R Visualization Capabilities Introduction

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Use of this document

This file is created for the sole use of PSA Data Analytics Technical Workshop participants for demonstration and learning about the R visualization capabilities.

Scripting language used

This document is created using R Markdown, a scripting language available as open source from R Foundation.

Loading all the required packages

```
#install.packages("dplyr",repos = "http://cran.us.r-project.org")
library(dplyr)

#install.packages("ggcorplot",repos = "http://cran.us.r-project.org")
library(ggcorrplot)

#install.packages("ggplot2",repos = "http://cran.us.r-project.org")
library(ggplot2)
```

May need to load more libraries/packages depending on local computer/server

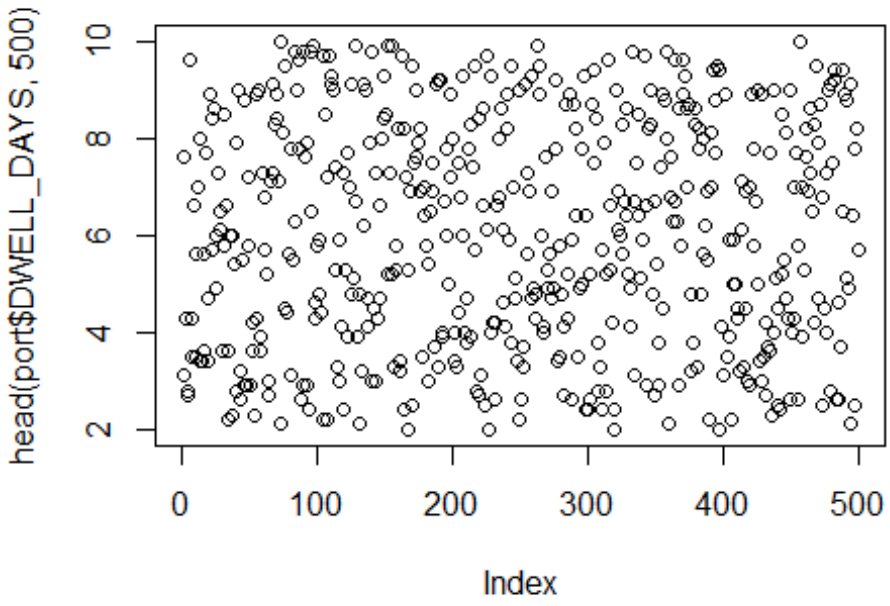
Loading the file into R data-frame

```
#Reading the csv file
port = read.csv('D:/Data Analytics Workshop/Data Analytics Technical Workshop Singapore/Data/port.csv')
```

Visualization using ggplot library

Scatter Plot

```
plot(head(port$DWELL_DAYS,500))
```



Plotting of categorical and continouous variable

```
# specify dataset and mapping
table(port$COMMODITY)
```

```
##
##              Adhesive               Biscuit              Chemicals
##                    28                    24                   172
##       Confectionaries                 Dairy                 Diary
##                    45                    35                   189
##                 Drink                  Eggs                 Films
##                   118                    24                    22
##               Flowers                Fruits                 Glass
##                  2651                  3612                    22
##             Hydroxide            Instrument                 Juice
##                    28                    26                    28
##                  Meat                   Nut                Others
##                  1834                    26                    23
##               Pharma               Poultry Processed/Cooked Food
##                   118                   738                   128
##             Sea Food               Tobacco             Vegetables
##                 35329                    19                  4710
##              Waffles
##                    31
```

```
#Display as data frame
as.data.frame(table(port$COMMODITY))
```

```
##                    Var1  Freq
## 1              Adhesive    28
## 2               Biscuit    24
## 3             Chemicals   172
## 4       Confectionaries    45
## 5                 Dairy    35
## 6                 Diary   189
## 7                 Drink   118
## 8                  Eggs    24
## 9                 Films    22
## 10              Flowers  2651
## 11               Fruits  3612
## 12                Glass    22
## 13            Hydroxide    28
## 14           Instrument    26
## 15                Juice    28
## 16                 Meat  1834
## 17                  Nut    26
## 18               Others    23
## 19               Pharma   118
## 20              Poultry   738
## 21 Processed/Cooked Food   128
## 22             Sea Food 35329
## 23              Tobacco    19
## 24           Vegetables  4710
## 25              Waffles    31
```

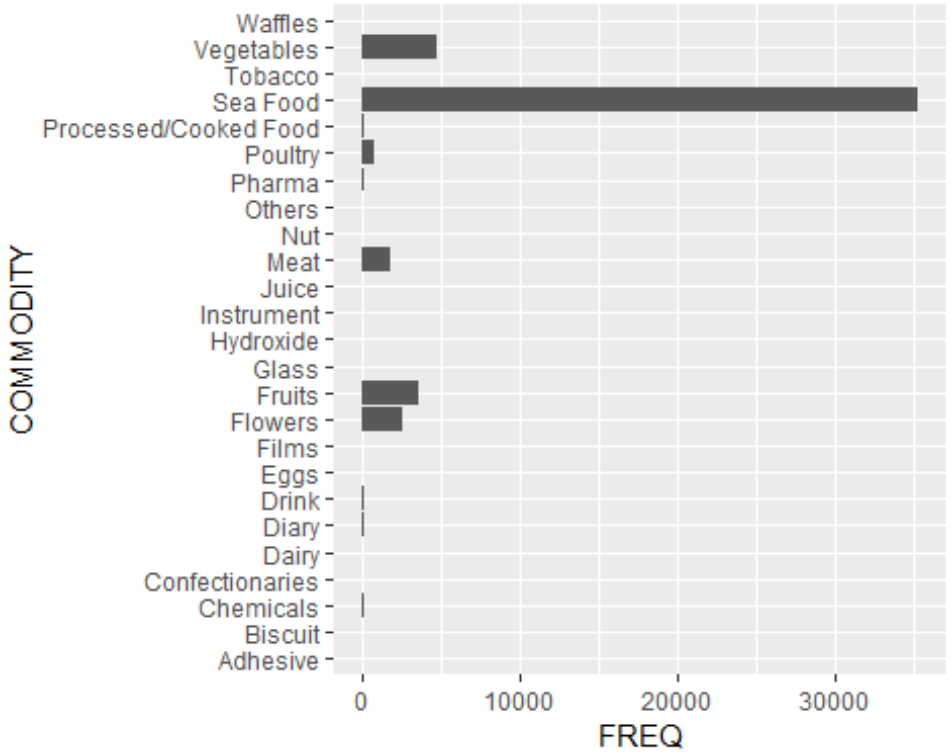
```
# Arrange the data frame
arrange(as.data.frame(table(port$COMMODITY)),desc(Freq))
```

```
## Warning: package 'bindrcpp' was built under R version 3.4.4
```

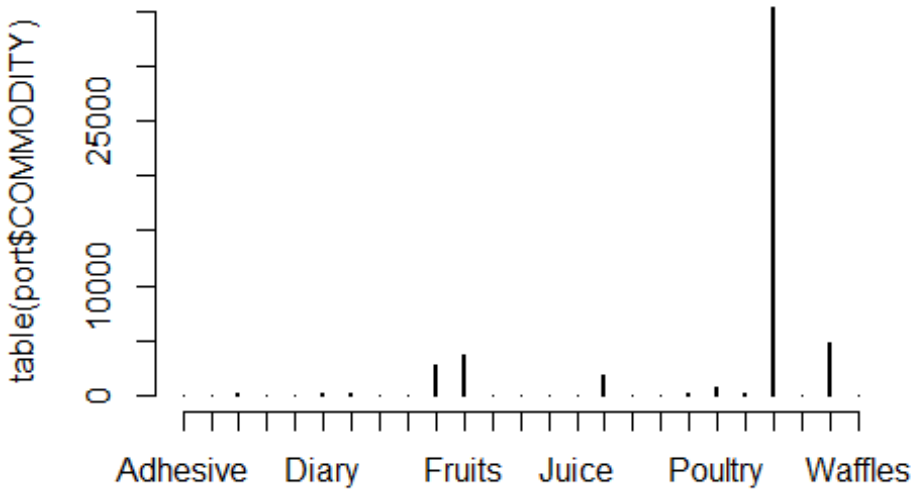
```
##                    Var1  Freq
## 1              Sea Food 35329
## 2            Vegetables  4710
## 3                Fruits  3612
## 4               Flowers  2651
## 5                  Meat  1834
## 6               Poultry   738
## 7                 Diary   189
## 8             Chemicals   172
## 9  Processed/Cooked Food   128
## 10                Drink   118
## 11               Pharma   118
## 12      Confectionaries    45
## 13                Dairy    35
## 14               Waffles    31
## 15             Adhesive    28
## 16            Hydroxide    28
## 17                Juice    28
```

```
## 18            Instrument    26
## 19                   Nut    26
## 20               Biscuit    24
## 21                  Eggs    24
## 22                Others    23
## 23                 Films    22
## 24                 Glass    22
## 25               Tobacco    19
```

```
#plot the dataframe
df = arrange(as.data.frame(table(port$COMMODITY)),desc(Freq))
names(df) = c('COMMODITY', 'FREQ')
g = ggplot(df, aes(x=COMMODITY, y=FREQ))
g+ geom_col() +coord_flip()
```

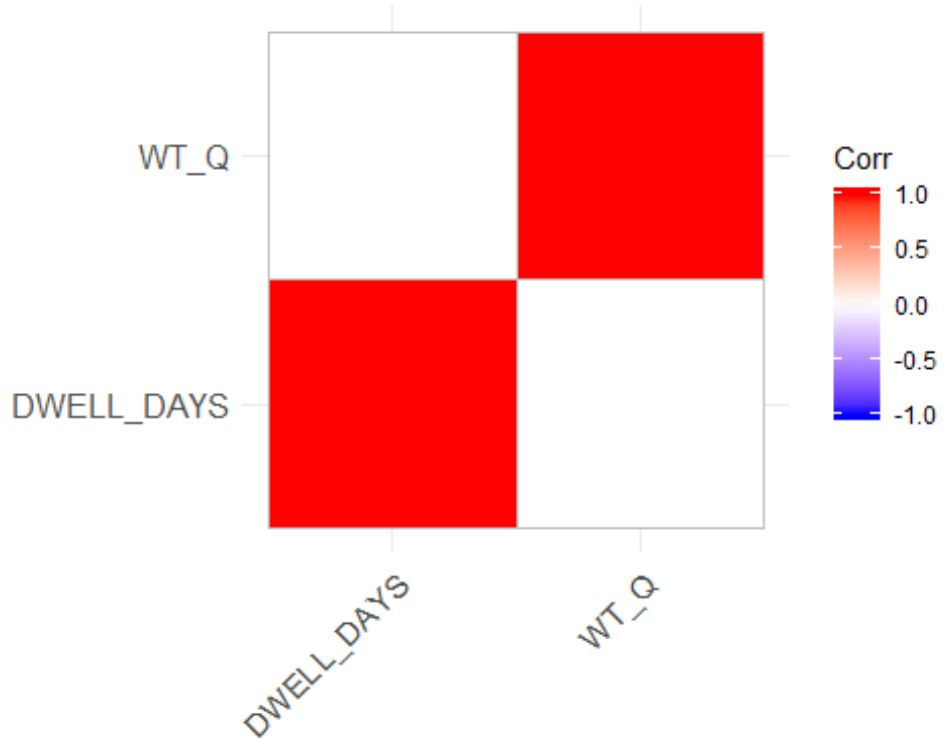



```
#Another simple way of plotting
plot(table(port$COMMODITY))
```

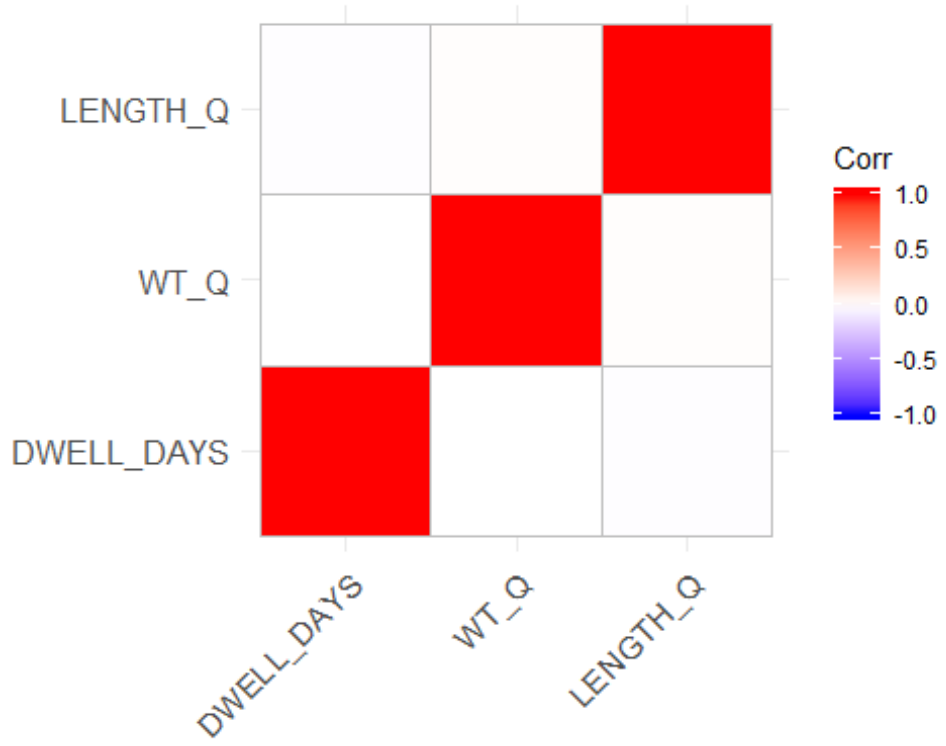


Visualization of co-relation among variables

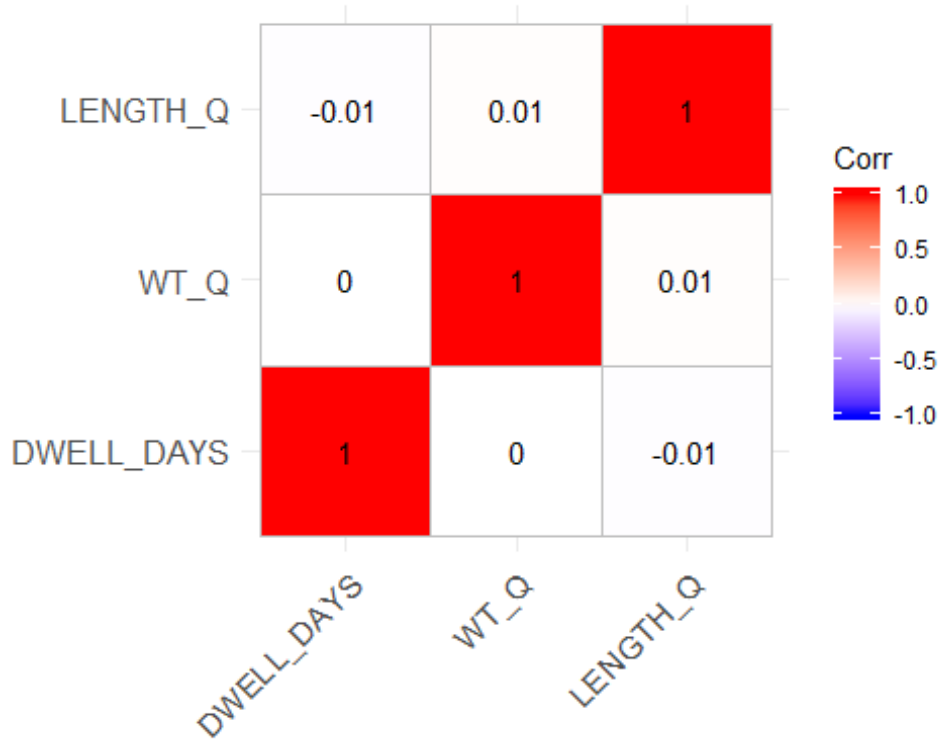
```
#Plot the corelation
ggcorrplot(cor(port[,c('DWELL_DAYS', 'WT_Q')]))
```



```
ggcorrplot(cor(port[,c('DWELL_DAYS', 'WT_Q', 'LENGTH_Q')]))
```

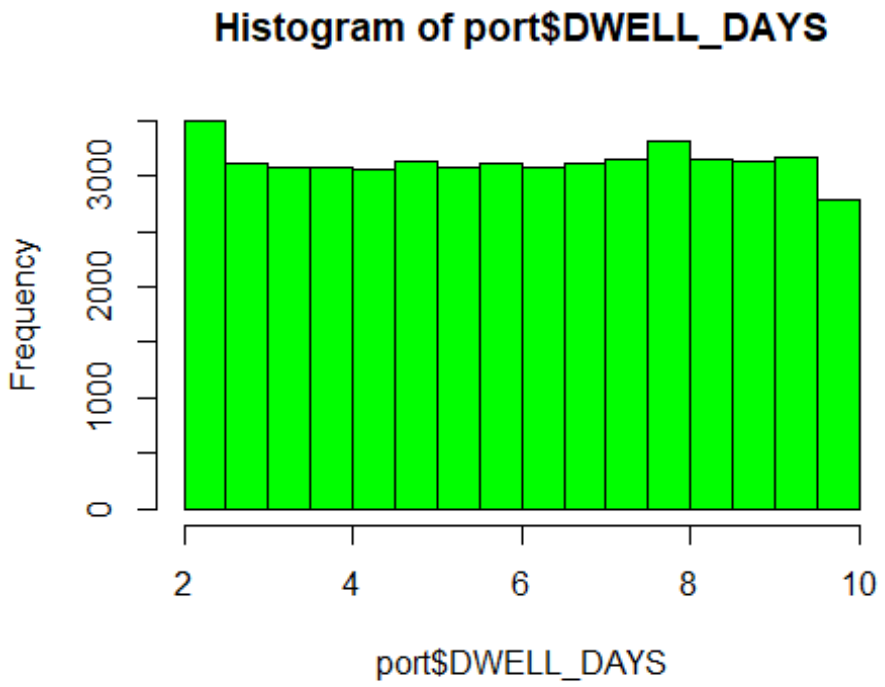



```
ggcorrplot(cor(port[,c('DWELL_DAYS', 'WT_Q', 'LENGTH_Q')]),lab=TRUE)
```

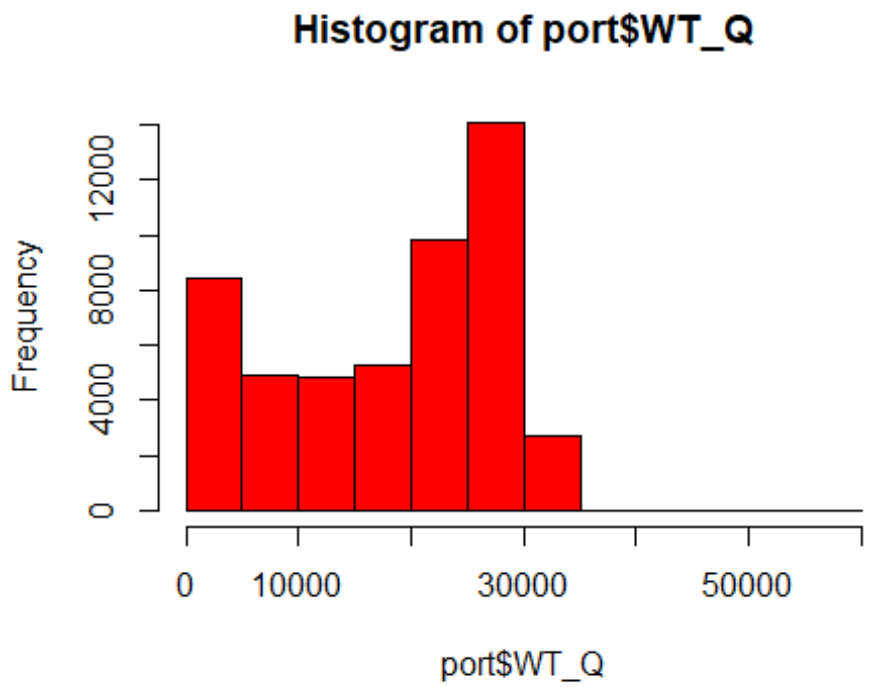


Looking at the histogram of dwelldays and weight

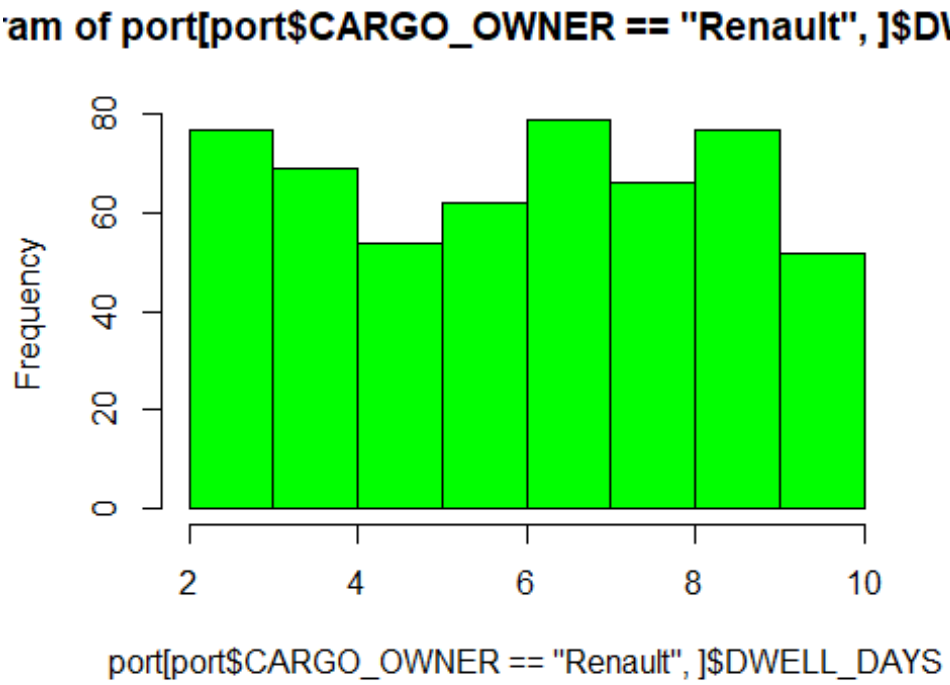
```
#plotting the histogram
hist(port$DWELL_DAYS, col='green')
```



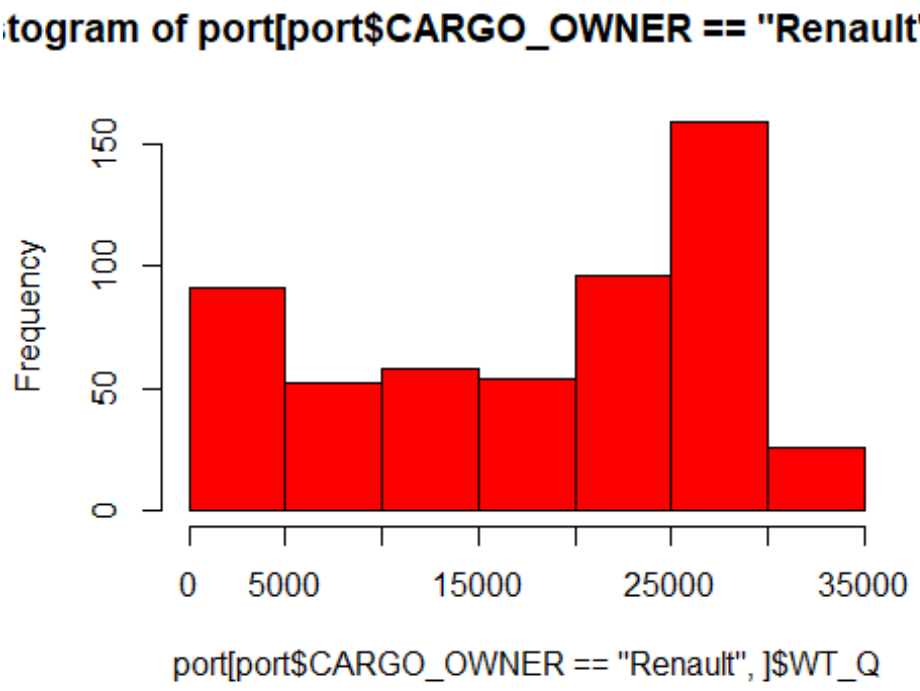

```
hist(port$WT_Q, col='red')
```




```r
#plotting the histogram for a cargo owner
hist(port[port$CARGO_OWNER == 'Renault',]$DWELL_DAYS, col='green')
```

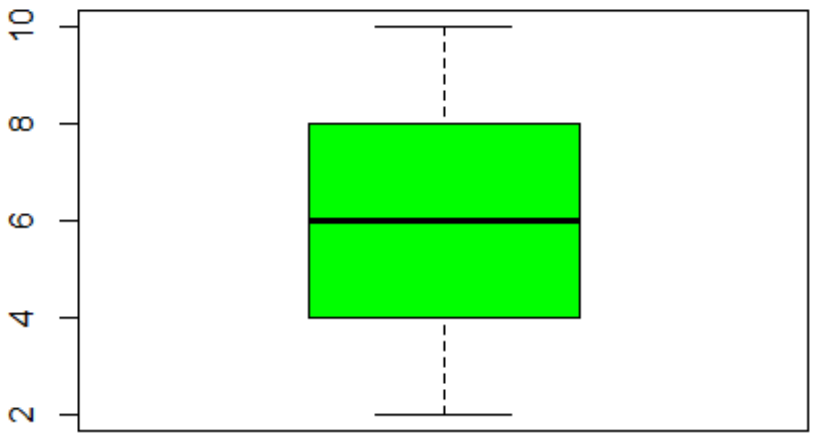


```
hist(port[port$CARGO_OWNER == 'Renault',]$WT_Q, col='red')
```

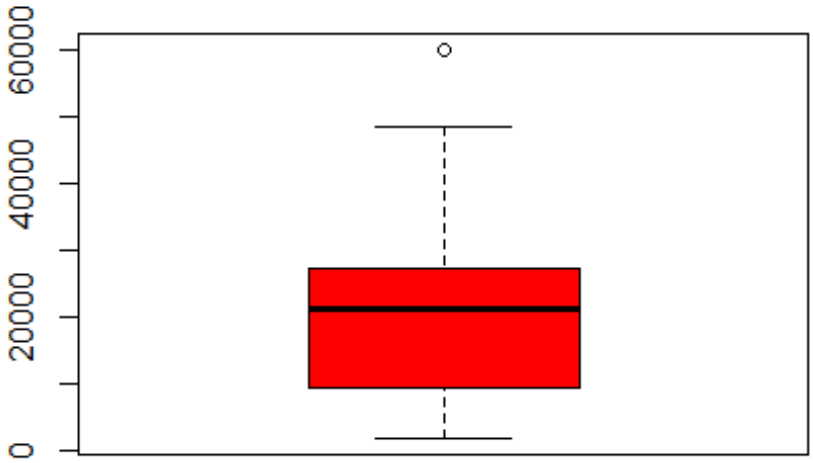


Looking at the boxplot of dwelldays and weight

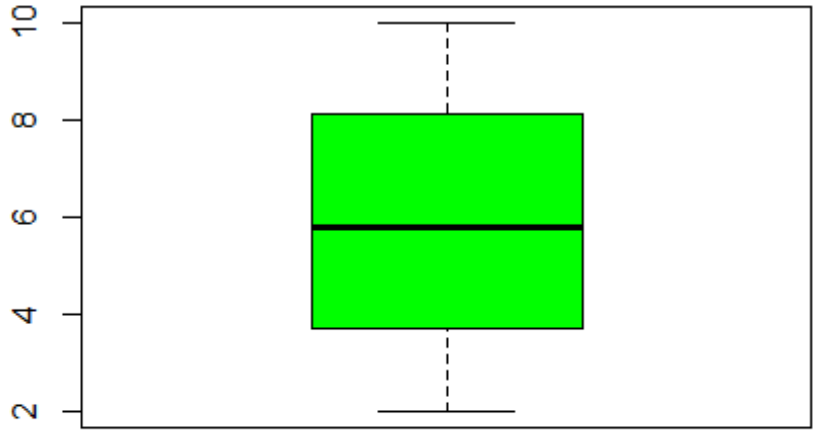
```
#plotting the histogram
boxplot(port$DWELL_DAYS, col='green')
```



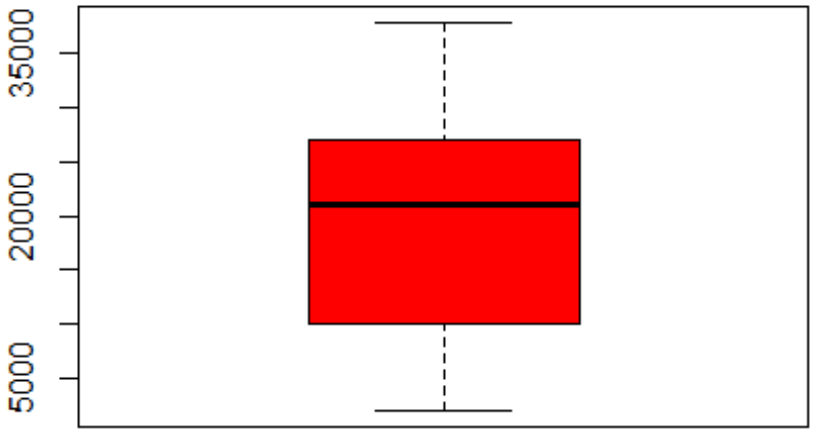

```
boxplot(port$WT_Q, col='red')
```



```r
#plotting the histogram for a cargo owner
boxplot(port[port$CARGO_OWNER == 'Dell',]$DWELL_DAYS, col='green')
```




```r
boxplot(port[port$CARGO_OWNER == 'Dell',]$WT_Q, col='red')
```



End of the Script