

# Motor Trend

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## Summary

This relatory is the final project of the Regression Models Course offered by Johns Hopkings University in the Coursera Plataform

The objective of the paper is review a collection of cars and explore the relationship that explains in a quantitative way the miles per gallon spent. To do this, will be used strategies of Exploratory Data Analysis and Regression Models.

## Data

The data set used can be retrieved in the base R software by the lines below:

```
library(dplyr)

data("mtcars")
mtcars <- as_tibble(mtcars)

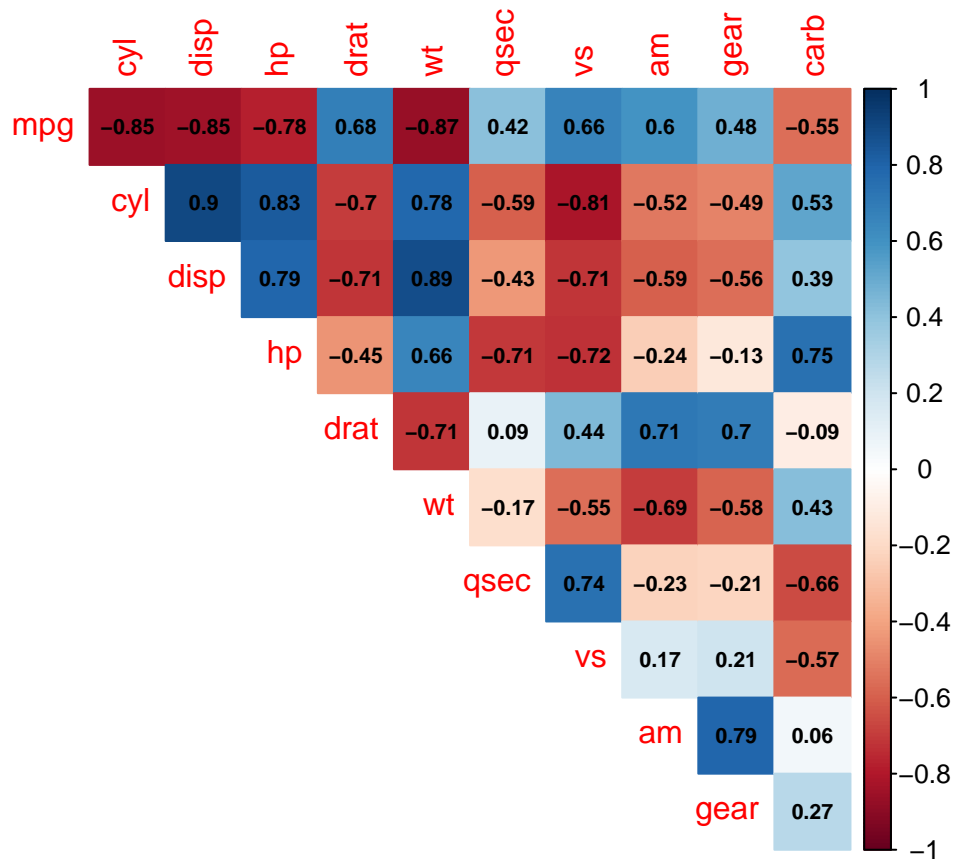
mtcars
```

```
## # A tibble: 32 x 11
##   mpg   cyl  disp    hp  drat    wt   qsec    vs  am  gear  carb
##   <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
## 1  21     6   160   110   3.9   2.62  16.5     0     1     4     4
## 2  21     6   160   110   3.9   2.88  17.0     0     1     4     4
## 3 22.8     4   108    93   3.85   2.32  18.6     1     1     4     1
## 4 21.4     6   258   110   3.08   3.22  19.4     1     0     3     1
## 5 18.7     8   360   175   3.15   3.44  17.0     0     0     3     2
## 6 18.1     6   225   105   2.76   3.46  20.2     1     0     3     1
## 7 14.3     8   360   245   3.21   3.57  15.8     0     0     3     4
## 8 24.4     4   147    62   3.69   3.19   20      1     0     4     2
## 9 22.8     4   141    95   3.92   3.15  22.9     1     0     4     2
## 10 19.2     6   168   123   3.92   3.44  18.3     1     0     4     4
## # ... with 22 more rows
```

So we have 32 observations with 11 numeric attributes for each. Let's see the correlation between the attributes.

```
library(corrplot)

corrplot(cor(mtcars),
  method = "color",
  type = "upper",
  addCoef.col = TRUE,
  diag = FALSE,
  number.cex = 0.7)
```



The figure shows that mpg has a strong negative correlation for cyl, disp, hp and wt (more intense red). Positive correlation can be found, mainly, with drat, vs and am. This variables can be

## Trends

## Appendix

mtcars attributes