

PROJECT 7

IMPACT OF CAR FEATURES

TECH-STACK USED

Microsoft Excel

A MADHAVA VARMA

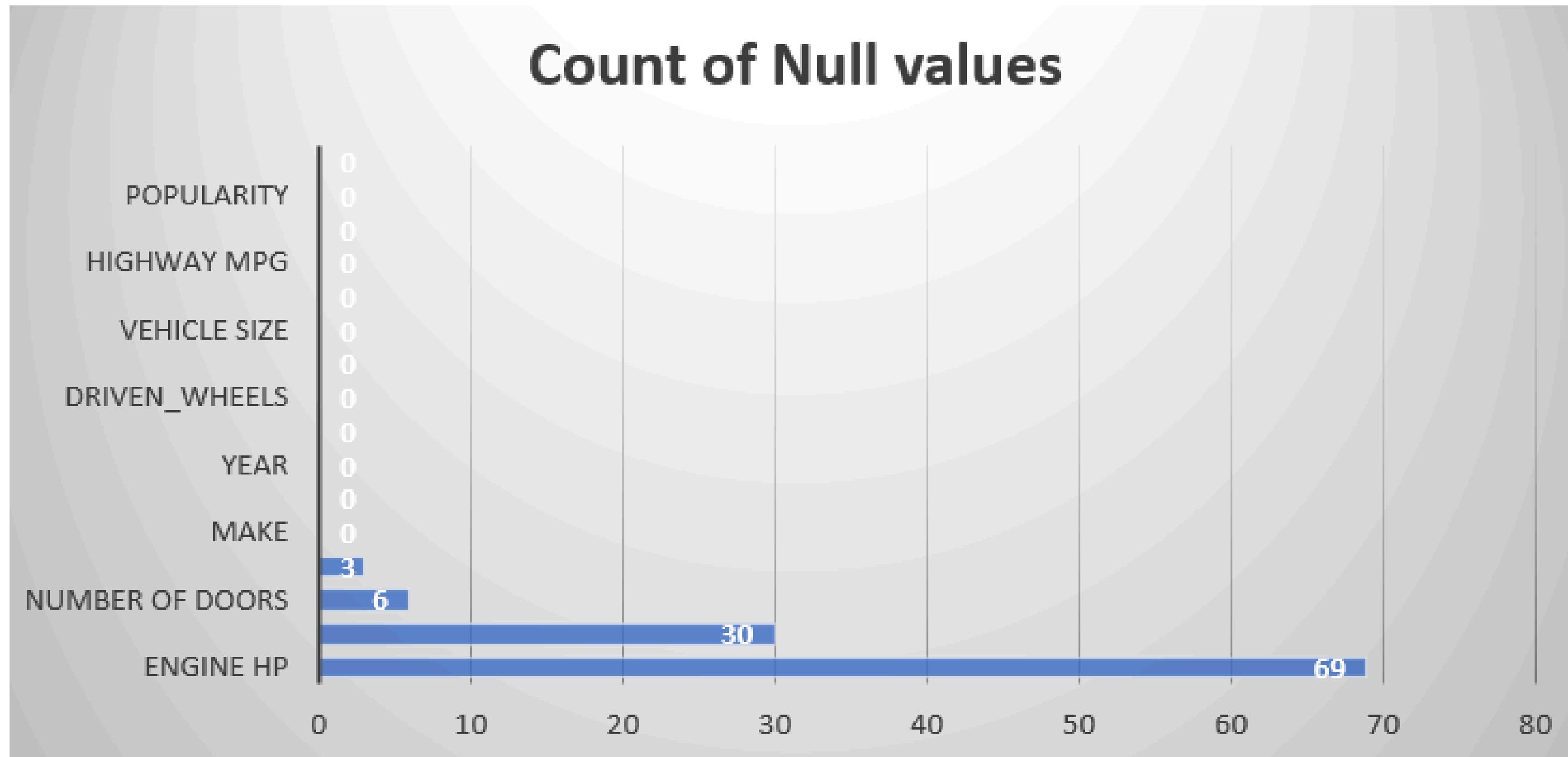
DESCRIPTION

The automotive industry has undergone significant changes over the past few decades, with a strong emphasis on fuel efficiency, environmental sustainability, and technological advancements. While electric and hybrid vehicles are gaining popularity, traditional gasoline-powered cars still dominate the market. Understanding consumer demand and analyzing the impact of car features on price and profitability are crucial for manufacturers. The dataset provided includes variables related to car make, model, year, fuel type, engine power, transmission, wheels, doors, market category, size, style, estimated miles per gallon, popularity, and manufacturer's suggested retail price (MSRP).

The data analysis which I performed will help to address these obstacles and it will manufacturer to choose car feature which will give more profitability.

CLEANING THE DATA

1. The formula : **=COUNTBLANK(A2:A11915)** is used to count null values in each column.
2. Next remove all the duplicate rows.
3. Then use Median/Mode to remove null values.



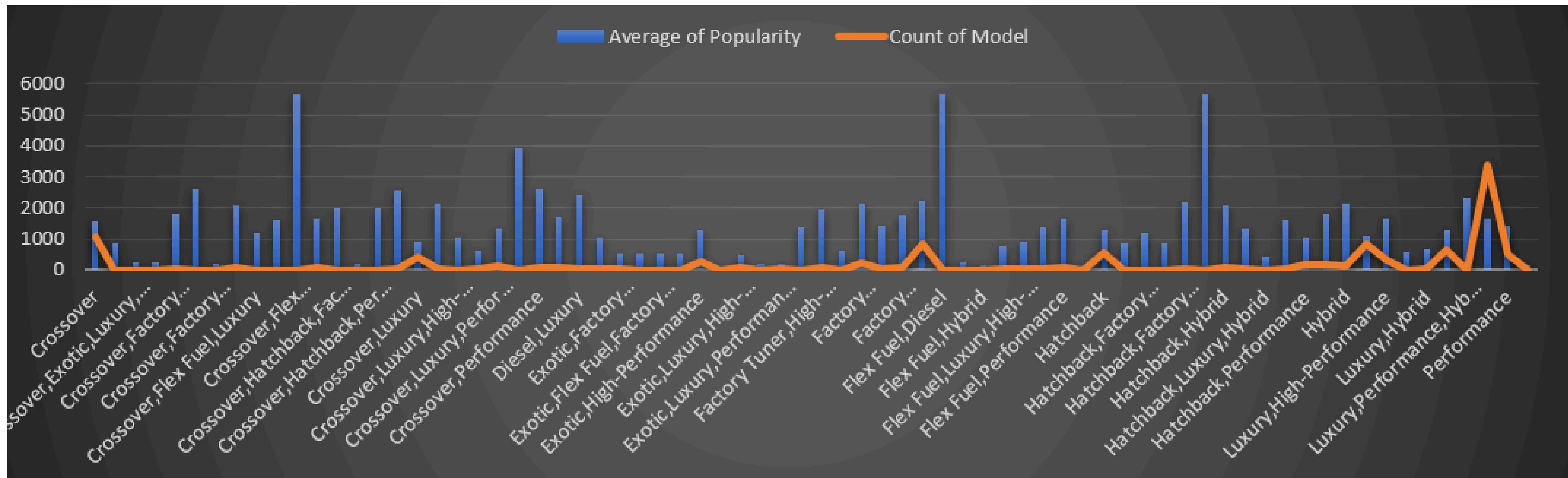
TASK 1

Insight Requirement: How does the popularity of a car model vary across different market categories?

Task 1.A: Create a pivot table that shows the number of car models in each market category and their corresponding popularity scores.

Task 1.B: Create a combo chart that visualizes the relationship between market category and popularity.

Result:



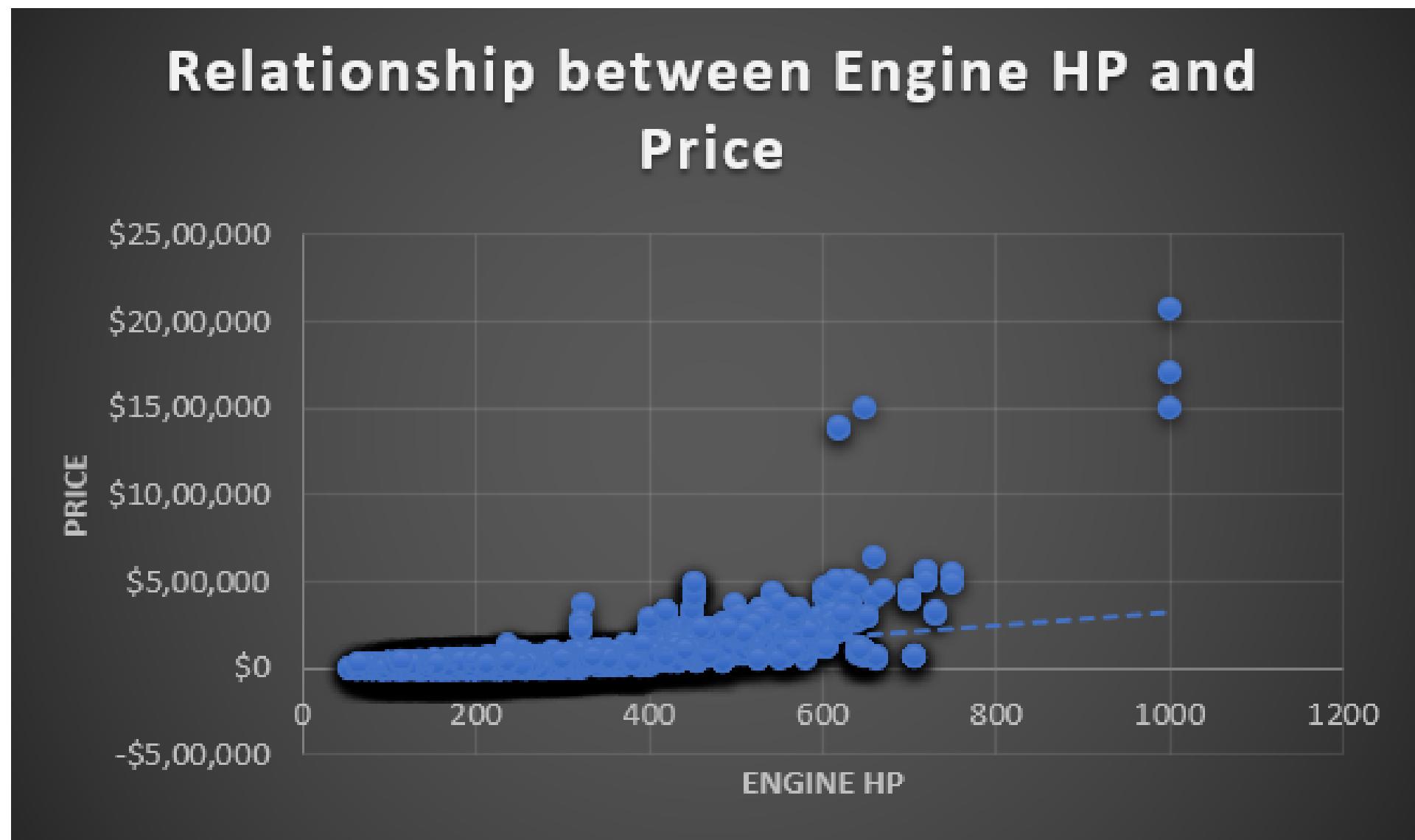
Insight: The popularity of Flex Fuel, Diesel, Hatchback, Crossover, and Performance market categories reflects diverse consumer preferences.

TASK 2

Insight Requirement: What is the relationship between a car's engine power and its price?

Task: Create a scatter chart that plots engine power on the x-axis and price on the y-axis. Add a trendline to the chart to visualize the relationship between these variables.

Result:



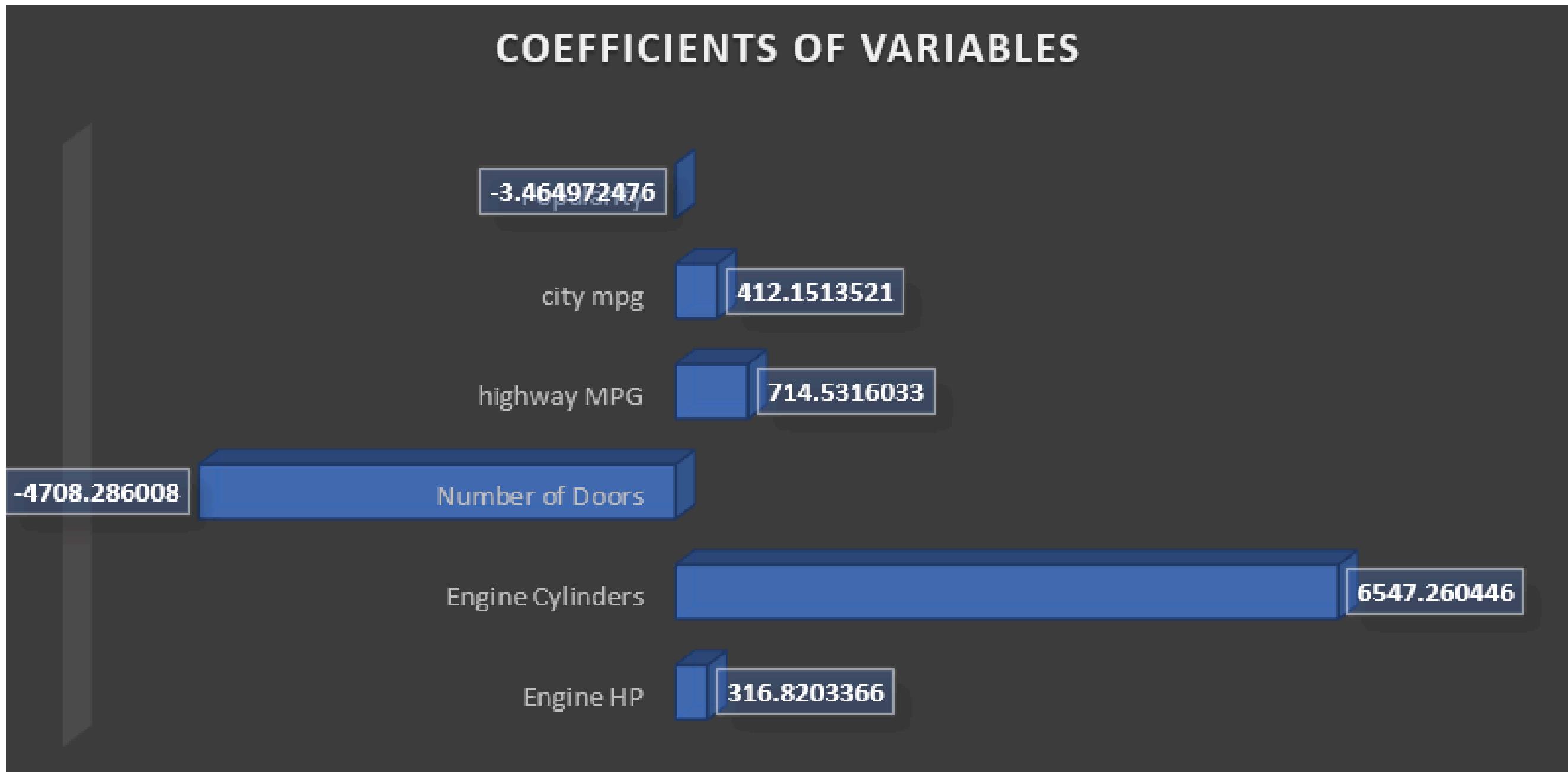
Insight: When the Engine power increases Price also increase. Hence, they are directly proportional to each other and have a positive relationship.

TASK 3

Insight Requirement: Which car features are most important in determining a car's price?

Task: Use regression analysis to identify the variables that have the strongest relationship with a car's price. Then create a bar chart that shows the coefficient values for each variable to visualize their relative importance.

Result:



Insight: - It can be observed that Engine Cylinders are the most important features in determining a car's price.

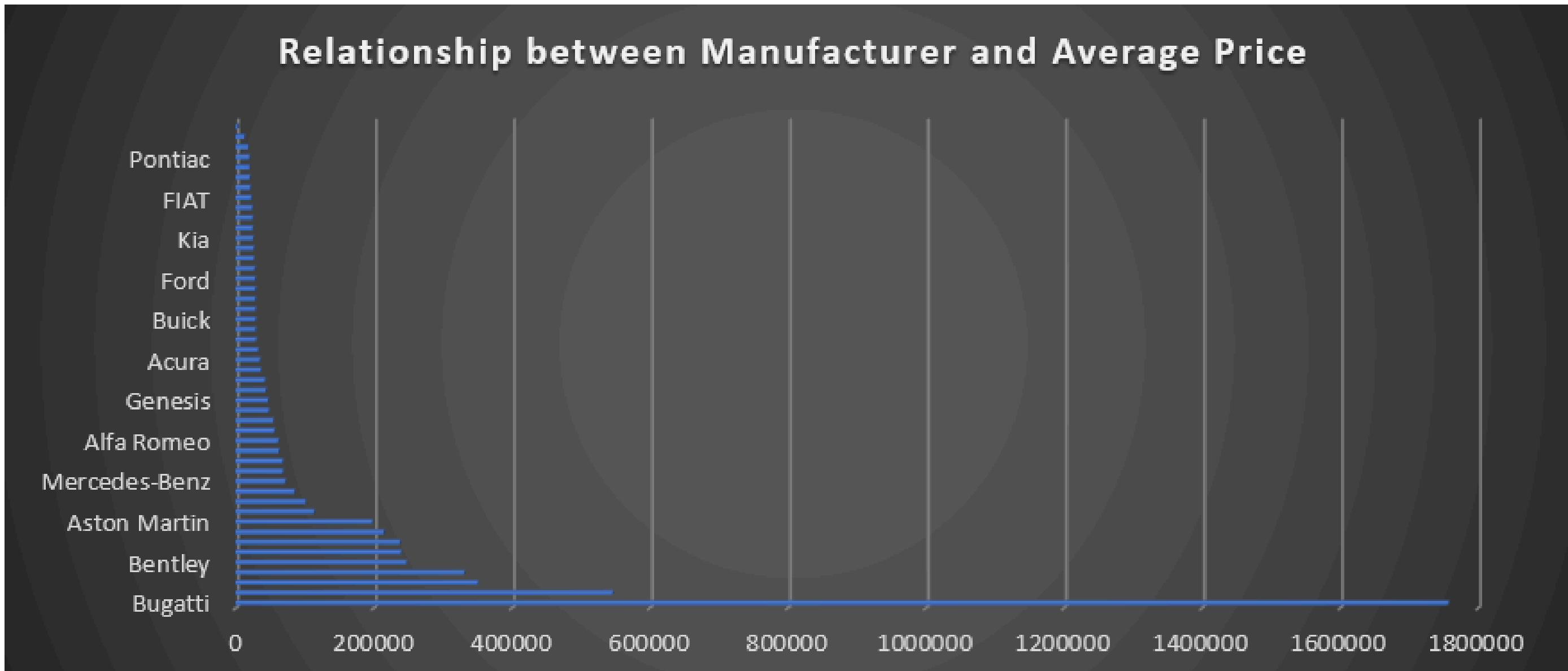
TASK 4

Insight Requirement: How does the average price of a car vary across different manufacturers?

Task 4.A: Create a pivot table that shows the average price of cars for each manufacturer.

Task 4.B: Create a bar chart or a horizontal stacked bar chart that visualizes the relationship between manufacturer and average price.

Result:



Insight: - The Average price is the highest for Bugatti and Plymouth has the lowest average price.

TASK 5

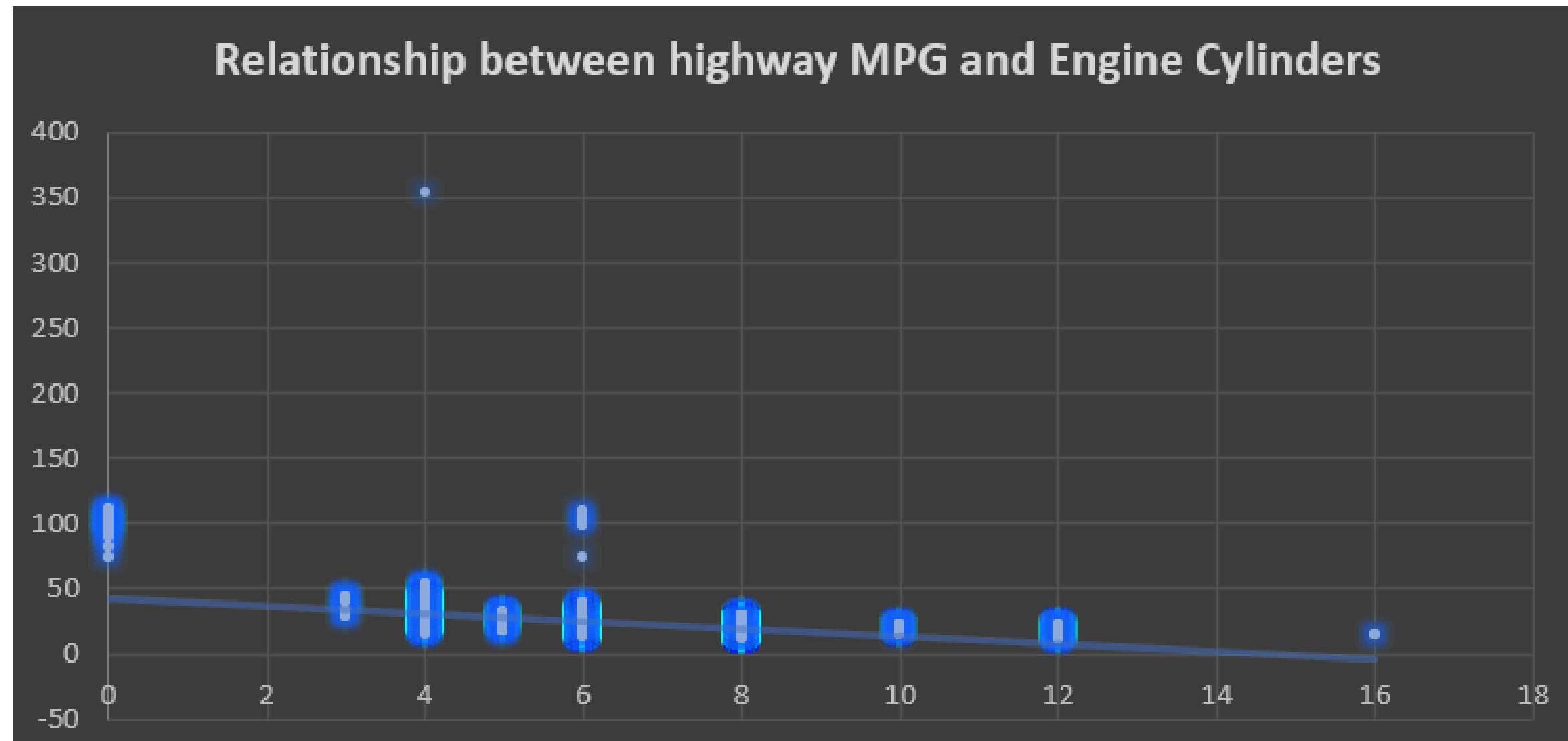
Insight Requirement: What is the relationship between fuel efficiency and the number of cylinders in a car's engine?

Task 5.A: Create a scatter plot with the number of cylinders on the x-axis and highway MPG on the y-axis. Then create a trendline on the scatter plot to visually estimate the slope of the relationship and assess its significance.

Task 5.B: Calculate the correlation coefficient between the number of cylinders and highway MPG to quantify the strength and direction of the relationship.

Result:

Correlation Coefficients | -0.596246019

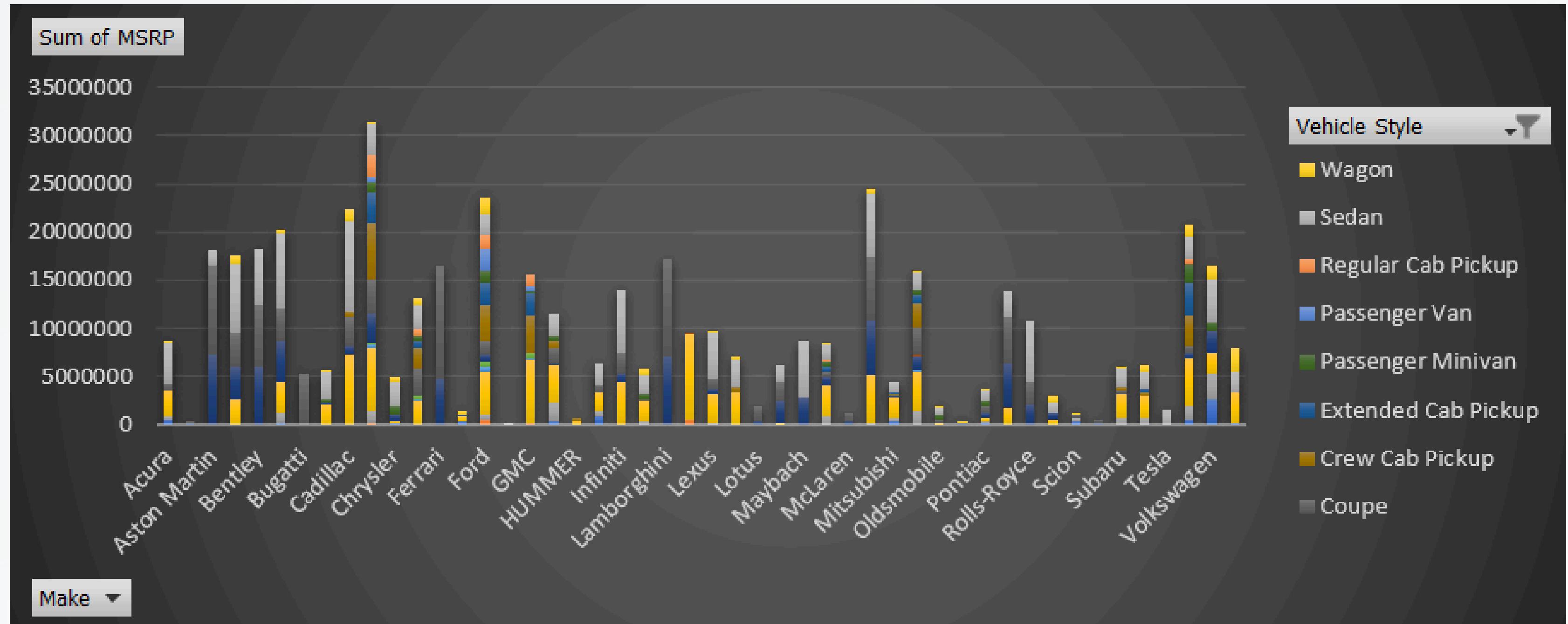


Insight: - Number of Cylinders will increase then highway MPG will decrease. It's negative relationship between both of them.

DASHBOARD

Task 1: How does the distribution of car prices vary by brand and body style?

Result:

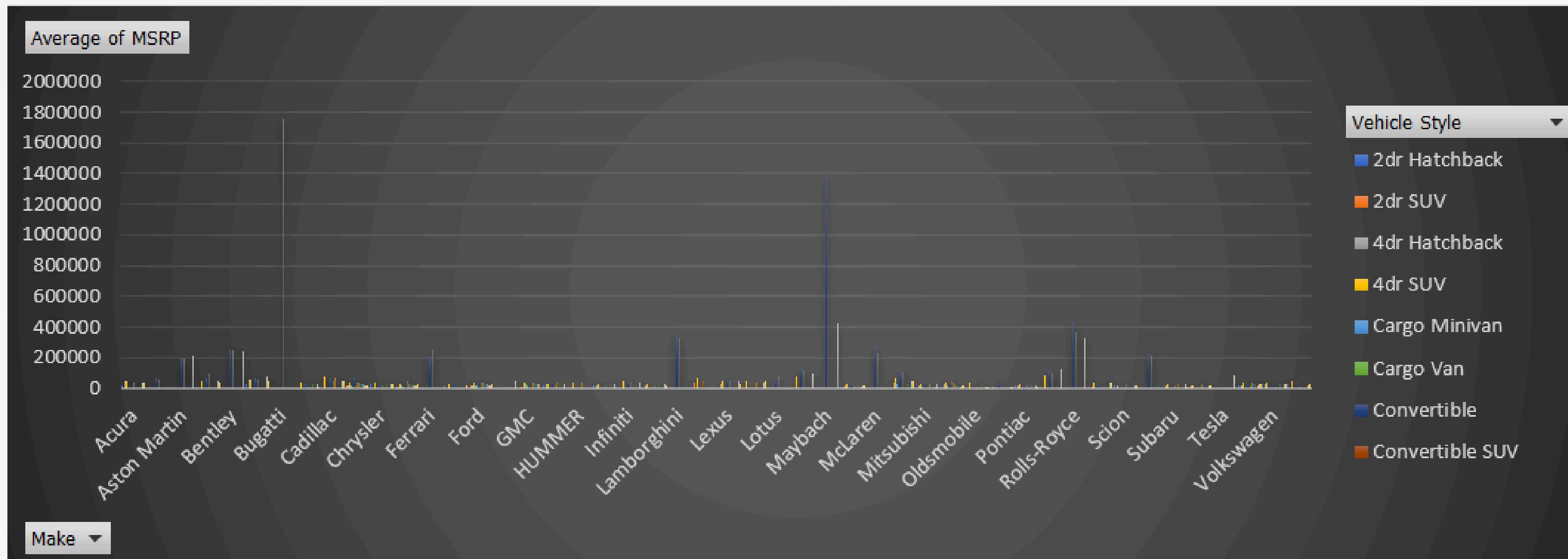


Insight: Chevrolet has the highest price distribution by body style

DASHBOARD

Task 2: Which car brands have the highest and lowest average MSRPs, and how does this vary by body style?

Result:

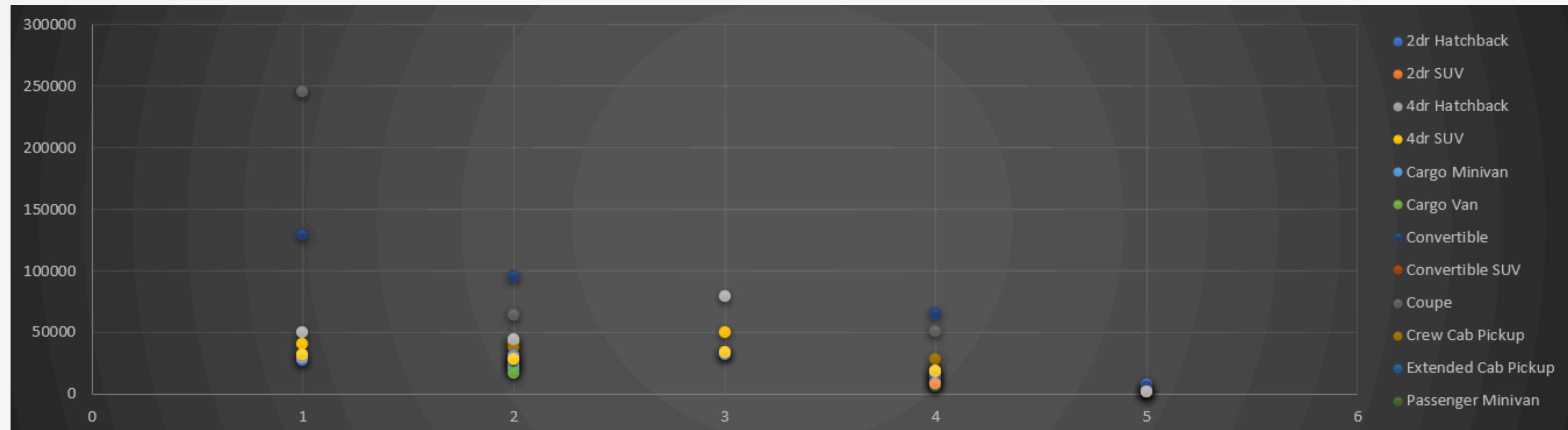


Insight: Bugatti has the highest average MSRPs and Plymouth has the lowest average MSRPs by body style.

DASHBOARD

Task 3: How do the different feature such as transmission type affect the MSRP, and how does this vary by body style?

Result:

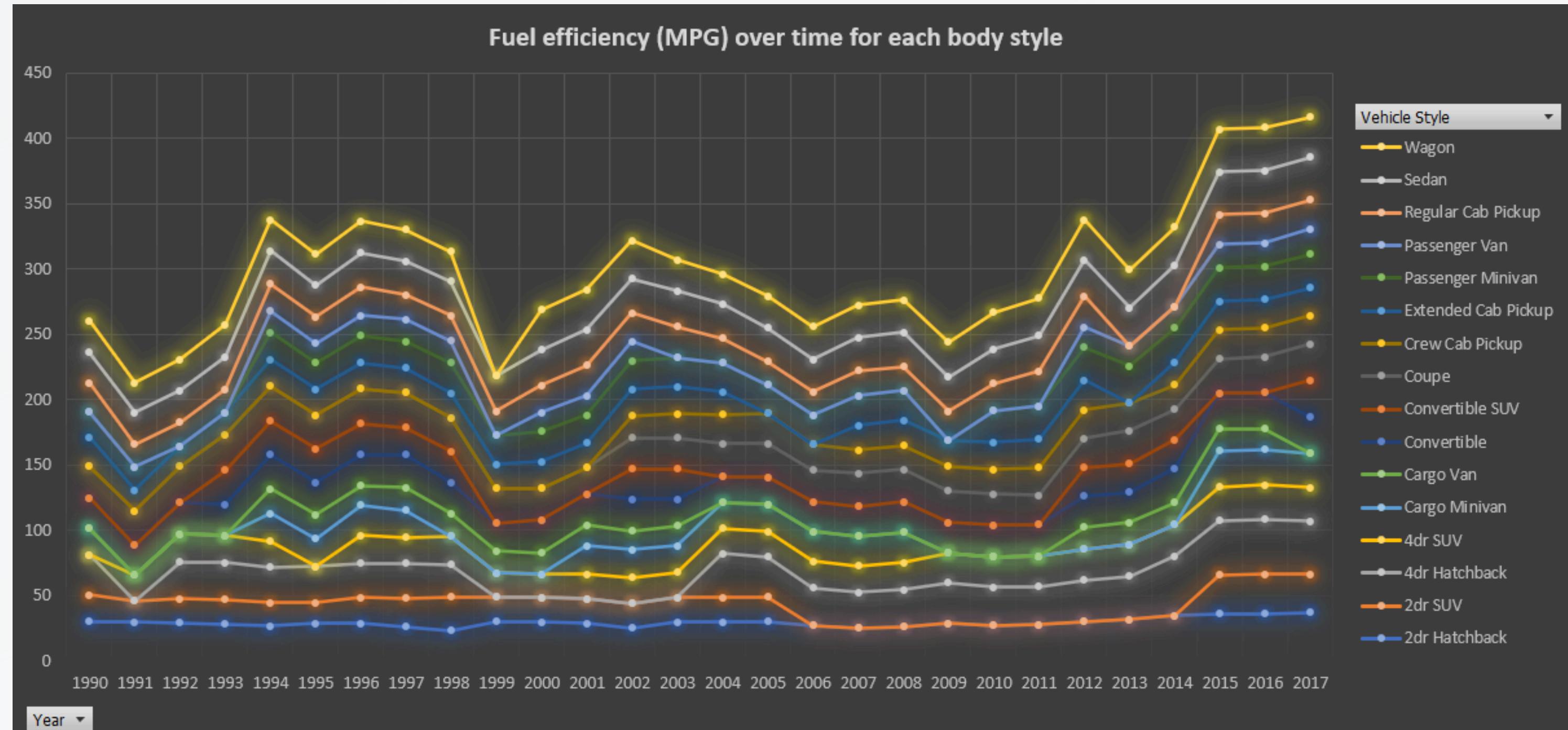


Insight: AUTOMATED_MANUAL with Coupe body style is the most expensive transmission.

DASHBOARD

Task 4: How does the fuel efficiency of cars vary across different body styles and model years?

Result:



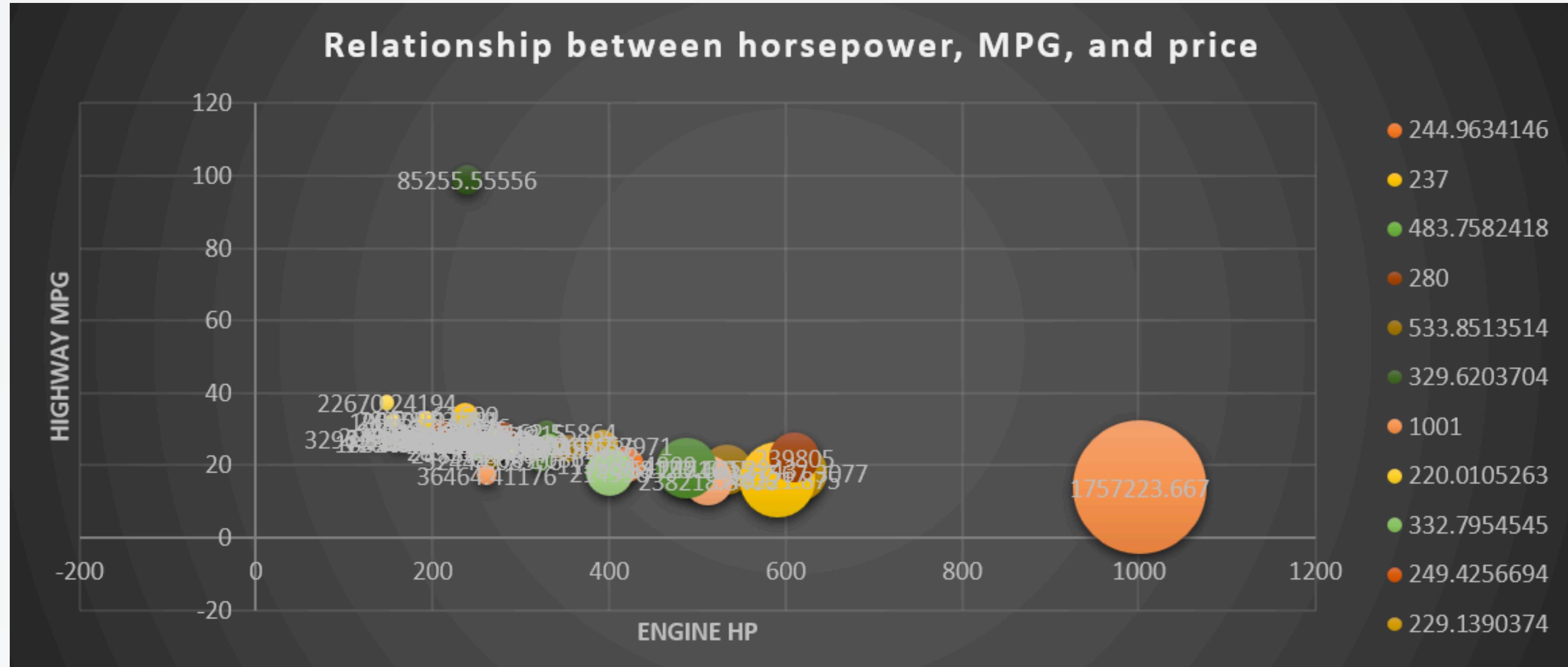
Insight: Wagon body style has the highest fuel efficiency in 2017.

Fuel efficiency of cars increased across different body styles and model years.

DASHBOARD

Task 5: How does the car's horsepower, MPG, and price vary across different Brands?

Result:



Insight: The Engine HP goes up when Highway MPG goes down but the price increases.

EXCEL SHEET LINK

The drive link for the excel sheet is:

https://drive.google.com/drive/folders/1vtAyKdWSuv7ul9Sm61sjr5GvFVsdfaE?usp=drive_link

Working on this project helped me understand and use Microsoft Excel more better. It helped me gain experience on handling with graphs, charts, how to use statistics effectively and how Data Analytics is implemented using it in the real world and obtain insights with the data provided as a Data Analyst. It also helped me gain experience in handling large sets of data.

**THANK
YOU.**

The background features a minimalist design with black wavy lines on a white surface. A large, bold, black sans-serif font displays the words "THANK" and "YOU." in two lines. The "T" in "THANK" and the "Y" in "YOU." are capitalized. The lines are thin and black, creating a sense of motion and depth against the white background.