IMPACT OF CAR FEATURES

By

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**Project description:** As it is familiar that the project is about car features, it is quiet challenging to sort out this .Because the automobile industry has spiked up over the past few decades. The reasons are pretty simple the rapid growth of population, the vehicles have increased rapidly ,fuel usage increased and many new innovations came forward. The demand for cars have also increased among people, due to that the competition also increased among the manufacturers.so, this problem became a headache for the manufacturers.

So, the solution for the problem is pretty simple. We have to use analysis techniques. we have to analyse pricing, market demand, car features, and should figure out which categories are most familiar for consumers and beneficial for the manufacturers. We have to use regression analysis , market segmentation, so that the producer could develop a efficient pricing strategy that meets consumer demand and profit for the producer as well .for the future development point of view it should be focussed.by doing this, the manufacturer can sustain in the market amidst competition in between.

**Project problem:** In this project,we have to investigate the relationship between car features and its popularity.It will be known by analyzing the popularity variable.By doing so,we can know which car bran d and features are popular among consumers.So that it will be helpful for the manufacturer to make decisions accordingly.

On a complete one,the dataset which is provided has a very huge data and the data is very messy.I have analysed the data and cleaned the data . Cleaning includes removing the duplicate values and removing the null values.

**Approach:** For Data analytics,I have used Microsoft Excel in that I have performed pivot tables, charts,Graphs,Regression etc

**Tech -Stack used**:Ms-Excel for Data analysis,Ms-Word for Presentation of file.

Tasks:

**Insights required:** How does the popularity of car model vary across different market categories?

**Task1.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 the category and popularity.

**Insights Required:** What is the relationship between a car’s engine power and it’s price?

**Task 2:** Create a scatter chart that plots engine power on x-axis and price will rely on y-axis.Also add a trend line to the scatter chart to visualize the relation between these two variables.

**Result**: These two variables have a positive relationship between them. If the Engine Hp increase automatically the price will also increase.

**Insights Required :**Which car features are most important in determining a car’s price?

**Task 3:** Use the regression analysis to identify the variables which have strongest relationship with the price of a car. Here, a bar chart should be created which shows the coefficient values for each variable to know the importance of them .

**Insight Required:** How does the average price of car vary across different manufacturers.

**Tak 4.A :** Here, create a pivot table that shows 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 the manufacturer and average price.

**Result**: Bugatti tops the list . It has the highest average price among other car brands.

**Insights required:** What is the relationship between fuel efficiency and number of cylinders in car’s engine?

**Task 5.A:** Create a scatter plot with 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:** Here we can observe that there is a negative relation between No. of cylinders and highway MPG .If No. of cylinders increases ,highway MPG decreases. We can observe the trendline dropping down.

**Dashboard building:**

The further process of the project is creating the dashboard.

Following are the tasks given:

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

**Recommended:** Here creating the stacked column chart is recommended.

**Result:** By observing this chart,we can conclude that Chevrolet has the highest price distribution.

**Task2:**  Which car brands have the highest and lowest average MSRPs,and how does this vary by bodystyle.

**Result:** Bugatti has the highest MSRP and Plymouth has the lowest average MSRP.

**Task3:**How do the different features such as transmission type affect the MSRP, and how does this vary by body style?

**Result:** By seeing this chart,we can conclude that Automatic manual is the most expensive category and the most popular one.

**Task4:**How does the fuel efficiency of cars vary different body styles and model years?

**Result:** As we can observe that there is a slight spike in fuel efficiency over the year.

**Task5:** How do the car’s hp, MPG and price vary across different Brands?

**Recommendation**: Bubble chart Is recommended for this data .

**Result:** We an observe that if engine hp increases highway mpg will decrease and price will also increase.

**Click the below link for excel file :**

[C:\Users\ROHITH\OneDrive\Car\_data.xlsx](file:///C:\Users\ROHITH\Downloads\Car_data.xlsx)