Car Price Prediction

1. Problem Statement : The goal of this project is to predict car prices based on various features such as make, model, year, mileage, and engine specifications. A machine learning regression model is used to solve the problem, aiming to build a model that can provide accurate price predictions for cars.

 2. Related Work : Several previous studies have tackled the issue of car price prediction using machine learning techniques, particularly regression models. Common methods used in related work include linear regression, decision trees, and random forests, with each model having its strengths and weaknesses in terms of prediction accuracy.

3. Proposed Methodology : The project utilizes a regression model, specifically linear regression or another suitable algorithm (such as random forest or gradient boosting), to predict car prices. The methodology involves data preprocessing, feature selection, training the model on historical car data, and evaluating the model's performance using various metrics (such as Mean Squared Error, R-squared).

4. Results : The results section should show the model's performance on the test data, including comparison metrics like RMSE (Root Mean Squared Error), MAE (Mean Absolute Error), and R-squared. Visual representations such as scatter plots, residual plots, and comparison tables can be used to highlight the model's accuracy and areas for improvement.

5. Conclusions : The model demonstrates the feasibility of predicting car prices with acceptable accuracy using machine learning techniques. Future improvements could involve tuning hyperparameters, trying more advanced algorithms, or using a larger dataset to improve predictions. Potential applications include helping car buyers and sellers make informed decisions based on predicted car values.