
Car Price Analysis Report

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1. Introduction

- (i) This project aims to analyze car price data by identifying key factors affecting car prices.
 - (ii) Various data cleaning, transformation, and visualization techniques were applied.
 - (iii) The final goal is to generate insights for price estimation based on different car attributes.
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2. Data Cleaning

2.1 Handling Missing Values

Checked for missing values in all columns.

Removed columns where more than **40%** values were missing.

Removed rows where more than **50%** values were missing.

2.2 Dropping Unwanted Columns

Removed car_ID as it is just a serial number.

Extracted carCompany from Car Name and fixed incorrect brand names.

2.3 Removing Highly Correlated Features

Dropped features with **high correlation (>0.8)** to avoid redundancy:

Dropped carlength, carwidth, and curbweight, keeping only wheelbase.

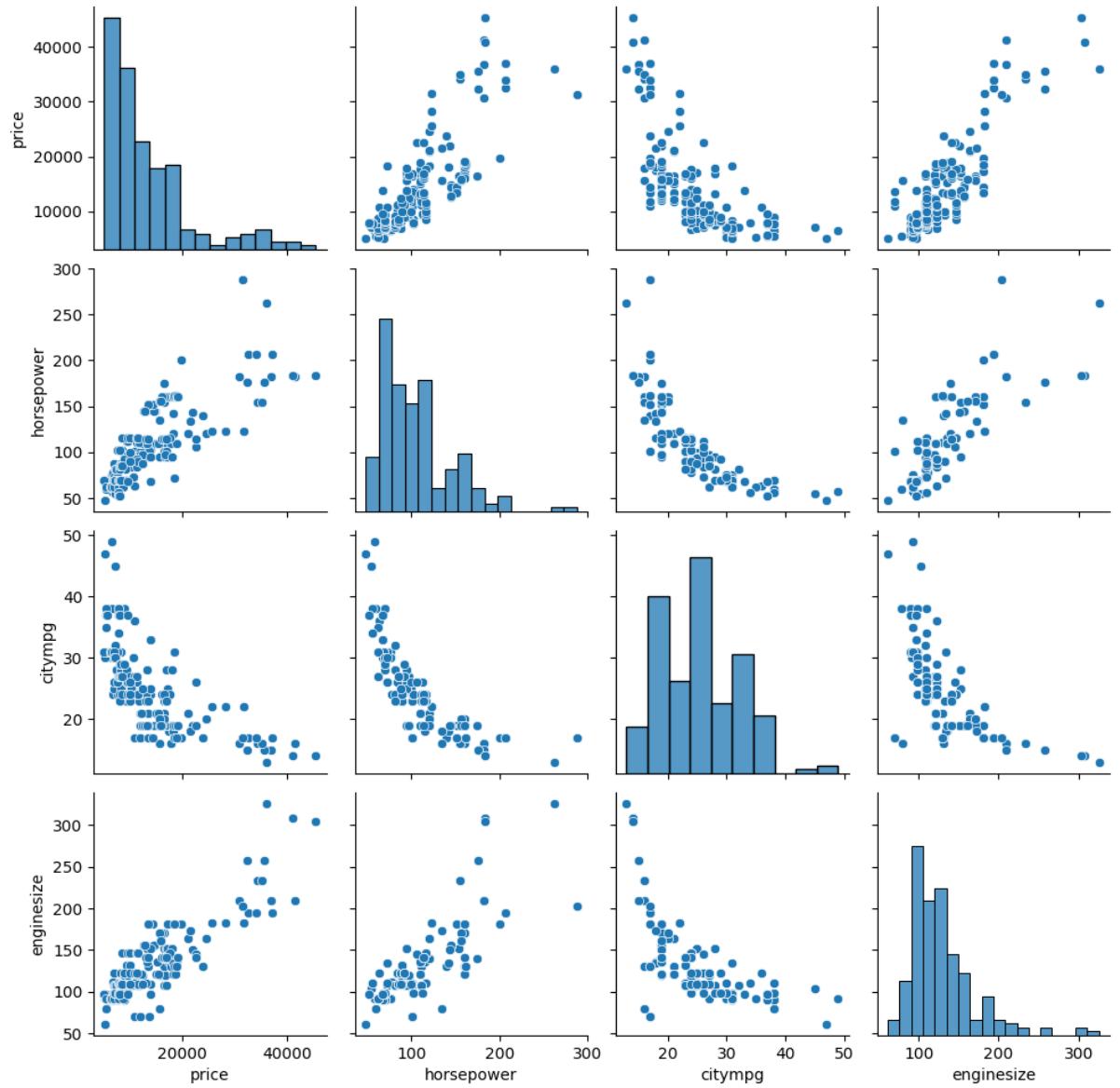
Dropped highwaympg since it is highly correlated with citympg.

Dropped car_stability as it also had high correlation.

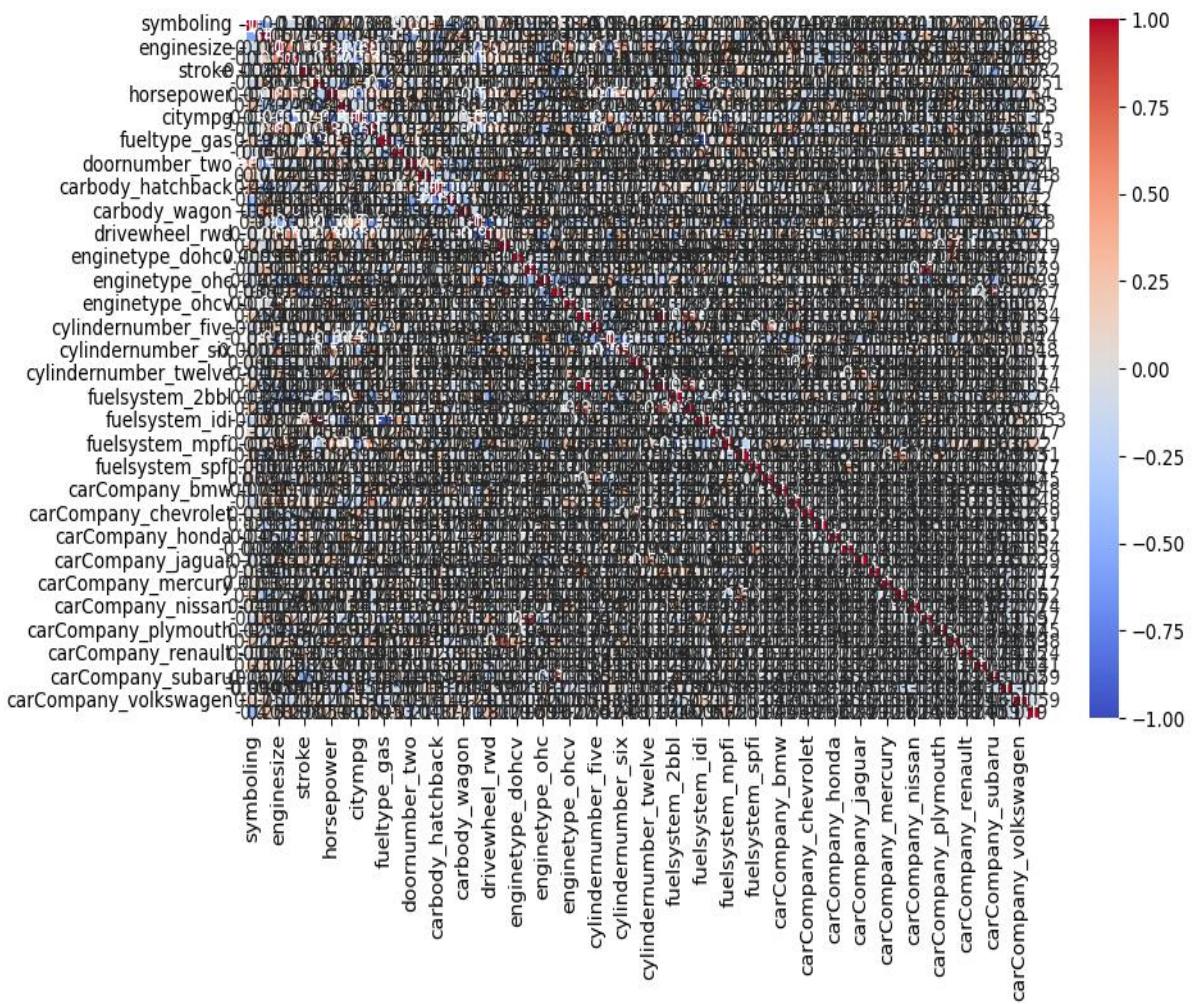
3. Data Visualization

3.1 Pairplot & Heatmap

Pairplot: Displays relationships between key numeric variables.



Pairplot Insight: Larger engine size and higher horsepower lead to higher car prices.

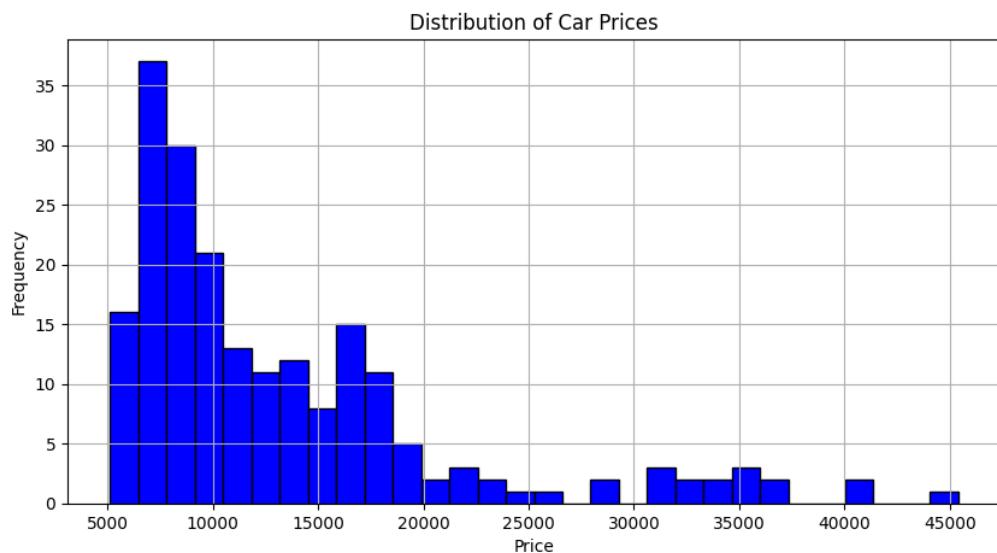


Heatmap: Shows correlation between different features.

Heatmap Insight: Features like enginesize and horsepower have a high positive correlation with price.

3.2 Histogram

- **Histogram:** Shows the distribution of car prices.



Histogram Insight: Most cars are in the low to mid-price range, with a few high-end models.

4. Data Analysis & Insights

- (i) **Engine size & horsepower have a strong impact on price** → More powerful engines are priced higher.
 - (ii) **Fuel efficiency (citympg) has an inverse relationship with price** → Fuel-efficient cars are generally cheaper.
 - (iii) **Car brands significantly influence pricing trends** → Luxury brands command premium prices.
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5. Conclusion

- The analysis confirms that engine size, horsepower, and brand significantly influence car prices.