Impact of Car Features

Project Description

The main aim of this project is to analyse the relationship between a car's features, market category, and pricing, and identifying which features and categories are most popular among consumers and most profitable for the manufacturer. By using data analysis techniques such as regression analysis and market segmentation, the manufacturer could develop a pricing strategy that balances consumer demand with profitability, and identify which product features to focus on in future product development efforts. This could help the manufacturer improve its competitiveness in the market and increase its profitability over time.

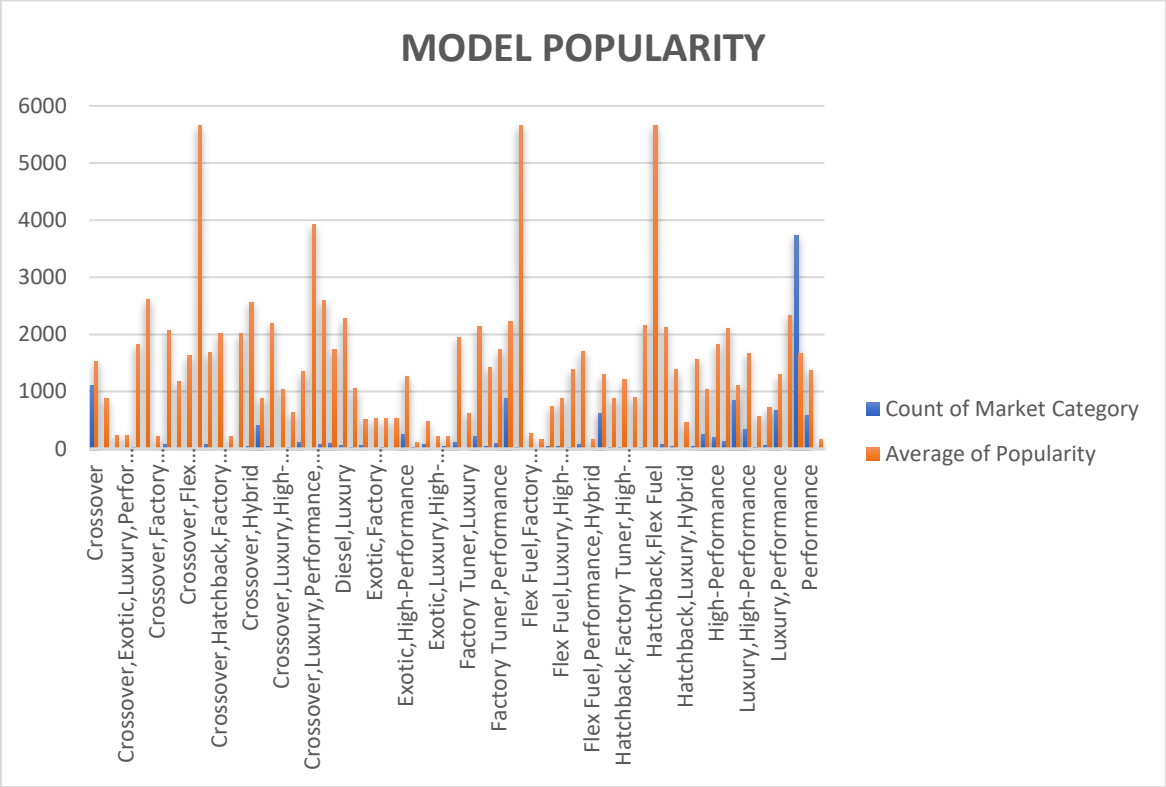
Approach and Tech used

I have performed EDA on the Car data set. Predicting the price of a car based on its features and market category: By using the various features and market category variables in the dataset, a data analyst could develop a model to predict the price of a car. This could help manufacturers and consumers understand how different features affect the price of a car and make informed decisions about pricing and purchasing. Over all, this dataset could be a valuable resource for data analysts interested in exploring various aspects of the automotive industry and could provide insights that could inform decisions related to product development, marketing, and pricing.

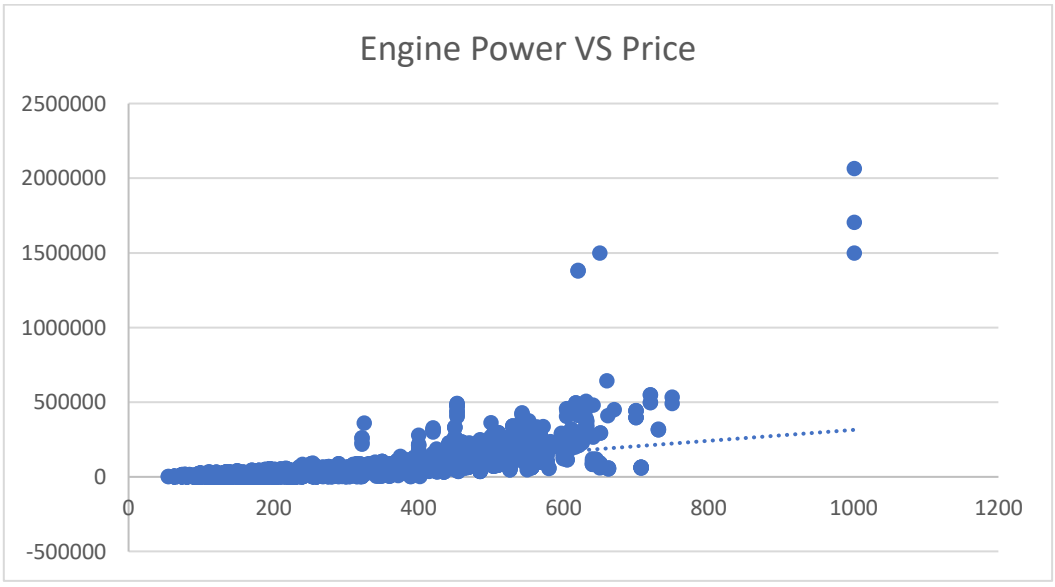
The tech used in this project is Microsoft excel. Excel is a versatile tool for data analysis due to its user-friendly interface and widespread accessibility. Its features allows quick data manipulation, facilitating easy organization and visualization. For straightforward analyses or initial data exploration, Excel's pivot tables, charts, and formulas provide a solid foundation. Excel remains an efficient and practical tool for basic data analysis and quick insights.

Insights

1) Popularity across different categories -
    - The graph below shows the popularity of car models across different market categories.

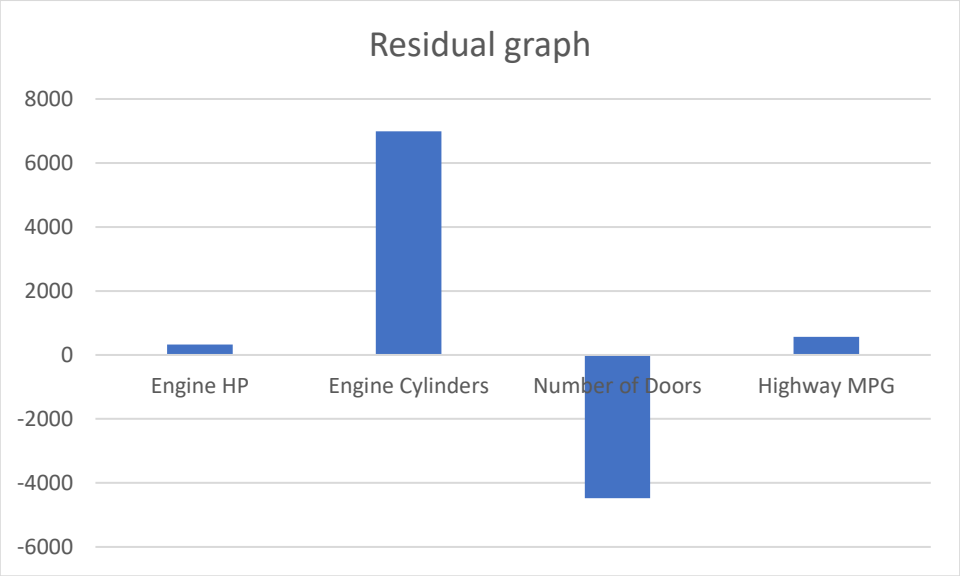


2) Relationship between a car's engine power and its price –



- The car's engine power and its price are positively correlated.
- As the Car's engine power increases its price also increases.

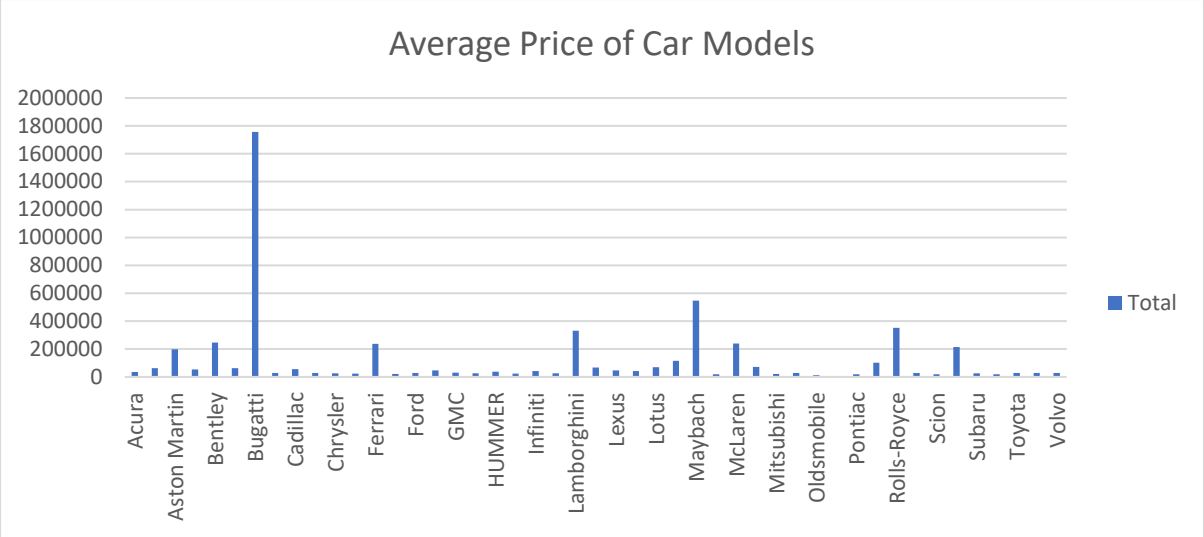
3) Important Car Features –



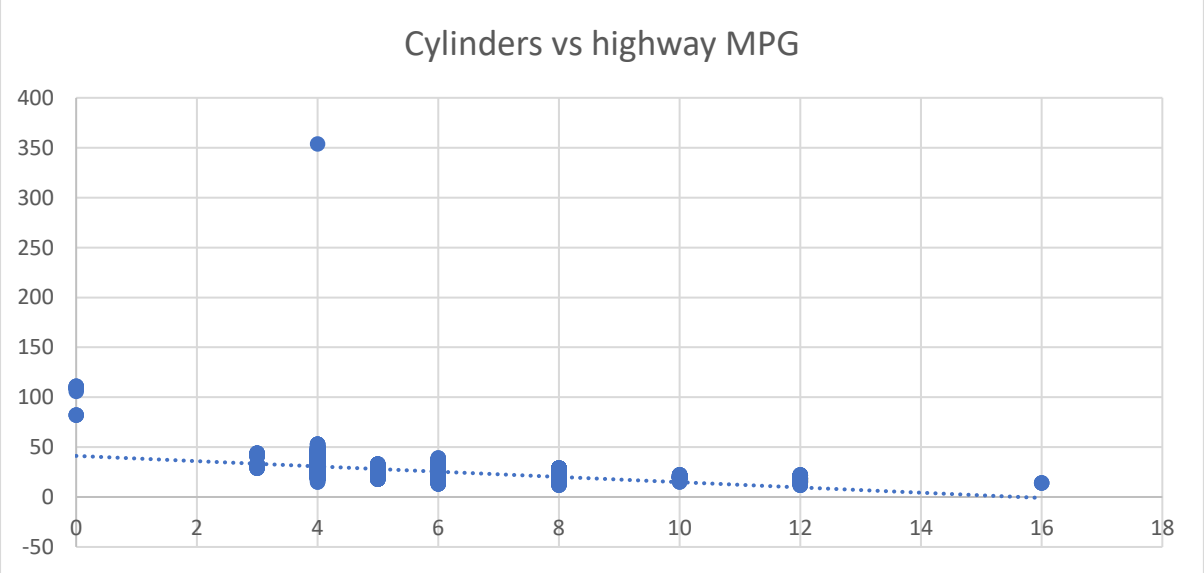
- I have done residual analysis on the numeric features in the car data set.
- Engine Cylinders and Number of Doors car features are most important in determining a car's price as Engine Cylinders is positively related to car's price and Number of Doors is negatively related.

4) Average price of a car vary across different manufacturers –

- Bugatti has highest price average.
- Maybach ranks second highest price average.



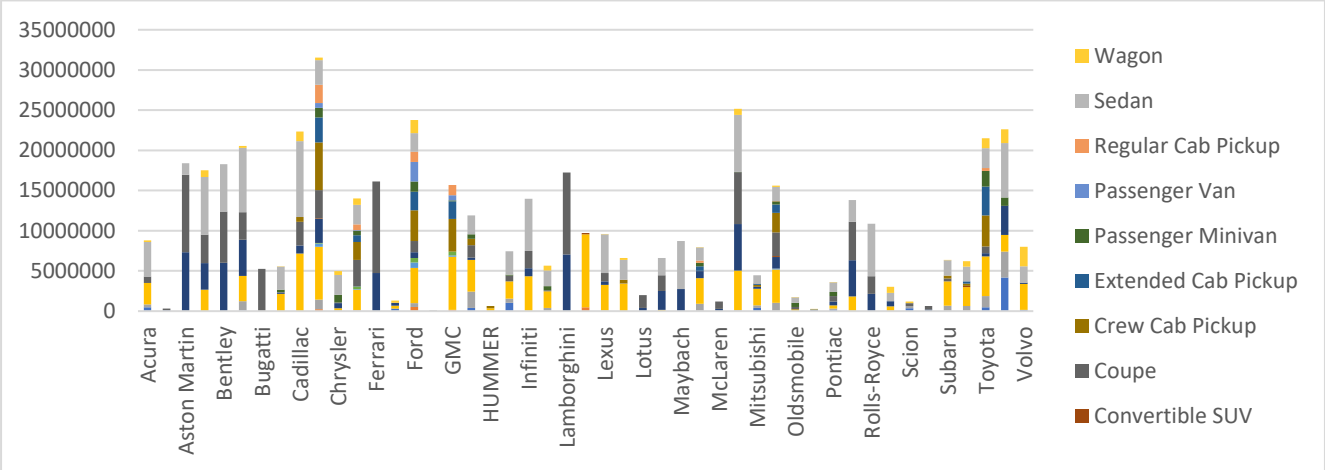
5) Relationship between fuel efficiency and the number of cylinders in a car's engine –



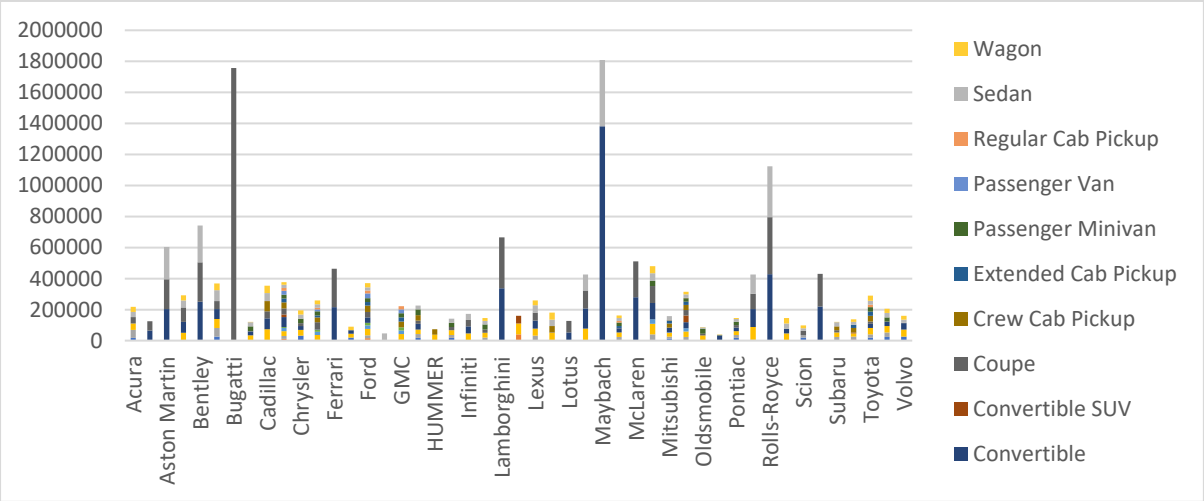
- Fuel efficiency and the number of cylinders in a car's engine is negatively correlated where correlation coefficient is -0.62031.
- Thus as the number of cylinders increase the fuel efficiency drops.

Interactive Dashboard

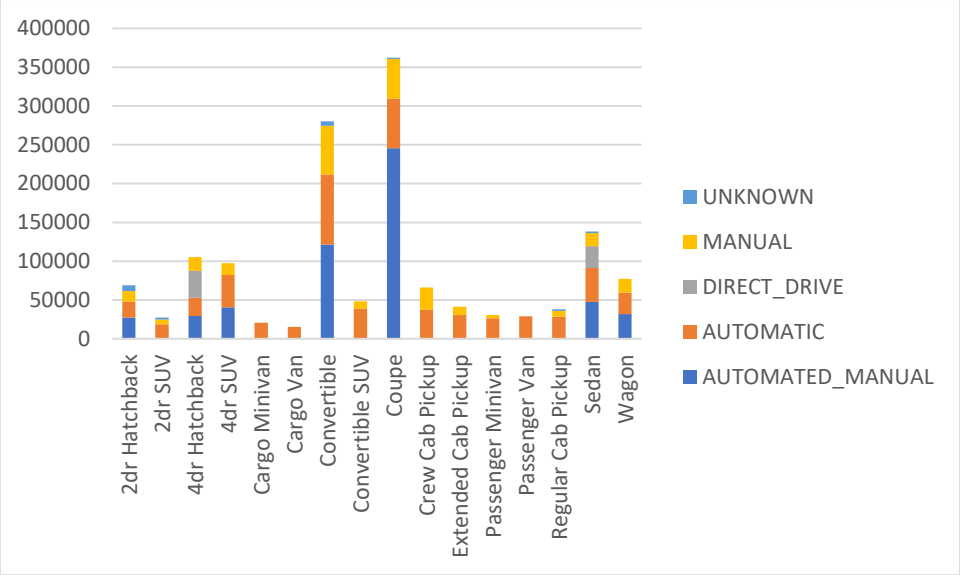
1) How does the distribution of car prices vary by brand and body style?
    - Chevrolet has the highest price distribution.



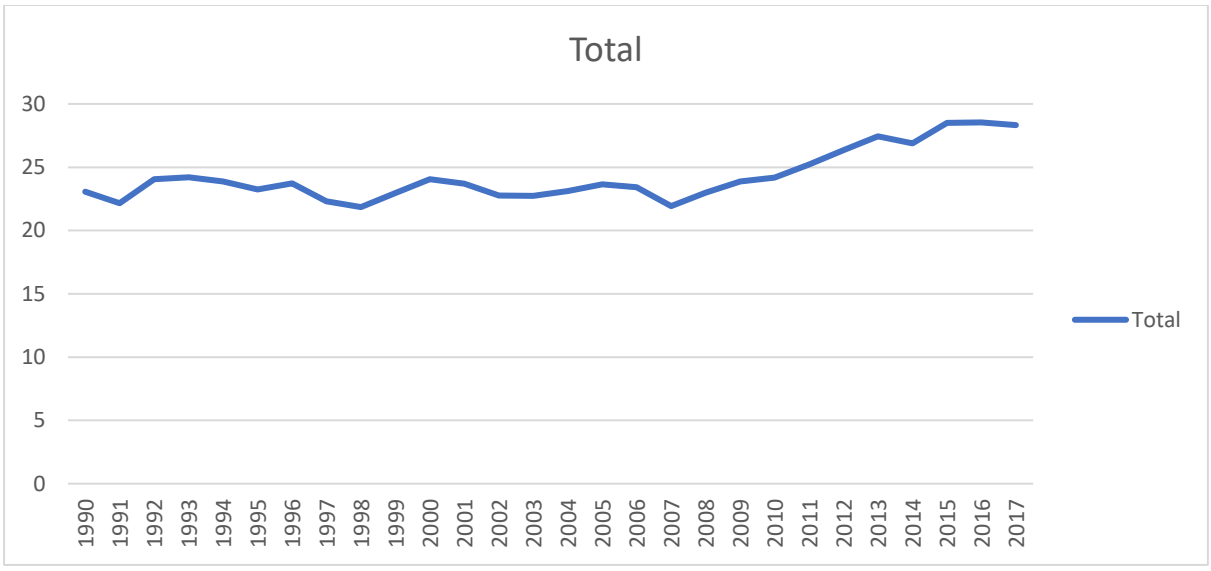
2) Which car brands have the highest and lowest average MSRPs, and how does this vary by body style?
    - Bugatti has highest average MSRP and Plymouth has lowest average MSRP.



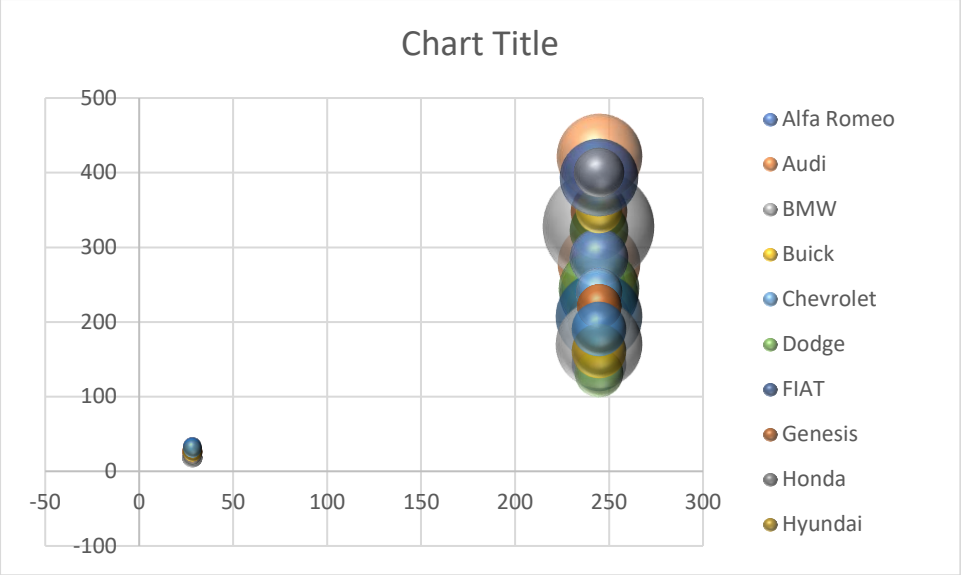
3) How do the different features such as transmission type affect the MSRP, and how does this vary by body style?
    - Automatic_manual is the most expensive category and the most popular also.



4) How does the fuel efficiency of cars vary across different body styles and model years?
    - Over the year fuel efficiency is increasing at a slow speed.



5) How do the car's horsepower, MPG, and price vary across different Brands?
    - If engine hp increases highway mpg will decrease and the price will also increase.



The link to the excel sheet - LINK