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CS ELEC 3C - DATA VISUALIZATION

Source of Dataset :

https://www.epa.gov/automotive-trends/explore-automotive-trends-data

LAB ACTIVITY 1

TASKS:

1. **Upload a copy of the dataset that you will use for your dataset.**

https://drive.google.com/file/d/1CS8Rb9MRDpwqGaBuLCj4clPGvju6ZYYk/view?usp=drive_link

Note : We did some steps of data cleaning , such as replacing "-" values to 0.

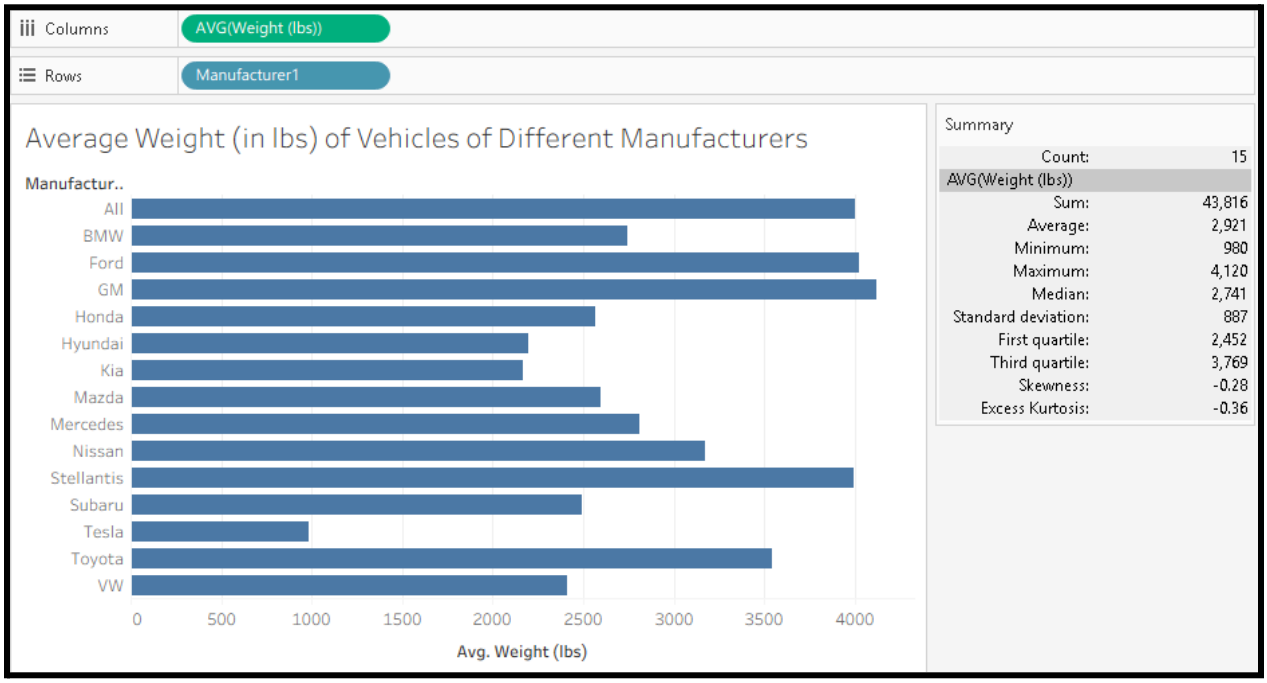
2. **Do an exploratory data analysis of your dataset. Specifically:**

1. **Give a short narrative description of your dataset.**

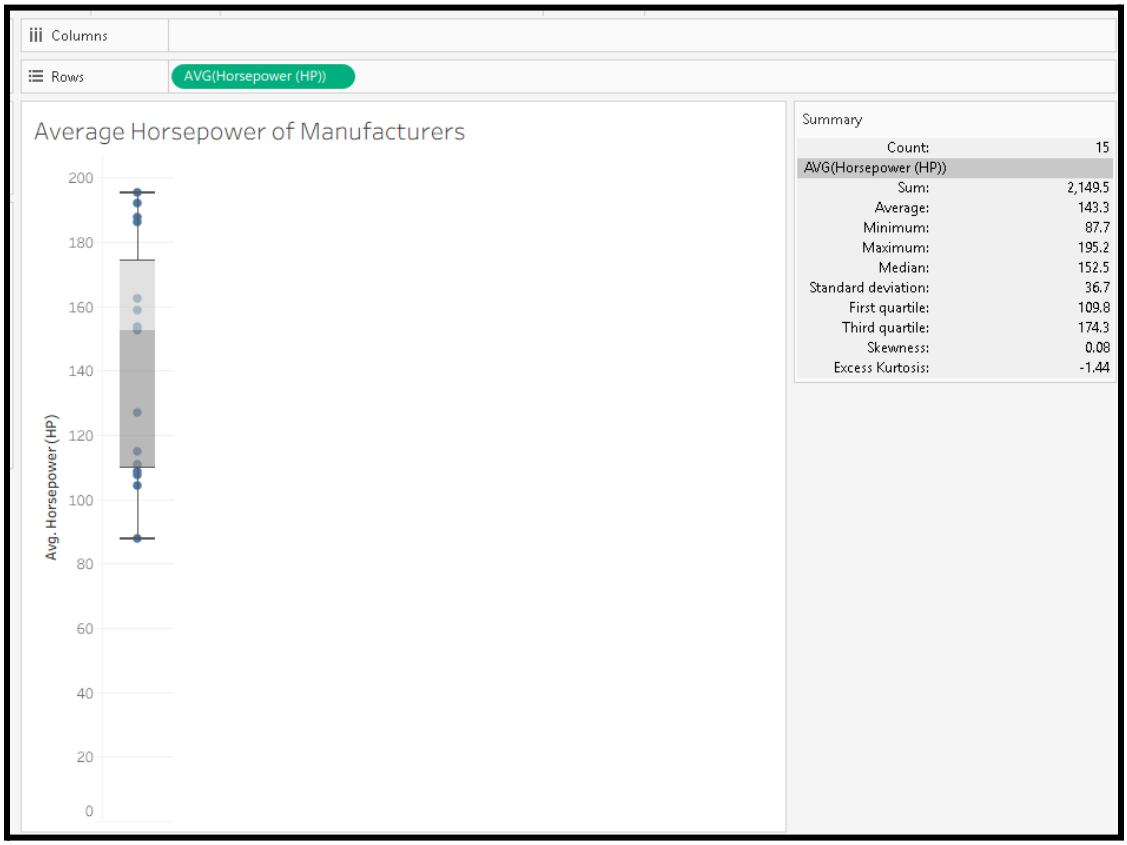
The dataset that we used was a part of EPA's Automotive Trend Report consisting of an extensive collection of automotive of year models 1975 to 2024, that specifically highlights different vehicle performance and emissions data. It includes not only detailed metrics that focus on fuel economy, carbon dioxide emissions, automotive attributes like the weight of the car and its horsepower, but also the technological advancements of automotives. The dataset consists of raw data on thousands of vehicle models from different manufacturers that we can use to compare and/or visualize different variables.

2. Give a summary statistics of each variable in your dataset.

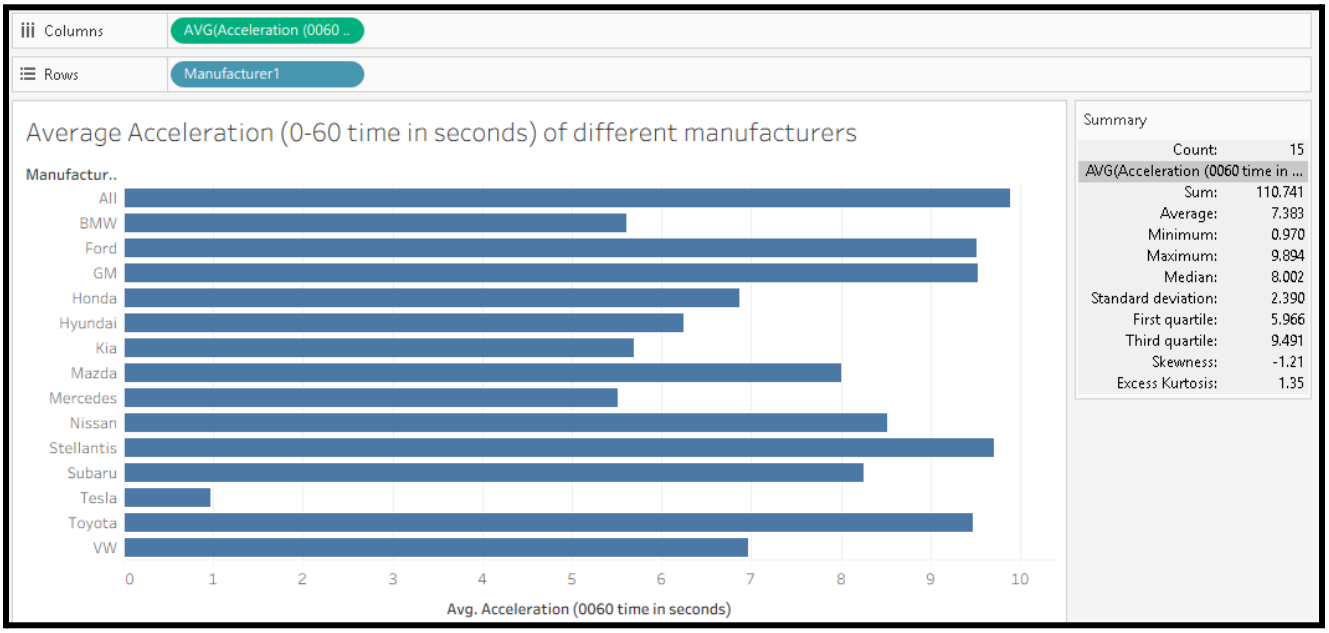
2.1 Average Weight (in lbs) of Vehicles of Different Manufacturers



2.2 Average Horsepower of Different Manufacturers



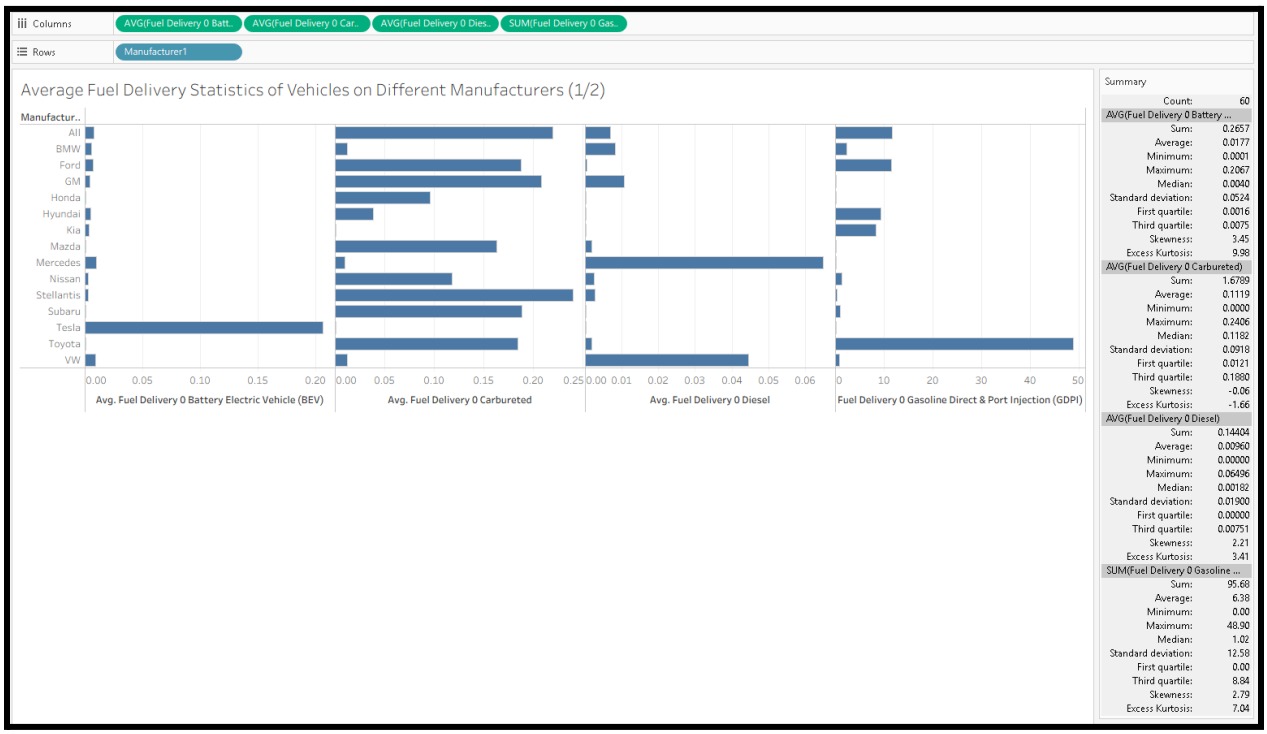
2.3 Average Acceleration (0-60 time in seconds) of different manufacturers)



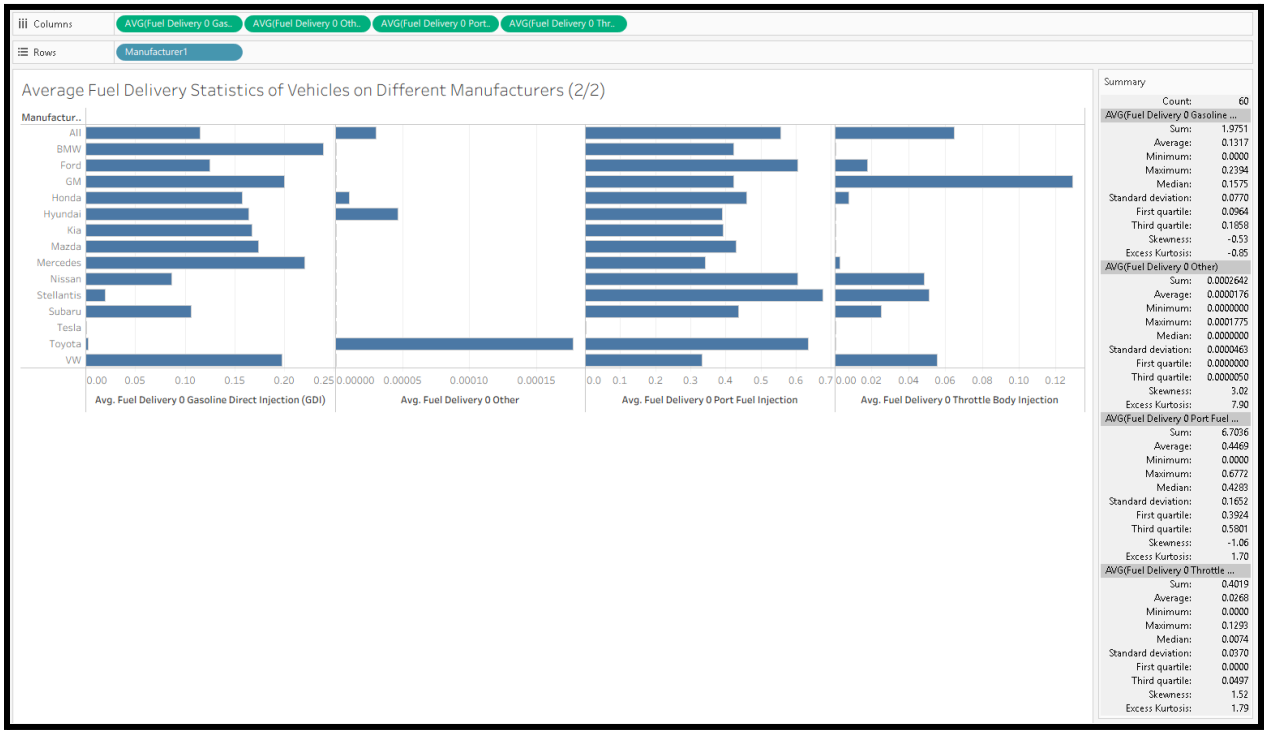
2.4 Average Carbon Emissions of Vehicles of Different Manufacturers

2.5 Average Miles Per Gallon (MPG) Statistics of Vehicles on Different Manufacturers

2.6 Average Fuel Delivery Statistics of Vehicles on Different Manufacturers (1/2)

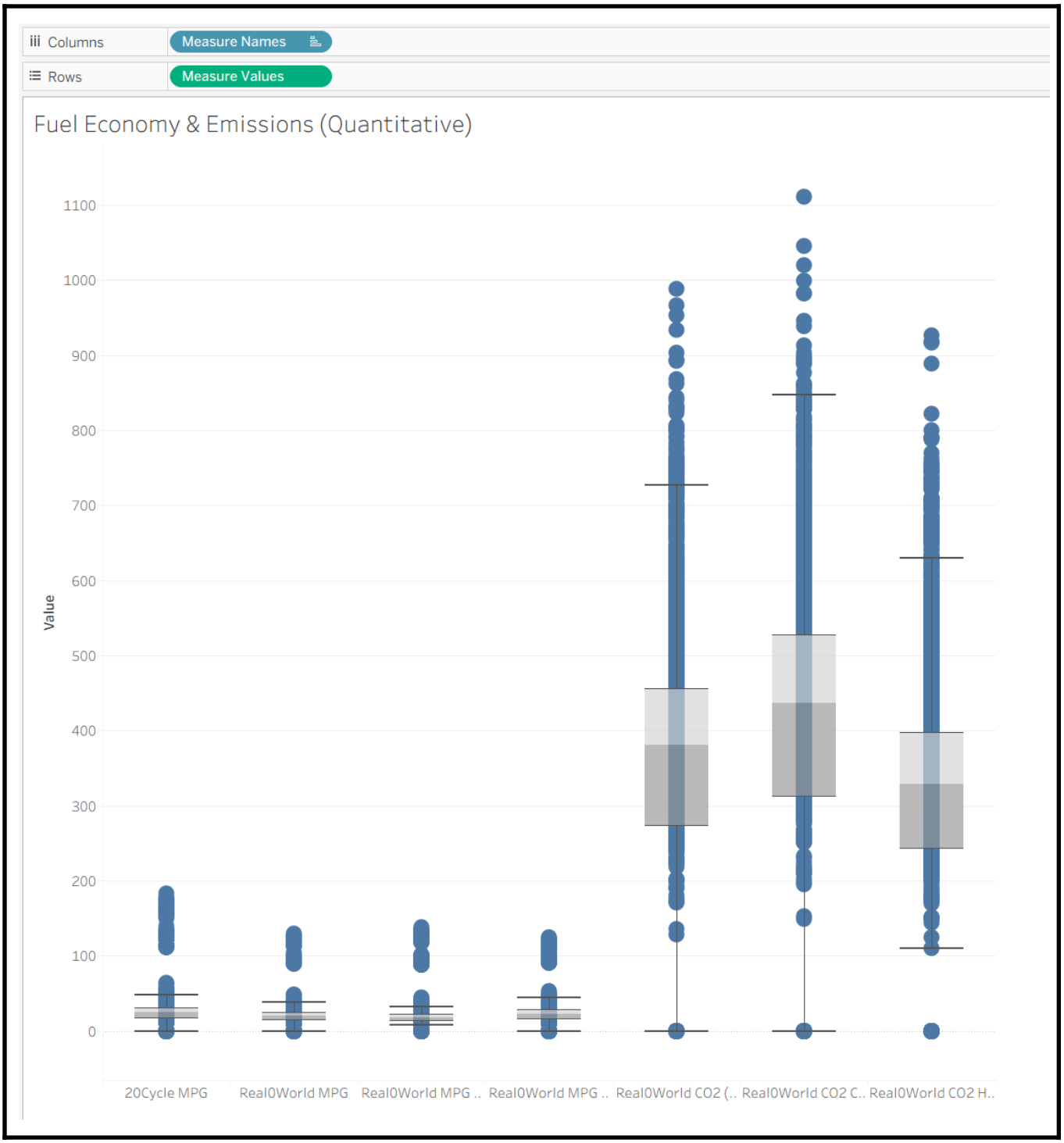


2.7 Average Fuel Delivery Statistics of Vehicles on Different Manufacturers (2/2)

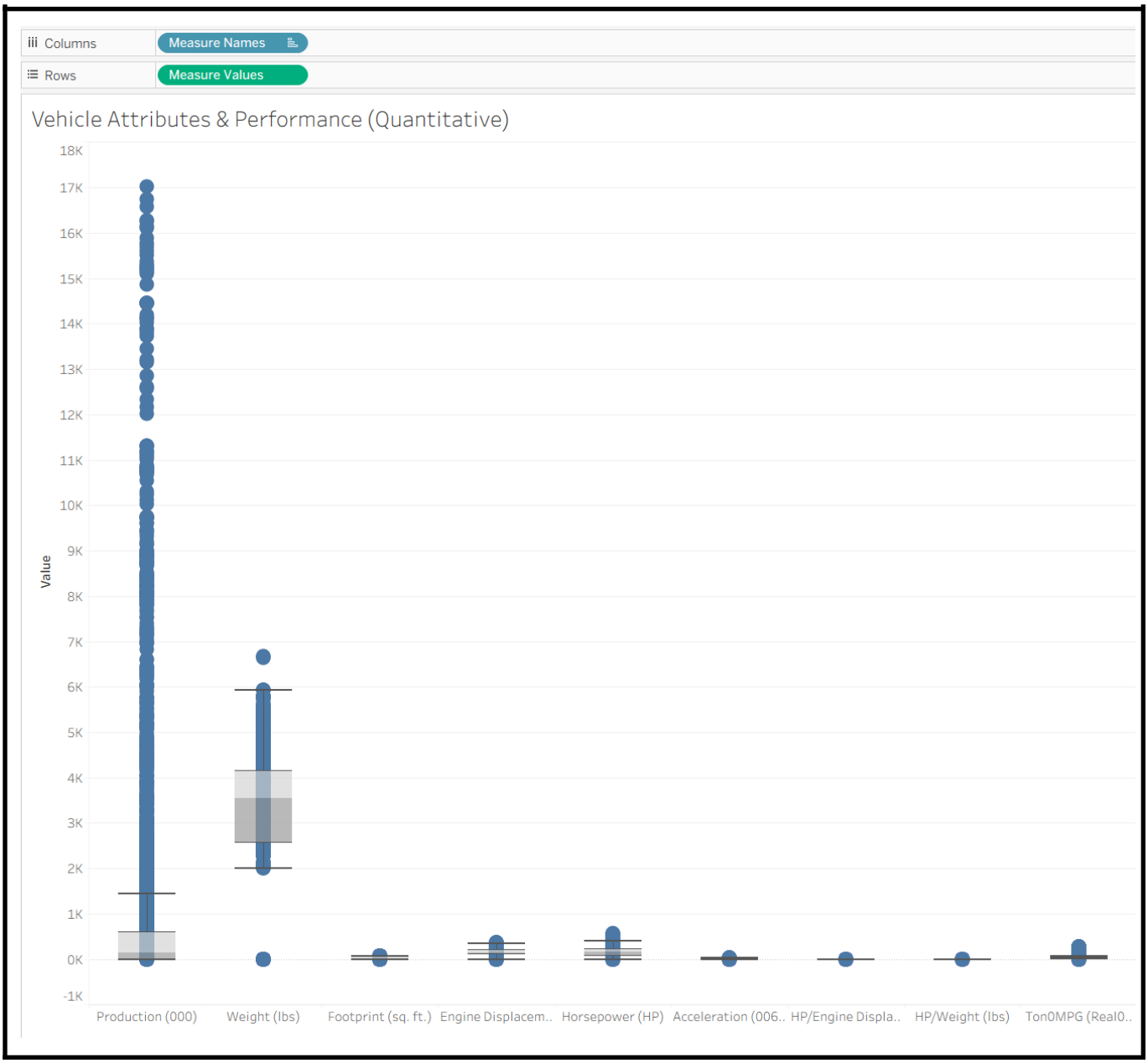


3. Show the boxplot of each quantitative variable.

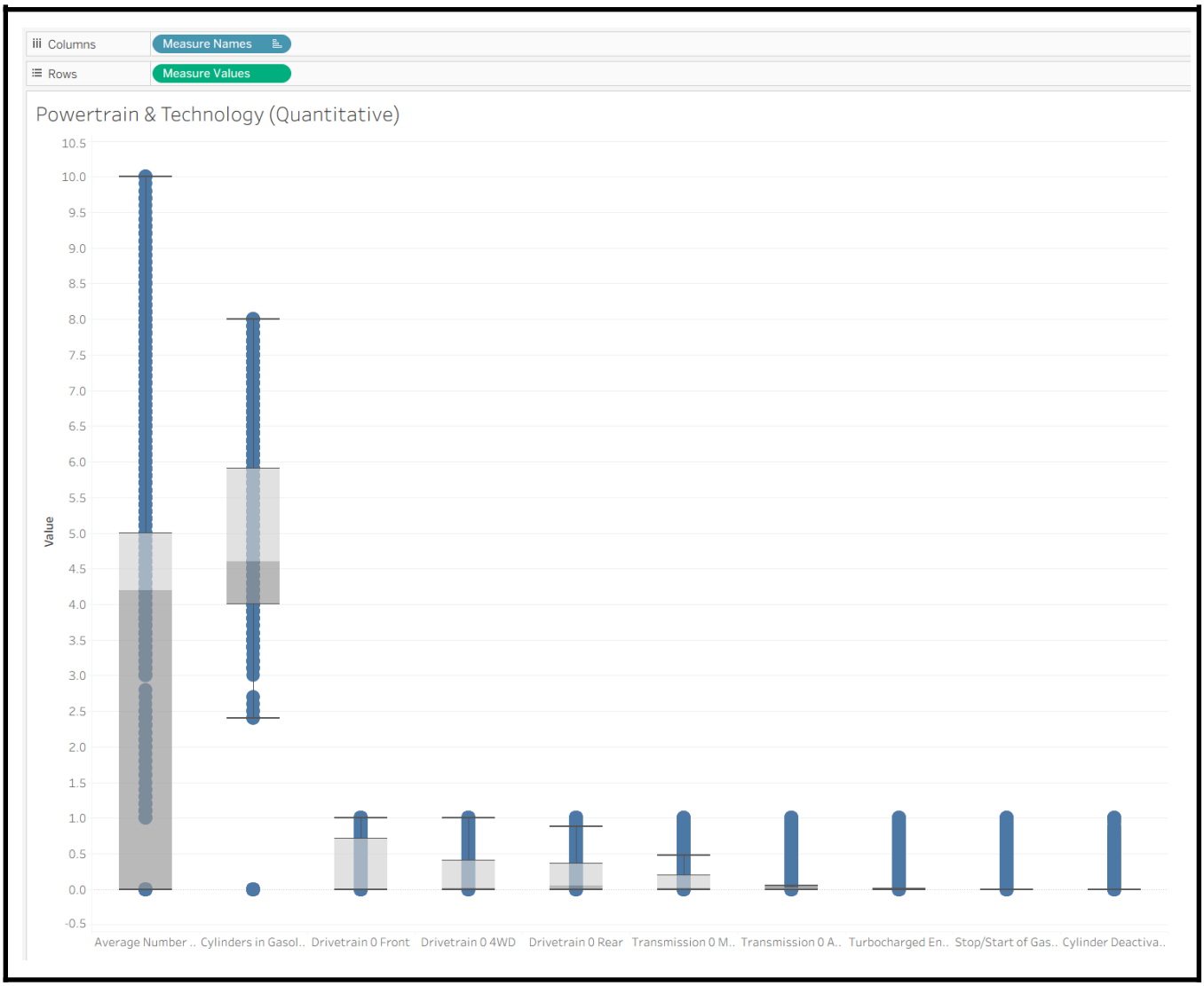
3.1 Fuel Economy and Emissions



3.2 Vehicle Attributes and Performance

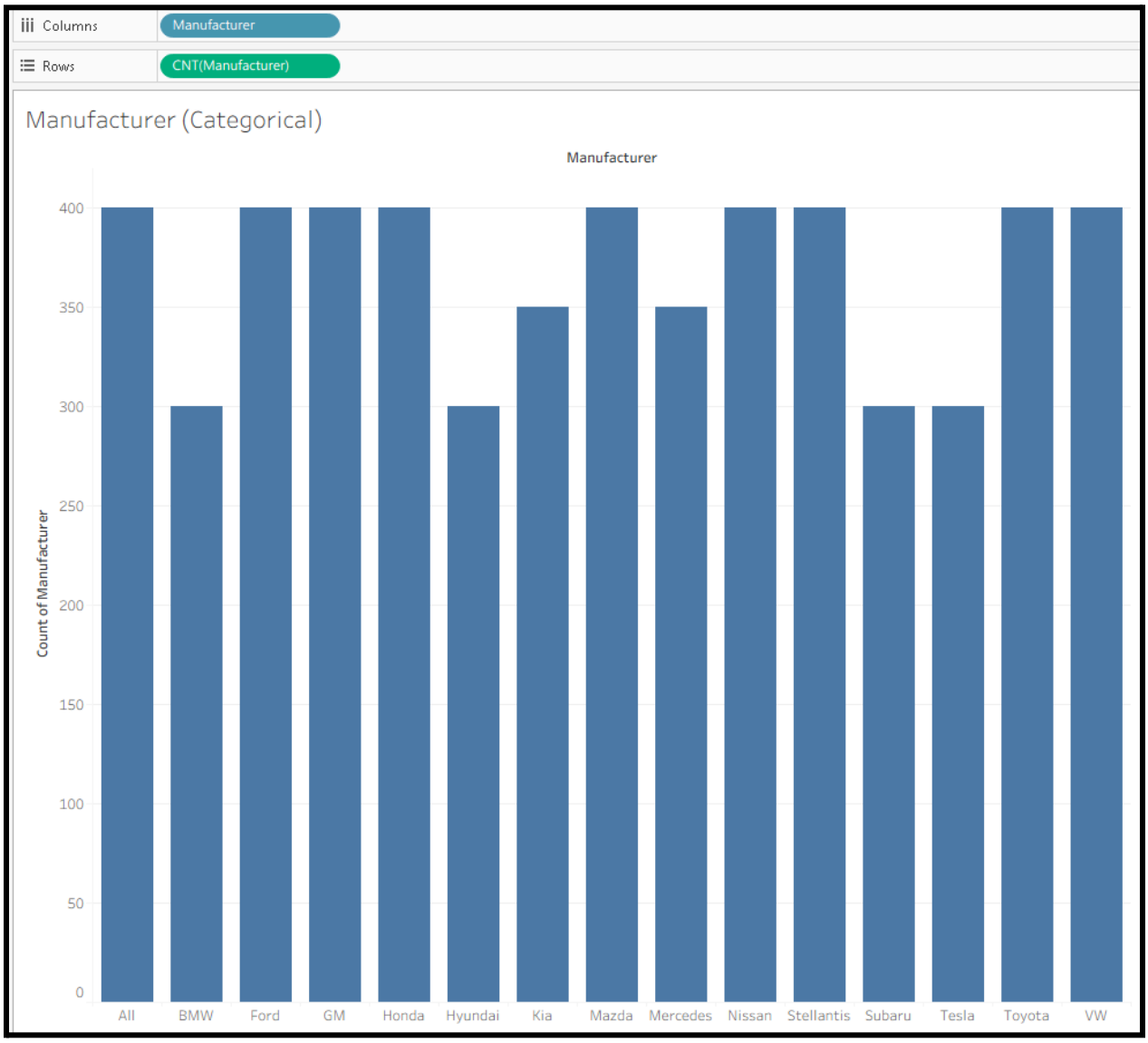


3.3 Powertrain & Technology

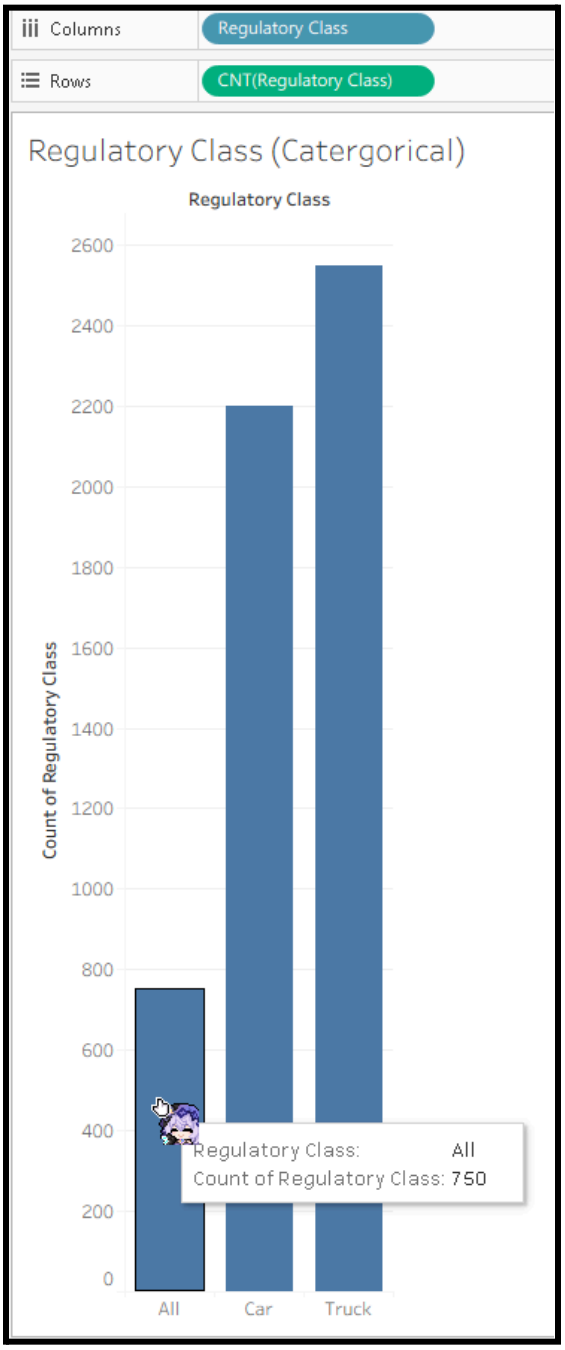


4. Show a bar chart of the categorical variables

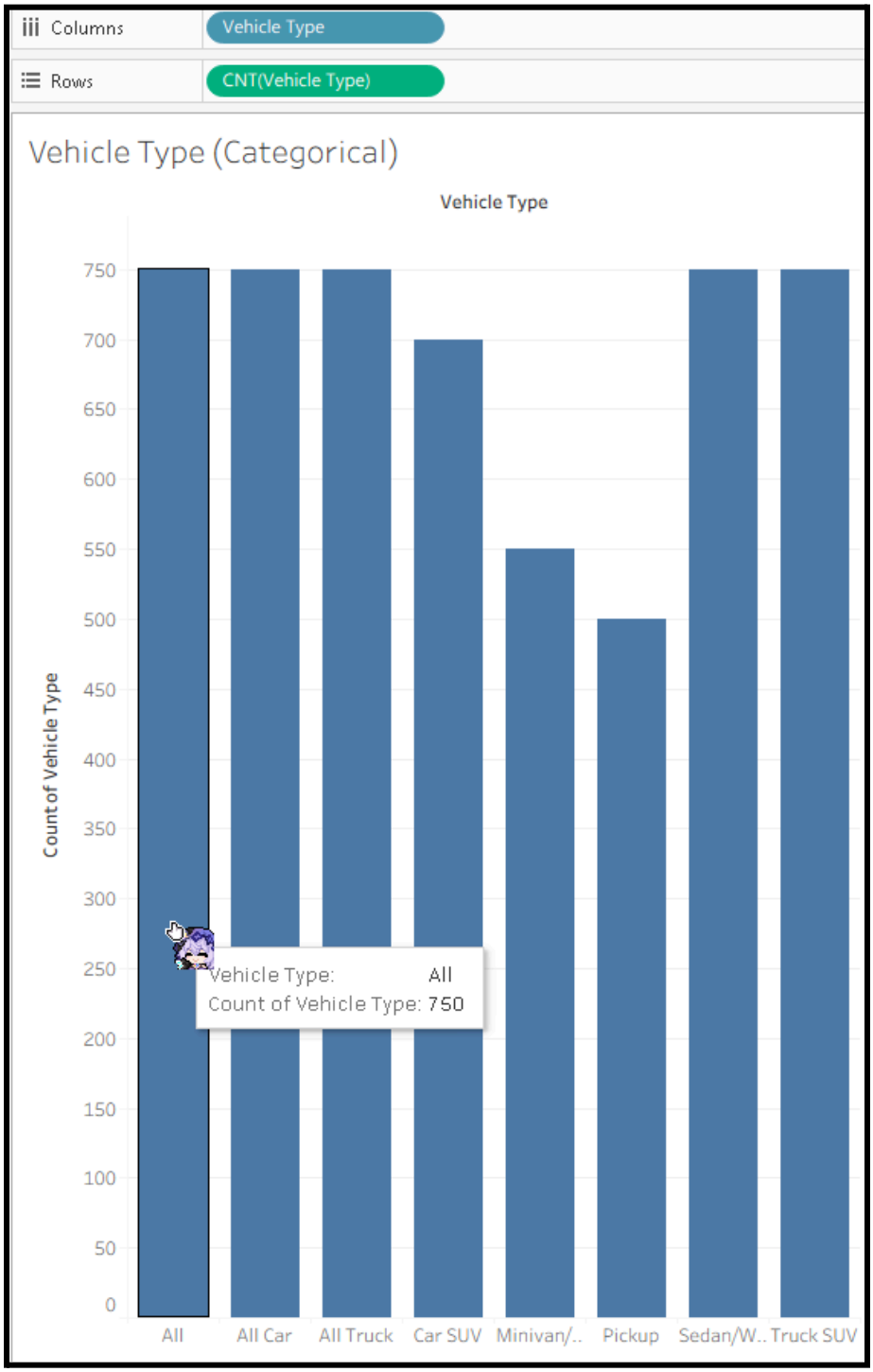
4.1 Manufacturer



4.2 Regulatory Class

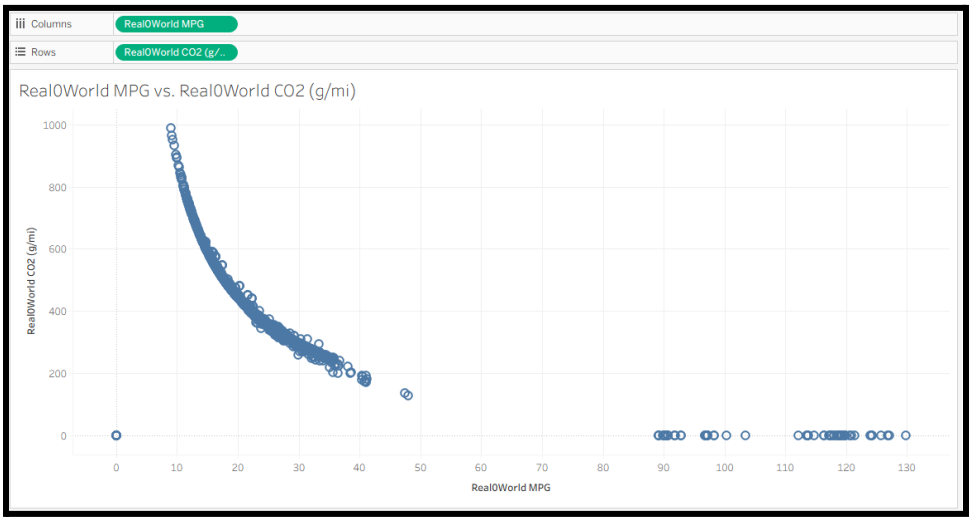


4.3 Vehicle Type

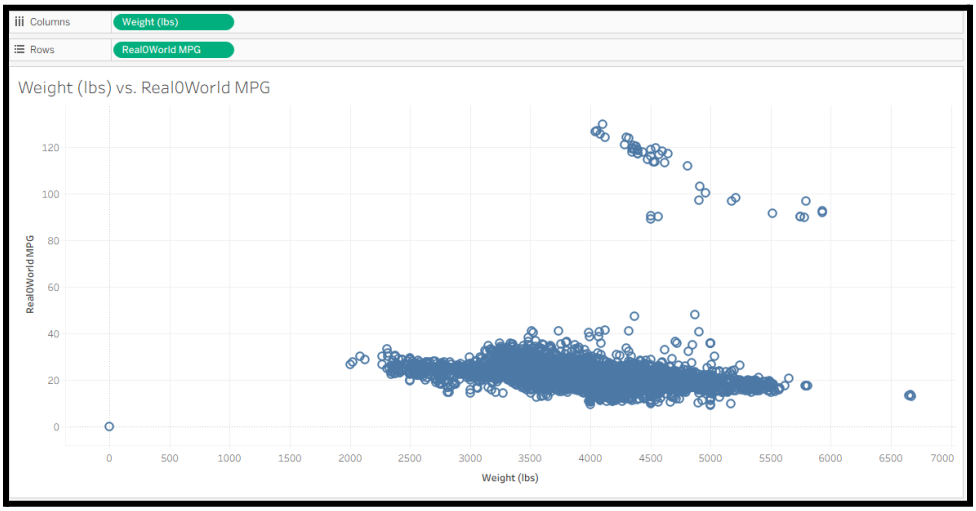


5. Show a scatterplot of the numerical variables.

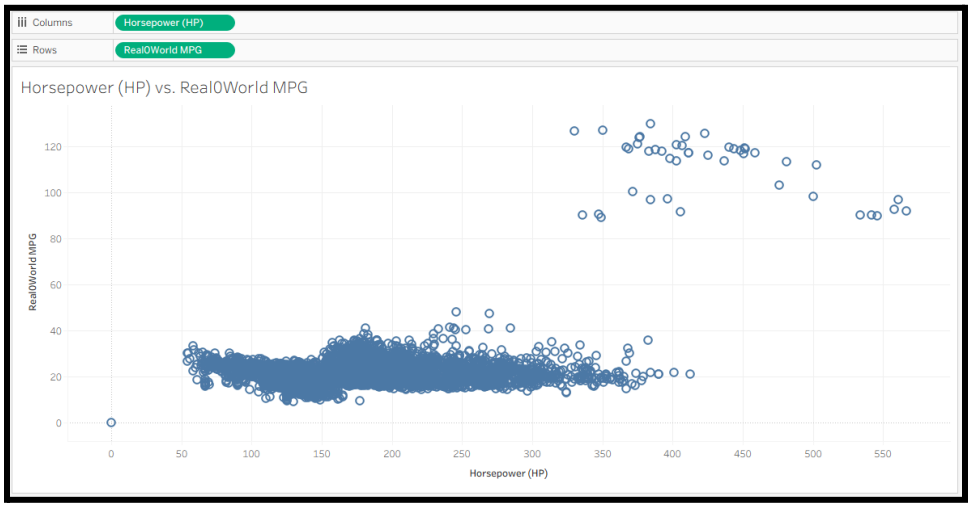
5.1 Real World MPG vs. Real0World CO2 (g/mi)



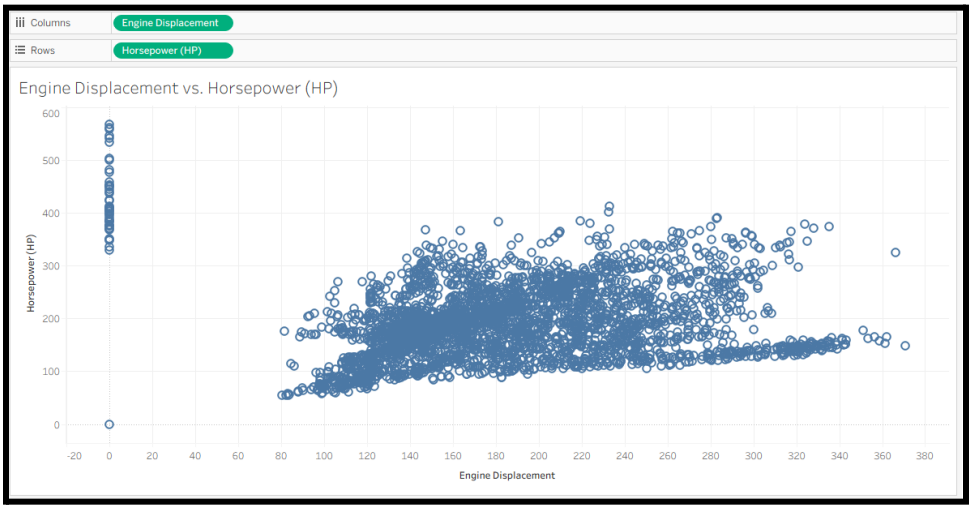
5.2 Weight (lbs) vs. Real World MPG



5.3 Horsepower (HP) vs. Real0World MPG



5.4 Engine Displacement vs. Horsepower (HP)



5.5 Acceleration vs Weight