

Project: Analyzing the Impact of Car Features on Price and Profitability

Raw Data :

<https://drive.google.com/file/d/15O7SWwfek74YmmOXiJLkAGRCZfH6YhNp/view?usp=sharing>

Project description

The automotive industry has been rapidly evolving over the past few decades with a growing focus on fuel efficiency, environmental sustainability and technology innovation. With increasing competition in the market, manufacturers want to change the consumer's landscape.

This project aims to analyze the car features that affect the manufacturer's car's price. As a Data Analyst, the client has asked how a car manufacturer optimizes pricing and product development decisions to maximize profitability while meeting consumer demand.

The dataset contains information on various car models and their specifications, titled as "Car Features and MSRP". Dataset is available on Kaggle by Cooper College, New York City.

- Total no. of Observation : 11,813 (after cleaning)
- Total no. of Variables: 16
- File type: CSV

I assumed the NA values are valid values to dataset :

I used Power Query and pre-processing to clean data as follows:

- Filtered out the data from the blank cell.
- Found and replaced the numeric values in the Car Model variable.
- Removed cluttered and missing value rows.
- Apply the performed changes.
- I assumed highway MPG is a more relevant variable than city MPG because on highway cars give more mileage than in city.

Approach :

For analysis I used descriptive statistics, regression analysis and visualization to visualize the charts and graphs.

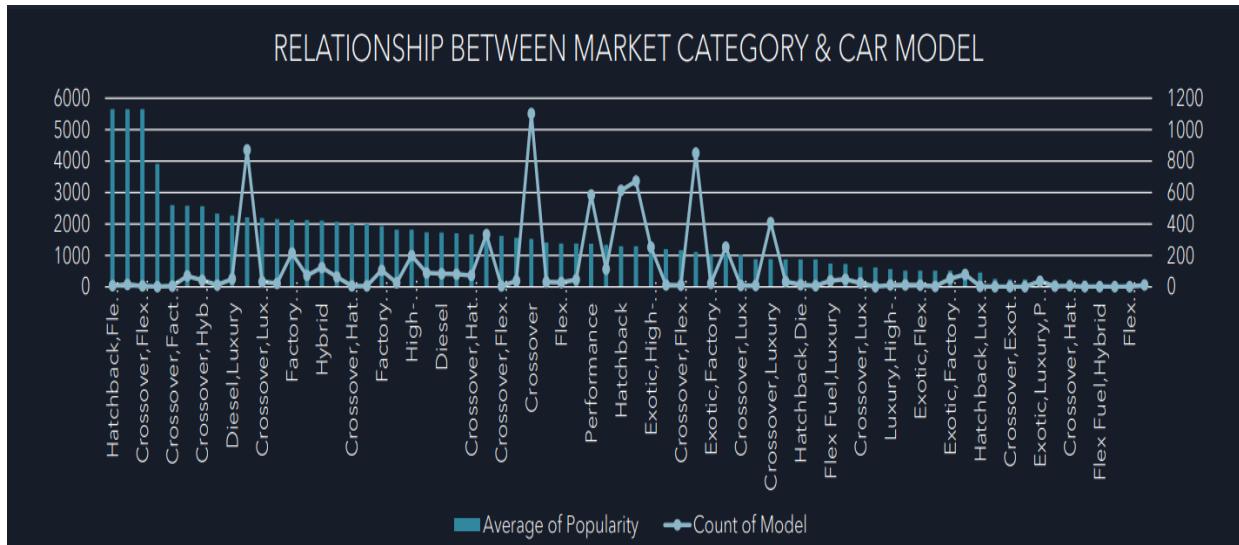
The reason behind using descriptive analysis was to find out the mean of a car's features variable and then to visualize them in the form of charts and graphs.

Regression Analysis told the dependency of independent variables to dependent variables i.eThe specific features of a car impact the car's price.

While creating the charts it was difficult to summarize the values of variables in sum or average.

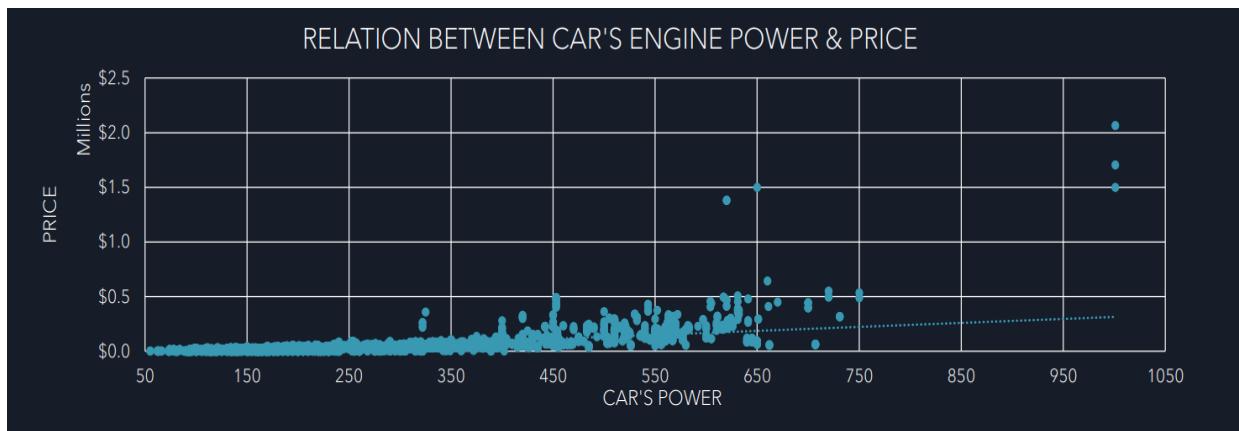
INSIGHT – POPULARITY OF A CAR

**From below line chart we can see in market category Hatchback and Fuel Flex are the highest populated and having highest number of car.



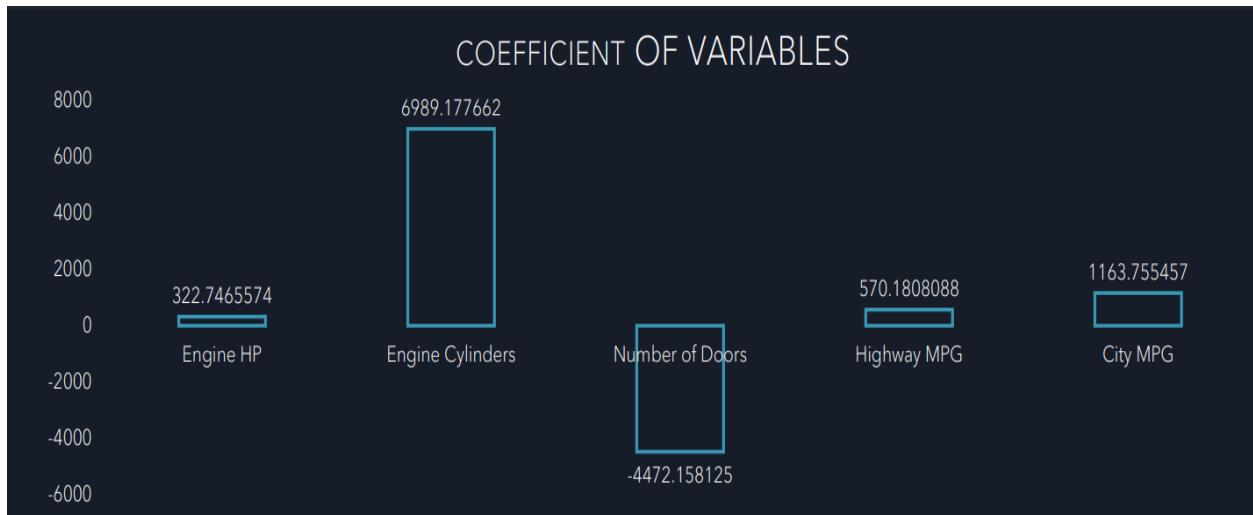
INSIGHT :

**From the Scatter plot we can see cars which have high engine power having higher prices. Thus, car's power increases and the car's price will also increase.



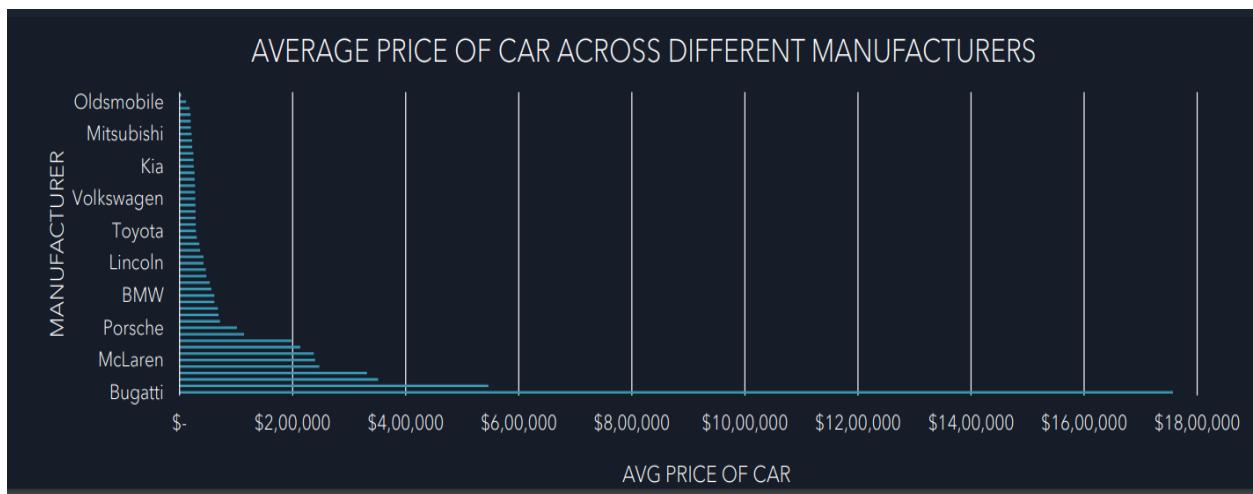
INSIGHT - REGRESSIONS ANALYSE :

**From the Bar chart we can see Engine Cylinders having the strongest relationship with the MSRP.



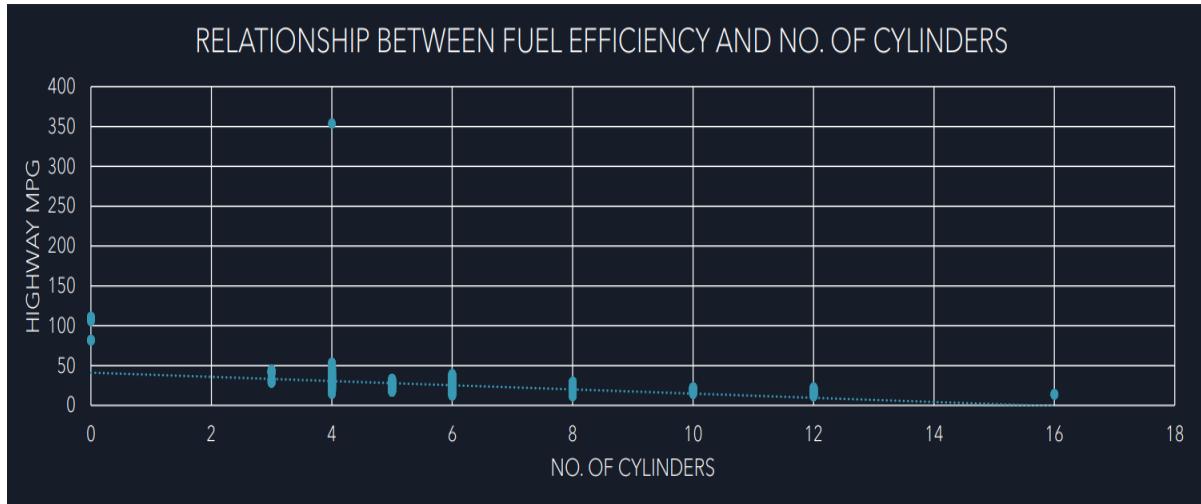
INSIGHT :

**From below Bar chart we can see Car brand Bugatti and Bentley having the highest average price



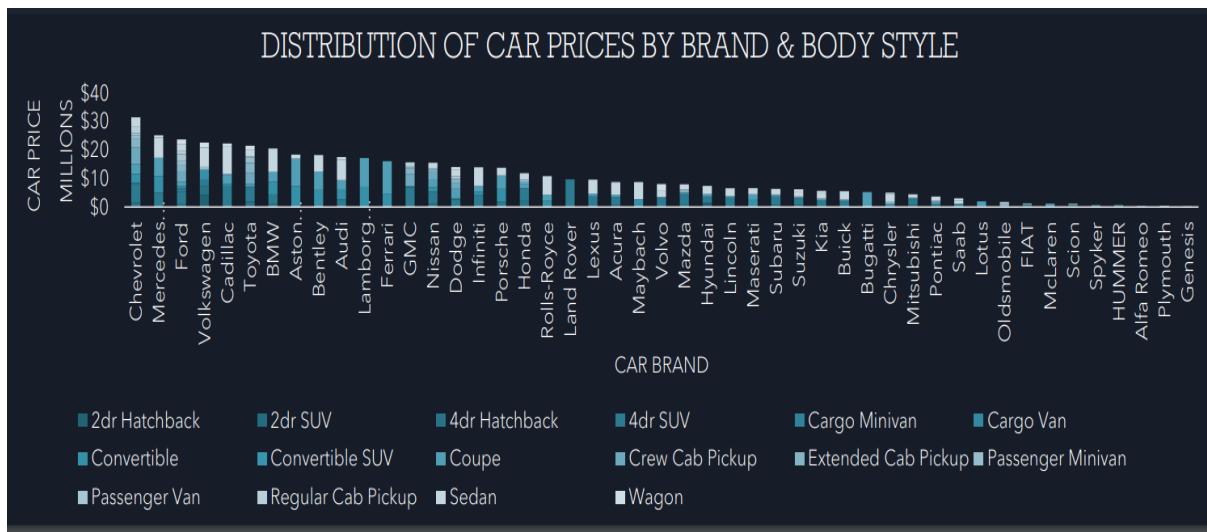
INSIGHT :

**From below scatter plot we can see that no. of cylinders having 4 is giving maximum fuel efficiency Fuel efficiency is inversely proportional to no. of cylinders, higher the no. of cylinder lower the fuel efficiency.



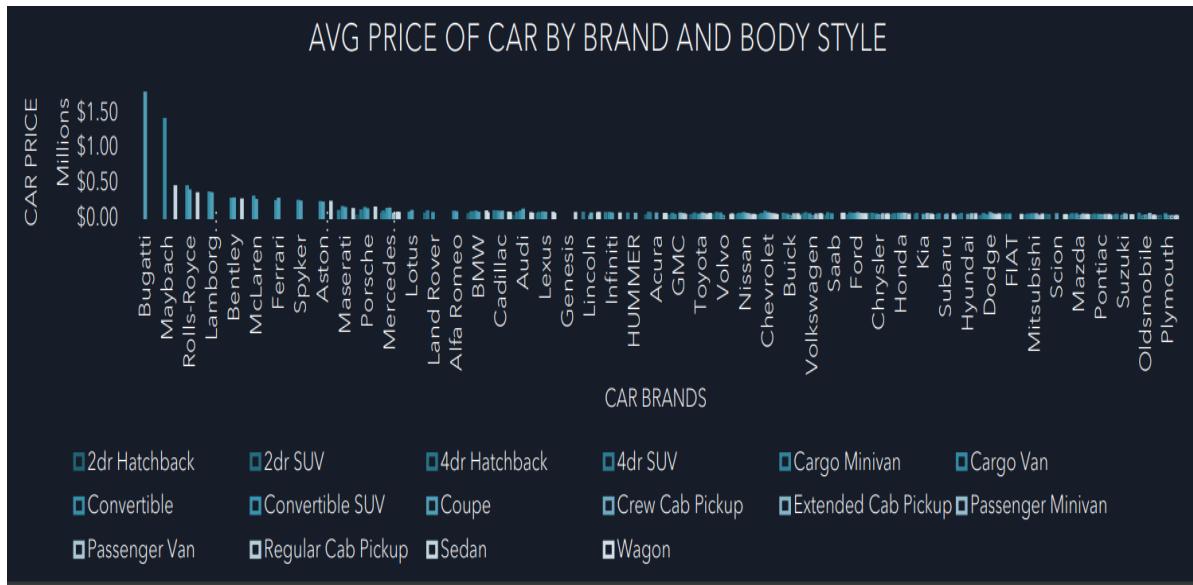
INSIGHTS :

**From below Stacked column chart we can see the body style of Chevrolet and Mercedes Benz having highest contribution in car's price.



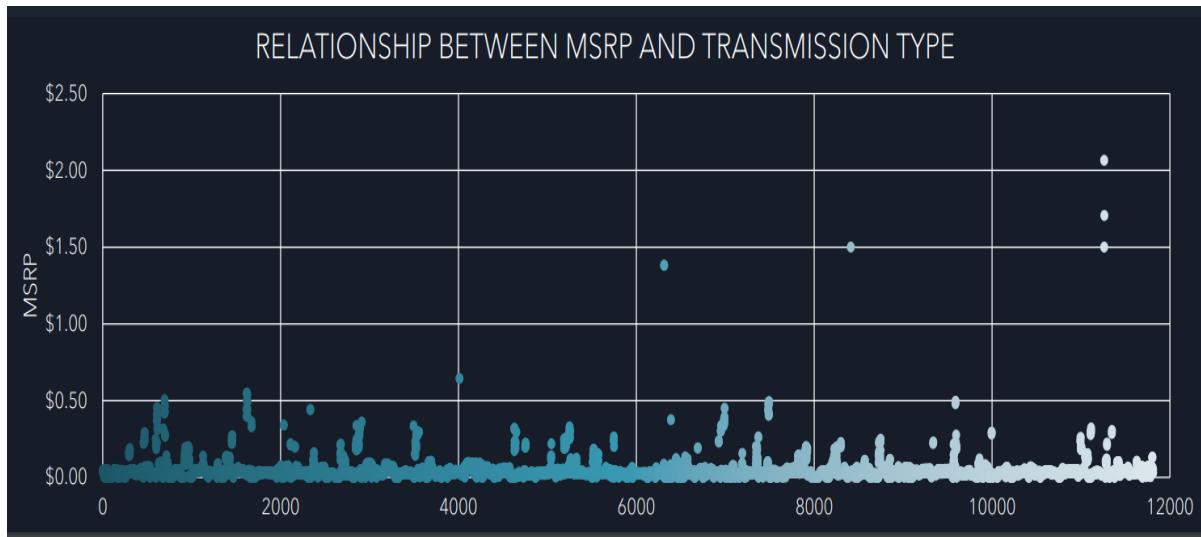
INSIGHTS :

**From below Clustered column chart we can see Coupe style of Bugatti and Convertible style of Maybach having highest no. of average car's price.



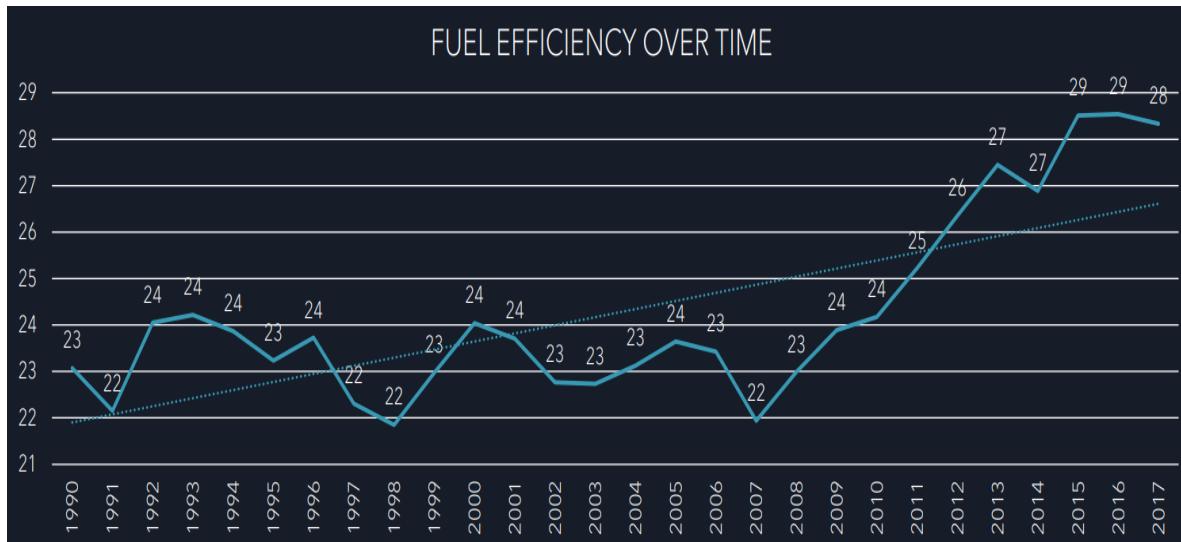
INSIGHT :

**From below scatter plot we see the automated convertible and automated_manual coupe are highly contributing in MSRP.



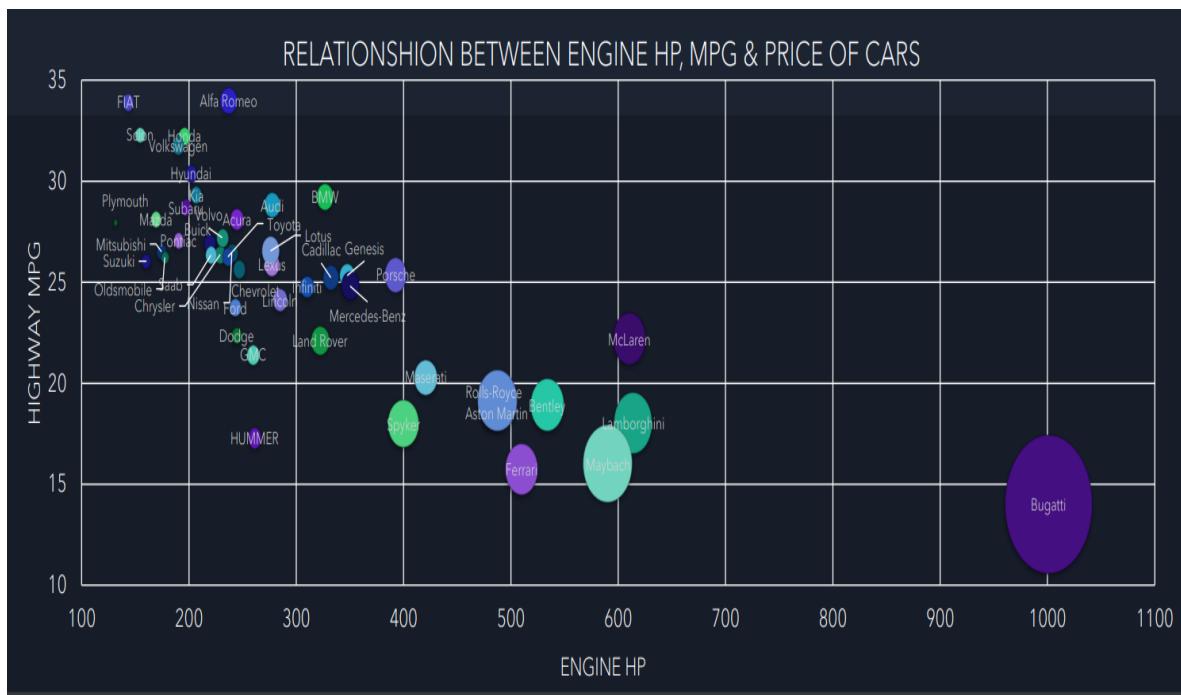
INSIGHT :

**From below Line chart below we can see as time increased fuel efficiency(Highway MPG) also increased or improved.

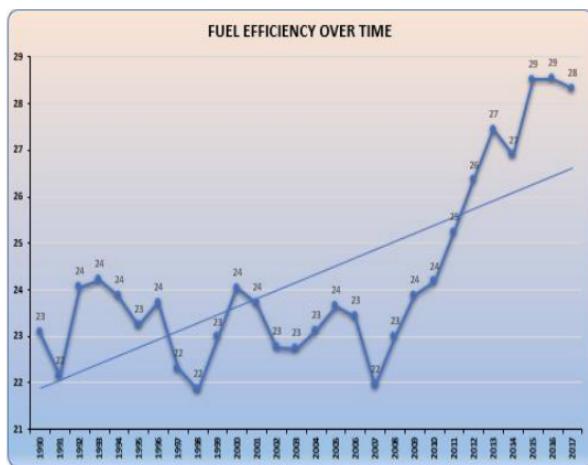
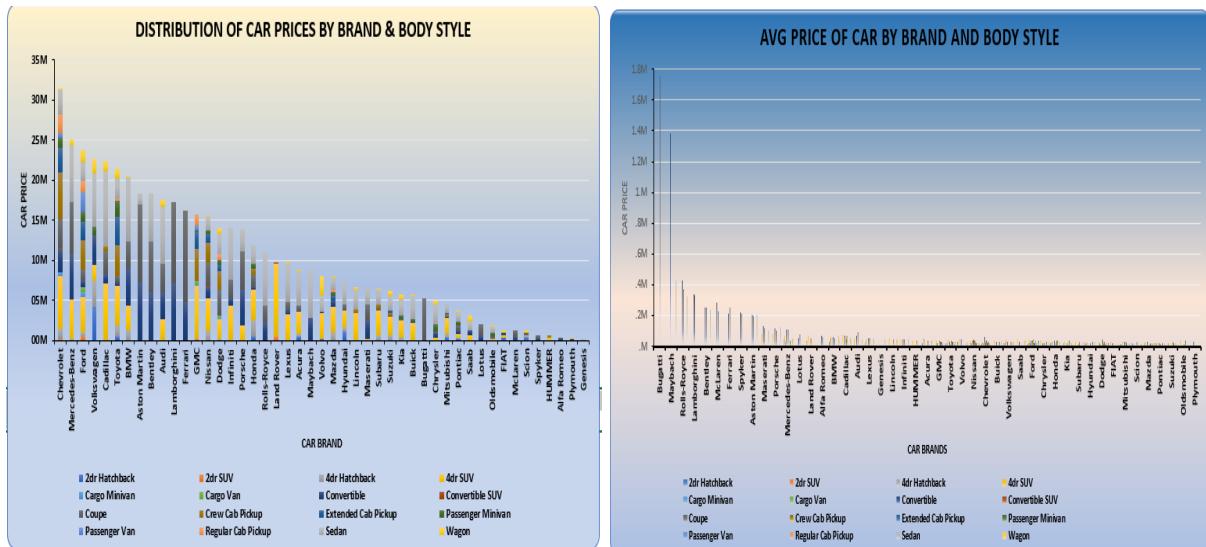


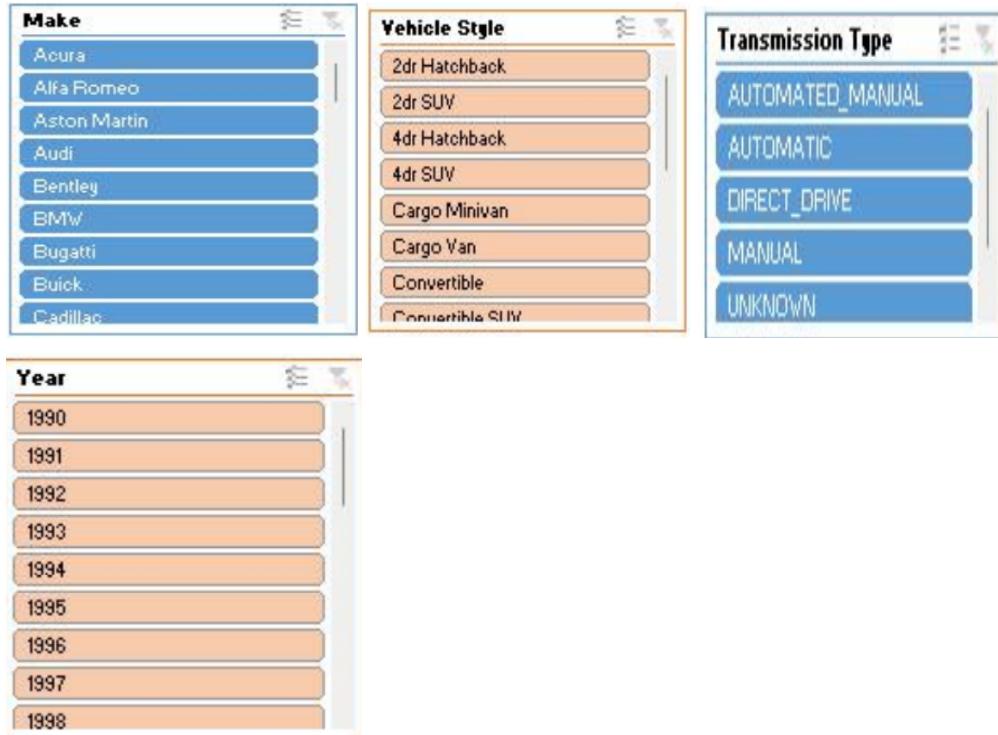
INSIGHT:

**From below Bubble chart we can see the car which have high engine hp their price are also getting high and cars which have high highway MPG their price getting low. Thus, higher the engine power higher the price.



DASHBOARD:





RESULT :

- Coupe body style contributing maximum in car's MSRP.
- In transmission type automated_manual creating high impact because in a single car having both automated and manual gear system will be more beneficial rather than single gear system.
- Companies needs to produce high or at least good fuel efficiency of cars by which majority of the class can afford a car.
- Overall, fuel efficiency and Coupe body style features highly impacting the car price and profitability.