



# Impact of Car Features on Price and Profitability

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# **Project Overview:**

- **For the data provided, according to the data analyst, the customer asks how the car manufacturer can improve cost and production decisions to generate profits most effectively while meeting customer needs?**

**This problem can be solved by analyzing the relationship between the car's features, market category and price, and determining which features and categories of users are the best products and best results for companies. Using data analysis techniques such as regression analysis and market segmentation, manufacturers can develop pricing strategies that balance customer needs with profitability and determine which products to focus on in future product development. This can help companies improve their competitiveness in the market and increase their profitability over time**

# Tech-Stack Used & Approach

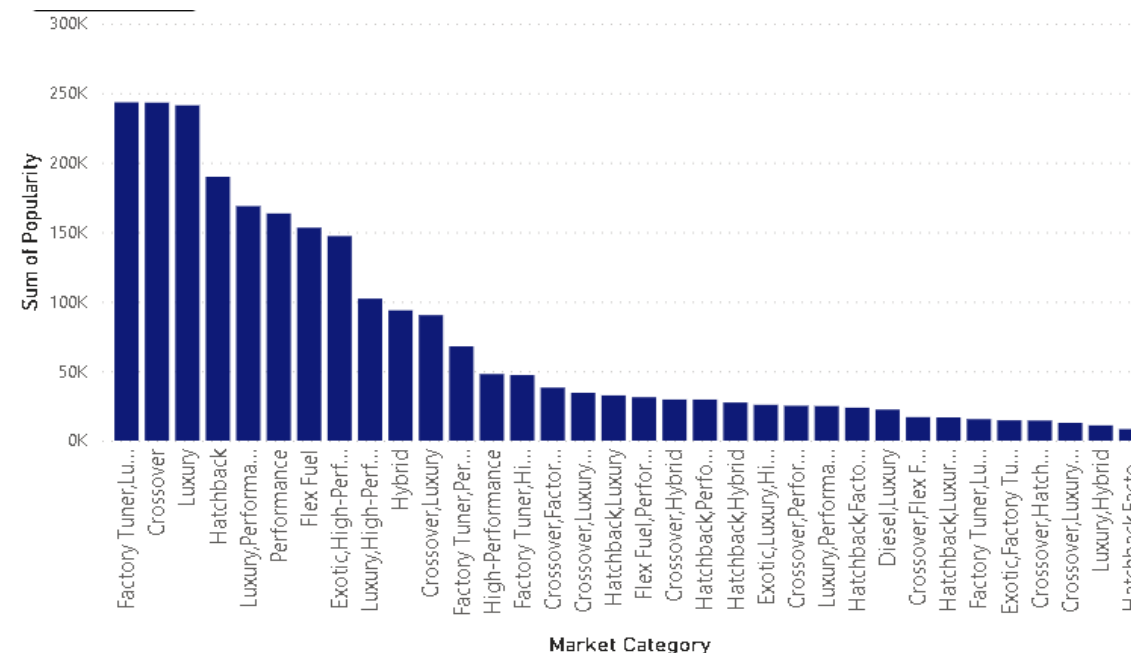
- Main tools used For This Analysis, Excel And PowerBi.
- The Cleaning of Data in sone on PowerBi.
- Pivot Tables Created On Excel.
- Project Dashboard For Clear Understanding done on PowerBi.
- DashBoard Link:
  - <https://app.powerbi.com/links/E-oSUXOqe0?ctid=9831fea8-ce7a-4e>
- Excel Link:  
[https://docs.google.com/spreadsheets/d/141AKYa6nzojjVkNzu\\_Gn6fUAFCB\\_yXCq/edit?usp=share\\_link&oid=113064335578958696818&rtpof=true&sd=true](https://docs.google.com/spreadsheets/d/141AKYa6nzojjVkNzu_Gn6fUAFCB_yXCq/edit?usp=share_link&oid=113064335578958696818&rtpof=true&sd=true)

# Analysis

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

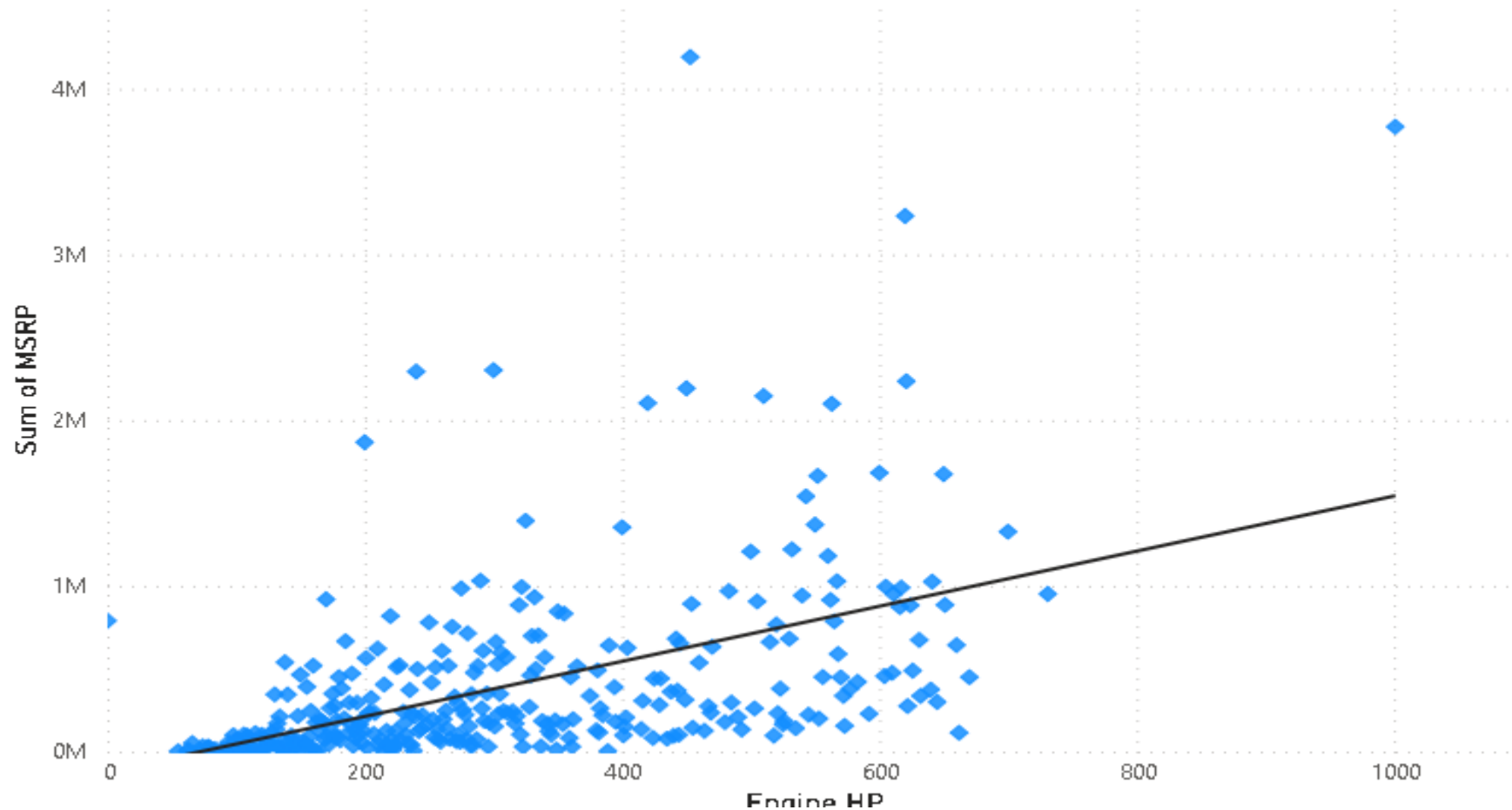
| Row Labels            | Sum of Popularity |
|-----------------------|-------------------|
| 1 Series              | 3916              |
| 1 Series M            | 3916              |
| 100                   | 3105              |
| 124 Spider            | 819               |
| 190-Class             | 617               |
| 2                     | 586               |
| 2 Series              | 3916              |
| 200                   | 4118              |
| 200SX                 | 2009              |
| 240                   | 870               |
| 240SX                 | 2009              |
| 3                     | 586               |
| 3 Series              | 3916              |
| 3 Series Gran Turismo | 3916              |
| 300                   | 1013              |
| 3000GT                | 436               |
| 300-Class             | 617               |
| 300M                  | 1013              |
| 300ZX                 | 2009              |
| 323                   | 586               |
| 350-Class             | 617               |
| 350Z                  | 2009              |
| 360                   | 2774              |
| 370Z                  | 2009              |
| 4 Series              | 3916              |

This pivot table shows car models in each market category and their corresponding popularity scores.



# Analysis

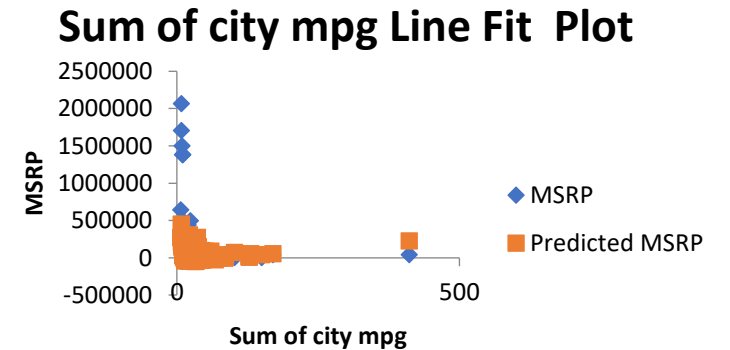
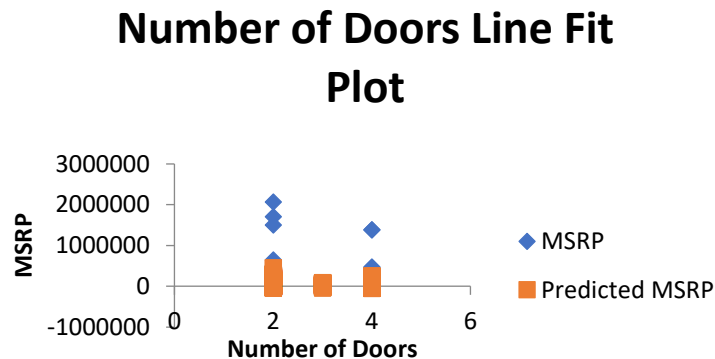
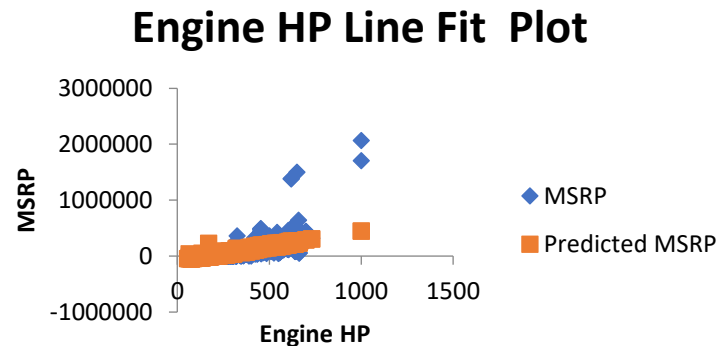
- What is the relationship between a car's engine power and its price?



# Analysis

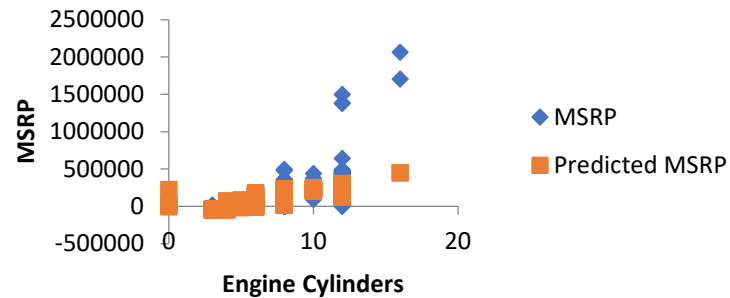
- Which car features are most important in determining a car's price?

We used se regression analysis to identify the variables that have the strongest relationship with a car's price. For that we mainly used the Excel in-built Data Analysis Tools. We used Linear Regression to identify the how the price gets impacted by the features.

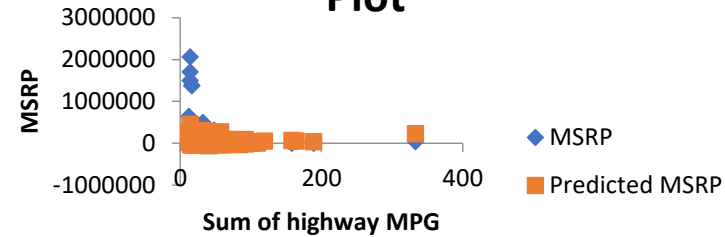


# Analysis

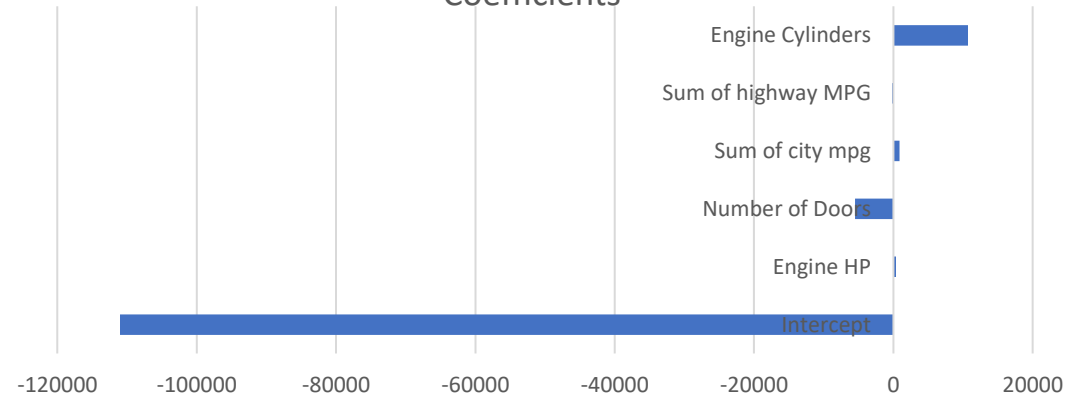
Engine Cylinders Line Fit Plot



Sum of highway MPG Line Fit Plot



Coefficients

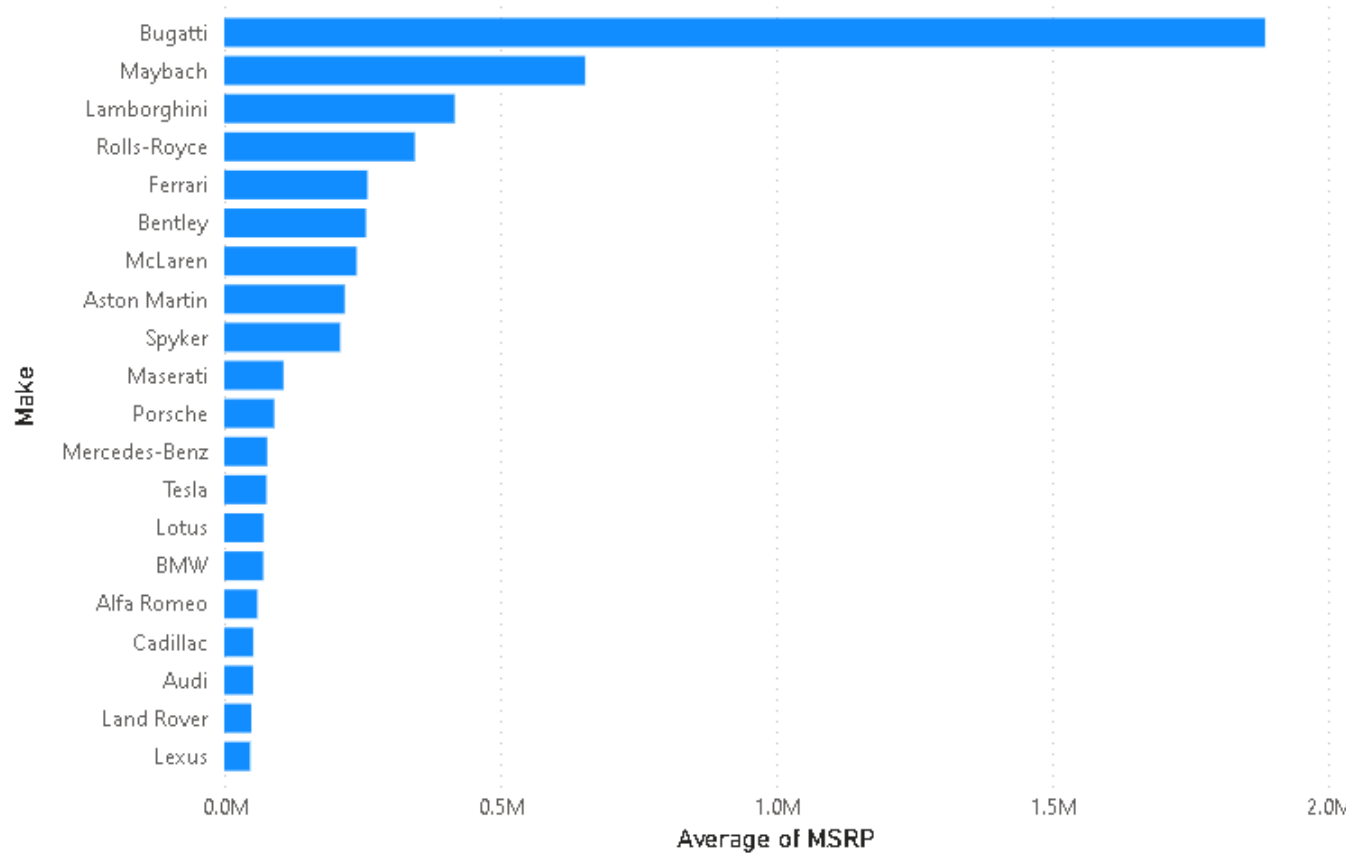


So, According to the Plot Results we can say that Engine Cylinders, Highway and city MPG and Engine HP are the main catalyst on increasing the car price.



# Analysis

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



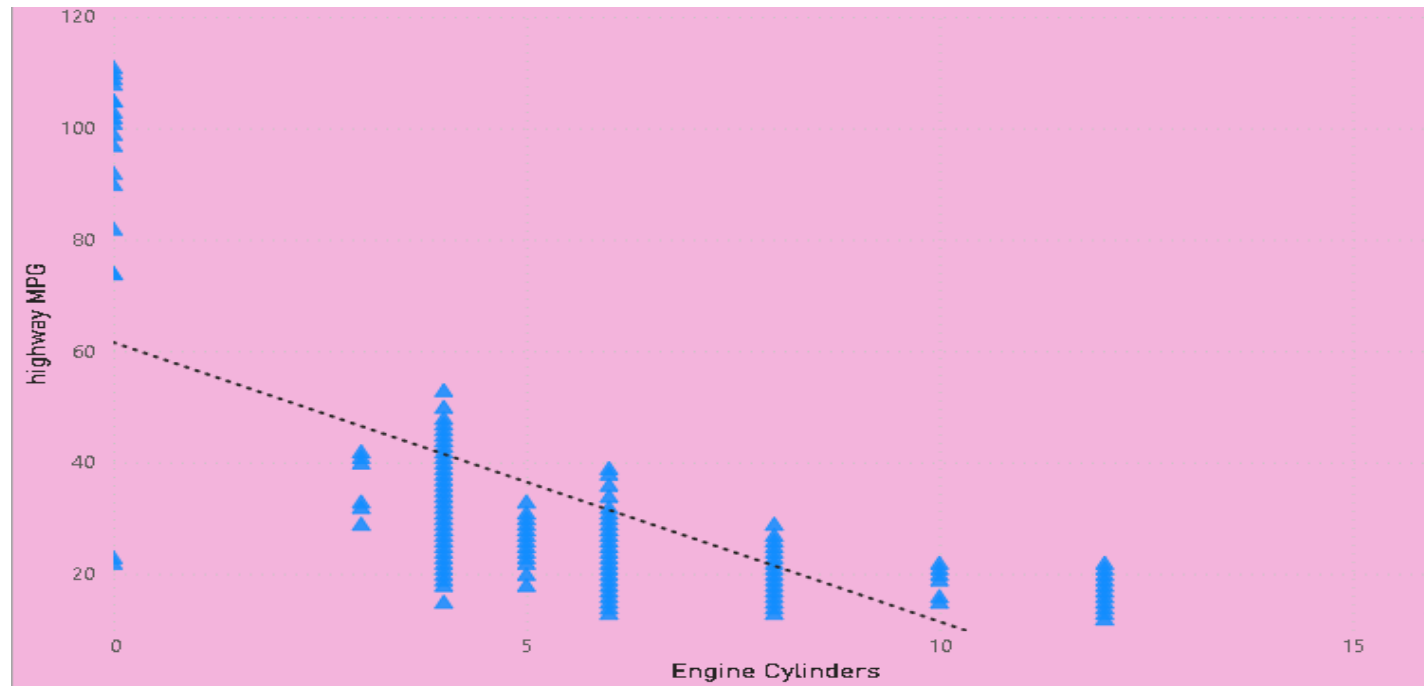
| Row Labels   | Sum of Average of MSRP |
|--------------|------------------------|
| Acura        | 34965.69               |
| Alfa Romeo   | 59900                  |
| Aston Martin | 218196.04              |
| Audi         | 52342.78               |
| Bentley      | 256746.59              |
| BMW          | 70625.08               |
| Bugatti      | 1885835.5              |
| Buick        | 24686.71               |
| Cadillac     | 52534.75               |
| Chevrolet    | 25231.91               |
| Chrysler     | 21517.98               |
| Dodge        | 20641.92               |
| Ferrari      | 259443.53              |
| FIAT         | 26064.17               |
| Ford         | 24251.28               |
| Genesis      | 41400                  |
| GMC          | 28633.88               |
| Honda        | 25748.75               |
| HUMMER       | 36868                  |
| Hyundai      | 25337.03               |
| Infiniti     | 41275.24               |
| Kia          | 25782.16               |
| Lamborghini  | 417380.77              |
| Land Rover   | 48976.52               |
| Lexus        | 46804.74               |
| Lincoln      | 38076.8                |

According to the chart, We can clearly see that Bugatti, Maybach and Lamborghini are the Car brand with the highest Avg-Price means they are most costly.



# Analysis

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



# Analysis

- Correlation coefficient between the number of cylinders and highway MPG to quantify the strength and direction of the relationship



We used The Quick Measure Feature Of PowerBi to Calculate the Correlation Coefficient. Where We took Make Column as the Category Number Of cylinders on X- Axis and Highway MPG on Y-Axis.

# Conclusion:

- The Analysis Shows are Which are most popular Car brands And As well as which car brands are more costlier than other brands available in the market.
- During The Analysis, We found That How the Car price fluctuates for different reason, In this study alone we saw how the Engine HP, MPG Of Car And Cylinder type alone creates a huge a deference in Price Of Cars.
- We Created a Full-Interactive Dashboard With the help of PowerBI For Better Data Understanding.

An aerial photograph of a long, multi-lane highway bridge spanning a body of water. The bridge has several lanes in each direction, with white lane markings. Several vehicles, including cars and trucks, are visible traveling across the bridge. The water is a deep teal color with visible ripples. The text "Thank You" is overlaid in the center of the image in a white, sans-serif font.

Thank You