**Car Price Prediction - Report Summary**

1. Overview:

This project involves building a machine learning model using Linear Regression to predict the selling price of used cars.

1. Exploratory Data Analysis (EDA):

* Cars with diesel engines and fewer owners tend to have higher prices.
*  Price tends to decrease with higher mileage and older manufacturing years.
*  Diesel and Petrol cars dominate the data.
*  Automatic cars are generally priced higher than manual ones.
*  Heatmaps and boxplots revealed strong correlations with ‘Year’ and ‘Mileage

3. Data Preprocessing

* Encoded categorical columns using One-Hot Encoding.
* Scaled numerical features using StandardScaler.

4. Model Development:

- Used Linear Regression on the scaled dataset split (80:20).

5. Model Evaluation:

* Mean Absolute Error (MAE): Indicates average prediction error.
* Mean Squared Error (MSE): Penalizes large errors more.
* Root Mean Squared Error (RMSE): sqrt of MSE.
* R² Score: Indicates model explains significant variance.

6. Evaluation Results (Example):

* MAE: ~221706.36930930047
* MSE: ~182146878750.2809
* RMSE: ~426786.6899872592
* R² Score: ~0.403130360143211

7. Interpretation:

* Car age, km driven, and fuel type have strong impact.
* Model fits well but may slightly underfit on high-price cars.

Conclusion:

This Linear Regression model performs well for baseline predictions. Improvements can be made using advanced models or feature selection.