PROJECT REPORT

PREDICTION OF CAR RESALE VALUE

1. INTRODUCTION

Car Resale value Prediction With difficult economic conditions, it is likely that sales of second-hand imported (reconditioned) cars and used cars will increase. In many developed countries, it is common to lease a car rather than buying it outright. After the lease period is over, the buyer has the possibility to buy the car at its residual value, i.e. its expected resale value. Thus, it is of commercial interest to sellers/financers to be able to predict the salvage value (residual value) of cars with accuracy. In order to predict the resale value of the car, we proposed an intelligent, flexible, and effective system that is based on using regression algorithms. Considering the main factors which would affect the resale value of a vehicle a regression model is to be built that would give the nearest resale value of the vehicle. We will be using various regression algorithms and algorithm with the best accuracy will be taken as a solution, then it will be integrated to the web-based application where the user is notified with the status of his product.

1.1 Project Overview

The system is defined in the python language that predicts the amount of resale value based on the given information. The system works on the trained dataset of the machine learning program that evaluates the precise value of the car. User can enter details only of fields like purchase price of car, kilometers driven, fuel of car, year of purchase.

1.2 Purpose

Considering the demand for private car all around the world, the demand of second-hand car market has been rising and creating a chance in business for both buyer and seller. In several countries, buying a used car is the best choice for customer because its price is reasonable and affordable by buyer. After few years of using them, it may get a profit from resell again. However, various factors influence the price of a used car such as how old of those vehicles and the condition in current scenario of them. Normally, the price of used cars in the market is not constant. Thus, car price evaluation model is required for helping in trading.

2. LITERATURE SURVEY

2.1 Existing problem

Due to limited data, system only takes into account limited features for predicting the resale value of the car. Since this is an online system, current system does not take into account any physical damage to the car body or engine while predicting the resale value.

2.2 References

[1] S. Pudaruth, “Predicting the Price of Used Cars using Machine Learning Techniques,” International Journal of Information & Computation Technology, vol. 4, no. 7, pp. 753–764, 2014.

[2] N. Kanwal and J. Sadaqat, “Vehicle Price Prediction System using Machine Learning Techniques,” International Jounal of Computer Ap-plications, vol. 167, no. 9, pp. 27–31, 2017.

[3] S. Peerun, N. H. Chummun, and S. Pudaruth, “Predicting the Price of Second-hand Cars using Artificial Neural Networks,” The Second International Conference on Data Mining, Internet Computing, and Big Data, no. August, pp. 17–21, 2015.

[4] N.Sun, H. Bai, Y. Geng, and H. Shi, “Price evaluation model in second-hand car system based on BP neural network theory,” in 2017 18th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD), jun 2017, pp. 431–436.

[5] G.Rossum, “Python Reference Manual,” Amsterdam, The Netherlands, The Netherlands, Tech. Rep., 1995. [6] A. K. Elmagarmid, P. G. Ipeirotis, and V. S. Verykios, “Duplicate Record Detection: A Survey,” IEEE Transactions on Knowledge and Data Engineering, vol. 19, no. 1, pp. 1–16, jan 2007.

S.NO	PAPER TITLE	AUTHORS	DESCRIPTION
1.	Predicting the price of used cars using machine learning Techniques	Gegic, Enis, et al. "Car price prediction using machine learning techniques." *TEM Journal* 8.1 (2019): 113.	This paper analyses on various supervised machine learning algorithms for predicting the resale value of the cars used in Mauritius. Comparative study on KNN, regression, naïve bayes and decision tree has been made to come up with high accuracy.
2.	Prediction of Resale Value of the Car Using Linear Regression Algorithm	Das Adhikary, Dibya Ranjan, Ronit Sahu, and Sthita Pragyna Panda. "Prediction of Used Car Prices Using Machine Learning." *Biologically Inspired Techniques in Many Criteria Decision Making*. Springer, Singapore, 2022. 131-140.	In this paper, linear regression algorithm is used to estimate the car resale value. This research work achieved accuracy in predicting the resale value of the vehicle based on the most significant attributes which are selected based on the highest correlation. This gives 90% percent accuracy and the error obtained is 10%
3.	Used car price prediction using K-Nearest Neighbour Based Model	Samruddhi, K., and R. Ashok Kumar. "Used Car Price Prediction using K-Nearest Neighbor Based Model." *Int. J. Innov. Res. Appl. Sci. Eng.(IJIRASE)* 4 (2020): 629-632.	This paper uses K nearest Neighbour(KNN) algorithm to predict the resale value of the used cars. It has achieved around 85% accuracy. This model has also validated with 5 and 10 folds by using K Fold Method.
4.	Old car price prediction with machine learning	Gajera, Prashant, Akshay Gondaliya, and Jenish Kavathiya. "Old Car Price Prediction With Machine Learning." *Int. Res. J. Mod. Eng. Technol. Sci* 3 (2021): 284-290.	This paper uses various machine learning algorithms to predict the car price such as linear-regression, KNN, Random forest, XG boost and Decision Tree and linear regression. Based on comparative studies made on these algorithms, Random forest Regressor has got the most accuracy.
5.	Second Sale Car Price Prediction using Machine Learning algorithm	C. V. Narayana, N. O. G. Madhuri, A. NagaSindhu, M. Aksha and C. Naveen, "Second Sale Car Price Prediction using	The major goal is to develop a prediction model that can estimate the selling price of used cars based on key factors. Machine learning techniques such as Random Forest Regression, Feature engineering technique such as Extra Trees Regression are employed to accomplish the goal as

		Machine Learning Algorithm," *2022 7th International Conference on Communication and Electronics Systems (ICCES)*, 2022, pp. 1171-1177, doi: 10.1109/ICCES54183.2022.9835872.	Random Forest Regression is modeled for prediction analysis and Extra Trees Regression fits the number of decision trees. The results are so encouraging with our approach.

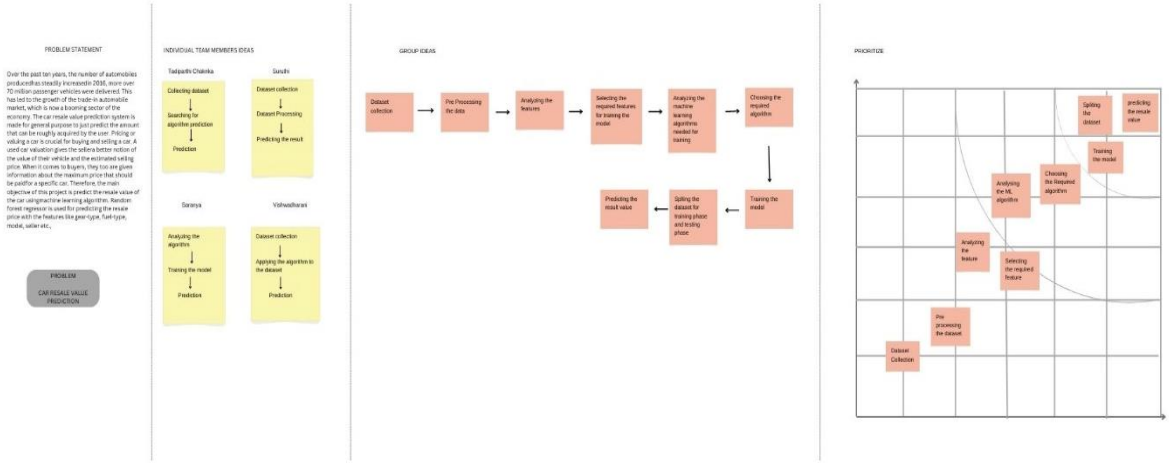
2.3 Problem Statement Definition

- The main aim of this project is to predict the price of a used cars using various ML algorithms and models.
- To predict the selling price of used car based on the given car's feature.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

3.2 Ideation & Brainstorming



3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	• The main aim of this project is to predict the price of a used cars using various ML algorithms/models. • To predict the selling price of a used car based on the given car's features.
2.	Idea / Solution description	• Car resale value prediction is the system to predict the amount of resale value based on the parameters provided by the user. • Various models will be built and based on the accuracy obtained, the best model is chosen and it will be integrated to the web-based application.
3.	Novelty / Uniqueness	• The price prediction of a used car is determined effectively within few minutes using various features such as year, mileage, model etc. • The model's accuracy is to be increased.
4.	Social Impact / Customer Satisfaction	• Experience of a customer is likely to obtain a positive and significant impact with the customer satisfaction and loyalty. • If a user wants to buy a used car or wants to sell a car, this method helps them in predicting the correct price or evaluation on their own.
5.	Business Model (Revenue Model)	• It helps in predicting the correct valuation of a car remotely without human intervention like car dealers in the process to eliminate biased valuation predicted by the car dealer.
6.	Scalability of the Solution	• Using the dataset(Stored data) and machine learning approaches, this proposed project is a scalable framework for predicting the price values for different types of used cars present all over India.

3.4 Problem Solution fit

1. CUSTOMER SEGMENT(S):

Both the old used car sellers, car buyers and the mediators.

6. CUSTOMER CONSTRAINTS:

To determine the value for the used cars on the own.
To reduce the loss met by paying to the brokers, mediators or the dealers to buy a car.

5. AVAILABLE SOLUTIONS:

The users cannot predict the value of the used cars by their own without having any prior knowledge about the car.
A person having less knowledge about the cars may get manipulated by the human dealers and may face loss.

2. JOBS-TO-BE-DONE / PROBLEMS

To design a machine learning model using regression that can predict the value of the old used cars using the following criteria:

Kilometers Driven.
Condition of the car and the engine.
Age of the car and
Number of owners for the car

9. PROBLEM ROOT CAUSE

Users can predict the value of the car by themselves without the help of any human dealers.

The value proposed by the dealers aren't trustworthy.

The biased valuation by the human dealers can be avoided.

7. BEHAVIOR

The history of the car and the documents produced are checked if they are suspicious.
A model has to produce the nearest or the approximate resale value of the car that helps both the sellers and the buyers

3. TRIGGERS

Users are able to predict the value by themselves without getting manipulated from the apps like OLX, Cars24, and other websites too.

10. YOUR SOLUTION

The primary goal of the project is to predict the value of the old used cars using machine learning algorithms.
The system takes in the inputs related to the old used cars and produces the value of the car without the help of any human dealers and any kind of manipulation.

8. CHANNELS OF BEHAVIOR:

The buyers can predict the value of the car using the parameters given by the sellers.
The user must verify the details of the vehicle in RTO in online.
Later the user can decide whether to buy or not after seeing the exterior and interior condition of the car.
Finally the user can test the performance of the car and buy the car at the affordable rate for them.

4. EMOTIONS: BEFORE / AFTER:

Before:- The users might have the fear of getting manipulated by the biased value of the old used cars proposed by the human dealers.

After:- The users might not have any fear of getting biased. They predict the value of the old used cars by themselves just by giving some of the inputs about the car.

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

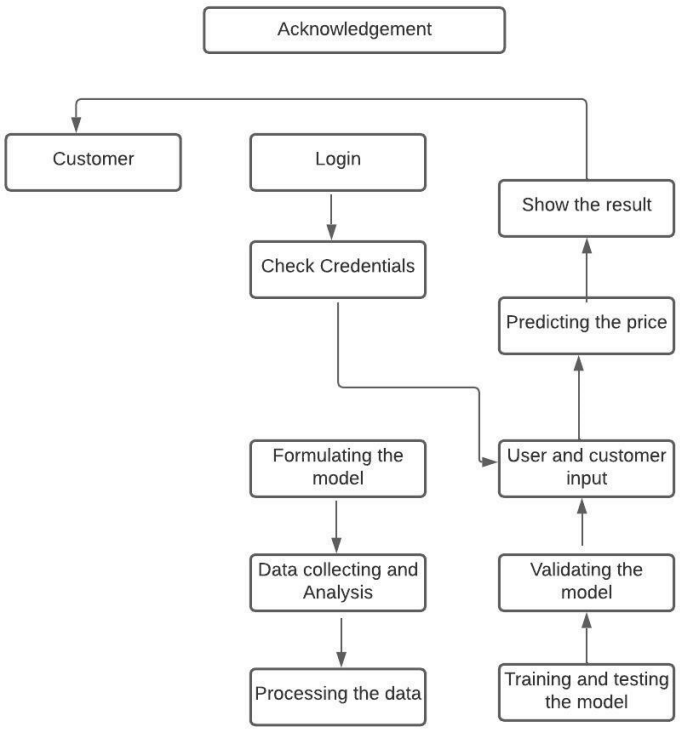
FR No	Functional Requirements(Epic)	Sub Requirements(Story/Sub Task)
FR-1	User Registration	• Registration through form.
FR-2	Car Details	• Getting the required car details as input from the user in the website.
FR-3	Business rules	• Private Policy • Terms of use

4.2 Non-Functional requirements

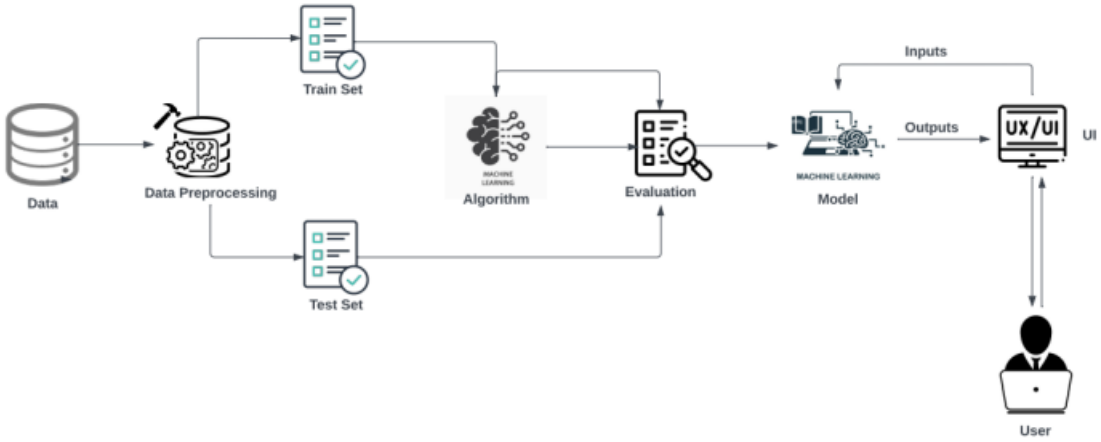
NFR No	Non-functional Requirement	Description
NFR-1	Security	• No information is disclosed to the unauthorized person. • And the access permission is given only to the authorized person and only the authorized person can make changes in the particular system.
NFR-2	Usability	• This website is easy to use. • People from anywhere around the world can use it. • Detailed instructions will be given and for any queries they can use the Q&A column provided.
NFR-3	Performance	• After collecting the required inputs from the user fast calculation is made to produce the approximate value of the used car.
NFR-4	Durability	• Updating the database without any failure or even if it gets failed, the making process will save the data in a secured way.
NFR-5	Availability	• Users will get a satisfactory approximate value of the used cars. • The system is available for any users all around the world.

5. PROJECT DESIGN

5.1 Data Flow Diagrams



5.2 Solution & Technical Architecture



5.3 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Web user)	Registration	USN-1	As a user, I can register for the application by entering my username, password, and confirming my password.	I can access my account.	High	Sprint-1
		USN-2	As a user, I will receive confirmation once I have registered for the application.	I can receive confirmation & click confirm	High	Sprint-1
	Login	USN-3	As a user, I can log into the application by entering my username & password	I can access my dashboard.	High	Sprint-1
	Dashboard	USN-4	As a user, I can view the Home page	I can access the 1st page which is the Home page.	High	Sprint-1
		USN-5	As a user, I can navigate to the page where I enter the required information regarding the car details.	I can enter the details that are asked in the page.	High	Sprint-1
		USN-6	As a user, I can click on submit button for the result.	I can view the result, the predicted price.	High	Sprint-1
Administrator	Modules	ASN-1	As an admin, I have to create modules.	I can view the created module.	High	Sprint-1
		ASN-2	As an admin, I have to create home page and other necessary pages.	I can view the created web pages	High	Sprint-1
	Database	ASN-3	As an admin, I have access to the database.	I can modify, change the database if necessary.	High	Sprint-1
		ASN-4	As an admin, I have to check the username and password. (Authentication)	I can authenticate the user.	High	Sprint-1
	Modifications /Changes	ASN-5	As an admin, I have the ability to modify the existing users in the system.	I can change the password of a user upon request.	High	Sprint-2

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

TITLE	DESCRIPTION	DATE
Literature Survey & Information Gathering	Literature survey on the selected project & gathering information by referring to technical papers,research publications etc.	**22th SEPTEMBER 2022**
Prepare Empathy Map	Prepare Empathy Map Canvas to capture the user Pains & Gains, Prepare list of problem statements .	**20th SEPTEMBER 2022**
Ideation	List out them by organising the brainstorming session and prioritise the top 3 ideas based on the feasibility & importance.	**18th SEPTEMBER 2022**
Proposed Solution	Prepare the proposed solution document, which includes the novelty, feasibility of idea, business model, social impact, scalability of solution, etc.	**28th SEPTEMBER 2022**
Problem Solution Fit	Prepare problem - solution fit document.	**29th SEPTEMBER 2022**
Solution Architecture	Prepare a solution for selected project architecture document.	**29th SEPTEMBER 2022**

6.2 Sprint Delivery Schedule

Sprint	Functional (Requirements)	User Story Number	User story/Task	Story points	Priority
Sprint 1	Home page	USN 1	As a user, I can view the home page of the web application.	20	Low
Sprint 2	Car resale value display	USN 2	As a user, I can be redirected to the data entry page.	20	medium
Sprint 3	Required data entry	USN 3	As a user, I can enter my car details in the required fields.	20	medium
Sprint 4	Resale vale prediction	USN 4	As a user, I expect the application to predict the resale value of my car.	20	medium

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

7.1 Feature 1

login.html

```
<!DOCTYPE
html>
                <head>
                  <meta charset="UTF-8">
                  <title>Login Page </title>
                  <link rel="stylesheet" href="./login.css">

                  <script>
                    function myFunction() {
                      window.location.href="https://programminghead.com";
                    }
                </script>
                </head>
                <body>

                  <form class="login" action="http://127.0.0.1:5000/">
                    <h2 STYLE="text-align: center;">SIGN IN</h2>
                    <input type="text" placeholder="Username">
                    <br />
                    <input type="password" placeholder="Password">
                    <button type="submit" onClick="myFunction()">Login</button>
                  </form>
```

```
        </body>

        </html>
```

login.css

```
body
{
    margin: 0;
     padding: 0;
     background-image: url(car.jpeg);
     background-size:auto;
     background-position: center;
     font-family: sans-serif;
   }

   .login {
     overflow: hidden;
     background-color: white;
     padding: 40px 30px 30px 30px;
     border-radius: 10px;
     position: absolute;
     top: 50%;
     left: 50%;
     width: 400px;
     -webkit-transform: translate(-50%, -50%);
     -moz-transform: translate(-50%, -50%);
     -ms-transform: translate(-50%, -50%);
     -o-transform: translate(-50%, -50%);
     transform: translate(-50%, -50%);
     /*-webkit-transition: -webkit-transform 300ms, box-shadow 300ms;
     -moz-transition: -moz-transform 300ms, box-shadow 300ms;
     transition: transform 300ms, box-shadow 300ms;
     box-shadow: 5px 10px 10px rgba(2, 128, 144, 0.2);*/
   }
   .login::before, .login::after {
     content: "";
     position: absolute;
     width: 600px;
     height: 600px;
     border-top-left-radius: 40%;
     border-top-right-radius: 45%;
     border-bottom-left-radius: 35%;
     border-bottom-right-radius: 40%;
     z-index: -1;
   }
   .login::before {
     left: 40%;
```

```
  bottom: -130%;
  background-color: rgba(71, 78, 85, 0.15);
}
.login::after {
  left: 35%;
  bottom: -125%;
  background-color: rgba(33, 35, 36, 0.2);
  -webkit-animation: wawes 7s infinite;
  -moz-animation: wawes 7s infinite;
  animation: wawes 7s infinite;
}
.login > input {
  font-family: "Asap", sans-serif;
  display: block;
  border-radius: 5px;
  font-size: 16px;
  background: white;
  width: 100%;
  border: 0;
  padding: 10px 10px;
  margin: 15px -10px;
}
.login > button {
  font-family: "Asap", sans-serif;
  cursor: pointer;
  color: #fff;
  font-size: 16px;
  text-transform: uppercase;
  width: 80px;
  border: 0;
  padding: 10px 0;
  margin-top: 10px;
  margin-left: -5px;
  border-radius: 5px;
  background-color: #1f1114;
  -webkit-transition: background-color 300ms;
  -moz-transition: background-color 300ms;
  transition: background-color 300ms;
}
.login > button:hover {
  background-color: #585555;
}
a {
  text-decoration: none;
  color: rgba(255, 255, 255, 0.6);
  position: absolute;
  right: 10px;
```

```
  bottom: 10px;
  font-size: 12px;
 }
```

7.2 Feature 2

index.html

```
<!DOCTYPE
html>
                <html lang="en">
                <meta charset="UTF-8">
                <meta name="viewport" content="width=device-width, initial-
                scale=1.0">
                   <head>
                      <title>Car Resale value Prediction  </title>
                   </head>

                <style>

                input[type=text], select {
                  width: 80%;
                  padding: 12px 20px;
                  margin: 8px 0;
                  display: inline-block;
                  border-radius: 4px;
                  font-weight: bolder;
                }


                input[type=submit] {
                  width: 80%;
                  background-color: red;
                  opacity: 0.7;
                  color:black;
                  padding: 14px 20px;
                  margin: 8px 0;
                  border: none;
                  border-radius: 10px;
                  cursor: pointer;
                  font-size:100;
                  font-weight: bolder;
                }
```

```
input[type=submit]:hover {
  background-color: red;
  opacity: 0.9;
}
form{
    border-radius: 10px;
    padding-top: 5%;
    font-weight: bolder;
}
div {

  border-radius: 5px;
  margin-left: 35%;
  width: 30%;

}
h1{
    color: rgb(24, 24, 23);
    font-size: 40px;
    font-weight: bolder;
}


body {
  background-image: url('car.jpeg');
  background-size:auto;
            text-align: center;
            padding: 0px;
        }

</style>

<body>

<h1>CAR RESALE VALUE PREDICTOR </h1>

<div>

 <form action="{{ url_for('predict')}}" method="post"
style="background-color:rgb(179, 179, 204)">

<label for="Year">Purchase year </label><br>
<input type="text" id="Year" name="Year"
required="required"><br>
<label for="Present_Price">Showroom Price ₹ (in
lakhs)</label><br>
```

```
<input type="text" id="Present_Price" name="Present_Price"
required="required"><br>
<label for="Kms_Driven">Kilometers Driven </label><br>
<input type="text" id="Kms_Driven" name="Kms_Driven"
required="required"><br>


<label for="Owner">Previous Owners </label><br>
<select id="owner" name="Owner">
     <option value="0">0</option>
     <option value="1">1</option>
     <option value="3">3</option>
   </select><br>
<label for="Fuel_Type_Petrol">Fuel Type</label><br>
   <select id="Fuel_Type_Petrol" name="Fuel_Type_Petrol"
required="required">
     <option value="Petrol">Petrol </option>
     <option value="Diesel">Diesel </option>
     <option value="Cng">CNG </option>
   </select><br>

<label for="Transmission_Manual ">Type of Transmission
</label><br>
   <select id="Transmission_Manual"
name="Transmission_Manual" required="required">
     <option value="manual car">Manual </option>
     <option value="automatic car ">Automatic </option>
    </select> <br />

    <label for="Seller_Type_Individual">Owner type </label><br>
    <select id="Seller_Type_Individual"
name="Seller_Type_Individual" required="required">
      <option value="dealer">Dealer </option>
      <option value="individual">Individual </option>
      </select><br>
    <br />
<input type="submit" style="background-color: grey
"value="Calculate Selling Price">
<br />
<br />
</form>
</div>
<h3>{{ prediction_text }}</h3>
<br />
<br />
<br />
```

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

value.html

```
<!DOCTYPE
html>
<html lang="en">
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-
scale=1.0">
   <head>
      <title>Car Resale value Prediction  </title>
   </head>

<style>

/*
div {

  border-radius: 5px;
  margin-left: 35%;
  width: 30%;

} */

h1{
   color:rgb(24, 24, 23);
   font-size: 40px;
   font-weight: bolder;
}


body {
  background: url(carcartoon.webp);
  background-size:auto;
          text-align: center;
          padding: 0px;
       }

</style>

<body>
<h1>CAR RESALE VALUE PREDICTOR </h1>

<h2>{{ prediction_text }}</h2>
<br />
<br />
```

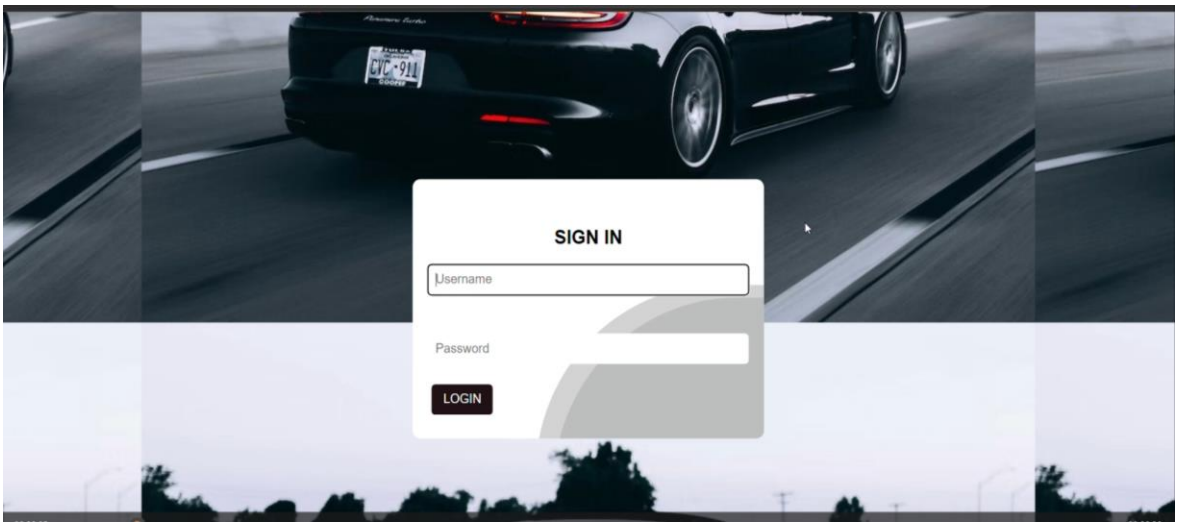
```
<br />

</body>
</html>
```

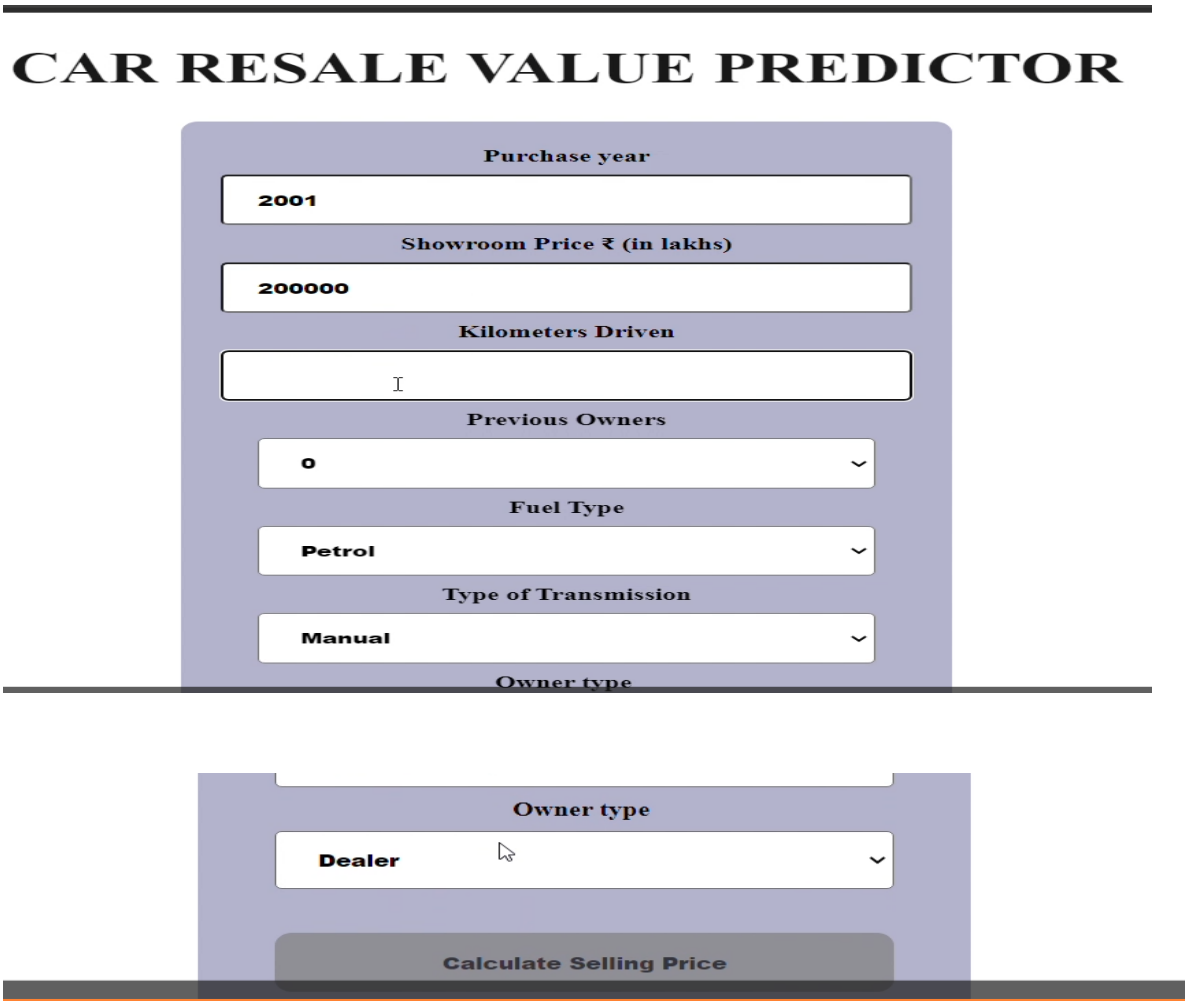
app.py

```
from flask
import Flask,
render_template,
request, jsonify
                import requests
                import pickle
                import numpy as np
                import sklearn
                from sklearn.preprocessing import StandardScaler

                app = Flask("car_model")

                model = pickle.load(open('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'])
                        Year = 2020 - 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
                        elif (Fuel_Type_Petrol == 'Diesel'):
                            Fuel_Type_Petrol = 0
```

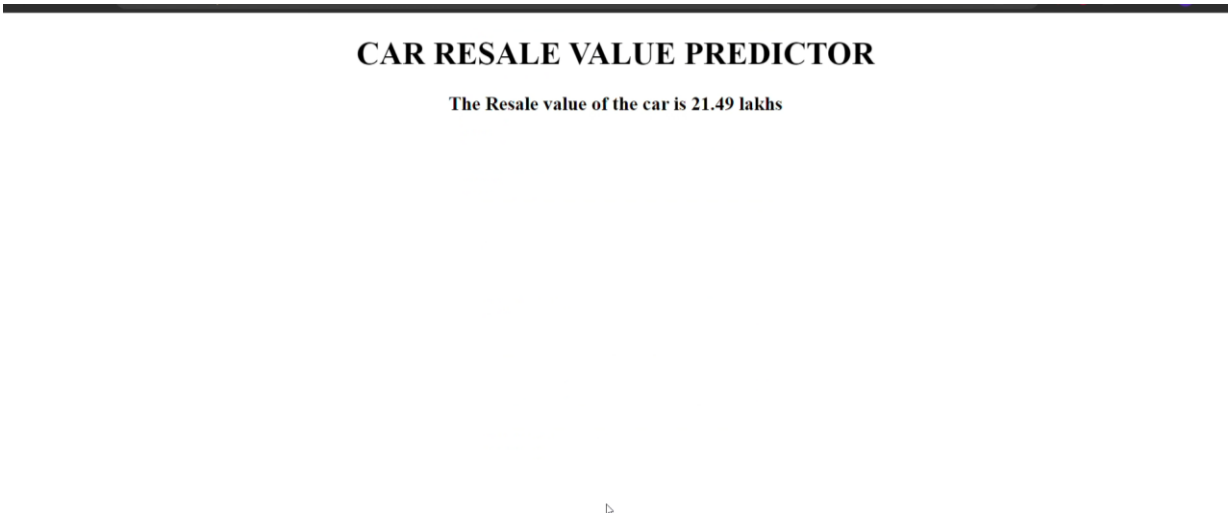
```
            Fuel_Type_Diesel = 1
        else:
            Fuel_Type_Petrol = 0
            Fuel_Type_Diesel = 0

        Seller_Type_Individual =
request.form['Seller_Type_Individual']
        if (Seller_Type_Individual == 'Individual'):
            Seller_Type_Individual = 1
        else:
            Seller_Type_Individual = 0

        Transmission_Manual =
request.form['Transmission_Manual']
        if (Transmission_Manual == 'Mannual'):
            Transmission_Manual = 1
        else:
            Transmission_Manual = 0
        prediction = model.predict([[Present_Price, Kms_Driven2,
Owner, Year, Fuel_Type_Diesel,
                                    Fuel_Type_Petrol, Seller_Type_Individual,
Transmission_Manual]])
        output = round(prediction[0], 2)

        if output < 0:
            return render_template('value.html',
prediction_text="This car couldn't be sold")

        else:
            return render_template('value.html', prediction_text="The
Resale value of the car is {} lakhs".format(output))

    else:
        return render_template('index.html')


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

OUTPUT:





PREDICTED RESULT:



8. TESTING

8.1 Test Cases

- **Missing values**

The trained ML model requires 4 feature inputs for predicting the output. Failing which, the model throws invalid Input error. All the fields in the html form have been marked required using CSS and thus user must input all fields. Output: User must input all the fields, failing which, form shows warning message "this field needs to be filled". Thus, there can be no errors in model prediction.

- **Invalid Input**

The trained ML model requires only numerical input for all 4 features. Thus, if user uses symbols such as comma while input, model may throw error. To overcome the same, preprocessing script is deployed in backend which removes all unwanted characters like comma, whitespaces etc. so that model gets required input.

Output:

Due to python preprocessing script, model will get the desired input and thus will give accurate prediction.

9. RESULTS

9.1 Performance Metrics

```
#predicting the values to test set
y_pred = regressor.predict(X_test)
#printing the accuracy for test set
print(r2_score(Y_test,y_pred))
```

10. ADVANTAGES & DISADVANTAGES

Advantages:

- Good at learning complex and non- linear relationships
- Highly explainable and easy to interpret
- Robust to outliers
- No feature scaling is required

Disadvantages:

- Consumes more time
- Requires high computational power

11. CONCLUSION

Data used in this project is autos.csv file scraped from e-commerce site and then data preparation processed by using python programming language. We tested data by using multiple linear regression, random forest regression, and gradient boosted regression trees on that particular dataset. Each model was evaluated by using the same testing data. The results are then compared by using mean absolute error as a criterion. We concluded that random forest regression trees as recommended to develop the price evaluation model because high accuracy was achieved. More appropriate data engineering can be utilized to create the better training data.

12. FUTURE SCOPE

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.

13. APPENDIX

GitHub and demo vide link in:
https://github.com/IBM-EPBL/IBM-Project-27854-1660068170