Impact of Car Features on Price and Profitability

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Objectives

1. Understand Customer Preferences: Analyzing the impact of car features on price and profitability helps us gain insights into customer preferences and demands. By understanding which features customers value the most, we can align our product offerings to meet their needs effectively, leading to higher sales and customer satisfaction.
2. Optimize Pricing Strategy: By studying the relationship between car features and pricing, we can develop an effective pricing strategy. This involves identifying the features that customers are willing to pay a premium for and adjusting prices accordingly. Optimizing our pricing strategy helps maximize revenue and profitability.
3. Enhance Competitive Positioning: Car features play a crucial role in differentiating our products from competitors. Analyzing the impact of features on price and profitability allows us to identify unique selling points that give us a competitive advantage. This enables us to position our products favorably in the market, attracting more customers and increasing market share.
4. Improve Resource Allocation: Understanding the impact of car features on profitability helps us make informed decisions about resource allocation. By identifying features that have a high impact on profitability, we can allocate resources more effectively towards their development and marketing. This optimization leads to improved cost management and overall profitability.

These objectives collectively help us understand customer preferences, optimize pricing strategies, enhance our competitive positioning, and improve resource allocation, ultimately driving sales, profitability, and business success in the automotive industry.

importance of car feature

1. Customer Satisfaction and Differentiation: Car features are vital in satisfying customer needs and preferences. By offering a wide range of features, such as advanced safety systems, infotainment technology, comfort features, and fuel efficiency, we can enhance the overall driving experience and cater to various customer segments. The availability of desirable features helps differentiate our cars from competitors and increases customer satisfaction, loyalty, and positive brand perception.

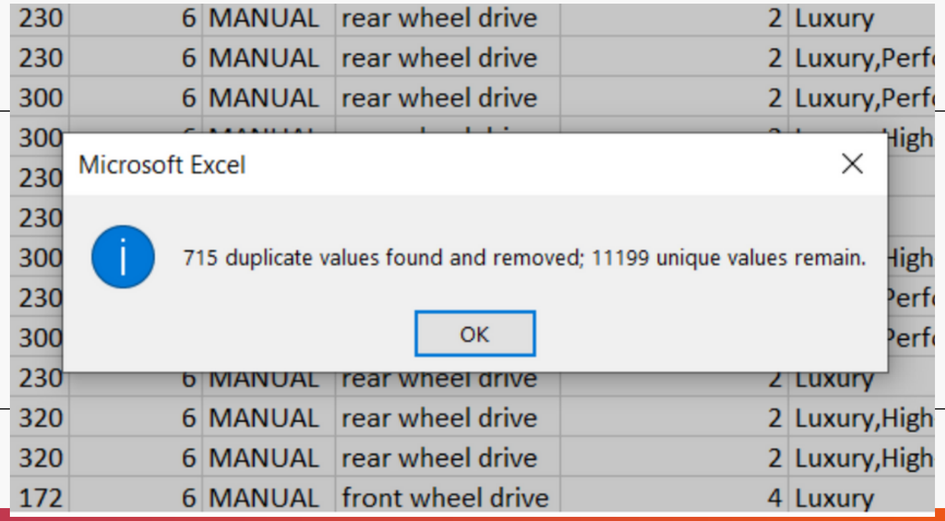
2. Market Competitiveness and Sales: Car features have a significant impact on market competitiveness and sales. In today's competitive automotive industry, customers often compare features across different brands and models before making a purchase decision. A comprehensive and attractive set of features can attract more potential buyers and give us an edge over competitors. Moreover, the inclusion of popular and innovative features can drive sales and generate customer interest, resulting in higher market share and revenue.

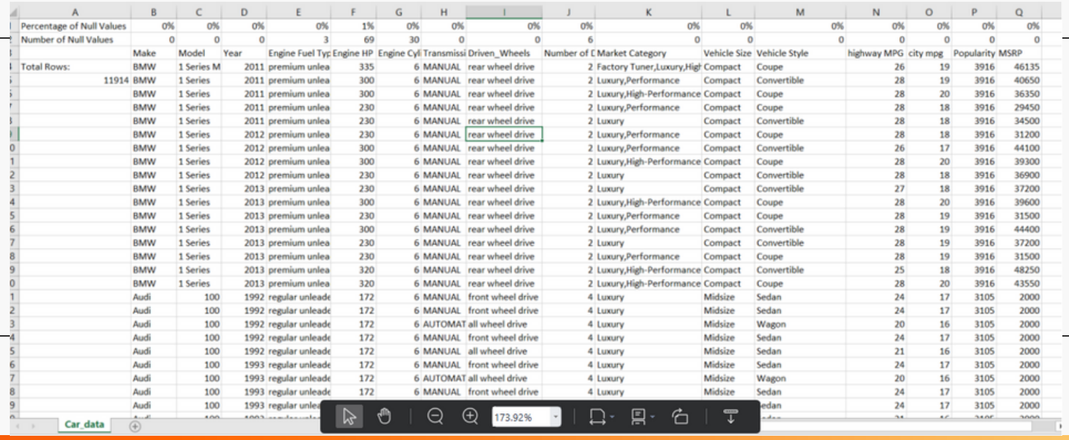
3. Brand Image and Perceived Value: Car features contribute to shaping a brand's image and perceived value. Premium and advanced features create a perception of high quality, technological innovation, and luxury. This perception positively influences customers' willingness to pay a higher price for the car and elevates the brand's reputation. Additionally, car features contribute to the overall value proposition of a vehicle, with customers considering the features offered in relation to the price. A strong brand image and perceived value translate into increased customer trust, brand loyalty, and sustained profitability.

project analysis

Cleaning the data

At first, removed all the rows which were empty. Found out the number of blank cells in the particular column. After that, we find the percentage of the null values. To find the blank values we used COUNTBLANK function in Excel



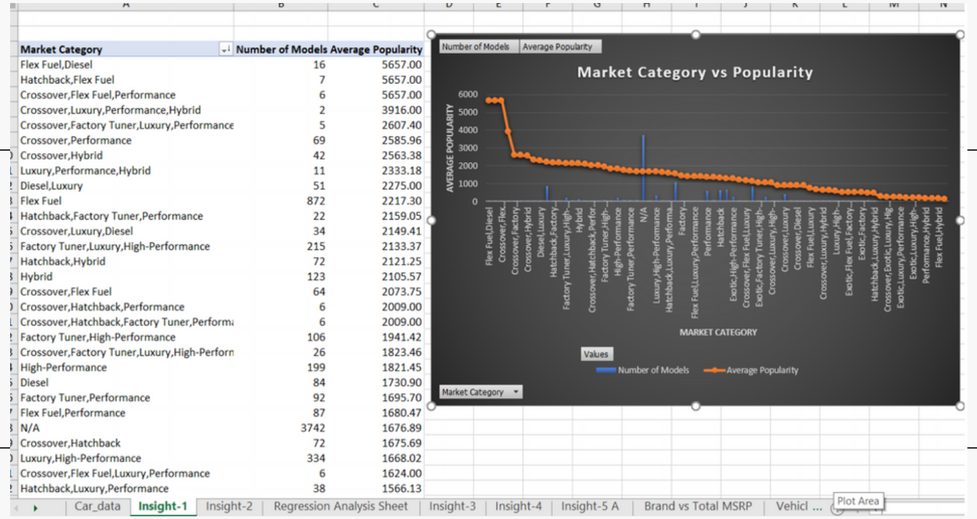


project insight

Insight 1- How does the popularity of a car model vary across different market categories?

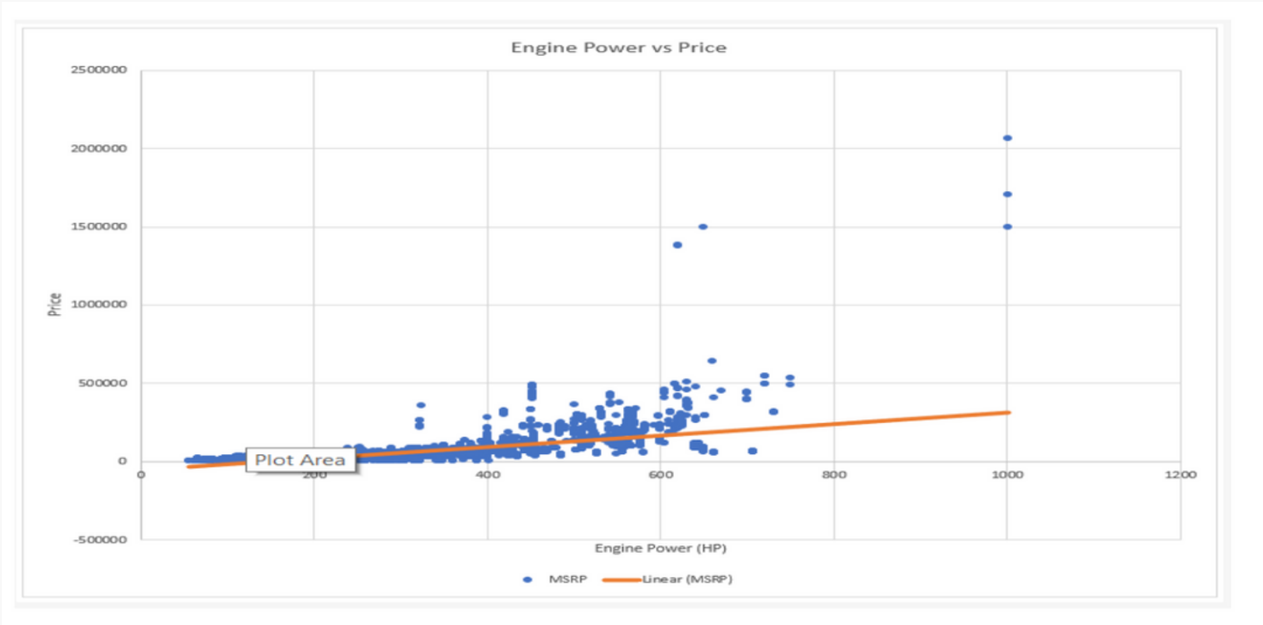
Task 1. A: Create a pivot table that shows the number of car models in each market category and their
corresponding popularity scores.

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



Market Category	Number of Models	Average Popularity
Flex Fuel,Diesel	16	5657.00
Hatchback,Flex Fuel	7	5657.00
Crossover,Flex Fuel,Performance	6	5657.00
Crossover,Luxury,Performance,Hybrid	2	3916.00
Crossover,Factory Tuner,Luxury,Performance	5	2607.40
Crossover,Performance	69	2585.96
Crossover,Hybrid	42	2563.38
Luxury,Performance,Hybrid	11	2333.18
Diesel,Luxury	51	2275.00
Flex Fuel	872	2217.30
Hatchback,Factory Tuner,Performance	22	2159.05
Crossover,Luxury,Diesel	34	2149.41
Factory Tuner,Luxury,High-Performance	215	2133.37
Hatchback,Hybrid	72	2121.25
Hybrid	123	2105.57
Crossover,Flex Fuel	64	2073.75
Crossover,Hatchback,Performance	6	2009.00
Crossover,Hatchback,Factory Tuner,Performa	6	2009.00
Factory Tuner,High-Performance	106	1941.42
Crossover,Factory Tuner,Luxury,High-Perforn	26	1823.46
High-Performance	199	1821.45
Diesel	84	1730.90
Factory Tuner,Performance	92	1695.70
Flex Fuel,Performance	87	1680.47
N/A	3742	1676.89
Crossover,Hatchback	72	1675.69
Luxury,High-Performance	334	1668.02
Crossover,Flex Fuel,Luxury,Performance	6	1624.00
Hatchback,Luxury,Performance	38	1566.13

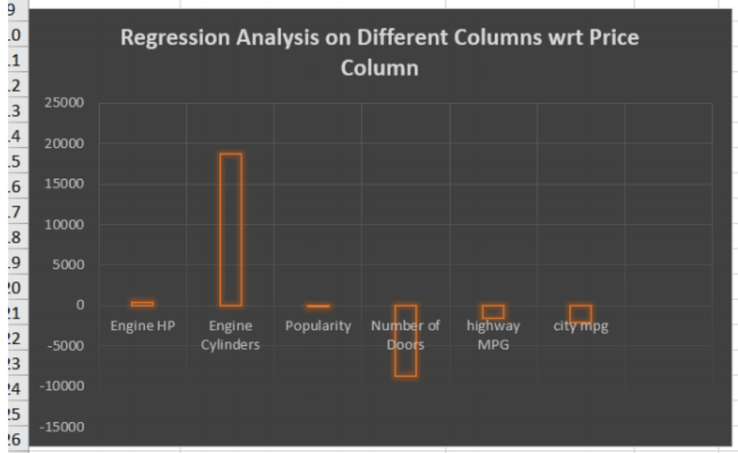
Insight 2- What is the relationship between a car's engine power and its price?
Task 2: Created a scatter chart that plots engine power on the x-axis and price on the y-axis. Added a
trendline to the chart to visualize the relationship between these variables.

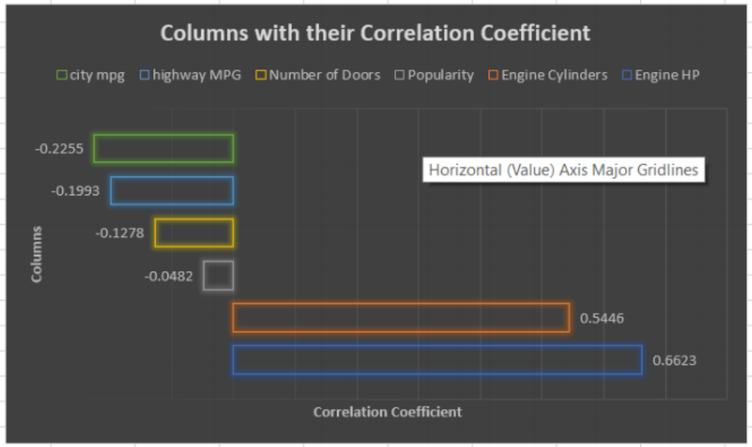


Insight 3- Which car features are most important in determining a car's price?

Task 3: Used regression analysis to identify the variables that have the strongest relationship with a car's price. Then created a bar chart that shows the coefficient values for each variable to visualize their relative importance

	A	B	C	D
1	Columns	Regression Analysis (On Price) - b	a	Correlation Coefficient
2	Engine HP	365.6216009	-50651.97909	0.6623
3	Engine Cylinders	18745.09728	-65334.84992	0.5446
4	Popularity	-2.018886939	43712.2643	-0.0482
5	Number of Doors	-8733.708219	70554.78374	-0.1278
6	highway MPG	-1614.95867	83081.18734	-0.1993
7	city mpg	-2084.370422	80860.20555	-0.2255



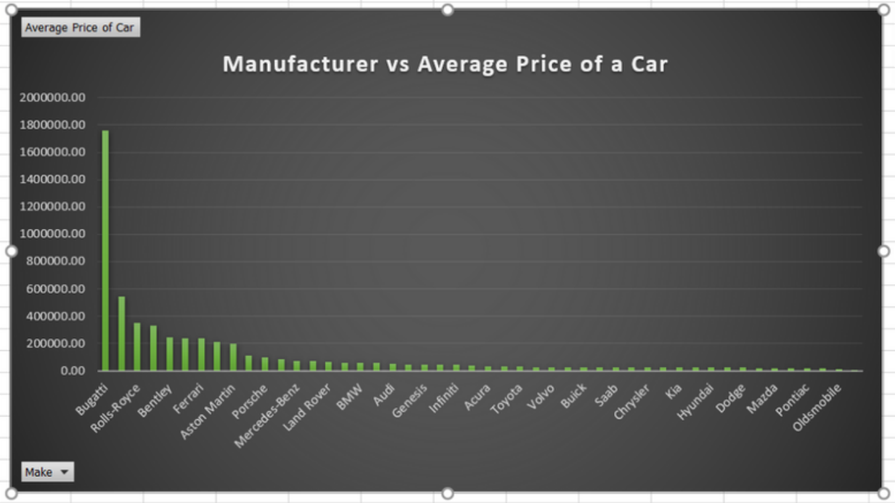


Insight 4- How does the average price of a car vary across different manufacturers?

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

Task 4. B: Created a bar chart that visualizes the relationship between the manufacturer and the average price.

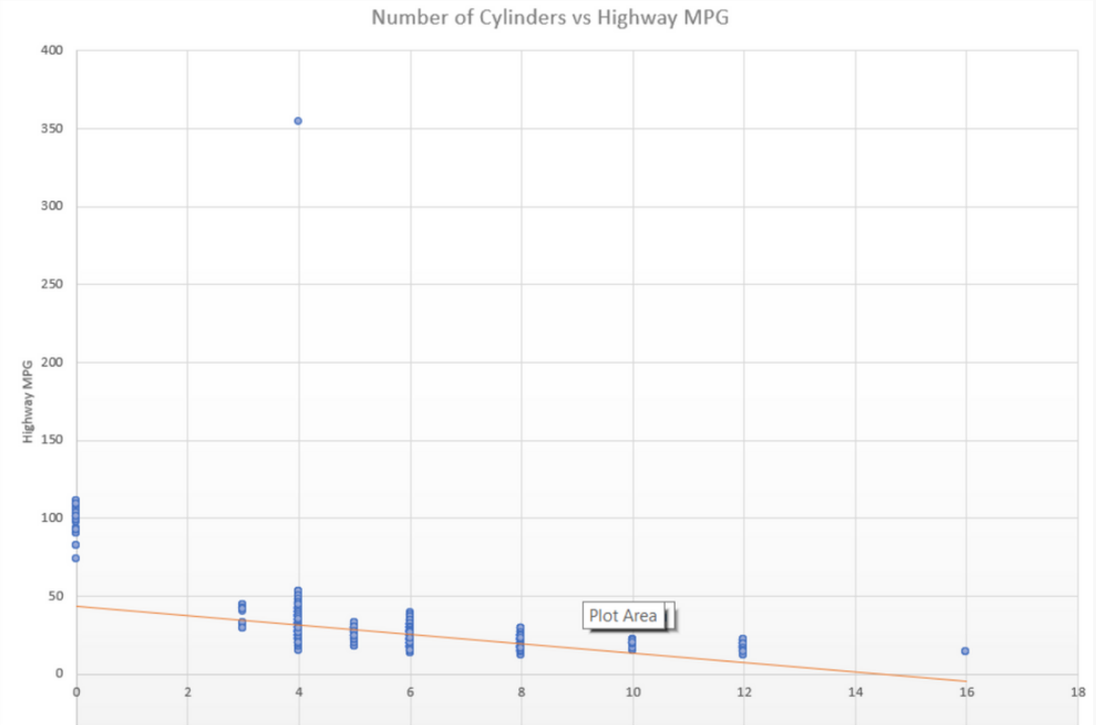
Manufacturer	Average Price of Car
Bugatti	1757223.67
Maybach	546221.88
Rolls-Royce	351130.65
Lamborghini	331567.31
Bentley	247169.32
McLaren	239805.00
Ferrari	238218.84
Spyker	213323.33
Aston Martin	197910.38
Maserati	114207.71
Porsche	101622.40
Tesla	85255.56
Mercedes-Benz	71476.23
Lotus	69188.28
Land Rover	67823.22
Alfa Romeo	61600.00
BMW	61546.76
Cadillac	56231.32
Audi	53452.11
Lexus	47549.07
Genesis	46616.67
Lincoln	42839.83
Infiniti	42394.21
HUMMER	36464.41
Acura	34887.59
GMC	30493.30



Insight 5- What is the relationship between fuel efficiency and the number of cylinders in a car's engine?

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

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



Project Conclusion

While analysing the data set provided, several meaningful insights were discovered that could not have been discovered by manually searching the dataset for insights.

We could also leverage the Excel-2021 tool and got a little more experienced in using the tool and also injecting different formulas and pivot tables and graphs and dashboards to look for insights