Analyzing the Impact of Car Features on Price and Profitability

Project Description :

The purpose of this project is to analyze the impact of car features on price and profitability in the automotive industry. By examining a dataset containing information on various car models and their specifications.

The dataset includes variables such as car make, model, year, fuel type, engine power, transmission, number of doors, market category, size, style, estimated miles per gallon, popularity, and manufacturer's suggested retail price (MSRP).

By analyzing this dataset, I can gain insights into trends, relationships that can inform decision-making.

Approach :

Approach To address the business problem for that need to employ various data analysis techniques in Excel, including descriptive statistics, visualization, and regression analysis.

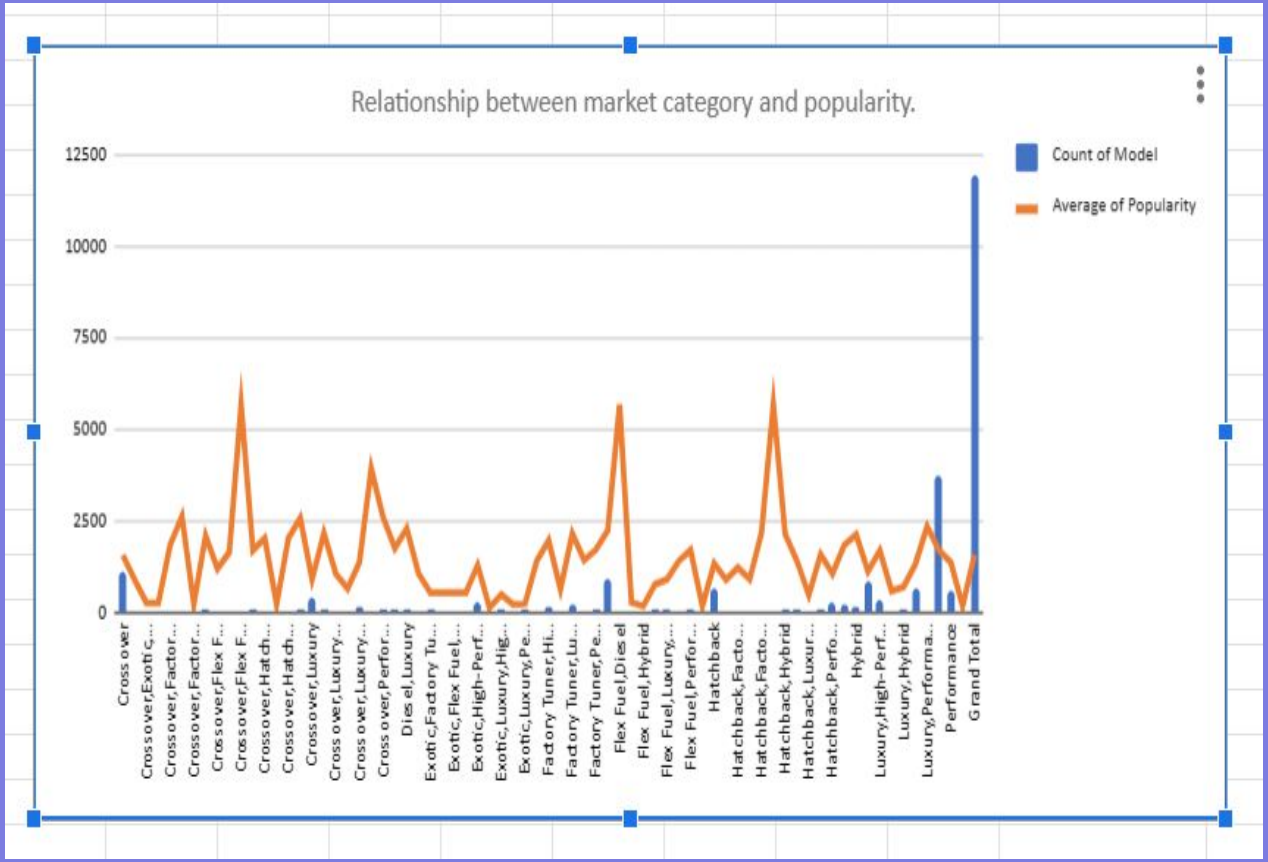
Need to clean and preprocess the dataset to ensure accurate and reliable results. Our analytical methods will include pivot tables, combo charts, scatter charts with trendlines, regression analysis, bar charts, stacked bar charts, correlation analysis, and line charts.

Tech-Stack Used :

I will use Excel for data analysis and visualization.

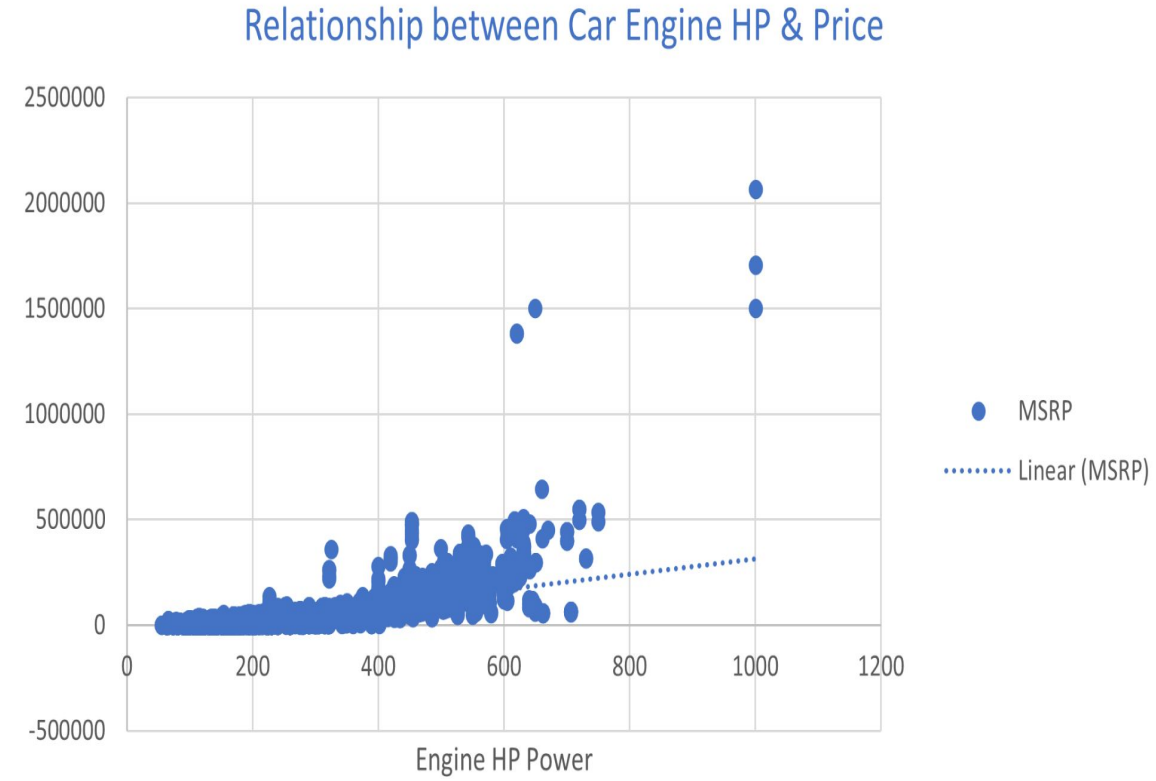
Microsoft Excel provides powerful functionalities such as pivot tables, charts, and regression analysis, making it suitable for exploring and analyzing the given dataset.

Tasks: Analysis : Insights



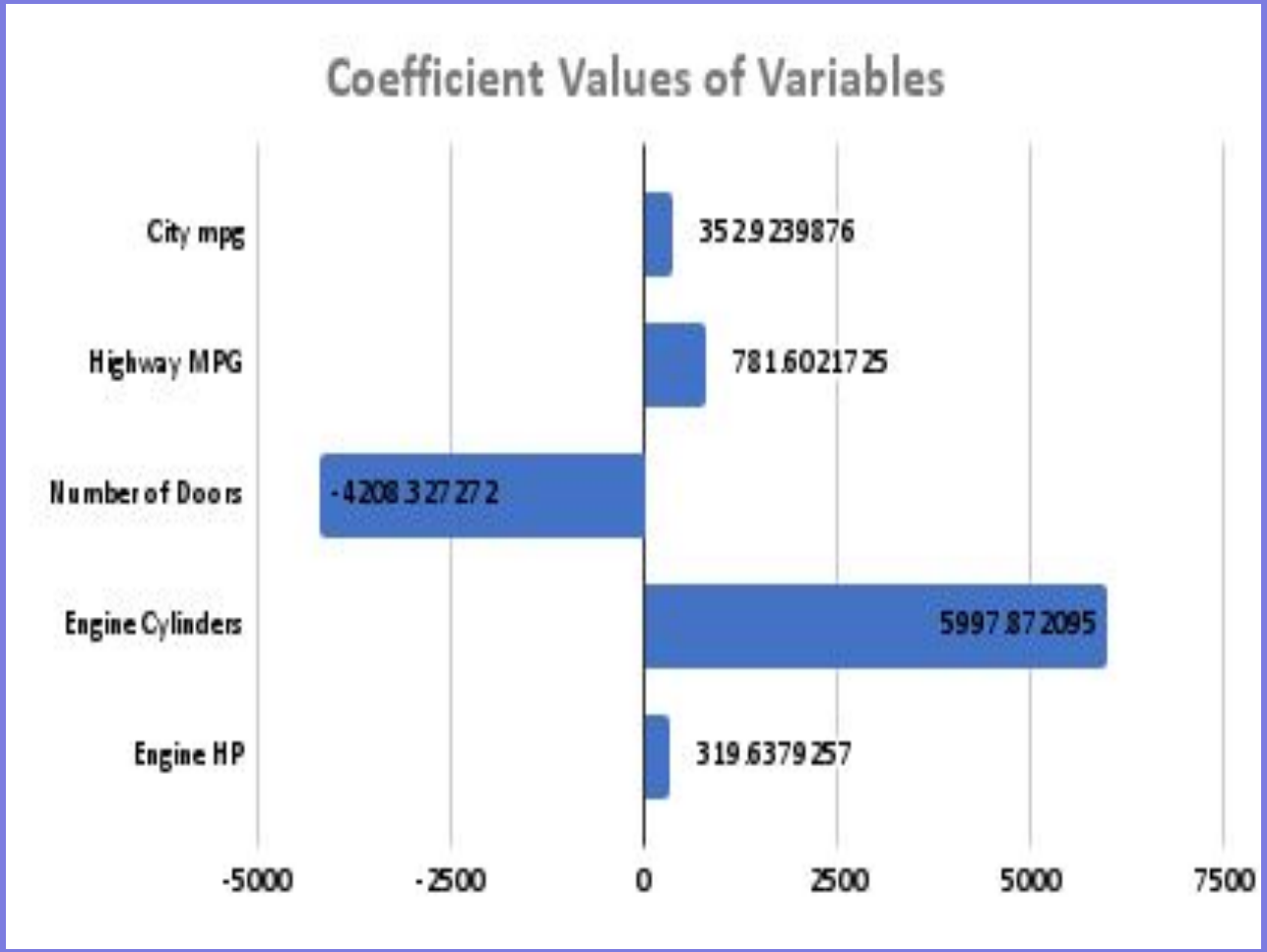
Insight Required: How does the popularity of a car model vary across different market categories?

Insights : Crossover, flex fuel, diesel, hatchback are the most popular market categories for car models.



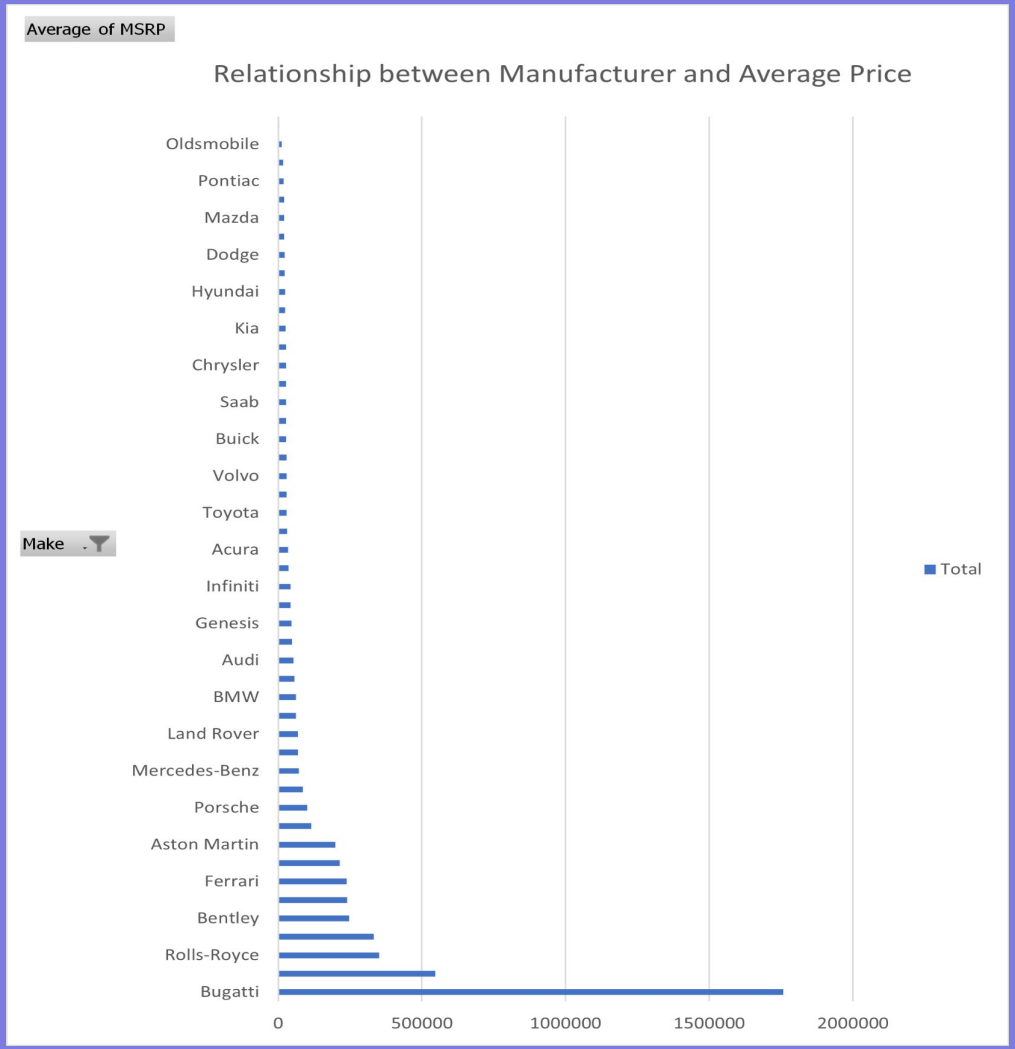
Insight Required:
What is the relationship between a car's engine power and its price?

Insights: If the power of the engine increases then the price will also increase



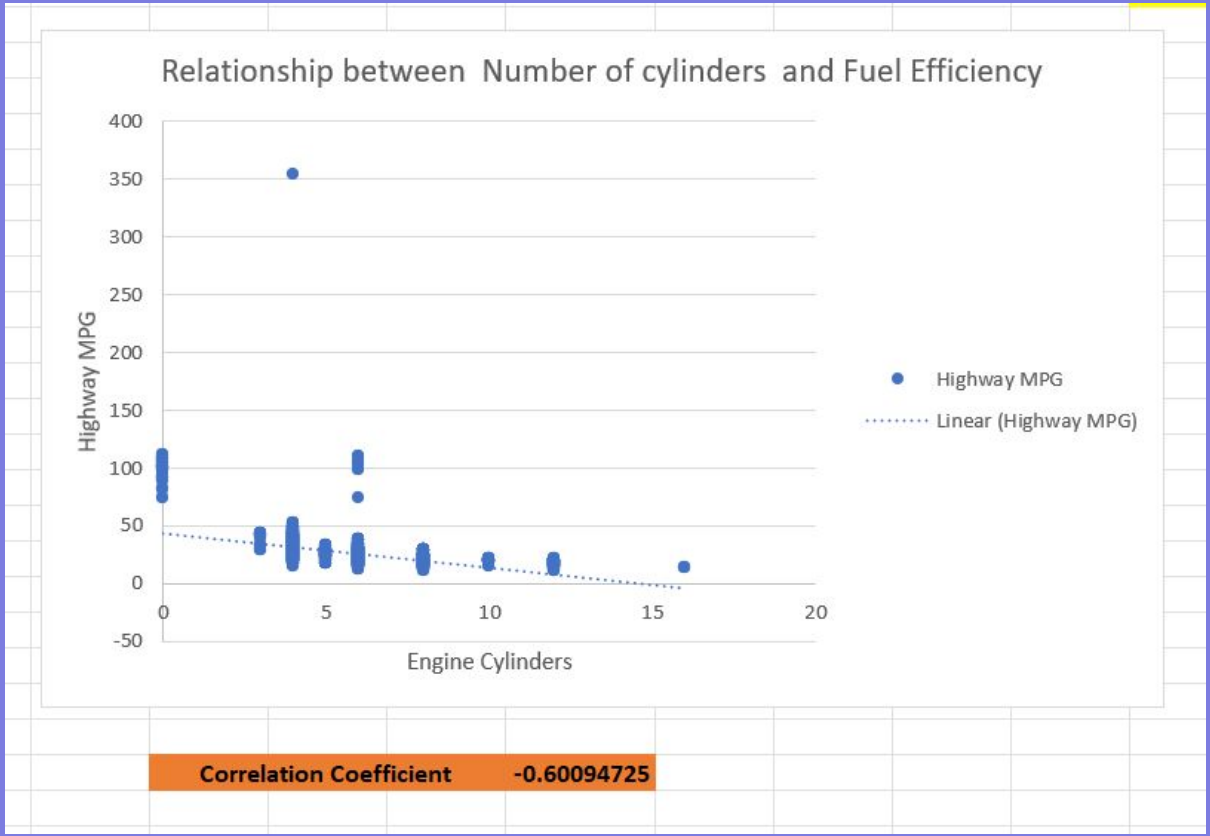
Insight Required: Which car features are most important in determining a car's price?

Insights : Engine cylinders are one of the most important features that determine the price of a car.



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

Insights : The Bugatti has the highest average price



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

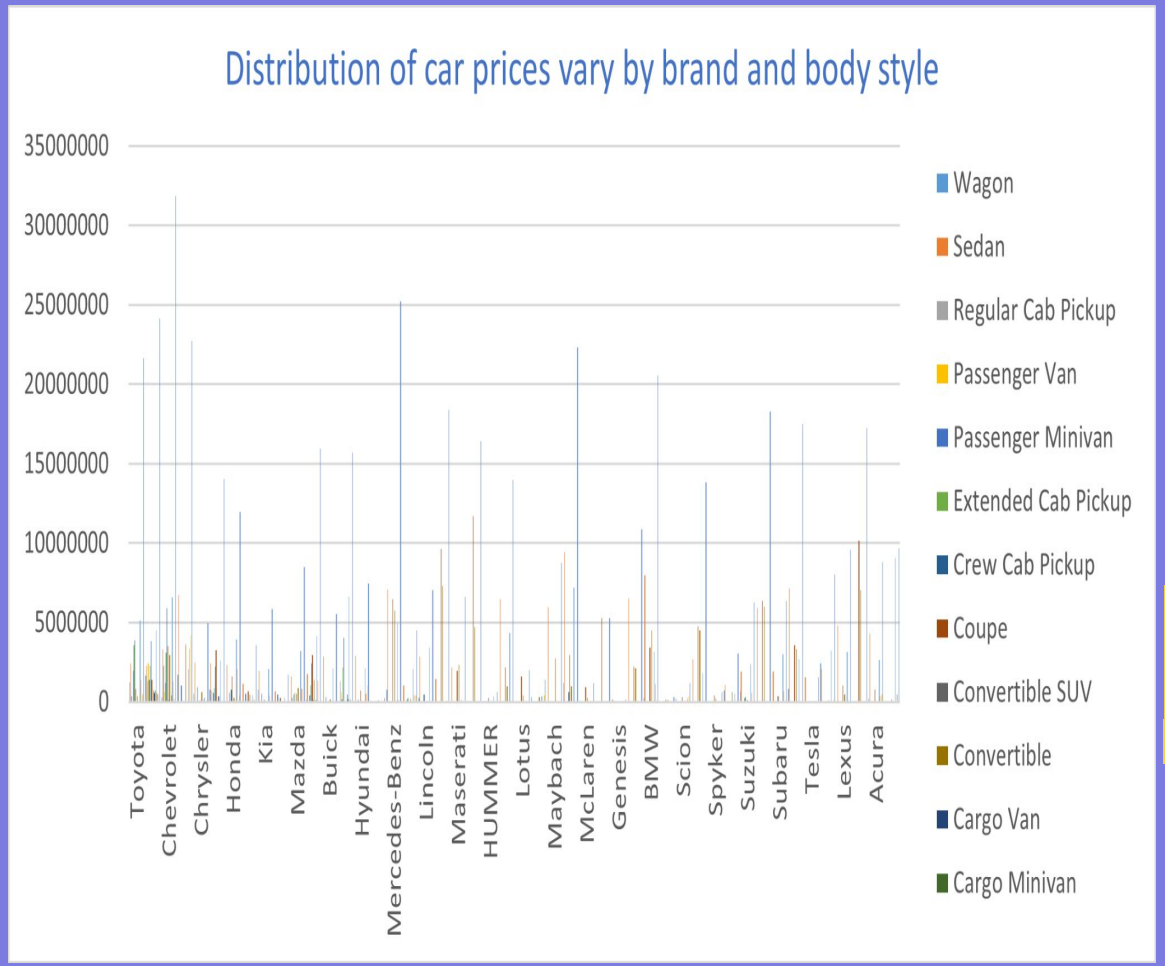
Insights :if the number of cylinders increases then the highway mpg will decrease. So, We can say that there is a negative relationship between both of them.

Car_data Analysis File :

https://docs.google.com/spreadsheets/d/1sh7FMU-HoeycaqSPcXPBxUJFHP8V56RT/edit?usp=drive_link&ouid=115986816887265464875&rtpof=true&sd=true

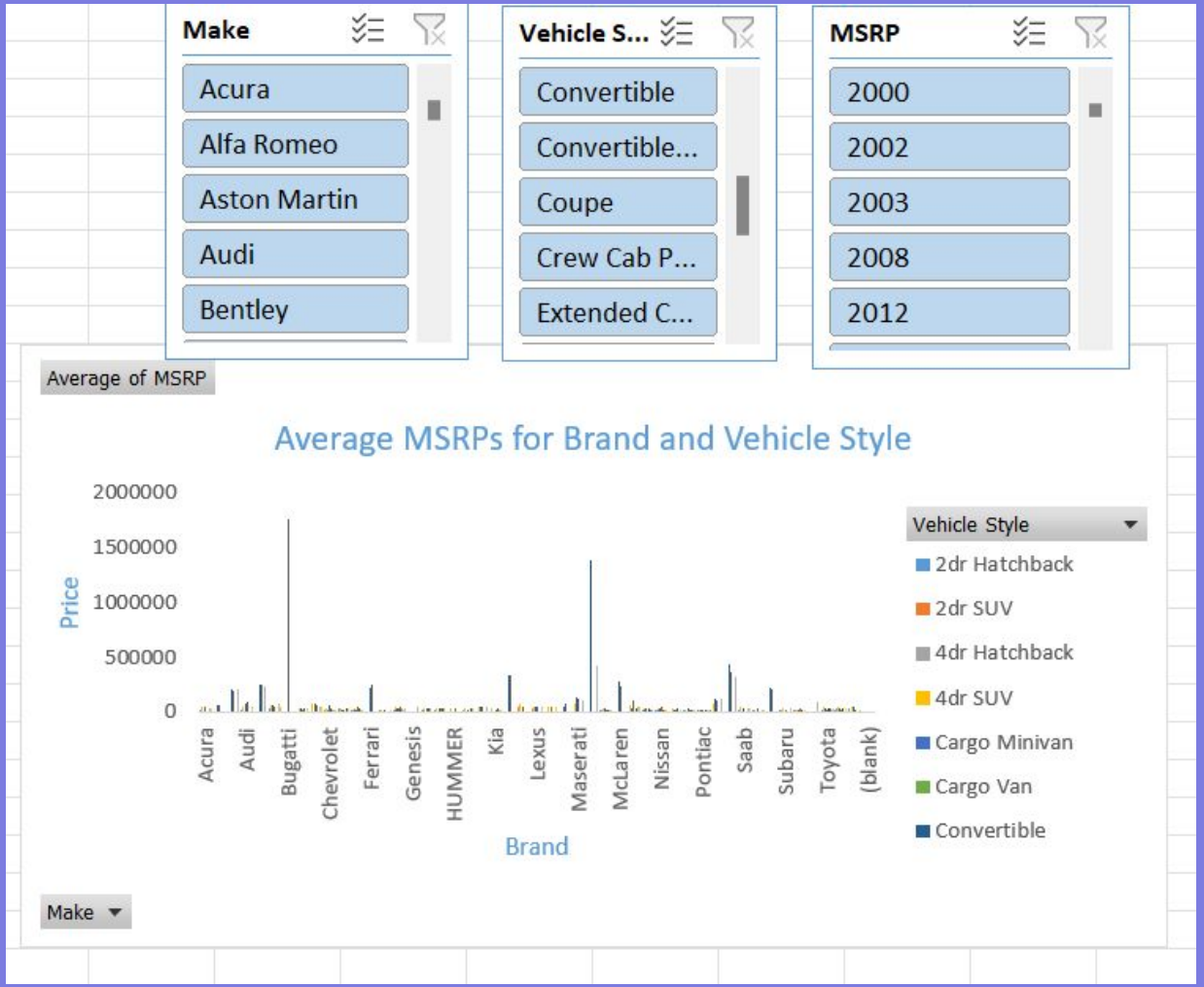
*Note : Please Download the excel file and check all task details to avoid filter problems

Building the Dashboard



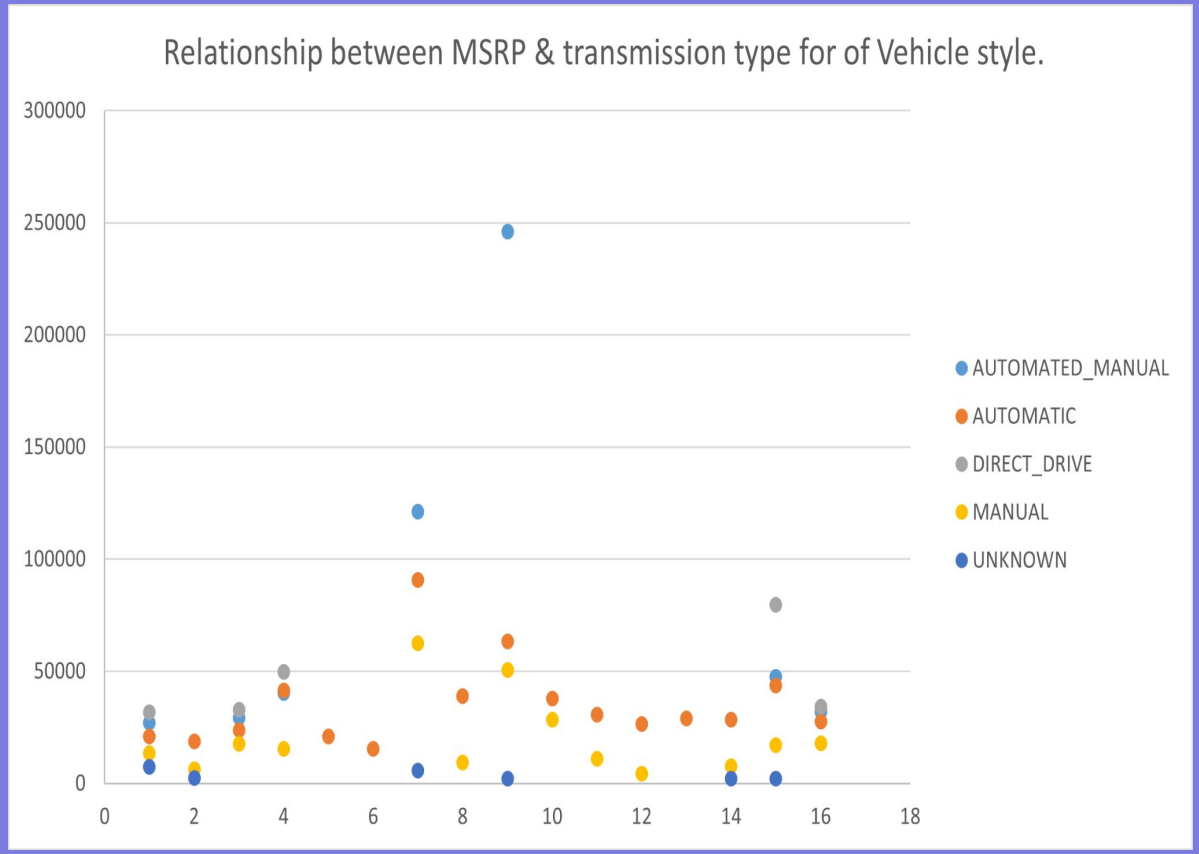
Task 1: How does the distribution of car prices vary by brand and body style?

Insights :- Chevrolet has the highest price distribution by body style.



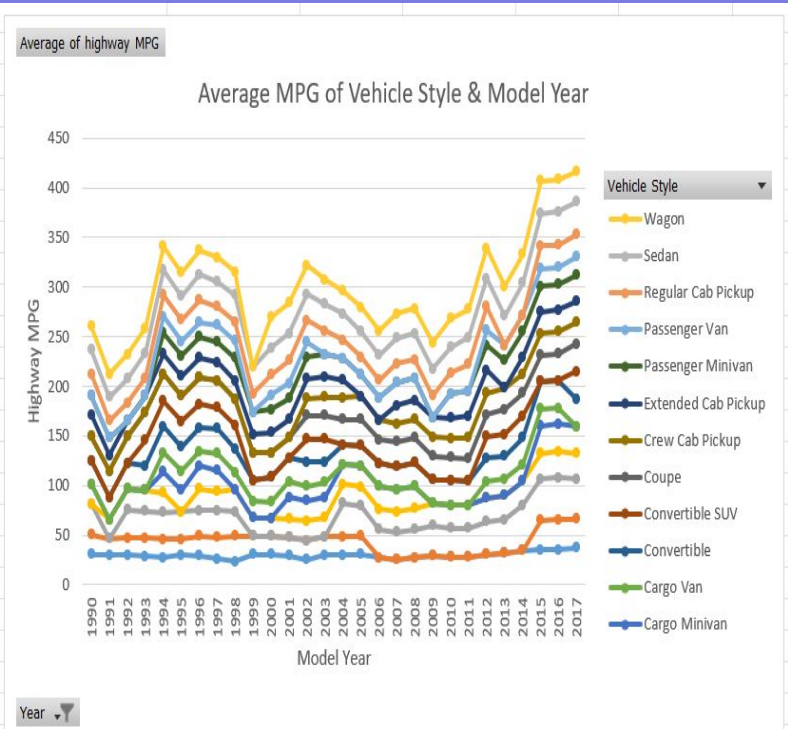
Task 2: Which car brands have the highest and lowest average MSRPs, and how does this vary by body style?

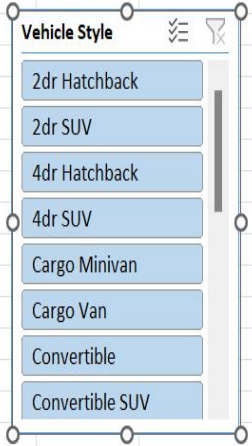
Insights : Bugatti has the highest average MSRP and Plymouth has the lowest average MSRP.



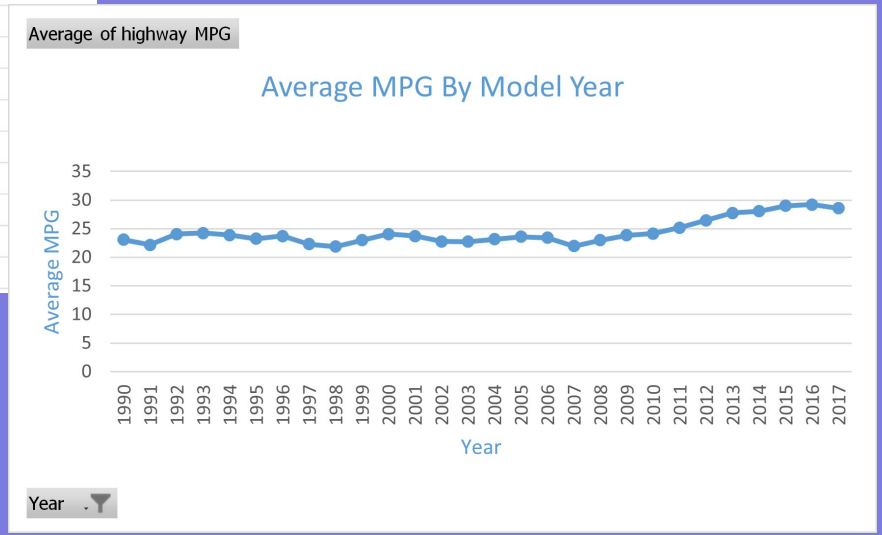
Task 3: How do the different feature such as transmission type affect the MSRP, and how does this vary by body style?

Insights : The automated manual is the most expensive transmission. And the automatic is a popular transmission.

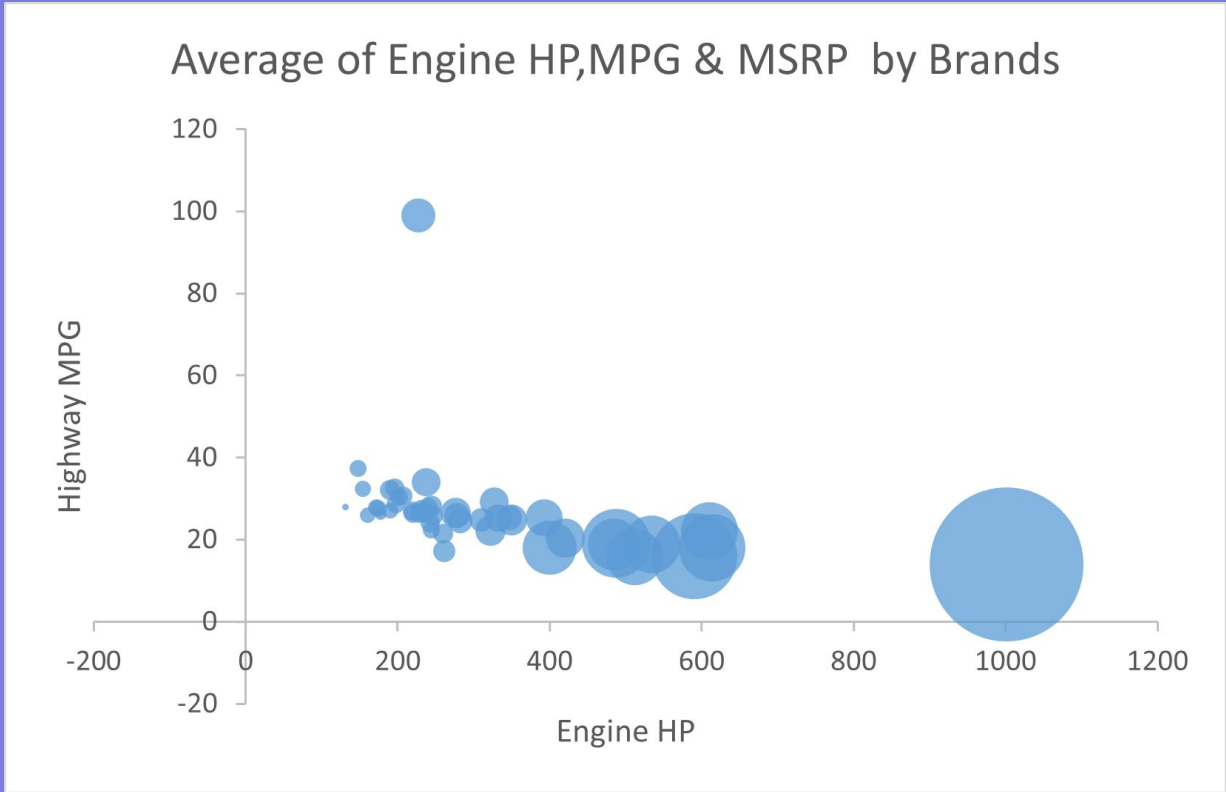




Task 4: How does the fuel efficiency of cars vary across different body styles and model years?



Insights : The fuel efficiency of cars increased across different body styles. Overall fuel efficiency increased regularly after 2007 at a slower rate year-on-year



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

Insights :If engine horsepower increased then highway mpg will decrease and the price will increase

Car_Data Building Dashboard :

https://docs.google.com/spreadsheets/d/158mX73zhRtJW4bOPUPTyVf0NRk6_Dvai/edit?usp=drive_link&ouid=115986816887265464875&rtpof=true&sd=true

*Note : Please Download the excel file and check all task details to avoid filter problems & missing graphs.

Results :

The interactive dashboard created in Excel allows stakeholders to explore various aspects of the dataset. They can visualize the distribution of car prices by brand and body style, compare average MSRPs across different brands and body styles, analyze the impact of transmission type on MSRP by body style, observe the trend of fuel efficiency across different body styles and model years, and understand the relationships between horsepower, MPG, and price across different car brands.

The insights gained from the analysis provide valuable information for car manufacturers to make informed decisions regarding pricing, product development, marketing, and competitiveness in the market. By optimizing these factors, manufacturers can maximize profitability while meeting consumer demand.