans + LinReg	0.88	0.89	70 minutes
Deep Neural Network	0.85	0.85	10 hours

Compared to Linear Regression, most Decision-Tree based methods did not perform comparably well. This can be attributed to the apparent linearity of the dataset. We believe that It can also be attributed to the difficulty in tuning the hyperparameters for most gradient boost methods. The exception to this is the Random Forest method which marginally outperforms Linear Regression. However Random Forests tend to overfit the dataset due to the tendency of growing longer trees. This was worked upon by restricting the depth of trees to different values and it was observed that beyond limiting depth to 36 resulted in negligible improvement in prediction performance but progressively increased overfitting. As expected lightGBM performed marginally better than XGBoost but had a significantly faster training time. Building up from the relatively good performance of Linear Regression, the KMeans + Linear Regression Ensemble Learning Method (with K = 3) produced the best R score on test data without high variance as 2 it fits linear relationships categorically. The deep neural network was converging to local minima due to small batch-sizes.

10.ADVANTAGES AND DISADVANTAGES:

ADVANTAGES

- This will reduced installation cost.
- It will monitor 24/7.
- Very useful to sale the car for reasonable price

10.2 DISADVANTAGES

- Car Resale value can not be used by the person who doesn't have access to the internet.
- Very hard to use for targeted range of people

11.CONCLUSION:

Because there are so many factors to take into account for an accurate projection, predicting automobile prices can be difficult. The gathering and preparation of the data is a crucial phase in

the prediction process. To eliminate unneeded noise for machine learning algorithms, normalisation, standardisation, and data cleaning PHP scripts were written for this study. One method for improving prediction performance is data cleansing, however it is insufficient when dealing with complicated data sets like the one used in this study. The accuracy of using a single machine algorithm on the data set was under 50%. As a result, an ensemble of various machine learning algorithms has been suggested, and this set of ML techniques achieves an accuracy of 92.38%. When compared to a single machine learning method approach, this is a huge improvement. The suggested system's disadvantage is that it uses significantly more computer resources than a single machine learning method. Despite the system's astounding performance in the car price prediction task, our goal for the coming research is to see how well it performs when tested against different data sets. With the help of the used automobile data sets from OLX and eBay, we will expand our test data and evaluate the suggested methodology.

12.FUTURE SCOPE:

This Initiative Machine learning models will be linked to a variety of datasets and websites that can supply real- time Data for price prediction. Will be kept on their website or on GitHub. We may also upload a large amount of car price data to help improve the machine learning model's accuracy. We are also working on an Android app as a user interface for connecting with and interacting with users. We also intend to employ a neural network to improve the model's performance.

13.APPENDIX:

Source code:

```
<!DOCTYPE html>
<html lang="en">

<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Cars Resale Prediction</title>
</head>

<body>
   <h2>CARS RESALE</h2>

   <div class="cars" style="width: 50%; ">
      <div class="child">
         <div class="forms">
            <form action="price.js" method="post">


               <fieldset id="box">
                  <h3>Year</h3>
                  <input name="Year" type="number ">
```

```
                <h3>Current Showroom Price(In lakhs)</h3><input
name="Present_Price" required="required">
                <h3>Total Kilometers Drived</h3><input name="Kms_Driven"
required="required">
                <h3>How much owners previously had the car(0 or 1 or 3)
?</h3><input name="Owner"
                    required="required">
                <h3>Fuel type</h3><select name="Fuel_Type_Petrol" id="fuel"
required="required">
                    <option value="Petrol">Petrol</option>
                    <option value="Diesel">Diesel</option>
                    <option value="Diesel">CNG</option>
                </select>
                <h3> Dealer or Individual</h3><select
name="Seller_Type_Individual" id="resea"
                    required="required">
                    <option value="Dealer">Dealer</option>
                    <option value="Individual">Individual</option>
                </select>
                <h3>Transmission type</h3><select
name="Transmission_Mannual" id="transmission"
                    required="required" style="width: 130px;
        height: 23px;">
                    <option value="Mannual">Manual Car</option>
                    <option value="Automatic">Automatic Car</option>
                </select>
                <br><br><input id="sub" type="submit " value="Predict Price">
                <br>


            </fieldset>

        </form>
    </div>
</div>
<div class="child">
    <div class="slideshow-container">

        <!-- Full-width images with number and caption text -->
        <div class="mySlides">
            <div class="numbertext">1 / 3</div>
            <img src="pick.png" style="width:100%">
            <div class="text">Pick Wisely</div>
```

```
        </div>

        <div class="mySlides">
          <div class="numbertext">2 / 3</div>
          <img src="cars3.png" style="width:100%">
          <div class="text">Buy Safely</div>
        </div>

        <div class="mySlides">
          <div class="numbertext">3 / 3</div>
          <img src="cars2.jpg" style="width:100%">
          <div class="text">Guess Accurately</div>
        </div>

        <!-- Next and previous buttons -->
        <a class="prev" onclick="plusSlides(-1)">&#10094;</a>
        <a class="next" onclick="plusSlides(1)">&#10095;</a>
      </div>
      <br>


  </div>



</div>




<style>
  .cars
  {
    width: 50%;

  }
  .child {
    float: left;
    width: 50%;

  }

  h2 {
    text-align: center;
    font-size: 50px;
```

```
    margin-bottom: 0px;
}

body {
    background-color: #ff9999;
    color: red;

    font-size: 20px;

}



#box {
    border-radius: 60px;
    border-color: red;
    border-style: solid;
    font-family: Comic Sans MS, Comic Sans, cursive;
    text-align: 10px;
    margin-left: 200px;


    width: 600px;




}

h3 {
    margin-top: 5px;
    margin-bottom: 5px;
}

input {
    background-color: #ffe6e6;
    border-radius: 14px;
    height: 25px;

    text-align: center;
}

#fuel,
#transmission,
```

```
#resea {
    width: 83px;
    height: 43px;
    text-align: center;
    border-radius: 14px;
    background-color: #ffe6e6;
}

#fuel:hover,
#transmission:hover,
#resea:hover {
    background-color: #ff9999;
    color: red;
}


#sub {
    width: 120px;
    height: 43px;
    text-align: center;
    border-radius: 14px;
    margin-left: 250px;
    background-color: #ff4d4d;
    color: white;
    border-color: red;
}

#sub:hover {
    background-color: white;
    color: #ff4d4d;

}

* {
    box-sizing: border-box
}

/* Slideshow container */
.slideshow-container {
    width: 700px;
    margin-left: 600px;

    margin-top: 50px;
```

```
}

/* Hide the images by default */
.mySlides {
    display: none;
}

/* Next & previous buttons */
.prev,
.next {
    cursor: pointer;
    position: absolute;
    top: 50%;
    width: auto;
    margin-top: -22px;
    padding: 16px;
    color: white;
    font-weight: bold;
    font-size: 18px;
    transition: 0.6s ease;
    border-radius: 0 3px 3px 0;
    user-select: none;
}

/* Position the "next button" to the right */
.next {
    right: 0;
    border-radius: 3px 0 0 3px;
}

/* On hover, add a black background color with a little bit see-through */
.prev:hover,
.next:hover {
    background-color: rgba(0, 0, 0, 0.8);
}

/* Caption text */
.text {
    color: #f2f2f2;
    font-size: 15px;
    padding: 1500px 200px;
    position: absolute;
```

```
    width: 100%;
    text-align: center;
}

/* Number text (1/3 etc) */
.numbertext {
    color: #f2f2f2;
    font-size: 12px;
    padding-top: 100px;
    position: absolute;
    top: 0;
}

/* The dots/bullets/indicators */
.dot {
    cursor: pointer;
    height: 15px;
    width: 15px;
    margin: 0 2px;
    background-color: #bbb;
    border-radius: 50%;
    display: inline-block;
    transition: background-color 0.6s ease;
}

.active,
.dot:hover {
    background-color: #717171;
}

/* Fading animation */
.fade {
    animation-name: fade;
    animation-duration: 1.5s;
}

@keyframes fade {
    from {
        opacity: .4
    }

    to {
        opacity: 1
    }
```

```
        }
    </style>
    <script>
        let slideIndex = 1;
        showSlides(slideIndex);

        // Next/previous controls
        function plusSlides(n) {
            showSlides(slideIndex += n);
        }

        // Thumbnail image controls
        function currentSlide(n) {
            showSlides(slideIndex = n);
        }

        function showSlides(n) {
            let i;
            let slides = document.getElementsByClassName("mySlides");
            let dots = document.getElementsByClassName("dot");
            if (n > slides.length) { slideIndex = 1 }
            if (n < 1) { slideIndex = slides.length }
            for (i = 0; i < slides.length; i++) {
                slides[i].style.display = "none";
            }
            for (i = 0; i < dots.length; i++) {
                dots[i].className = dots[i].className.replace(" active", "");
            }
            slides[slideIndex - 1].style.display = "block";
            dots[slideIndex - 1].className += " active";
        }
    </script>
</body>

</html>

website integration:
from flask import Flask, render_template, request
import pickle
import numpy as np
from sklearn.preprocessing import StandardScaler
app = Flask(__name__)
model = pickle.load(open('random_forest_regression_model.pkl', 'rb'))
@app.route('/',methods=['GET'])
```

```
def Home():
    return render_template('index.html')


standard_to = StandardScaler()
@app.route("/predict", methods=['POST'])
def predict():
    Fuel_Type_Diesel=0
    if request.method == 'POST':
        Year = int(request.form['Year'])
        Present_Price=float(request.form['Present_Price'])
        Kms_Driven=int(request.form['Kms_Driven'])
        Kms_Driven2=np.log(Kms_Driven)
        Owner=int(request.form['Owner'])
        Fuel_Type_Petrol=request.form['Fuel_Type_Petrol']
        if(Fuel_Type_Petrol=='Petrol'):
                Fuel_Type_Petrol=1
                Fuel_Type_Diesel=0
        else:
            Fuel_Type_Petrol=0
            Fuel_Type_Diesel=1
        Year=2020-Year
        Seller_Type_Individual=request.form['Seller_Type_Individual']
        if(Seller_Type_Individual=='Individual'):
            Seller_Type_Individual=1
        else:
            Seller_Type_Individual=0
        Transmission_Mannual=request.form['Transmission_Mannual']
        if(Transmission_Mannual=='Mannual'):
            Transmission_Mannual=1
        else:
            Transmission_Mannual=0
        prediction=model.predict([[Present_Price,Kms_Driven2,Owner,Year,Fuel
_Type_Diesel,Fuel_Type_Petrol,Seller_Type_Individual,Transmission_Mannu
al]])
        output=round(prediction[0],2)
        if output<0:
            return render_template('index.html',prediction_texts="Sorry you cannot
sell this car")
        else:
            return render_template('index.html',prediction_text="You Can Sell The
Car at {}".format(output))
    else:
```

```
        return render_template('index.html')

if __name__=="__main__":
    app.run(debug=True)
```