

Second-Hand Car Selling Price Prediction

1. Title

Second-Hand Car Selling Price Prediction

2. Introduction

The pricing of second-hand cars depends on various factors such as model, brand, age, mileage, condition, fuel type, and location. This project aims to develop a predictive model to estimate the selling price of used cars using machine learning techniques.

3. Objectives

- To analyze the key factors affecting second-hand car prices.
- To preprocess and clean the dataset for accurate predictions.
- To build a machine learning model that predicts selling prices.
- To evaluate the model's performance and optimize it.
- To visualize findings and present insights.

4. Scope of Work

- Data Collection: Gathering a dataset of second-hand cars with features like brand, model, year, mileage, fuel type, etc.
- Data Preprocessing: Cleaning missing values, handling outliers, and feature scaling.
- Feature Selection: Identifying important attributes that affect price.
- Model Development: Training machine learning models such as Linear Regression, Decision Trees, or Random Forest.
- Model Evaluation: Assessing accuracy and optimizing performance.

- Visualization & Reporting: Presenting findings through charts and a final report.

5. Methodology

- **Data Collection**: Source data from public repositories or online sources.
- **Data Preprocessing**: Clean and prepare data for analysis.
- **Exploratory Data Analysis (EDA)**: Understand patterns using visualizations.
- **Feature Selection**: Identify significant features using correlation analysis.
- **Model Training & Evaluation**: Implement and test different machine learning models.
- **Visualization & Reporting**: Present results and document insights.

6. Tools & Technologies

- Python
- Libraries: Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn
- Jupyter Notebook

7. Expected Outcomes

- A machine learning model that predicts second-hand car prices accurately.
- Key insights into factors affecting car pricing.
- A detailed report summarizing findings.

8. Timeline (7 Days)

- **Day 1**: Data Collection & Cleaning
- **Day 2**: Data Preprocessing & Handling Missing Values
- **Day 3**: Exploratory Data Analysis (EDA) & Feature Selection
- **Day 4**: Model Building (Training and Testing)
- **Day 5**: Model Evaluation & Optimization
- **Day 6**: Visualization & Report Drafting

- **Day 7**: Final Report Submission

9. Conclusion

This project will help predict the selling price of second-hand cars based on various factors, providing insights for buyers and sellers.