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CIS5526

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Exploratory Analysis of MPG Data Set

Throughout our analysis of MPG from jupyter notebook we had found a dramatic change in weights, mpg's, horsepower's and cylinders of cars produced in that decade. Using this information from the Analysis we were able to see a correlation between different types of data sets. We were able to use this data to transform the meaning of the historic problems in the 1970's. Also, we can use this data to predict car manufacture and consumer habits.

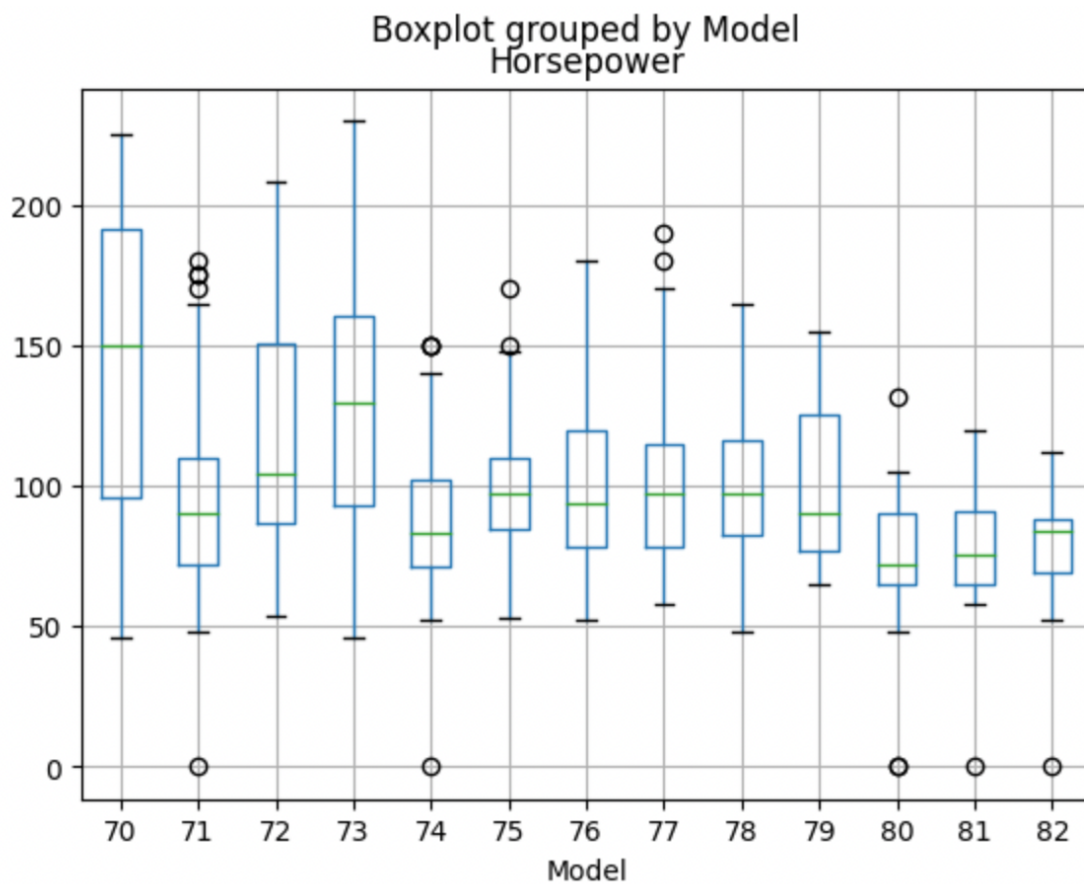
In the 1970, oil production was at it's all time, Americans had imported a lot of oil, and it was widely accessible. Therefore, we see a trend of a lot of 8 cylinders and low MPG in that year (figure three).

Soon, the globe hits an oil crisis in the mid and late 1970s. In figure one, the box plot shows us that the median 1970s horsepower was around 150, but by 1974 we see a big dip of horsepower.

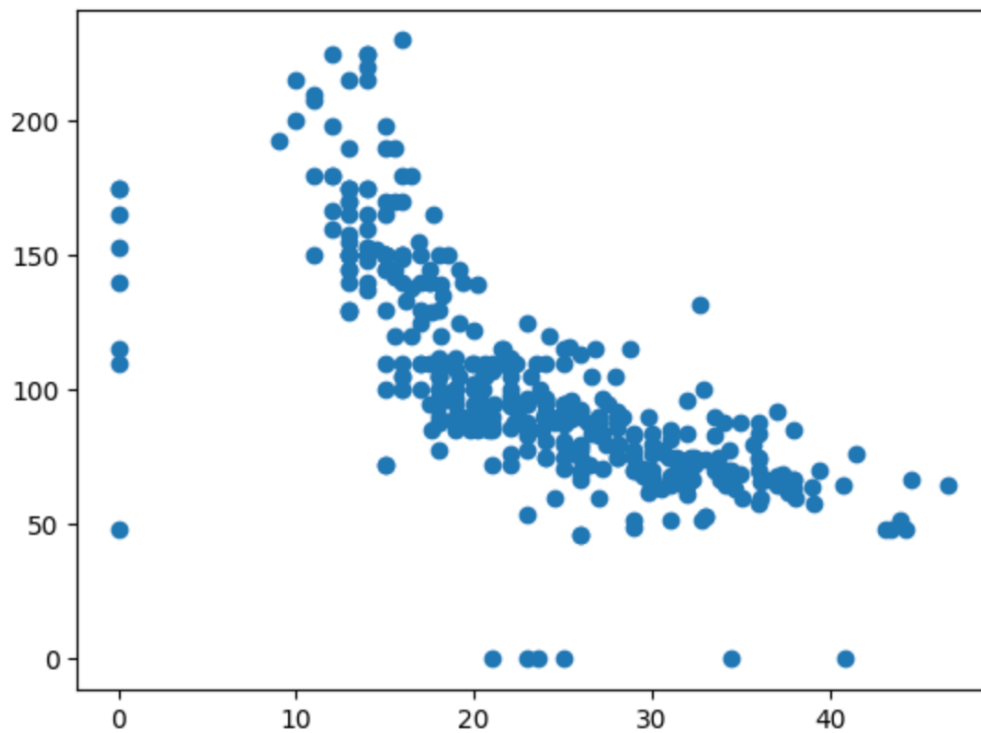
This is because the lower the Horsepower the higher the MPG. Therefore, we can conclude at that time, the car manufactures are shifting to lower horsepower, higher mpg cars. This is because 1973 oil crisis, there was embargo that targeted countries that supported Israel for the Yom Kippur War, the United States was one of them. This had led the oil price soared to \$3 per barrel. However, as the years went on mpg and horsepower started to stabilize and sometimes peaked a little bit. From figure Three, we see the cylinders grew from 4 to 6 in year 74 to 79.

However, in year 80 to 82 the median cylinders are back to 4 again. This also explains why mpg and horsepower also saw a downward trend in those years too because there was an Iranian Revolution and in 1980 there was an iran-iraq war which drastically hindered oil production and

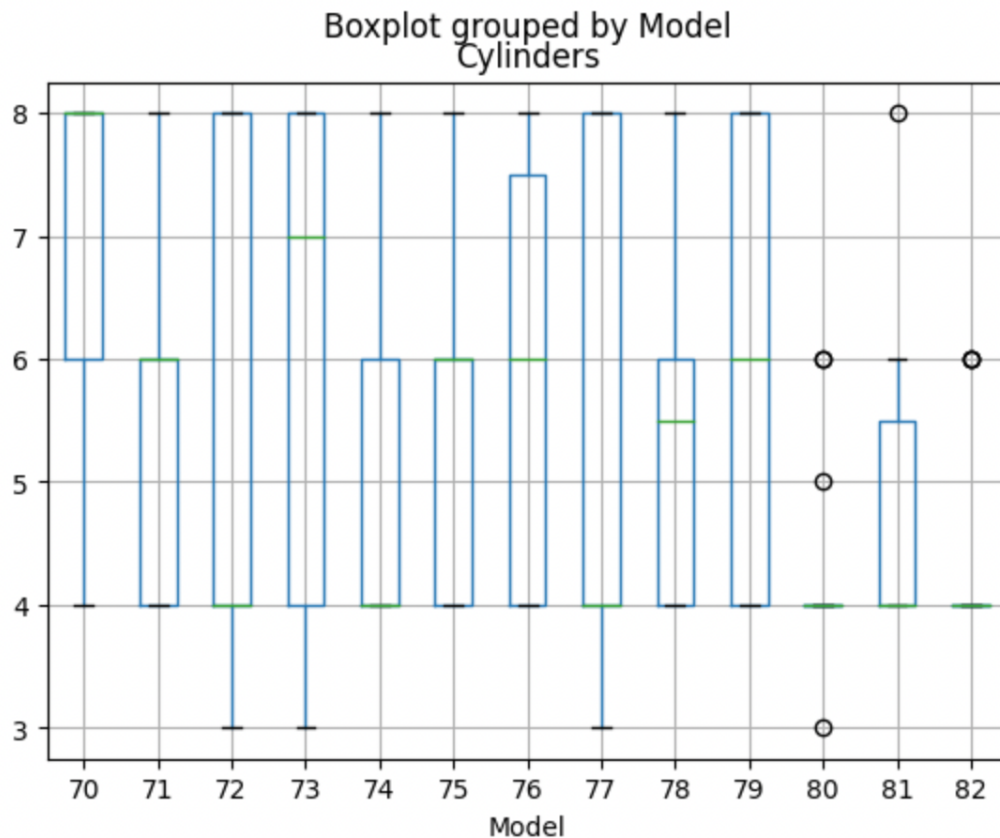
imports. This had led to the oil price soaring to all time high in the US from 1980. Therefore, car consumers around the world decided to shop for smaller cylinder, high mpg cars to bare through the oil crisis.



- Figure One (model vs Horsepower)



- Figure Two (MPG vs Horsepower)



- Figure Three (Model vs Cylinders)

In this MPG dataset analysis, we can conclude when there is an oil crisis car manufactures tend to produce cars that are higher mpg and lower cylinders. Car manufactures tend to make lower cylinders and higher mpg cars to appeal to consumers because who wants to spend more at the pump when gas hits at time high? In the future, we can also use this type of dataset to predict consumer habits and what car they would buy. This type of method can also be used to analyze today's oil crisis such as the Ukraine vs Russia war, as we saw gas soaring.

Source:

Wikipedia Contributors. "1970s Energy Crisis." *Wikipedia*, Wikimedia Foundation, 29 Jan. 2020, en.wikipedia.org/wiki/1970s_energy_crisis.

Wikipedia Contributors. "1979 Oil Crisis." *Wikipedia*, Wikimedia Foundation, 18 Dec. 2019, en.wikipedia.org/wiki/1979_oil_crisis.

Wikipedia Contributors. "1973 Oil Crisis." *Wikipedia*, Wikimedia Foundation, 15 Mar. 2019, en.wikipedia.org/wiki/1973_oil_crisis.