# Worksheet5

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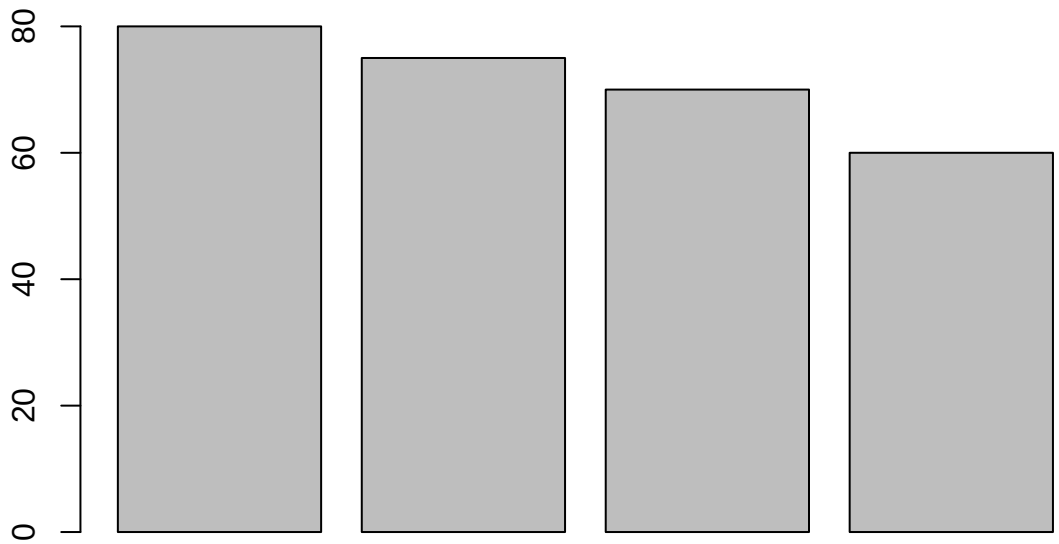
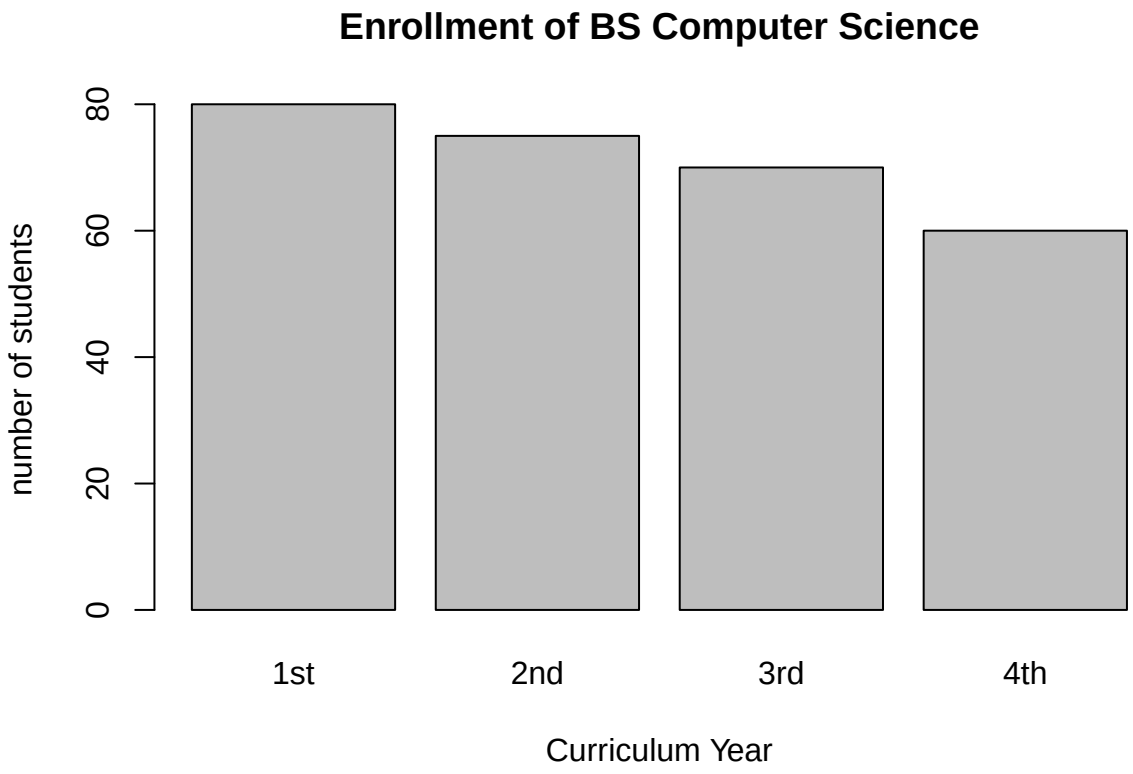
Accomplish this worksheet by answering the questions being asked and writing the code manually.

```
#1)The table shows the enrollment of BS in Computer Science, SY 2010-2011.


#a) Plot the data using a bar graph. Write the codes and copy the result.
year <- c(80, 75, 70, 60)
barplot(year)
```




```
#b)Using the same table, label the barchart with
#Title = " Enrollment of BS Computer Science
#horizontal axis = "Curriculum Year" and
#vertical axis = "number of students"
```

```
barplot(year,
        main= "Enrollment of BS Computer Science",
        xlab = "Curriculum Year",
        ylab = "number of students", names.arg= c("1st", "2nd", "3rd", "4th"))
```




#2 The monthly income of De Jesus family was spent on the following:

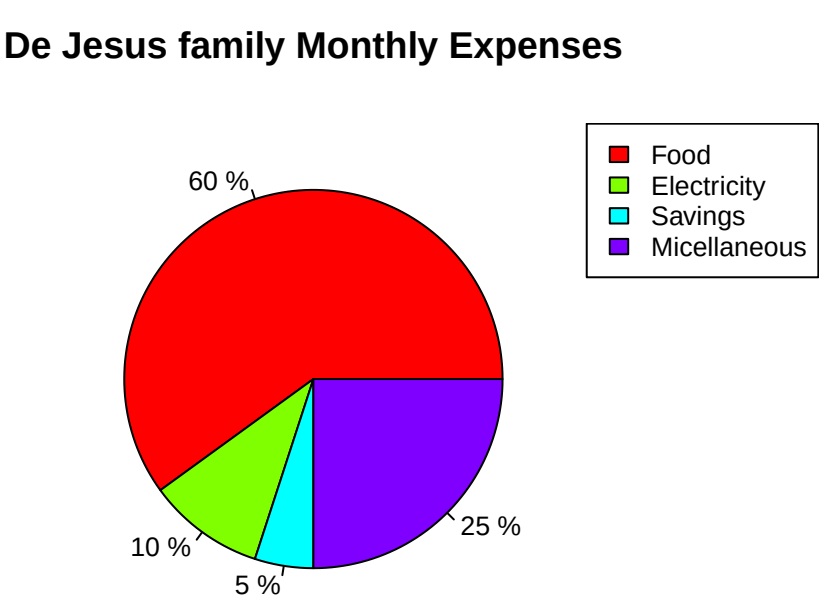
```
#60% on Food, 10% on electricity, 5% for savings, and
#25% for other miscellaneous expenses.

#a)  Create a table for the above scenario.
#Write the codes and its result

av <- c("Food", "Electricity", "Savage", "Micellaneous_expenses")
de <- c(60, 10, 5, 25)

spend <- data.frame(av, de)
spend
```

```
##                    av de
## 1                Food 60
## 2         Electricity 10
## 3              Savage  5
## 4 Micellaneous_expenses 25
```

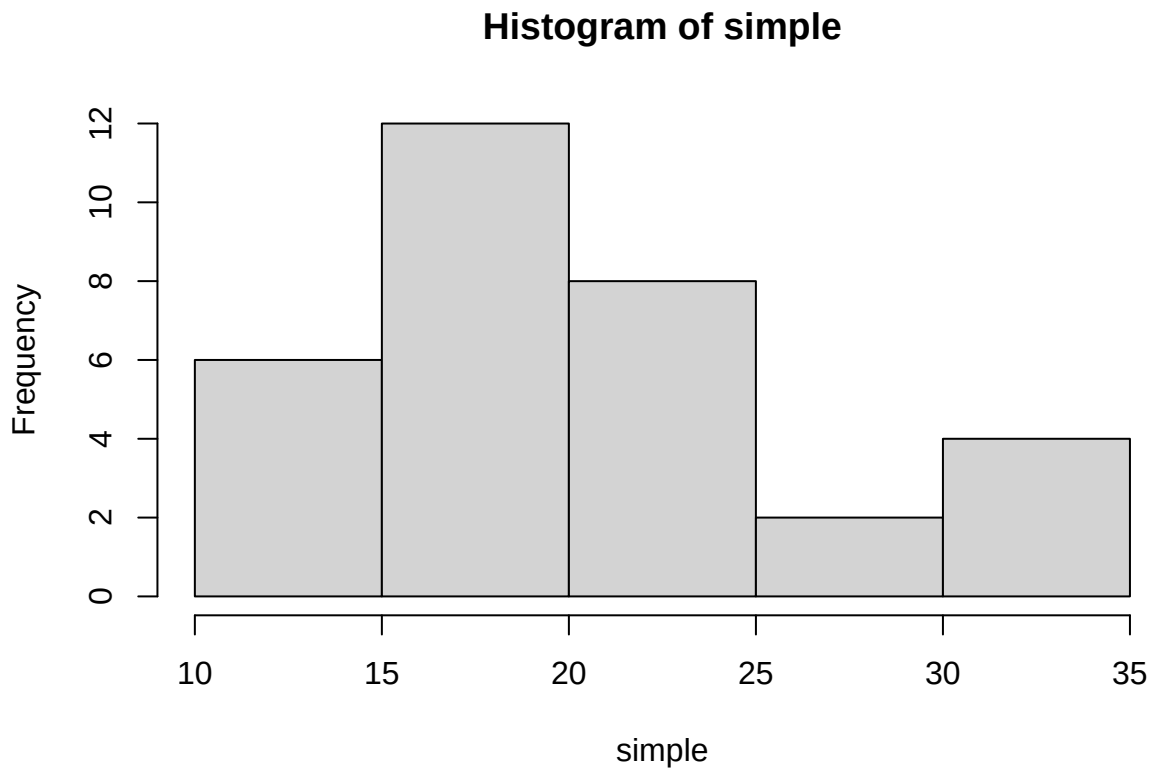
```
tab <- table(spend)
tab
```

```
##                          de
## av                        5 10 25 60
##   Electricity             0  1  0  0
##   Food                    0  0  0  1
##   Micellaneous_expenses   0  0  1  0
##   Savage                  1  0  0  0
```

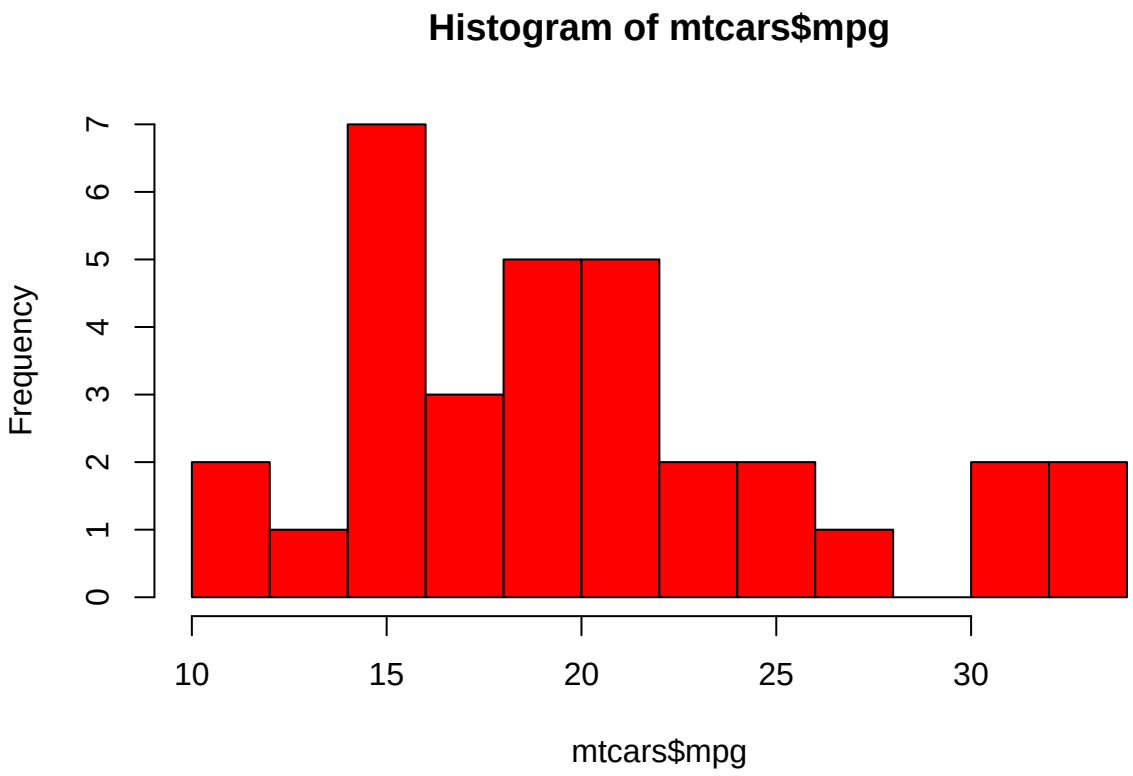
```
#b. Plot the data using a pie chart. Add labels, colors and legend.
#Write the codes and its result.

mon = c(60, 10, 5, 25)

data <- round(mon/sum(mon)*100,1)
data <- paste(data, "%", sep = " ")

piechart <- pie( mon, labels = data, cex = 0.8, col = rainbow(4), main = "De Jesus family Monthly Expens
legend("topright", c("Food", "Electricity", "Savings", "Micellaneous"), cex = 0.8 , fill = rainbow(4))
```



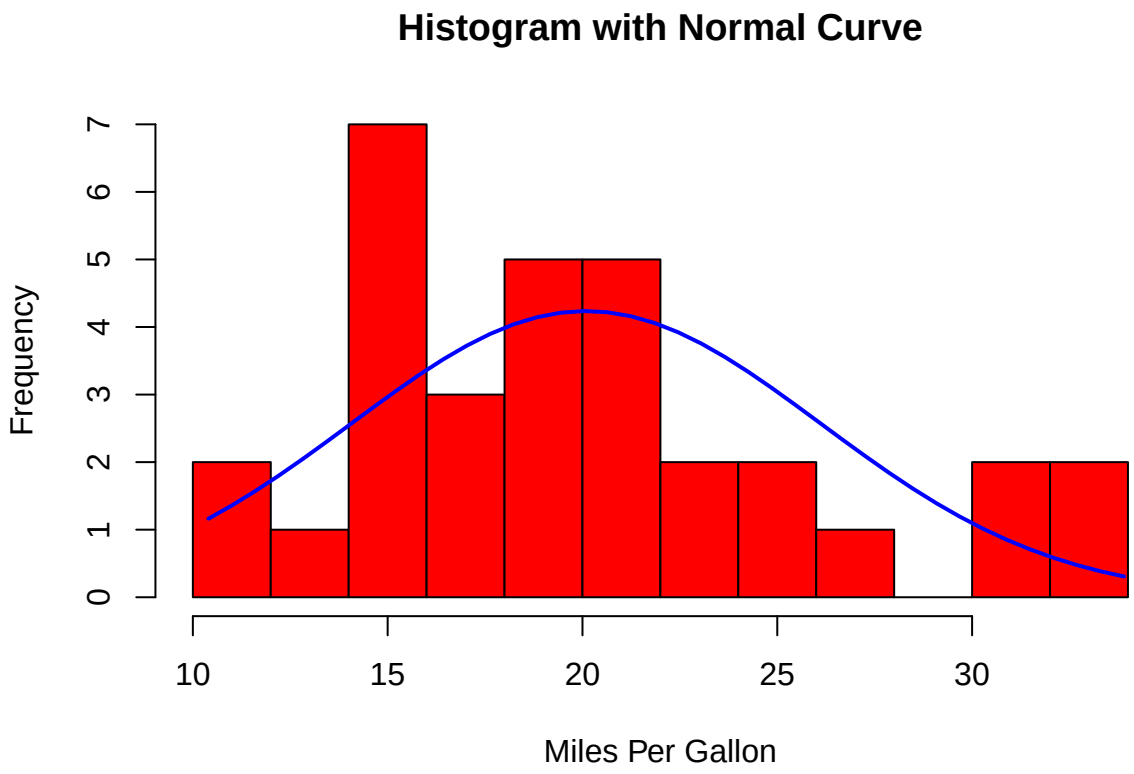
```r
#3 Open the mtcars dataset.
data(mtcars)

#a.. Create a simple histogram specifically for mpg (miles per gallon) variable.
#Use $ to select the mpg only. Write the codes and its result.

data(mtcars)

simple <- (mtcars$mpg)
hist(simple,)
```




```r
#b. Colored histogram with different number of bins.
# hist(mtcars$mpg, breaks=12, col="red")
#Note: breaks=controls the number of bins.

hist(mtcars$mpg, breaks=12, col="red")
```




```
#c. Add a Normal Curve
#Copy the result
histo <-hist(simple, breaks=10, col="red", xlab ="Miles Per Gallon",
             main="Histogram with Normal Curve")
xfit<-seq(min(simple),max(simple),length=40)
yfit<-dnorm(xfit,mean=mean(simple),sd=sd(simple))
yfit <- yfit*diff(histo$mids[1:2])*length(simple)
lines(xfit, yfit, col="blue", lwd=2)
```




```
#4 Open the iris dataset. Create a subset for each species.

data(iris)
View(iris)
```

```
#a. Write the codes and its result.

data_set1<- subset(iris, Species == "setosa")
data_set2<- subset(iris, Species == "versicolor")
data_set3<- subset(iris, Species == "virginica")
data_set1
```

```
##   Sepal.Length Sepal.Width Petal.Length Petal.Width Species
## 1          5.1         3.5          1.4         0.2  setosa
## 2          4.9         3.0          1.4         0.2  setosa
## 3          4.7         3.2          1.3         0.2  setosa
## 4          4.6         3.1          1.5         0.2  setosa
## 5          5.0         3.6          1.4         0.2  setosa
## 6          5.4         3.9          1.7         0.4  setosa
## 7          4.6         3.4          1.4         0.3  setosa
```

```
## 8          5.0         3.4          1.5         0.2  setosa
## 9          4.4         2.9          1.4         0.2  setosa
## 10         4.9         3.1          1.5         0.1  setosa
## 11         5.4         3.7          1.5         0.2  setosa
## 12         4.8         3.4          1.6         0.2  setosa
## 13         4.8         3.0          1.4         0.1  setosa
## 14         4.3         3.0          1.1         0.1  setosa
## 15         5.8         4.0          1.2         0.2  setosa
## 16         5.7         4.4          1.5         0.4  setosa
## 17         5.4         3.9          1.3         0.4  setosa
## 18         5.1         3.5          1.4         0.3  setosa
## 19         5.7         3.8          1.7         0.3  setosa
## 20         5.1         3.8          1.5         0.3  setosa
## 21         5.4         3.4          1.7         0.2  setosa
## 22         5.1         3.7          1.5         0.4  setosa
## 23         4.6         3.6          1.0         0.2  setosa
## 24         5.1         3.3          1.7         0.5  setosa
## 25         4.8         3.4          1.9         0.2  setosa
## 26         5.0         3.0          1.6         0.2  setosa
## 27         5.0         3.4          1.6         0.4  setosa
## 28         5.2         3.5          1.5         0.2  setosa
## 29         5.2         3.4          1.4         0.2  setosa
## 30         4.7         3.2          1.6         0.2  setosa
## 31         4.8         3.1          1.6         0.2  setosa
## 32         5.4         3.4          1.5         0.4  setosa
## 33         5.2         4.1          1.5         0.1  setosa
## 34         5.5         4.2          1.4         0.2  setosa
## 35         4.9         3.1          1.5         0.2  setosa
## 36         5.0         3.2          1.2         0.2  setosa
## 37         5.5         3.5          1.3         0.2  setosa
## 38         4.9         3.6          1.4         0.1  setosa
## 39         4.4         3.0          1.3         0.2  setosa
## 40         5.1         3.4          1.5         0.2  setosa
## 41         5.0         3.5          1.3         0.3  setosa
## 42         4.5         2.3          1.3         0.3  setosa
## 43         4.4         3.2          1.3         0.2  setosa
## 44         5.0         3.5          1.6         0.6  setosa
## 45         5.1         3.8          1.9         0.4  setosa
## 46         4.8         3.0          1.4         0.3  setosa
## 47         5.1         3.8          1.6         0.2  setosa
## 48         4.6         3.2          1.4         0.2  setosa
## 49         5.3         3.7          1.5         0.2  setosa
## 50         5.0         3.3          1.4         0.2  setosa
```

```
data_set2
```

```
##     Sepal.Length Sepal.Width Petal.Length Petal.Width    Species
## 51           7.0         3.2          4.7         1.4 versicolor
## 52           6.4         3.2          4.5         1.5 versicolor
## 53           6.9         3.1          4.9         1.5 versicolor
## 54           5.5         2.3          4.0         1.3 versicolor
## 55           6.5         2.8          4.6         1.5 versicolor
## 56           5.7         2.8          4.5         1.3 versicolor
## 57           6.3         3.3          4.7         1.6 versicolor
```

```
## 58          4.9         2.4          3.3         1.0 versicolor
## 59          6.6         2.9          4.6         1.3 versicolor
## 60          5.2         2.7          3.9         1.4 versicolor
## 61          5.0         2.0          3.5         1.0 versicolor
## 62          5.9         3.0          4.2         1.5 versicolor
## 63          6.0         2.2          4.0         1.0 versicolor
## 64          6.1         2.9          4.7         1.4 versicolor
## 65          5.6         2.9          3.6         1.3 versicolor
## 66          6.7         3.1          4.4         1.4 versicolor
## 67          5.6         3.0          4.5         1.5 versicolor
## 68          5.8         2.7          4.1         1.0 versicolor
## 69          6.2         2.2          4.5         1.5 versicolor
## 70          5.6         2.5          3.9         1.1 versicolor
## 71          5.9         3.2          4.8         1.8 versicolor
## 72          6.1         2.8          4.0         1.3 versicolor
## 73          6.3         2.5          4.9         1.5 versicolor
## 74          6.1         2.8          4.7         1.2 versicolor
## 75          6.4         2.9          4.3         1.3 versicolor
## 76          6.6         3.0          4.4         1.4 versicolor
## 77          6.8         2.8          4.8         1.4 versicolor
## 78          6.7         3.0          5.0         1.7 versicolor
## 79          6.0         2.9          4.5         1.5 versicolor
## 80          5.7         2.6          3.5         1.0 versicolor
## 81          5.5         2.4          3.8         1.1 versicolor
## 82          5.5         2.4          3.7         1.0 versicolor
## 83          5.8         2.7          3.9         1.2 versicolor
## 84          6.0         2.7          5.1         1.6 versicolor
## 85          5.4         3.0          4.5         1.5 versicolor
## 86          6.0         3.4          4.5         1.6 versicolor
## 87          6.7         3.1          4.7         1.5 versicolor
## 88          6.3         2.3          4.4         1.3 versicolor
## 89          5.6         3.0          4.1         1.3 versicolor
## 90          5.5         2.5          4.0         1.3 versicolor
## 91          5.5         2.6          4.4         1.2 versicolor
## 92          6.1         3.0          4.6         1.4 versicolor
## 93          5.8         2.6          4.0         1.2 versicolor
## 94          5.0         2.3          3.3         1.0 versicolor
## 95          5.6         2.7          4.2         1.3 versicolor
## 96          5.7         3.0          4.2         1.2 versicolor
## 97          5.7         2.9          4.2         1.3 versicolor
## 98          6.2         2.9          4.3         1.3 versicolor
## 99          5.1         2.5          3.0         1.1 versicolor
## 100         5.7         2.8          4.1         1.3 versicolor
```

```
data_set3
```

```
##     Sepal.Length Sepal.Width Petal.Length Petal.Width   Species
## 101          6.3         3.3          6.0         2.5 virginica
## 102          5.8         2.7          5.1         1.9 virginica
## 103          7.1         3.0          5.9         2.1 virginica
## 104          6.3         2.9          5.6         1.8 virginica
## 105          6.5         3.0          5.8         2.2 virginica
## 106          7.6         3.0          6.6         2.1 virginica
## 107          4.9         2.5          4.5         1.7 virginica
```

```
## 108         7.3         2.9         6.3         1.8 virginica
## 109         6.7         2.5         5.8         1.8 virginica
## 110         7.2         3.6         6.1         2.5 virginica
## 111         6.5         3.2         5.1         2.0 virginica
## 112         6.4         2.7         5.3         1.9 virginica
## 113         6.8         3.0         5.5         2.1 virginica
## 114         5.7         2.5         5.0         2.0 virginica
## 115         5.8         2.8         5.1         2.4 virginica
## 116         6.4         3.2         5.3         2.3 virginica
## 117         6.5         3.0         5.5         1.8 virginica
## 118         7.7         3.8         6.7         2.2 virginica
## 119         7.7         2.6         6.9         2.3 virginica
## 120         6.0         2.2         5.0         1.5 virginica
## 121         6.9         3.2         5.7         2.3 virginica
## 122         5.6         2.8         4.9         2.0 virginica
## 123         7.7         2.8         6.7         2.0 virginica
## 124         6.3         2.7         4.9         1.8 virginica
## 125         6.7         3.3         5.7         2.1 virginica
## 126         7.2         3.2         6.0         1.8 virginica
## 127         6.2         2.8         4.8         1.8 virginica
## 128         6.1         3.0         4.9         1.8 virginica
## 129         6.4         2.8         5.6         2.1 virginica
## 130         7.2         3.0         5.8         1.6 virginica
## 131         7.4         2.8         6.1         1.9 virginica
## 132         7.9         3.8         6.4         2.0 virginica
## 133         6.4         2.8         5.6         2.2 virginica
## 134         6.3         2.8         5.1         1.5 virginica
## 135         6.1         2.6         5.6         1.4 virginica
## 136         7.7         3.0         6.1         2.3 virginica
## 137         6.3         3.4         5.6         2.4 virginica
## 138         6.4         3.1         5.5         1.8 virginica
## 139         6.0         3.0         4.8         1.8 virginica
## 140         6.9         3.1         5.4         2.1 virginica
## 141         6.7         3.1         5.6         2.4 virginica
## 142         6.9         3.1         5.1         2.3 virginica
## 143         5.8         2.7         5.1         1.9 virginica
## 144         6.8         3.2         5.9         2.3 virginica
## 145         6.7         3.3         5.7         2.5 virginica
## 146         6.7         3.0         5.2         2.3 virginica
## 147         6.3         2.5         5.0         1.9 virginica
## 148         6.5         3.0         5.2         2.0 virginica
## 149         6.2         3.4         5.4         2.3 virginica
## 150         5.9         3.0         5.1         1.8 virginica
```

```
#b.Get the mean for every characteristics of each species using colMeans().
#Write the codes and its result.
#Example:setosa <- colMeans(setosa[sapply(setosaDF,is.numeric)])

setosa <- colMeans(data_set1[sapply(data_set1,is.numeric)])
versicolor <- colMeans(data_set2[sapply(data_set2,is.numeric)])
virginica <- colMeans(data_set3[sapply(data_set3,is.numeric)])
```

```
setosa
```

```
## Sepal.Length  Sepal.Width Petal.Length  Petal.Width
##        5.006        3.428        1.462        0.246
```

```
versicolor
```

```
## Sepal.Length  Sepal.Width Petal.Length  Petal.Width
##        5.936        2.770        4.260        1.326
```

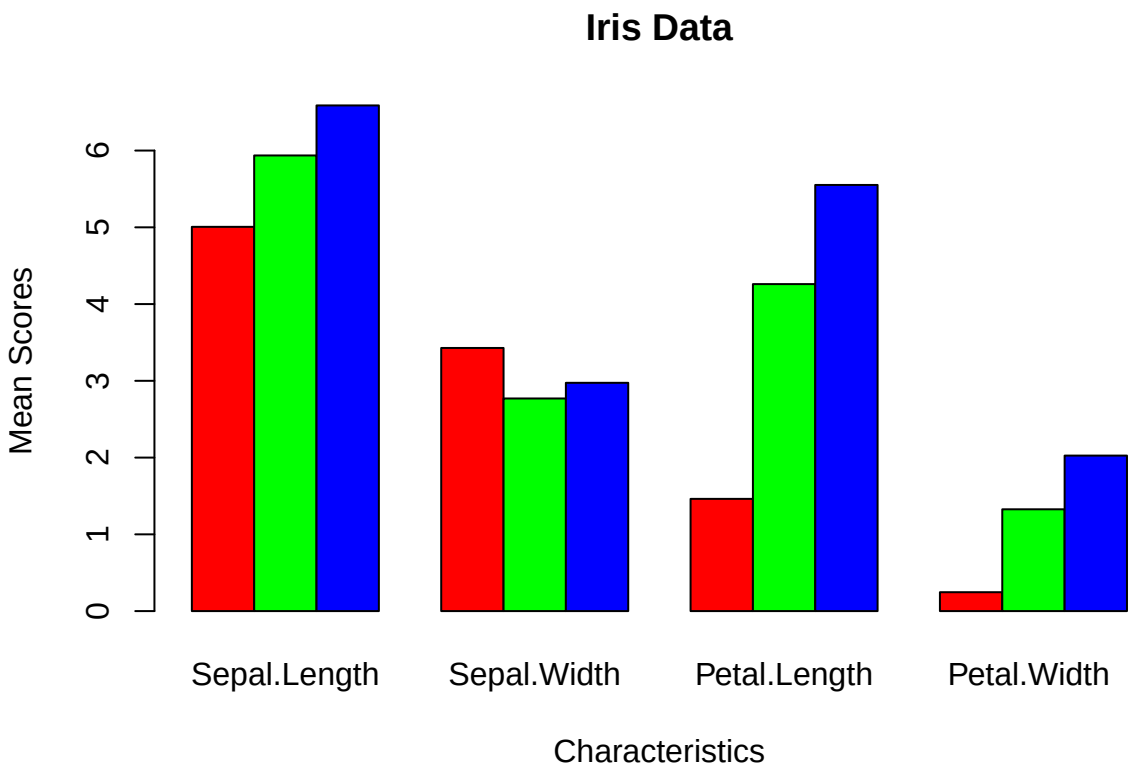
```
virginica
```

```
## Sepal.Length  Sepal.Width Petal.Length  Petal.Width
##        6.588        2.974        5.552        2.026
```

```
#c Combine all species by using rbind()
#The table should be look like this:

species <- rbind(setosa, versicolor, virginica)
species
```

```
##            Sepal.Length Sepal.Width Petal.Length Petal.Width
## setosa            5.006       3.428        1.462       0.246
## versicolor        5.936       2.770        4.260       1.326
## virginica         6.588       2.974        5.552       2.026
```

```
#d. From the data in 4-c: Create the barplot().
#Write the codes and its result.
#The barplot should be like this.

barplot(species, beside = TRUE, col= c("red", "green", "blue"),
        main= "Iris Data",
        xlab= "Characteristics",
        ylab= "Mean Scores", names.arg= c("Sepal.Length", "Sepal.Width", "Petal.Length", "Petal.Width "
```


Iris Data
Mean Scores
0
1
2
3
4
5
6
Sepal.Length
Sepal.Width
Petal.Length
Petal.Width
Characteristics