22238_MDSC_201_Assignment 2

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```r
vec1 <- c(1,2,3,4)
vec2 <- c(5,6,7,8)
print(vec1+vec2)
```

```
## [1]  6  8 10 12
```

```r
vec1 <- c(1,2,3,4)
vec2 <- c(5,6,7,8)
print(vec1-vec2)
```

```
## [1] -4 -4 -4 -4
```

```r
vec1 <- c(1,2,3,4)
vec2 <- c(5,6,7,8)
print(vec1*vec2)
```

```
## [1]  5 12 21 32
```

```r
vec1 <- c(1,2,3,4)
vec2 <- c(5,6,7,8)
print(vec1/vec2)
```

```
## [1] 0.2000000 0.3333333 0.4285714 0.5000000
```

```r
vec1 <- c(1,2,3,4)
vec2 <- c(5,6,7,8)
print(vec1%%vec2)
```

```
## [1] 1 2 3 4
```

```r
vec1 <- c(5,6,7,8)
vec2 <- c(1,2,3,4)
print(vec1%/%vec2)
```

```
## [1] 5 3 2 2
```

```r
s <- 0:12
print(s)
```

```
##  [1]  0  1  2  3  4  5  6  7  8  9 10 11 12
```

```r
a = 5
b = 15
c = 1:10
print(a %in% c)
```

```
## [1] TRUE
```

```r
print(b %in% c)
```

```
## [1] FALSE
```

```r
mat1 = matrix(c(1,0,0,2), nrow = 2, ncol = 2, byrow = TRUE)
mul = mat1 %*% t(mat1)

print(mul)
```

```
##      [,1] [,2]
## [1,]    1    0
## [2,]    0    4
```

```r
x <- 10

if(x>5)
{
  print("The number is greater than 5")
}
```

```
## [1] "The number is greater than 5"
```

```r
i <-0
while (i<=5) {
  print(i)
  i <- i+1
}
```

```
## [1] 0
## [1] 1
## [1] 2
## [1] 3
## [1] 4
## [1] 5
```

```r
count <- 0
sen <- c("Let's start R programming")

repeat
{
  print(sen)
  count <- count+1

  if (count>=5)
  {break}
}
```

```
## [1] "Let's start R programming"
## [1] "Let's start R programming"
## [1] "Let's start R programming"
## [1] "Let's start R programming"
## [1] "Let's start R programming"
```

```r
alp = LETTERS[1:10]

for(i in alp)
{
  print(i)
}
```

```
## [1] "A"
## [1] "B"
## [1] "C"
## [1] "D"
## [1] "E"
## [1] "F"
## [1] "G"
## [1] "H"
## [1] "I"
## [1] "J"
```

```r
alp = LETTERS[1:10]

for(i in alp)
{
  print(i)
  if(i == "E")
  {
    break
  }
}
```

```
## [1] "A"
## [1] "B"
## [1] "C"
## [1] "D"
## [1] "E"
```

```r
alp = LETTERS[1:10]

for(i in alp)
{
  if(i == "E")
  {
    next
  }
  print(i)
}
```

```
## [1] "A"
## [1] "B"
## [1] "C"
## [1] "D"
## [1] "F"
## [1] "G"
## [1] "H"
## [1] "I"
## [1] "J"
```

```
df <- mtcars
head(df)
```

```
##                    mpg cyl disp  hp drat    wt  qsec vs am gear carb
## Mazda RX4         21.0   6  160 110 3.90 2.620 16.46  0  1    4    4
## Mazda RX4 Wag     21.0   6  160 110 3.90 2.875 17.02  0  1    4    4
## Datsun 710        22.8   4  108  93 3.85 2.320 18.61  1  1    4    1
## Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
## Hornet Sportabout 18.7   8  360 175 3.15 3.440 17.02  0  0    3    2
## Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
```

```
summary(df)
```

```
##       mpg             cyl             disp             hp
##  Min.   :10.40   Min.   :4.000   Min.   : 71.1   Min.   : 52.0
##  1st Qu.:15.43   1st Qu.:4.000   1st Qu.:120.8   1st Qu.: 96.5
##  Median :19.20   Median :6.000   Median :196.3   Median :123.0
##  Mean   :20.09   Mean   :6.188   Mean   :230.7   Mean   :146.7
##  3rd Qu.:22.80   3rd Qu.:8.000   3rd Qu.:326.0   3rd Qu.:180.0
##  Max.   :33.90   Max.   :8.000   Max.   :472.0   Max.   :335.0
##       drat             wt             qsec             vs
##  Min.   :2.760   Min.   :1.513   Min.   :14.50   Min.   :0.0000
##  1st Qu.:3.080   1st Qu.:2.581   1st Qu.:16.89   1st Qu.:0.0000
##  Median :3.695   Median :3.325   Median :17.71   Median :0.0000
##  Mean   :3.597   Mean   :3.217   Mean   :17.85   Mean   :0.4375
##  3rd Qu.:3.920   3rd Qu.:3.610   3rd Qu.:18.90   3rd Qu.:1.0000
##  Max.   :4.930   Max.   :5.424   Max.   :22.90   Max.   :1.0000
##       am             gear             carb
##  Min.   :0.0000   Min.   :3.000   Min.   :1.000
##  1st Qu.:0.0000   1st Qu.:3.000   1st Qu.:2.000
##  Median :0.0000   Median :4.000   Median :2.000
##  Mean   :0.4062   Mean   :3.688   Mean   :2.812
##  3rd Qu.:1.0000   3rd Qu.:4.000   3rd Qu.:4.000
##  Max.   :1.0000   Max.   :5.000   Max.   :8.000
```

```
sprintf("The mean of mpg from the data is : %f",mean(df$mpg))
```

```
## [1] "The mean of mpg from the data is : 20.090625"
```

```
library(ggplot2)
ggplot(df, aes(x = mpg, y = qsec))+geom_point()
```
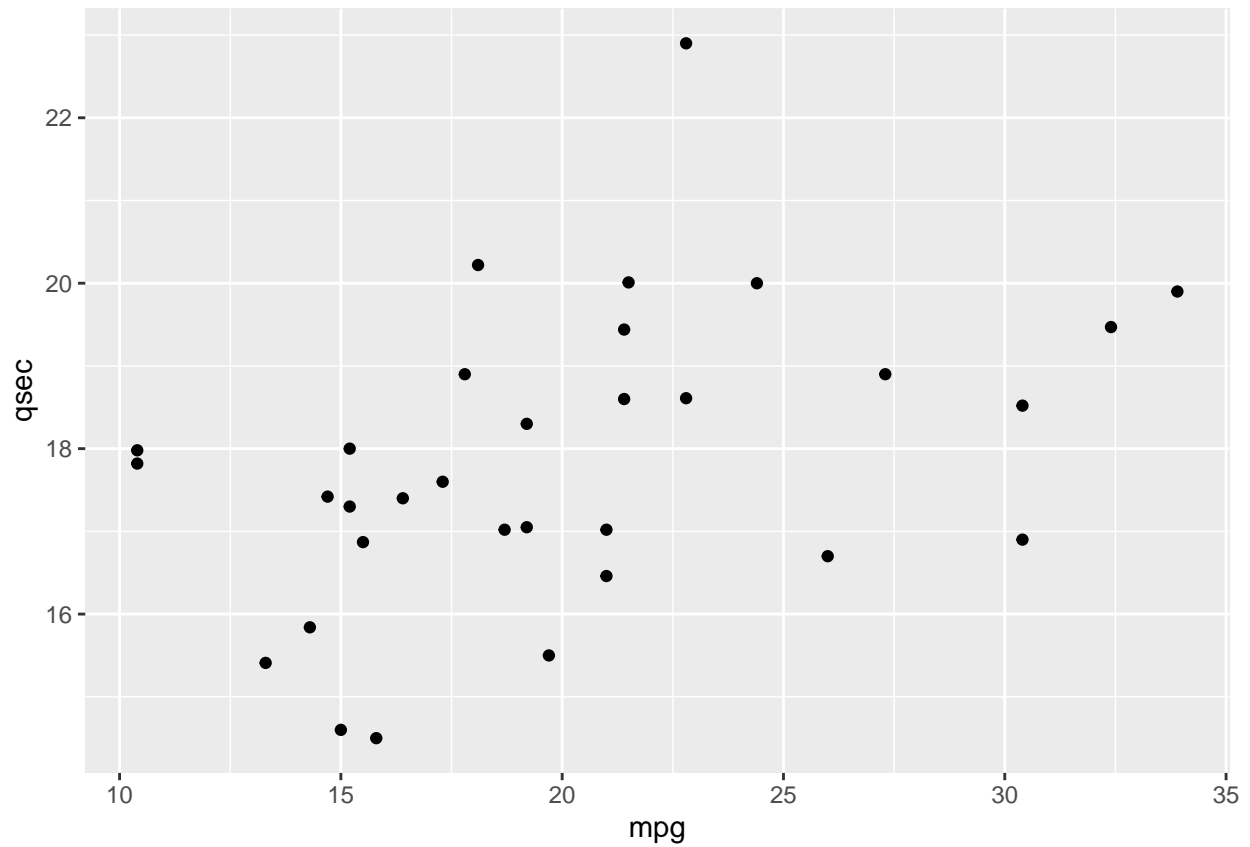
```
x <- df$mpg
y <- df$qsec

sprintf("Correlation of mpg and qsec is : %f",cor(x,y))
```

```
## [1] "Correlation of mpg and qsec is : 0.418684"
```