Automated EDA Report

Dataset Summary

Number of Rows: 11914

Number of Columns: 16

Missing Values: 3850

Numerical Columns: ['Year', 'Engine HP', 'Engine Cylinders', 'Number of Doors', 'highway MPG', 'city mpg', 'Popularity', 'MSRP']

Categorical Columns: ['Make', 'Model', 'Engine Fuel Type', 'Transmission Type', 'Driven_Wheels', 'Market Category', 'Vehicle Size', 'Vehicle Style']

Visualization Insights

Insights

1. **Distribution of Engine Horsepower**: The histogram shows the distribution of engine horsepower (HP) across the dataset. Most vehicles in this sample have engine HP clustered around 230-335, with a peak near 300 HP. This indicates that the dataset contains high-performance vehicles.

2. **Engine HP vs MSRP**: The scatter plot reveals a positive correlation between engine horsepower and MSRP (Manufacturer's Suggested Retail Price). Vehicles with higher horsepower tend to have a higher price. Additionally, the plot shows that Coupe-style vehicles generally have higher horsepower and MSRP compared to Convertibles.

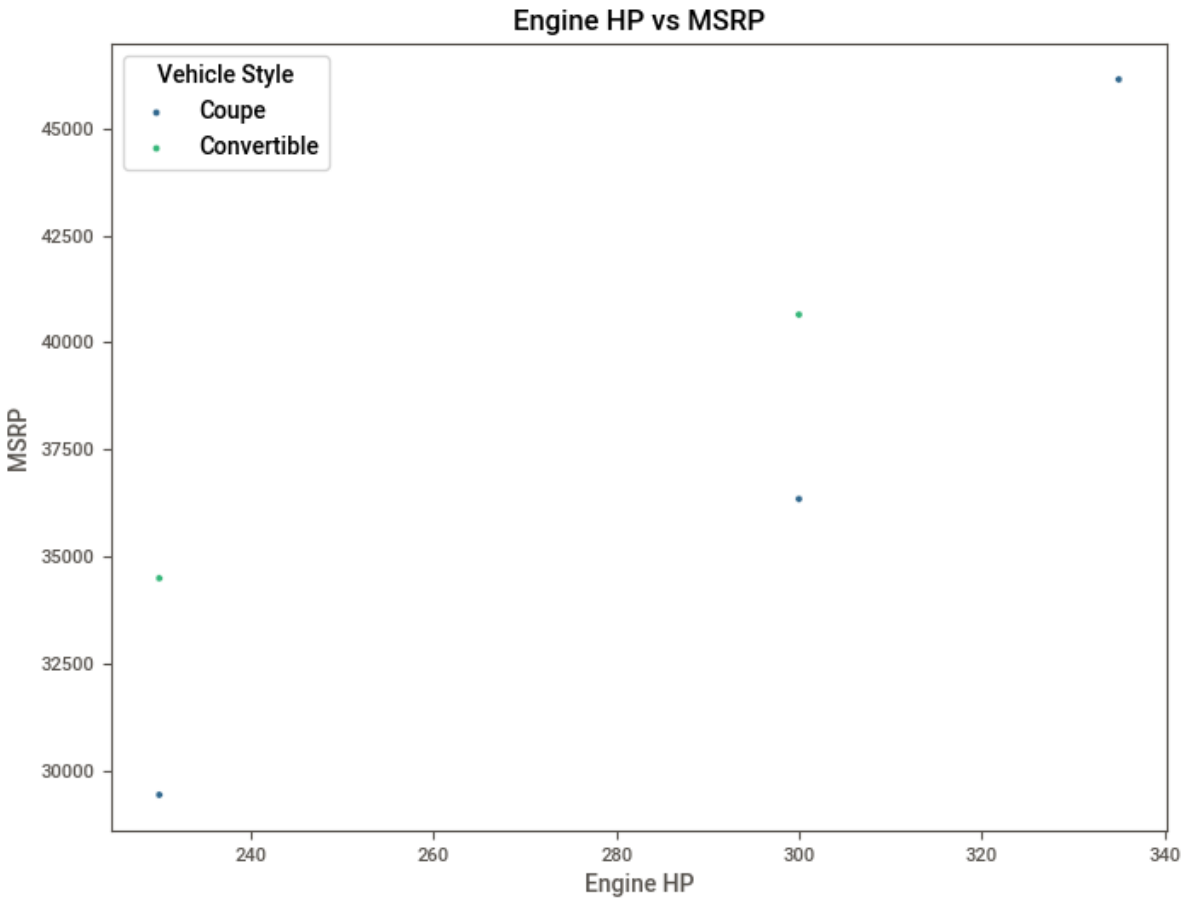
3. **Average MSRP by Vehicle Style**: The bar plot compares the average MSRP for different vehicle styles. Coupes have a higher average MSRP compared to Convertibles, suggesting that Coupes are generally more expensive in this dataset.

4. **Correlation Heatmap**: The heatmap visualizes the correlation between numerical features. Key insights include:

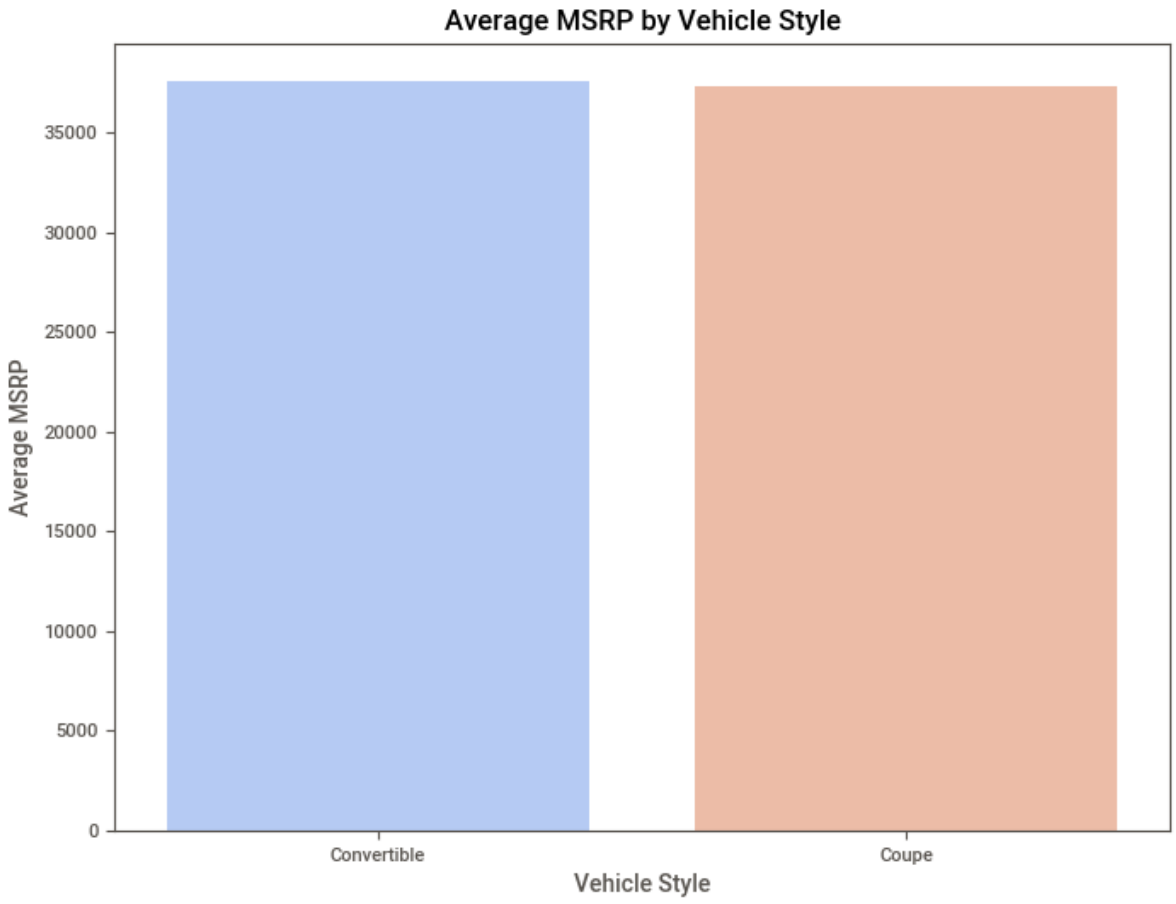
- Engine HP and MSRP have a strong positive correlation, confirming the relationship observed in the scatter plot.
- Engine Cylinders also show a positive correlation with Engine HP and MSRP, indicating that vehicles with more cylinders tend to be more powerful and expensive.
- Highway MPG and City MPG are highly correlated, as expected, since both measure fuel efficiency.

Visualizations

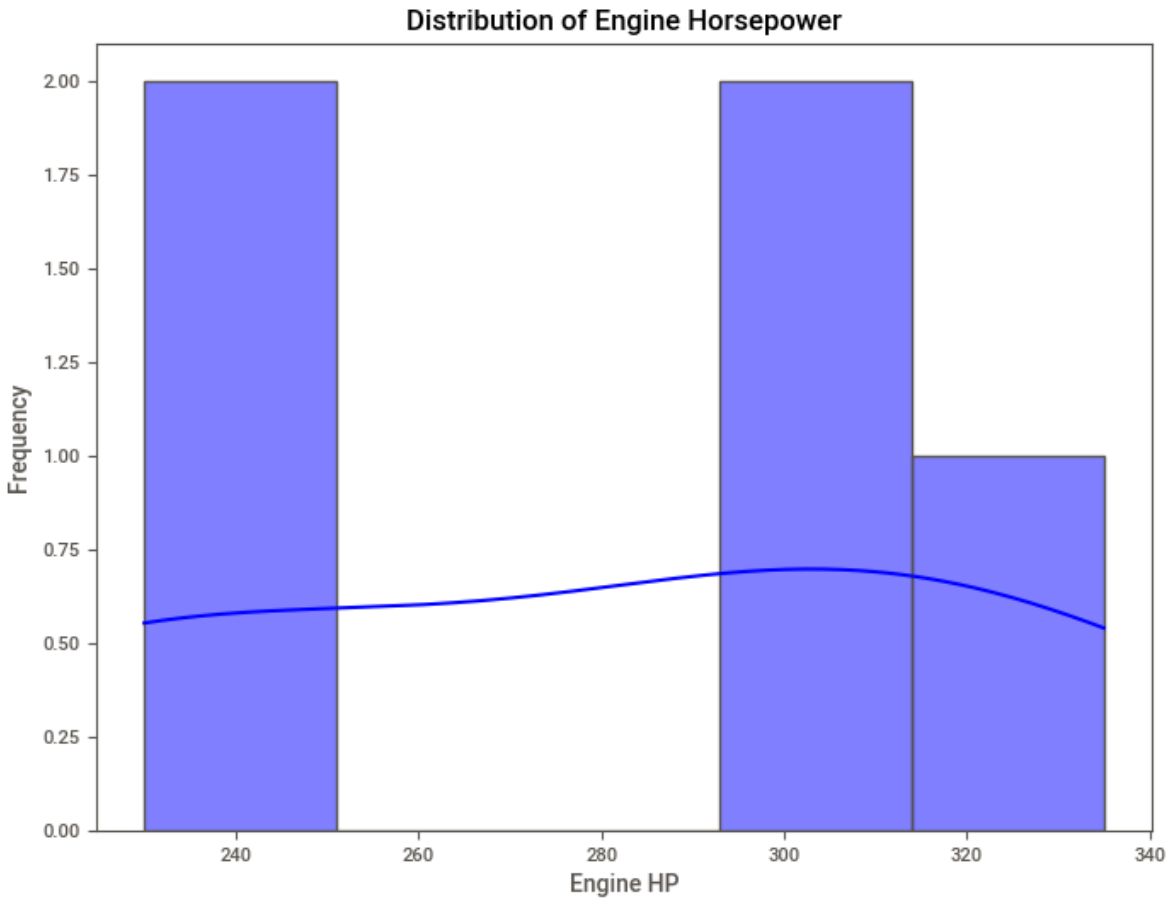
engine_hp_vs_msrp.png



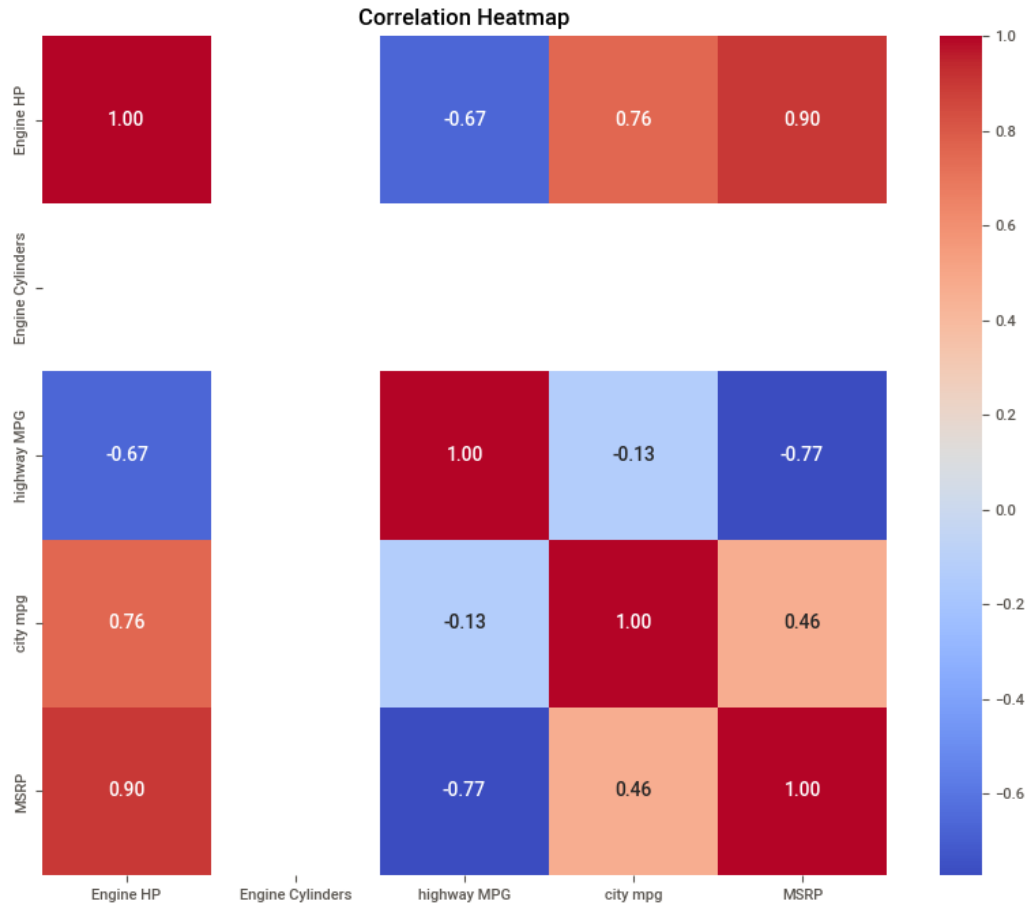
avg_msrp_by_style.png



engine_hp_distribution.png



correlation_heatmap.png


Correlation Heatmap
Engine HP
Engine Cylinders
highway MPG
city mpg
MSRP
1.00
-0.67
0.76
0.90
-0.67
1.00
-0.13
-0.77
0.76
-0.13
1.00
0.46
0.90
-0.77
0.46
1.00
Engine HP
Engine Cylinders
highway MPG
city mpg
MSRP
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6