MT Cars Analysis

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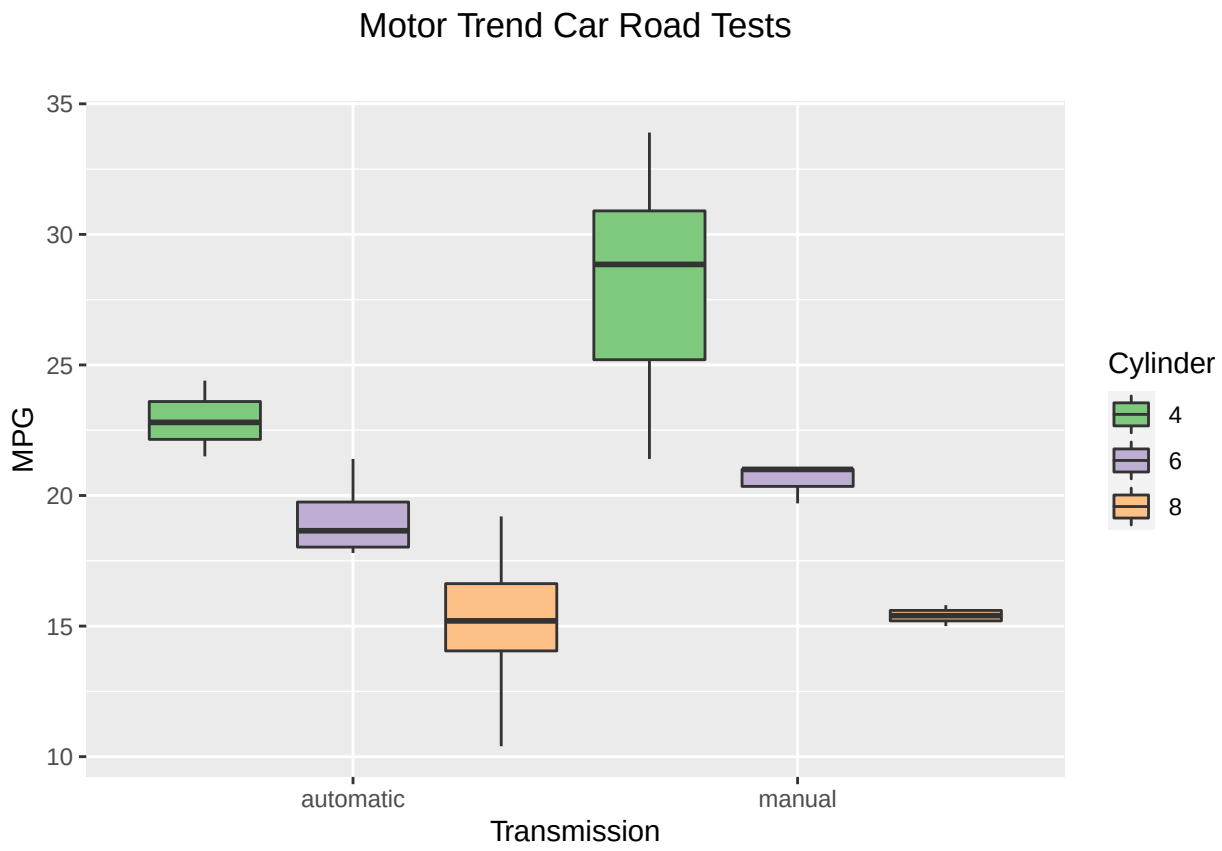
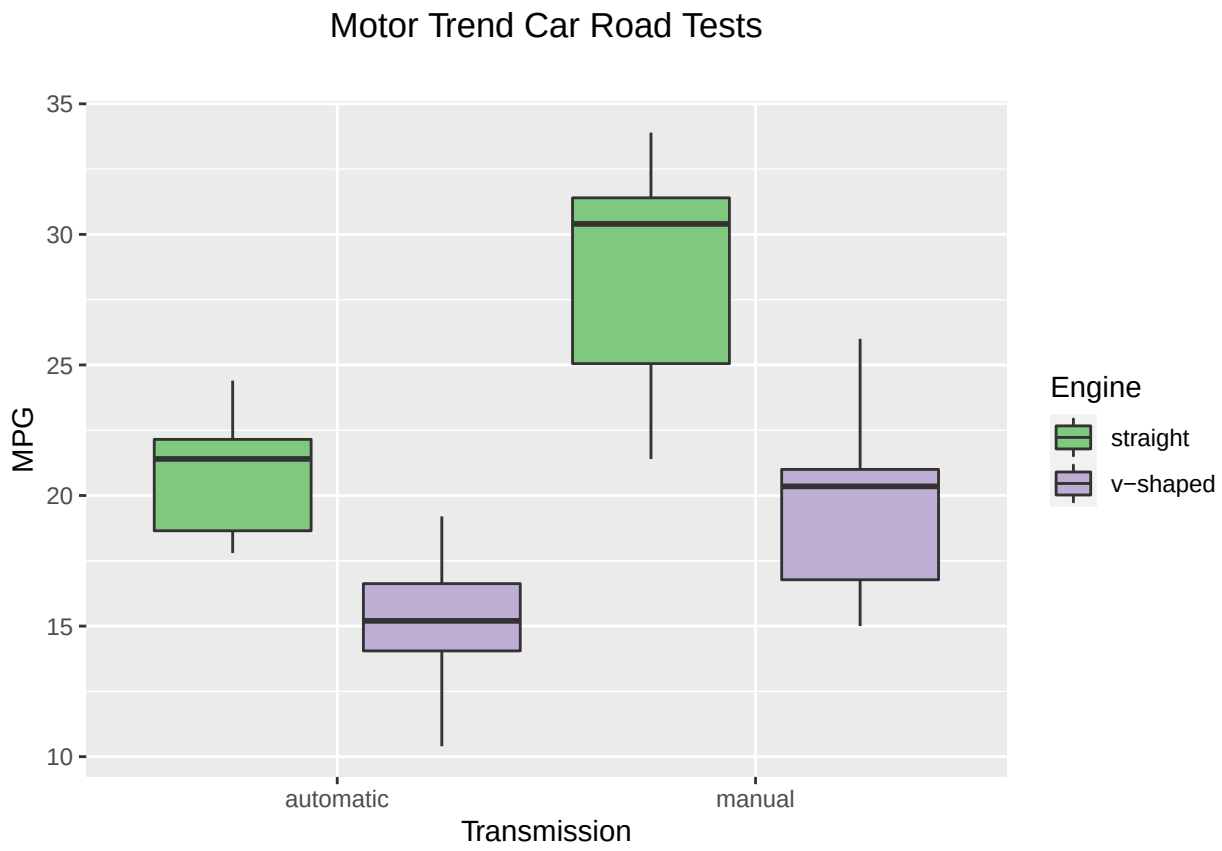
Analysis on mtcars dataset

```
library(datasets)
library(ggplot2)
library(RColorBrewer)
library(combinat)
library(knitr)
library(kableExtra)
```

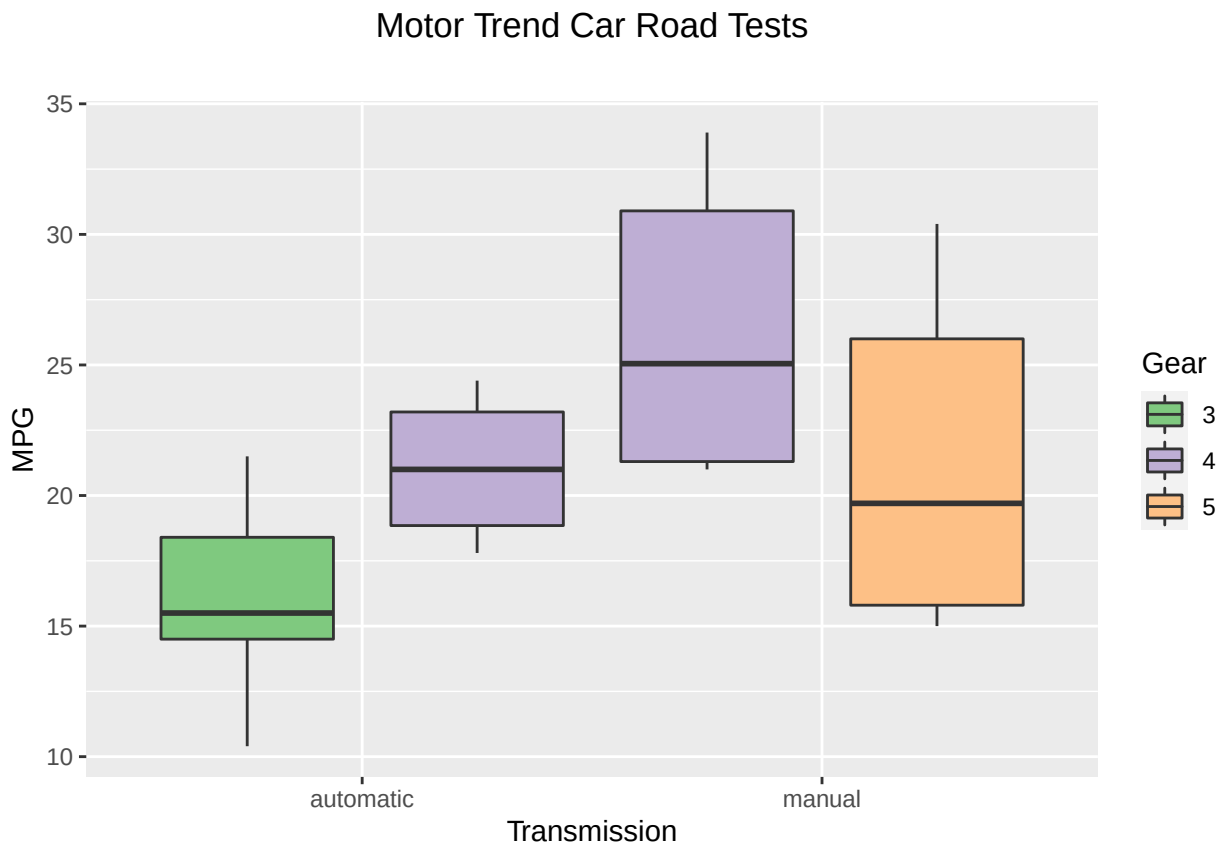
```
ggplot(data=mt, aes(x=am,y=mpg,fill=cyl)) +
  geom_boxplot(outlier.colour="black",
               outlier.size=2,position=position_dodge(1)) +
  labs(title = "Motor Trend Car Road Tests",
       subtitle = "",
       y = "MPG", x = "Transmission") +
    scale_fill_brewer(name = "Cylinder",palette="Accent")  +
  theme(plot.title = element_text(hjust = 0.5))
```



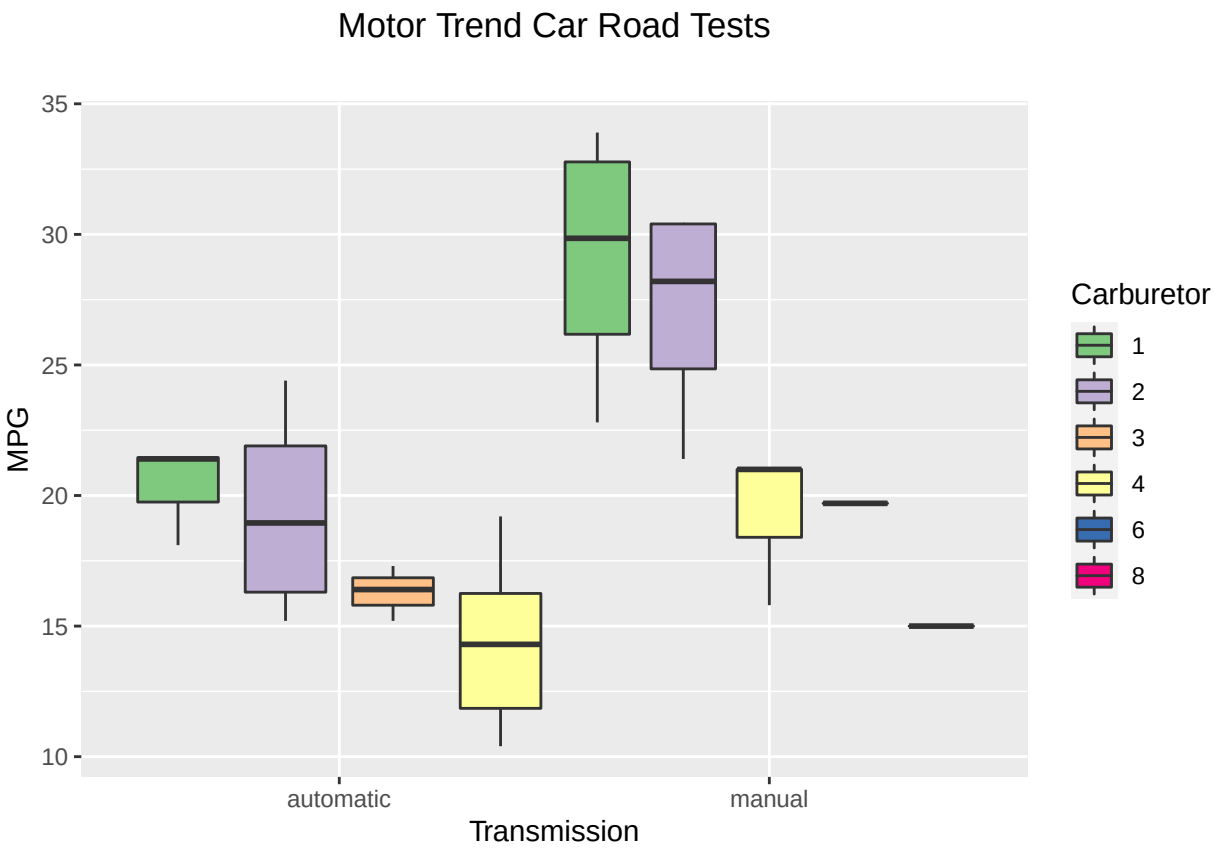

```
ggplot(data=mt, aes(x=am,y=mpg,fill=vs)) +
  geom_boxplot(outlier.colour="black",
               outlier.size=2,position=position_dodge(1)) +
  labs(title = "Motor Trend Car Road Tests",
       subtitle = "",
       y = "MPG", x = "Transmission") +
    scale_fill_brewer(name = "Engine",palette="Accent")  +
  theme(plot.title = element_text(hjust = 0.5))
```




```
ggplot(data=mt, aes(x=am,y=mpg,fill=gear)) +
  geom_boxplot(outlier.colour="black",
               outlier.size=2,position=position_dodge(1)) +
  labs(title = "Motor Trend Car Road Tests",
       subtitle = "",
       y = "MPG", x = "Transmission") +
    scale_fill_brewer(name = "Gear",palette="Accent")  +
  theme(plot.title = element_text(hjust = 0.5))
```

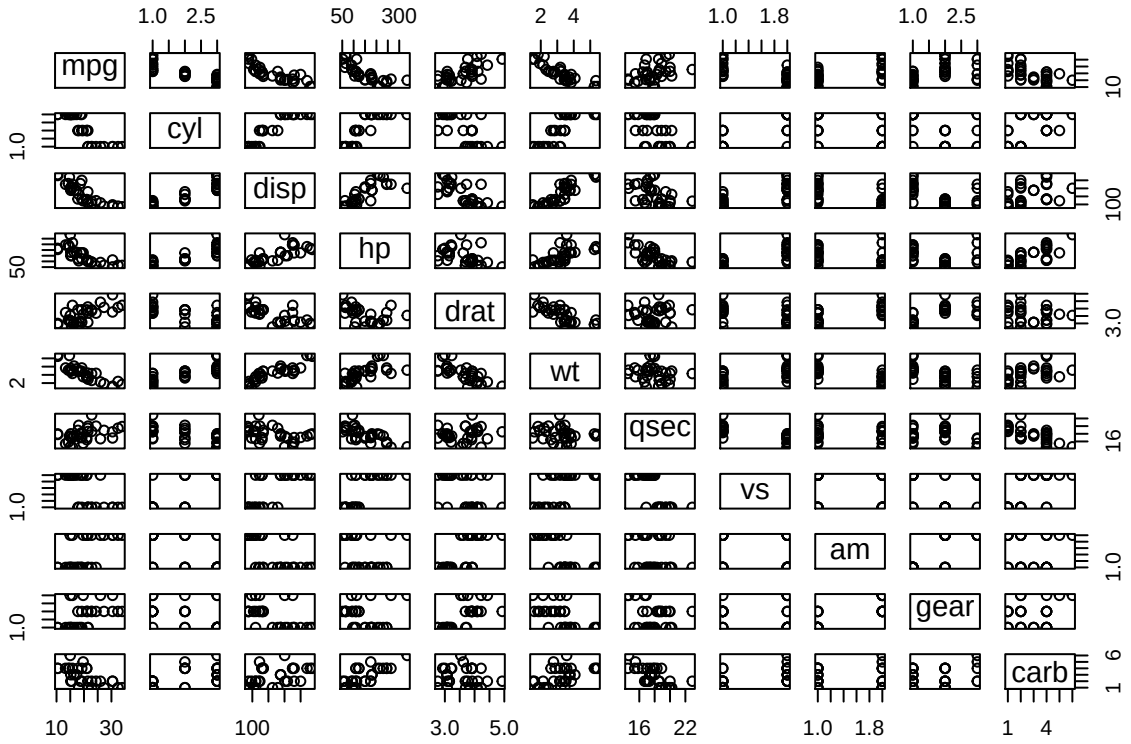



```
ggplot(data=mt, aes(x=am,y=mpg,fill=carb)) +
  geom_boxplot(outlier.colour="black",
               outlier.size=2,position=position_dodge(1)) +
  labs(title = "Motor Trend Car Road Tests",
       subtitle = "",
       y = "MPG", x = "Transmission") +
    scale_fill_brewer(name = "Carburetor",palette="Accent")  +
  theme(plot.title = element_text(hjust = 0.5))
```



Let us plot basic scatter plot

```
plot(mt)
```



Let us build a model from numeric to numeric first

```
lr.numeric <- glm(mpg~disp+hp+drat+wt+qsec,data=mt)
summary(lr.numeric)
```

```
##
## Call:
## glm(formula = mpg ~ disp + hp + drat + wt + qsec, data = mt)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -3.5404  -1.6701  -0.4264   1.1320   5.4996
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 16.53357   10.96423   1.508  0.14362
## disp         0.00872    0.01119   0.779  0.44281
## hp          -0.02060    0.01528  -1.348  0.18936
## drat         2.01578    1.30946   1.539  0.13579
## wt          -4.38546    1.24343  -3.527  0.00158 **
## qsec         0.64015    0.45934   1.394  0.17523
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for gaussian family taken to be 6.543428)
##
```

```
##     Null deviance: 1126.05  on 31  degrees of freedom
## Residual deviance:  170.13  on 26  degrees of freedom
## AIC: 158.28
##
## Number of Fisher Scoring iterations: 2
```

From factors we will choose cylinder since as per plots, gear, carb, vs are not adding much value it seems