Predicting Car's Resale Value using Machine Learning Models

Aishwary Sharma
aishwary20490@iiitd.ac.in

Sarthak Daksh
sarthak20403@iiitd.ac.in

Atyant Sony
atyant20039@iiitd.ac.in

Singh Ayush Kumar Satish
ayush20133@iiitd.ac.in

1. Motivation

A car depreciates in value form the moment you buy it, and depreciation progresses over time. The make and model of the car, total kilometers driven, overall condition of the vehicle, and various other factors further affect a car's resale value. This project aligns with our goal of creating a transparent sales process by providing the best resale value estimate for a car that one should expect to shell out, thus preventing any kind of dissatisfaction from either the buyer's side or the seller's side and deploying Machine Learning Models to solve real world problems.

2. Related Work

1. The study is based on Big Data Analysis to establish a second-hand car price evaluation model to get the price that best matches the car.**[1]**

2. The research uses data from vehicle users and sellers to create a model to best predict cars suitable to the user.**[2]**

3. A Machine Learning model is created to predict prices of used cars by training the model on a large dataset.**[3]**

3. Timeline

Week	Tasks
1-2	Data Pre-processing & Data Visualization
3-4	Feature Analysis, Selection, Correlation, Dimensionality Reduction, Plotting Maps
5	Linear Regression, Support Vector Machines
6	Decision Trees, Random Forest
7	K-Nearest Neighbours
8	Bagging & Boosting
9	Analysis of Model Performance, Hyperparameter Tuning
10	Making Presentation & Report

4. Individual Tasks

Tasks	Team Members
Data Pre-processing and Data Visualization	Atyant, Aishwary
Feature Analysis, Selection, Correlation, Dimensionality Reduction, Plotting Maps	Ayush, Sarthak
Linear Regression, Support Vector Machines	Atyant, Aishwary
Decision Trees, Random Forest	Ayush, Sarthak
K-Nearest Neighbours	Atyant, Aishwary
Bagging & Boosting	Ayush, Sarthak
Analysis of Model Performance, Hyperparameter Tuning	Everyone
Making Presentation & Report	Everyone

5. Final Outcome

Getting a good deal for a Car is still one the most challenging task for both buyers as well as for the sellers. Our project aims at creating a transparent sales process by providing the best resale value estimate for a car that one should expect to shell out based on the features and characteristics of the Car by deploying Machine Learning Models.

References

[1] 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)*.

[2] P. Boteju and L. Munasinghe, "Vehicle Recommendation System using Hybrid Recommender Algorithm and Natural Language Processing Approach," in *2020 2nd International Conference on Advancements in Computing (ICAC)*.

[3] J. Varshitha, K. Jahnavi, and C. Lakshmi, "Prediction Of Used Car Prices Using Artificial Neural Networks And Machine Learning," in *2022 International Conference on Computer Communication and Informatics (ICCCI)*.