

# COSC6323\_Exercise\_1

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load the ggplot library and the mpg data set

```
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 3.6.3
```

```
str(mpg)
```

```
## tibble [234 x 11] (S3: tbl_df/tbl/data.frame)
## $ manufacturer: chr [1:234] "audi" "audi" "audi" "audi" ...
## $ model       : chr [1:234] "a4" "a4" "a4" "a4" ...
## $ displ       : num [1:234] 1.8 1.8 2 2 2.8 2.8 3.1 1.8 1.8 2 ...
## $ year        : int [1:234] 1999 1999 2008 2008 1999 1999 2008 1999 1999 2008 ...
## $ cyl         : int [1:234] 4 4 4 4 6 6 6 4 4 4 ...
## $ trans       : chr [1:234] "auto(l5)" "manual(m5)" "manual(m6)" "auto(av)" ...
## $ drv         : chr [1:234] "f" "f" "f" "f" ...
## $ cty         : int [1:234] 18 21 20 21 16 18 18 18 16 20 ...
## $ hwy         : int [1:234] 29 29 31 30 26 26 27 26 25 28 ...
## $ fl         : chr [1:234] "p" "p" "p" "p" ...
## $ class       : chr [1:234] "compact" "compact" "compact" "compact" ...
```

```
summary(mpg)
```

```
## manufacturer      model      displ      year
## Length:234      Length:234      Min.    :1.600      Min.    :1999
## Class :character  Class :character  1st Qu.:2.400      1st Qu.:1999
## Mode  :character  Mode  :character  Median :3.300      Median :2004
##                                     Mean   :3.472      Mean   :2004
##                                     3rd Qu.:4.600      3rd Qu.:2008
##                                     Max.    :7.000      Max.    :2008
##      cyl      trans      drv      cty
## Min.    :4.000      Length:234      Length:234      Min.    : 9.00
## 1st Qu.:4.000      Class :character  Class :character  1st Qu.:14.00
## Median :6.000      Mode  :character  Mode  :character  Median :17.00
## Mean   :5.889                                     Mean   :16.86
## 3rd Qu.:8.000                                     3rd Qu.:19.00
## Max.    :8.000                                     Max.    :35.00
##      hwy      fl      class
## Min.    :12.00      Length:234      Length:234
```

```
## 1st Qu.:18.00   Class :character   Class :character
## Median :24.00   Mode  :character   Mode  :character
## Mean  :23.44
## 3rd Qu.:27.00
## Max.   :44.00
```

Generating the X axis and the Y axis graph

```
a<-ggplot(mpg,aes(class,hwy))
```

Generating the jitter plot(layer 1) and boxplot(layer 2)

```
c<-a+geom_jitter(aes(colour=factor(class)))+geom_boxplot()
```

Adding the main title and X and Y axis titles

```
b<-labs(title = "Figure 1. Vehicle type vs Highways miles per gallon",
        y="Highways miles per gallon",x="Vehicle type,"~italic(n)~"= 234")
```

Combing all the code into one plot and adding themes to get the desired plot

```
d<-c+b+theme(legend.title = element_blank(),plot.title = element_text(size = 14))
```

Generating the desired plot

d

