PROJECT REPORT

CAR RESALE VALUE PREDICTION

TEAM ID-PNT2022TMID23957

IBM-Project-18259-1659682119

TEAM MEMBERS

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INTRODUCTION

Project overview

The Car Valuation Tool is a free tool designed to help you get the estimated resale value of your car within seconds.Our automobile valuation algorithm is real-time updated, so it keeps up with the most recent modifications and market trends. However, the amounts displayed during the online assessment are only estimates and might alter when the retailer inspects your automobile. You don't even need to register to have your automobile valued; all you need to do is provide some basic information about it, such as its make, model, amount of miles driven, city of residence, and contact information.

Purpose

In 2019, the Indian used automobile resale industry was valued at $24.2 billion USD. There is a critical need to close this gap between sellers and buyers due to the enormous demand for used automobiles and the shortage of professionals who can evaluate the proper valuation. The goal of this research is to create a system that can impartially forecast a car's resale value based on little information such as the number of miles travelled and the year of purchase.The process of determining the current used automobile pricing in a certain location is known as used car value. By selecting the brand, model, year, trim, and the number of kilometers travelled, a user of OBV may quickly determine the used car's price. The value of a used automobile is based on a number of variables, including its state right now, when it was bought, etc. Used automobile valuation will never have a precise price; instead, it will always fall within a reasonable price range.

LITERATURE SURVEY

Existing problem

Car Resale value prediction is one of the best to sell our in this market for an best and better price.Rather than giving our car to an less price , the customer those who uses the car will be benifitted and the seller will also be benefitted.The goal of this research is to create a system that can impartially forecast a car's resale value based on little information such as the number of miles travelled and the year of purchase.You don't even need to register to have your automobile valued; all you need to do is provide some basic information about it, such as its make, model, amount of miles driven, city of residence, and contact information.

References

[1] Pudaruth Sameerchand , Pudaruth Sameerchand , Predicting the price of Used Car Using Machine Learning Techniques

[2] Enis gegic, Becir ,Isakovic, Dino Keco, ,Zerina Masetic,Jasmin Kevric Car Price Prediction Using Machine Learning

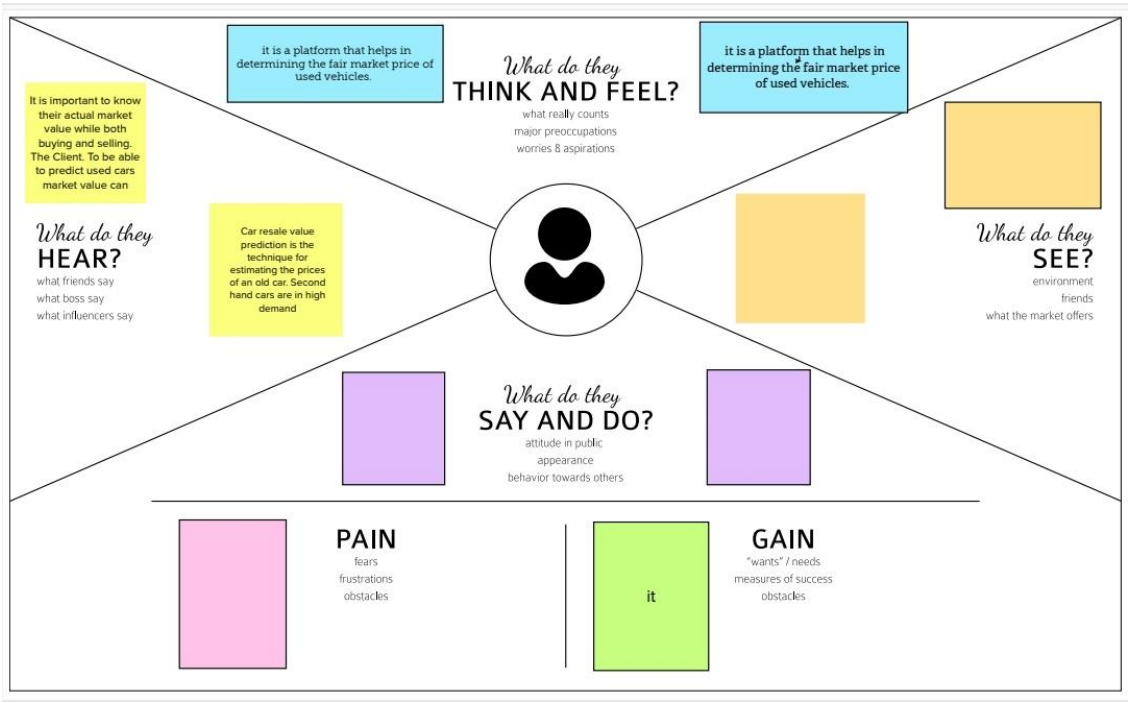
[3] Ning sun,Hongxi Bai,Yuxia Geng,Huizhu Shi Price Evaluation model in second hand car system

[4] Doan Van Thai, Luong Ngoc Son, Pham Vu Tien, Nguyen Nhat Anh, Nguyen Thi Ngoc Anh Prediction car prices using qualify qualitative data and knowledge-based system

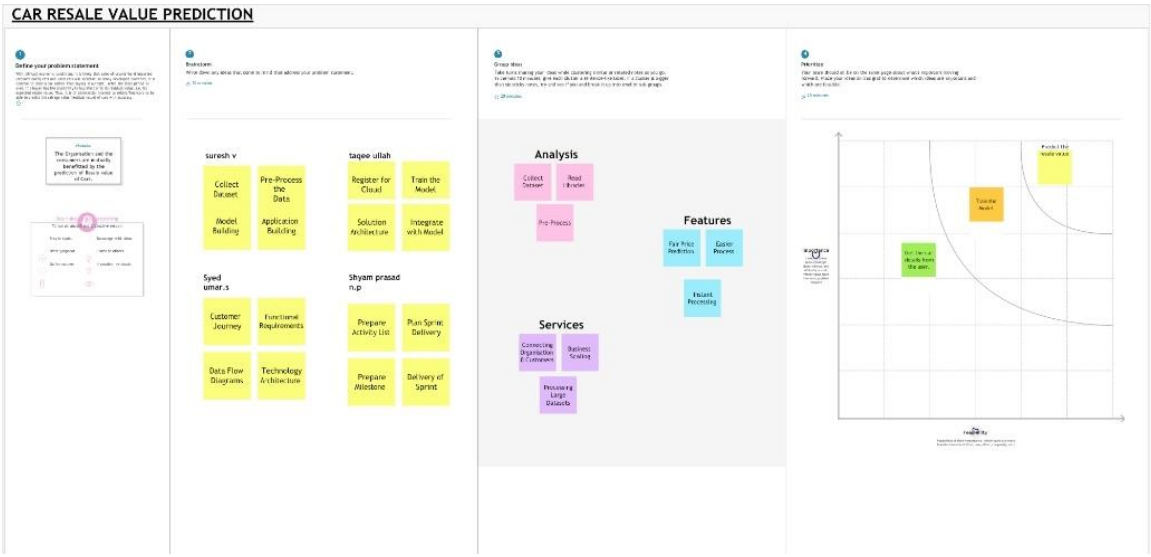
Project statement

Car Resale value prediction is used to predict the value of the used cars to an reasonable price which satisfies the customer.

IDEATION & PROPOSED SOLUTION



Ideation & Brainstorming



Proposed Solution

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	• The main aim of this project is to predict the price of used cars using the various Machine Learning (ML) models. • The project should take parameters related to used car as inputs and enable the customers to make decisions by their own
2.	Idea / Solution description	• The model is to be built that would give the nearest resale value of the vehicle. By using these best accuracy value will be taken as a solution and it will be integrated to the web-based application where the user is notified with the status of his product
3.	Novelty / Uniqueness	• Used car price prediction is effectively used to determine the worthiness of the car by their own within few minutes by using various features such as year, model, mileage(km), etc
4.	Social Impact / Customer Satisfaction	• If the user wants to buy or sell a own car it helps users to predict the correct valuation by their own.

Proposed solution fit

Solutions architecture

Functional Requirements:

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	User Vehicle details	Manufacturering years,model,Kms driven,fuel type, Registered number etc
FR-4	Value Prediction	Predicting the resale value of the registered car
FR-5	Security	Failed Logins & Bot access prevention

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	User friendly interface
NFR-2	**Security**	Data and model security to prevent outside access and modification .
NFR-3	**Reliability**	Providing reliability by predicting the resale values of different types of cars .
NFR-4	**Performance**	Providing high performance by comparing various machine learning algorithms for prediction available for a diverse cars
NFR-5	**Availability**	Available for access across all platforms and for free of cost .
NFR-6	**Scalability**	Currently a small set of car details were used to train the model . More car details and a larger group of parameters will be included and used to train the model .

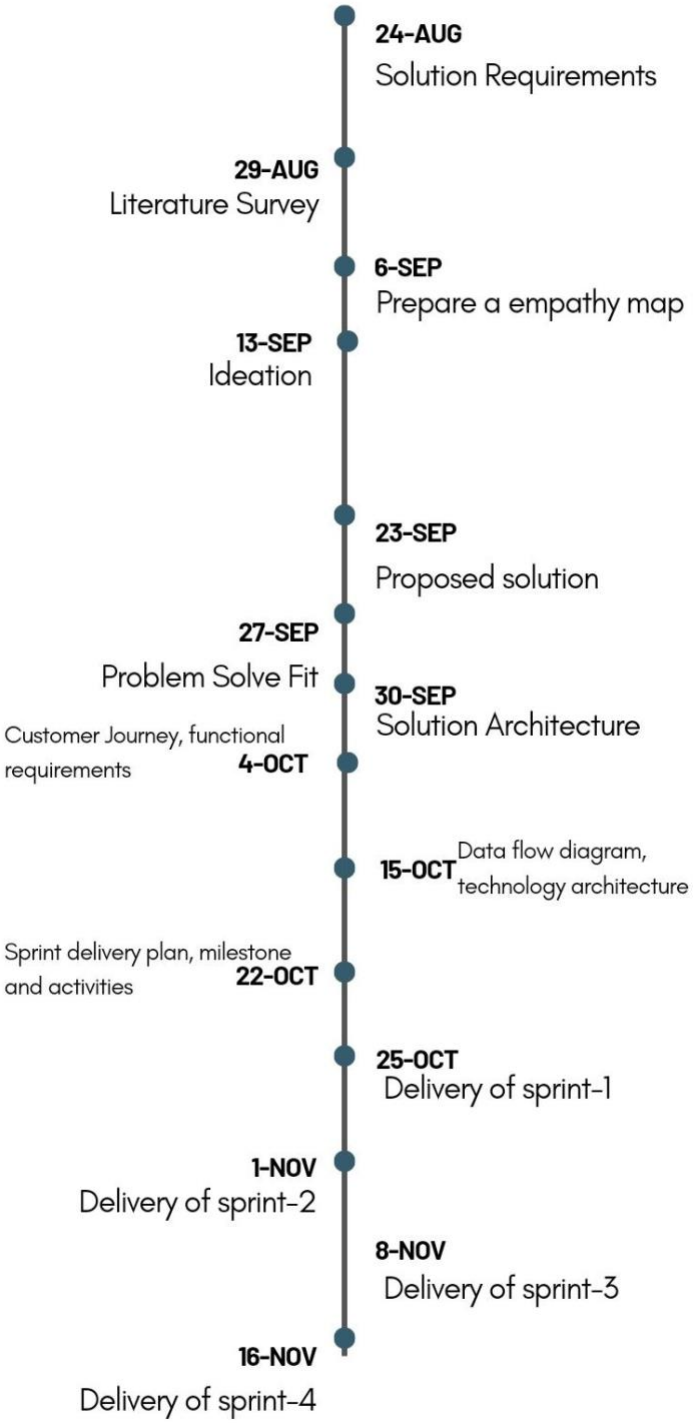
Project planning

Activity no	Activity name	Detailed Activity Description	Assigned To
1	Preparation Phase	Create GitHub account & collaborate with Project Repository in project workspace Set-up the Laptop / Computers based on the prerequisites for each technology track	• V.SURESH • S.SYED UMAR • S.TAQEE ULLAH • SHYAM PRASAD N.P
2	Ideation Phase	Literature survey -it is on the selected project & Information Gathering Empathy Map -Canvas to capture the user Pains & Gains brainstorming session-prioritize the top 3 ideas based on the feasibility & importance	• V.SURESH • S.SYED UMAR • S.TAQEE ULLAH • SHYAM PRASAD N.P
3	Project Design Phase-I	Proposed Solution Preparation of proposed solution document, which includes the novelty, feasibility of idea, business model, social impact, scalability of solution Problem Solution Fit Prepared problem is analyzed and make effective solutions for the problem Solution Architecture Prepare an architecture for solution	• V.SURESH • S.SYED UMAR • S.TAQEE ULLAH • SHYAM PRASAD N.P

Activity no	Activity name	Detailed Activity Description	Assigned To
4	Project Design Phase -II	Requirement Analysis Prepare the Functional Requirement and Non Functional Document Customer Journey Preparation of customer journey maps to understand the user interactions & experiences with the application (entry to exit) Data Flow Diagrams Prepare a Data Flow Diagram for Project use level 0 Technology architecture Prepare Technology Architecture of the solution	• V.SURESH • S.SYED UMAR • S.TAQEE ULLAH • SHYAM PRASAD N.P
5	Project Planning Phase	Milestones & Tasks Prepare Milestone & Activity List Sprint Schedules Prepare Sprint Delivery Plan	• V.SURESH • S.SYED UMAR • S.TAQEE ULLAH • SHYAM PRASAD N.P
6	Project Development Phase	Coding & Solutioning Sprint-1 Delivery: Develop the Code, Test and push it to GitHub. Acceptance Testing Sprint-2 Delivery: Develop the Code, Test and push it to GitHub. Sprint-3 Delivery: Develop the Code, Test and push it to GitHub. Performance Testing Sprint-4 Delivery: Develop the Code, Test and push it to GitHub.	• V.SURESH • S.SYED UMAR • S.TAQEE ULLAH • SHYAM PRASAD N.P

TIMELINE CHART

MILESTONE



Sprint delivery plan

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Dataset Reading and Preprocessing	USN-1	Cleaning the dataset end spliting to dependent and independentvariables	2	High	V.SURESH
Sprint-2	Building the Model	USN-2	Choosing the appropriate model for building and saving the modelas pickle file	1	High	S.SYED UMAR
Sprint-3	Application Building	USN-3	Using flask deploying the ML model	2	Medium	S.TAQEE ULLAH
Sprint-4	Train the Model in ibm	USN-4	Finally train the model on IBM cloud and deploy the application	2	Medium	SHYAM PRASAD N P

Project Tracker, Velocity & Burndown Chart: (4 Marks)

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	5 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	5 Days	31 Oct 2022	05 Nov 2022	20	05;Nov 2022
Sprint-3	20	5 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	5 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

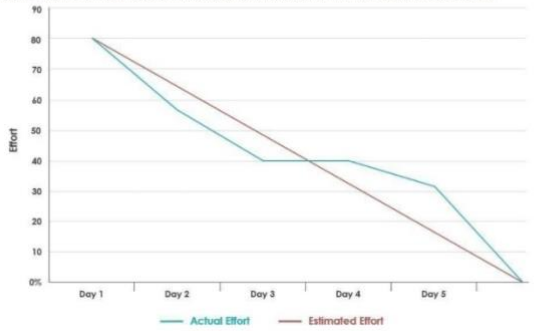
Velocity:

Imagine we have a 5-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)

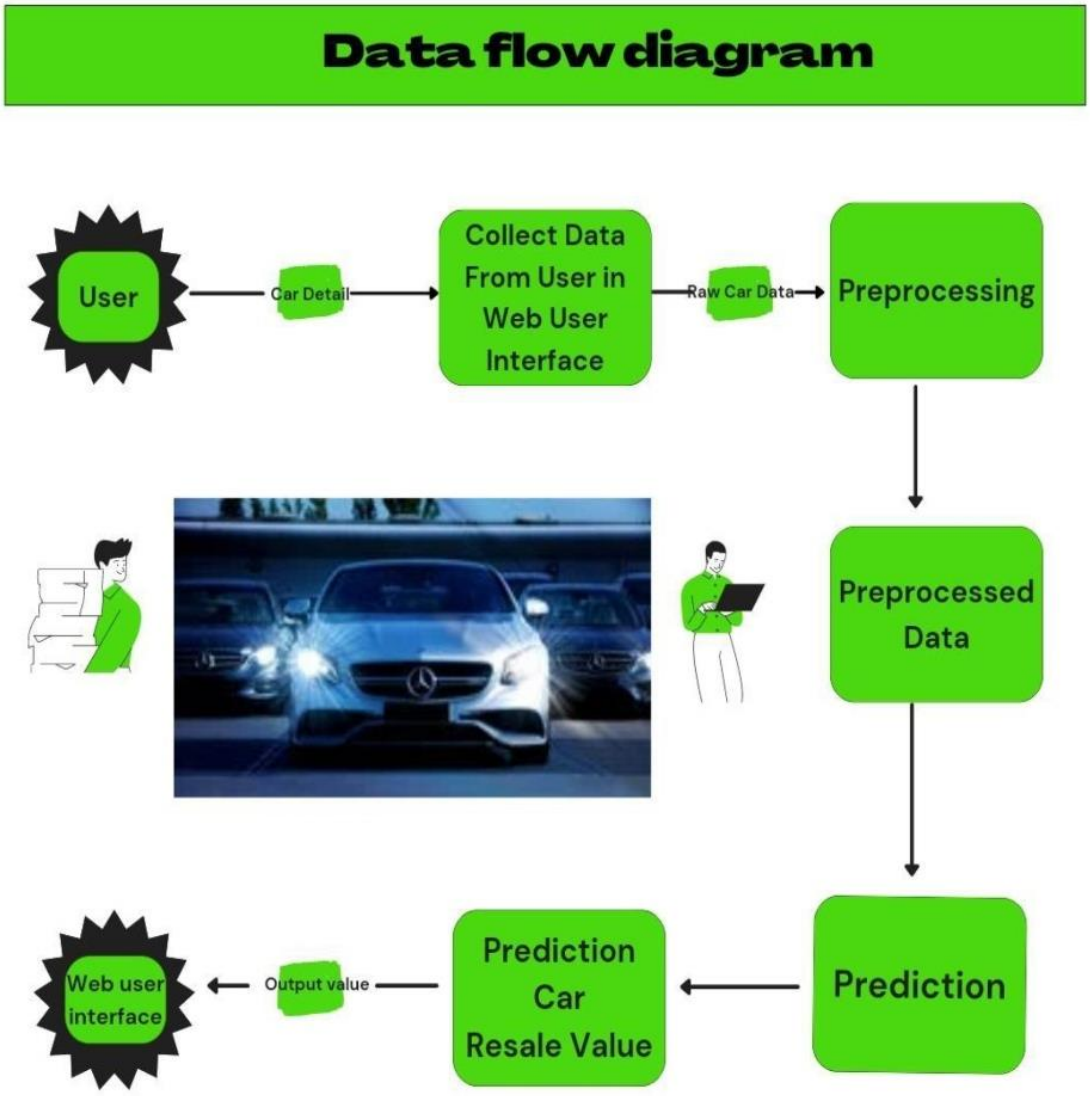
AV =srint duration/velocity=20/5=4

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

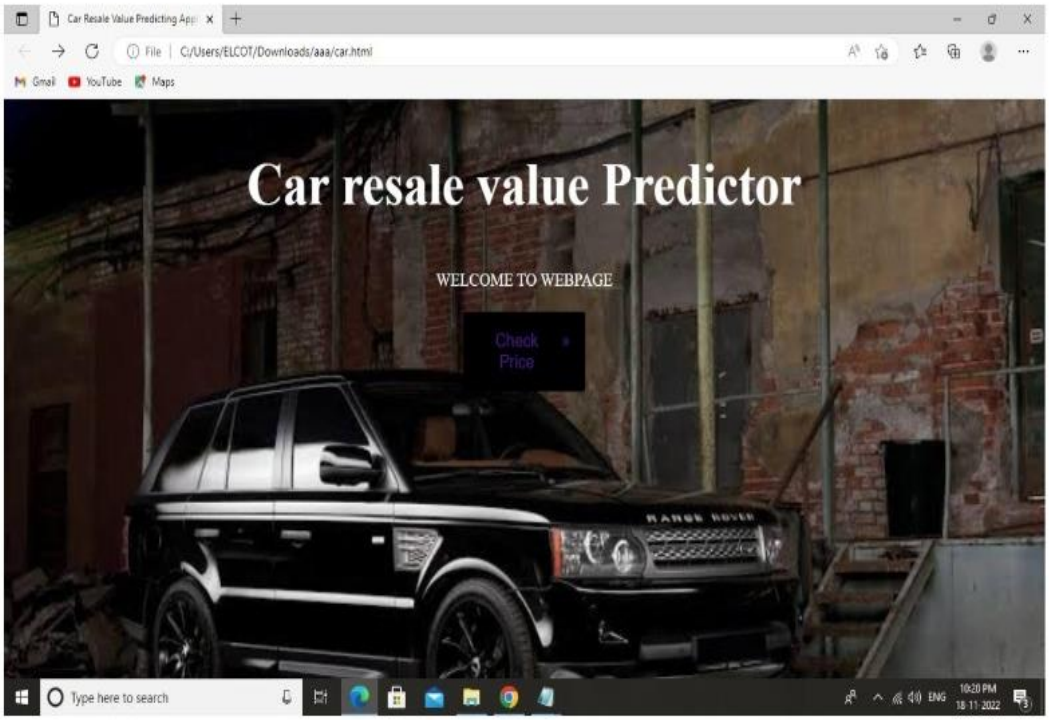


Data Flow

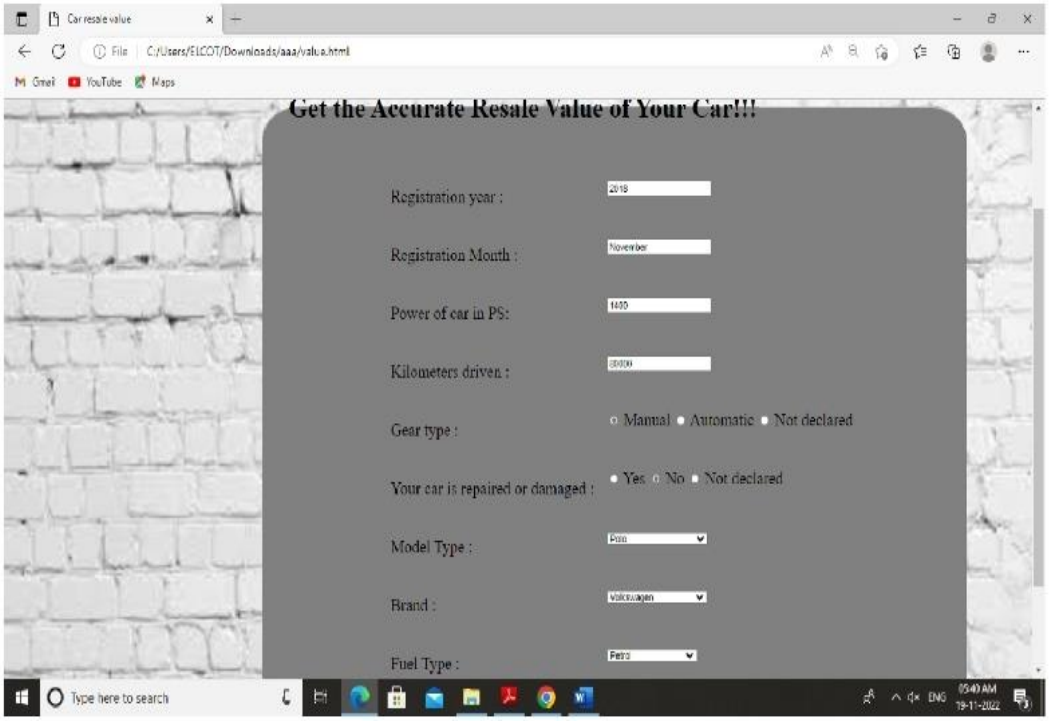

Data flow diagram
User
Car Detail
Collect Data From User in Web User Interface
Raw Car Data
Preprocessing
Preprocessed Data
Prediction
Prediction Car Resale Value
Output value
Web user interface

Testing And Result

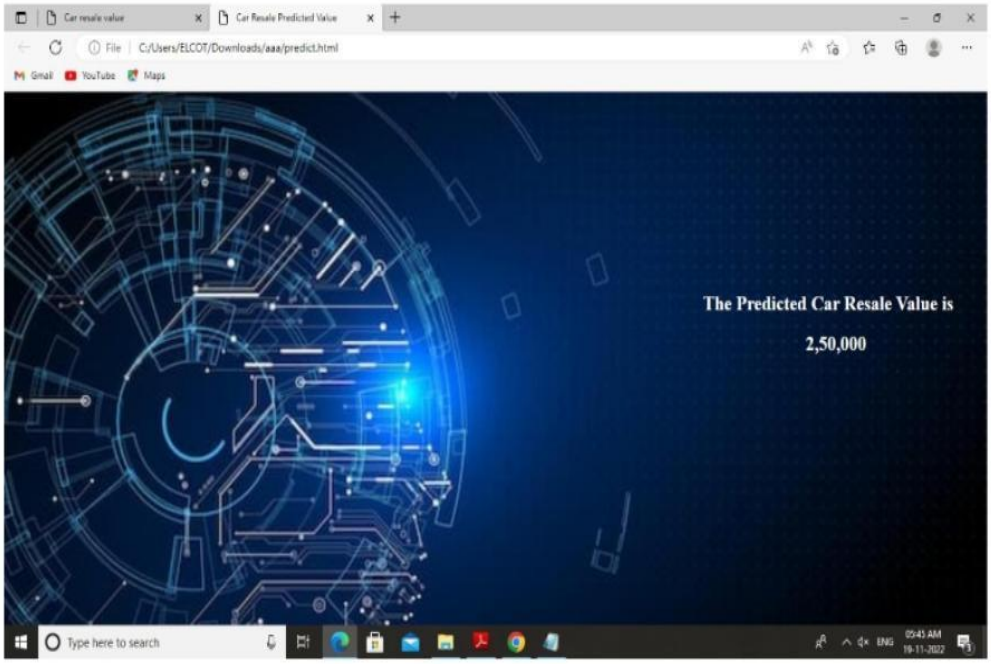
1,home page



2,data Entry Page



3,car resale value display page



Appendix

Building HTML Page

Index. <!DOCTYPE

html>

```
<html lang="en" dir="ltr">
 <head>
 <meta charset="utf-8">
 <title>Car Resale Value Predicting Application</title>
 <link rel="icon" type="image/x-icon"
href="../static/Images/favicon.ico">
 <link rel="stylesheet" href="../static/css/style.css">
 <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/fontawesome.min.css">
 <style>
h1 {
 font-size: 65px;
 top:40px
}
p {
 font-size: 20px;
```

```
}
.button {
 display: inline-block;
 border-radius: 3px;
 background-color: black;
 border: none;
 color: white;
 text-align: center;
 font-size: 20px;
```

```
 padding: 20px;
 width: 160px;
 transition: all 0.5s;
 cursor: pointer;
 margin: 3px;
}
.button span {
 cursor: pointer;
 display: inline-block;
 position: relative;
 transition: 0.5s;
}
.button span:after {
 content: '\00bb';
 position: absolute;
 opacity: 0;
 top: 0;
 right: -20px;
 transition: 0.5s;
}
.button:hover span {
 padding-right: 20px;
}
.button:hover span:after {
 opacity: 1;
 right: 0;
}
body {
 background-image: url('car4.jpeg');
 background-repeat: no-repeat;
 background-attachment: fixed;
```

```
 background-size: cover;

}
</style>
 </head>
 <center>
 <body>
 <section class="header">
 <nav>



 </nav>
 <div class="text-box">
 <center><h1 style="color:White;">Car resale value
Predictor</h1><center>
 <center><p style="color:White;">WELCOME TO
WEBPAGE</p><center>
 <button class="button"><a href="value.html" style="vertical-
align:middle"><span>Check
Price </a></span></button>
 </div>



 </section>

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