**MPG Regression**

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The code above predicts the mpg of Mechacar prototypes using a number of variables within the dataset.

The result provides the coefficients of each variables and the intercept of linear regression. In addition the summary function provides the estimated p-value for each variable. As we can see, Pr(>|t|) means probability that contributes a random amount of variance to the linear model. These three factors (**Intercept**, **vehicle.length** and **ground. clearance**) are the only three(\*\* significant) that are statistically unlikely to provide random amounts of variance to the linear model. When intercept is statistically significant, it means there are other variables and factors that contribute to the variation in mpg that have not been included in the model.

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A picture containing photo, different, white, group

Description automatically generatedA picture containing outdoor, photo, white, side

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A close up of a mans face

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From all the plots above, we can see both the vehicle length and ground-clearance factor has best correlation with mpg. The rest has almost zero regression value since the line was flat with almost zero slope. the relationship between some variables is statistically significant, this linear model is pretty ideal base on the multiple R-squared value of 0.7149. If we square root this value we will have ~ 0.846 of r-value. Based on the table when r is greater or equal to 0.7, the strength of correlation is strong.

**Suspension Coil Summary**

summary\_table <-sus\_coil %>% summarize (PSI\_Mean=mean(PSI),PSI\_Median=median(PSI),PSI\_SD=sd(PSI))

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The summary\_table code provide was used to calculated the PSI mean , median and standard deviation. The output data above was computed result.