

Correlation between Model Year and it Fuel Efficiency (MPG)

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Abstract—The automobile industry is constantly evolving with technology, one of the most important advancements is fuel efficiency. This is tied in with a combined effort to curb the use of fossil fuels and reduce the total amount of emissions. This study will examine the correlation between MPG (fuel efficiency) and Model Year. We are using a data set of 398 automobiles including 8 features. This data set was analyzed using several methods such as Simple Linear Regression (1) and Multiple Linear Regression (2). The results of (1) indicated a slight positive correlation between the two, indicating that a higher MPG is slightly associated with a higher Model Year. However the R^2 of this model is 34%, which indicates that our model only explains 34% of the variation in our data. However with the introduction of a second independent variable, Displacement, we were able to make a more robust model (2). This model was much more accurate giving us a 220% increase in our R^2 value. These results indicate that Model Year isn't the strongest indicator for MPG. This means that focusing on Model Year may not be sufficient for improvements in fuel efficiency.

I. INTRODUCTION

As the automobile industry advances we have seen a push towards environmental friendly options. One major component of this environmental conscious trend is fuel efficiency. It is a way of building on our current infrastructure, gasoline, and making it more efficient and environment friendly. We see this obvious trend today but we were curious if this was always the case. With our dataset containing data on automobiles from 1970-1981 we can investigate if this trend existed. This can be done by analyzing the correlation between our MPG feature and our Model Year feature. We will analyze this correlation using several methods such as data visualizations, correlation analysis, and linear regression models.

II. SECTION TITLE

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III. CONCLUSION

Conclusion text goes here.

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