Worksheet 5

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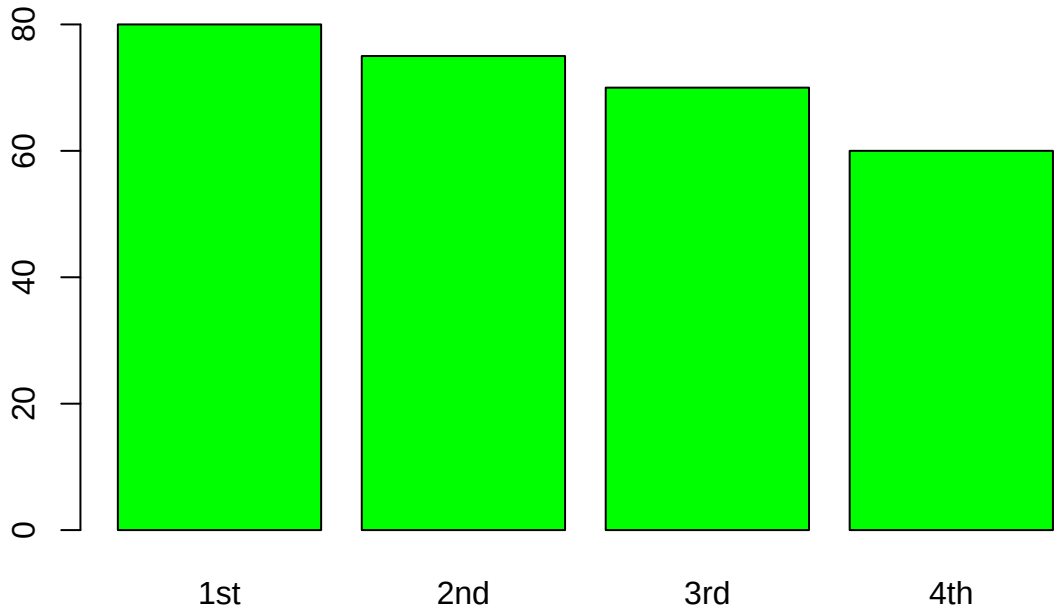
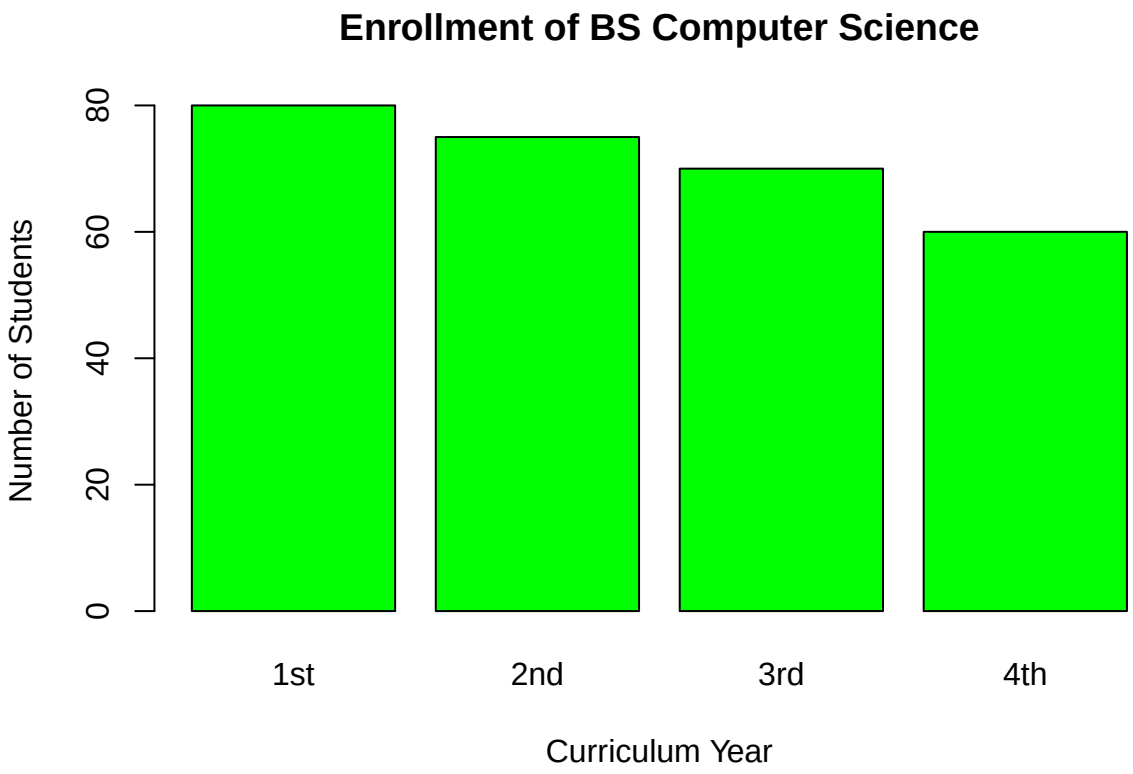
/hfill/break

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

#Course Year 2019 - 2020
#  1st      |     80
#  2nd      |     75
#  3rd      |     70
#  4th      |     60
```

```
#a. Plot the data using a bar graph. Write the codes and copy the result.

date1 <- c("1st", "2nd", "3rd", "4th")
date2 <- c(80,75,70,60)

graph<- barplot(date2, names.arg = date1, col = "green")
```




```
#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"

graph<- barplot(date2, names.arg = date1,
                main = "Enrollment of BS Computer Science",
                ylab = "Number of Students", xlab = "Curriculum Year",
                col = "green")
```




```
#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.

  expences <- c("Food", "Electricity", "Savings", "Miscellaneous_expenses")
  spent <- c(60, 10, 5, 25)

Mdata <- data.frame(expences, spent)
Mdata
```

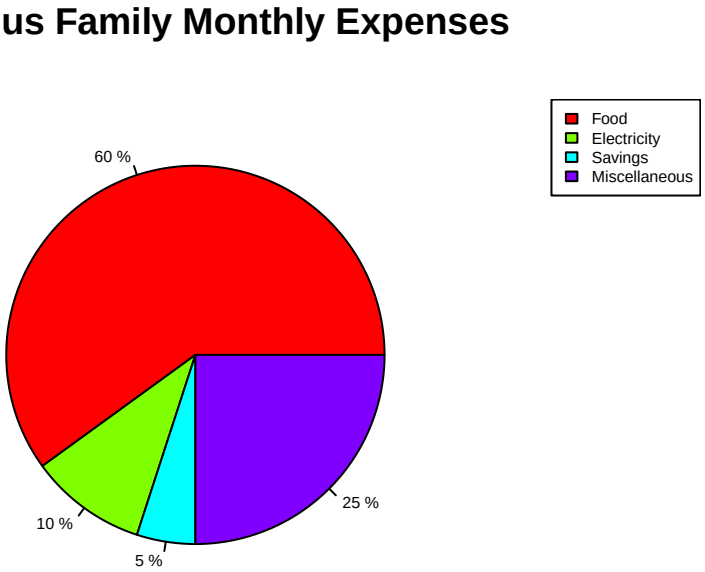
```
##                 expences spent
## 1                  Food    60
## 2           Electricity    10
## 3               Savings     5
## 4 Miscellaneous_expenses    25
```

```
Mdata2 <- table(Mdata)
Mdata2
```

```
##                        spent
## expences                5 10 25 60
##   Electricity           0  1  0  0
```

```
##   Food                    0  0  0  1
##   Miscellaneous_expenses  0  0  1  0
##   Savings                 1  0  0  0
```

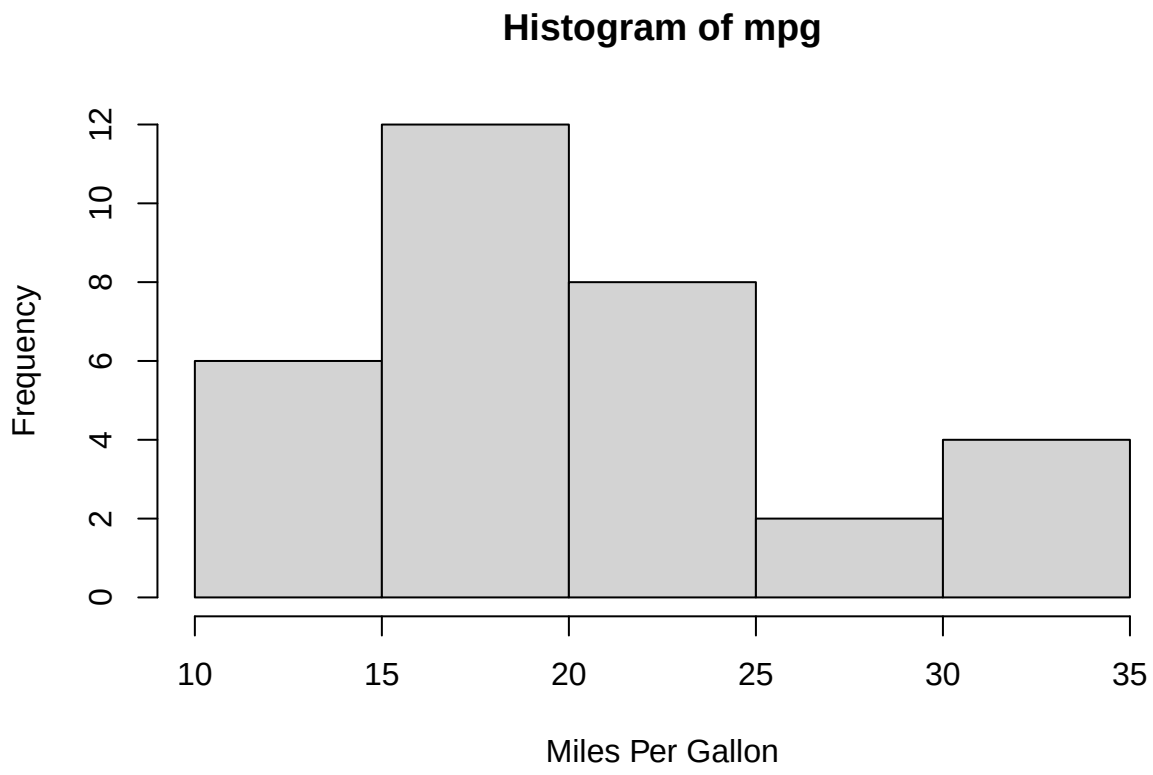
```
#b. Plot the data using a pie chart. Add labels, colors and legend.
#   Write the codes and its result.

pie_data <- c( 60, 10, 5, 25)

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

piechart <- pie( pie_data, labels = Pdata, cex = 0.5, col = rainbow(4), main =
                   "De Jesus Family Monthly Expenses")
legend("topright", c("Food", "Electricity", "Savings", "Miscellaneous"),
       cex = 0.5 , fill =rainbow(4))
```



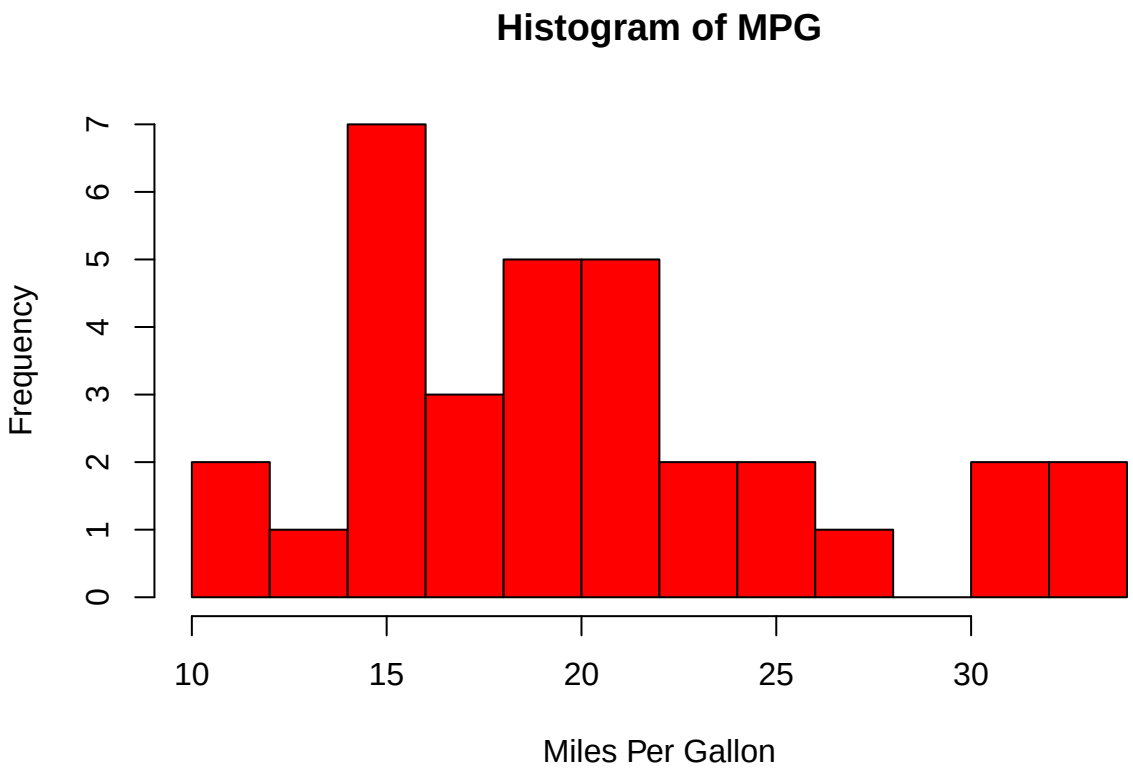

```
#3. Open the mtcars dataset.

data("mtcars")
dset <- mtcars$mpg
dset
```

```
##  [1] 21.0 21.0 22.8 21.4 18.7 18.1 14.3 24.4 22.8 19.2 17.8 16.4 17.3 15.2 10.4
## [16] 10.4 14.7 32.4 30.4 33.9 21.5 15.5 15.2 13.3 19.2 27.3 26.0 30.4 15.8 19.7
## [31] 15.0 21.4
```

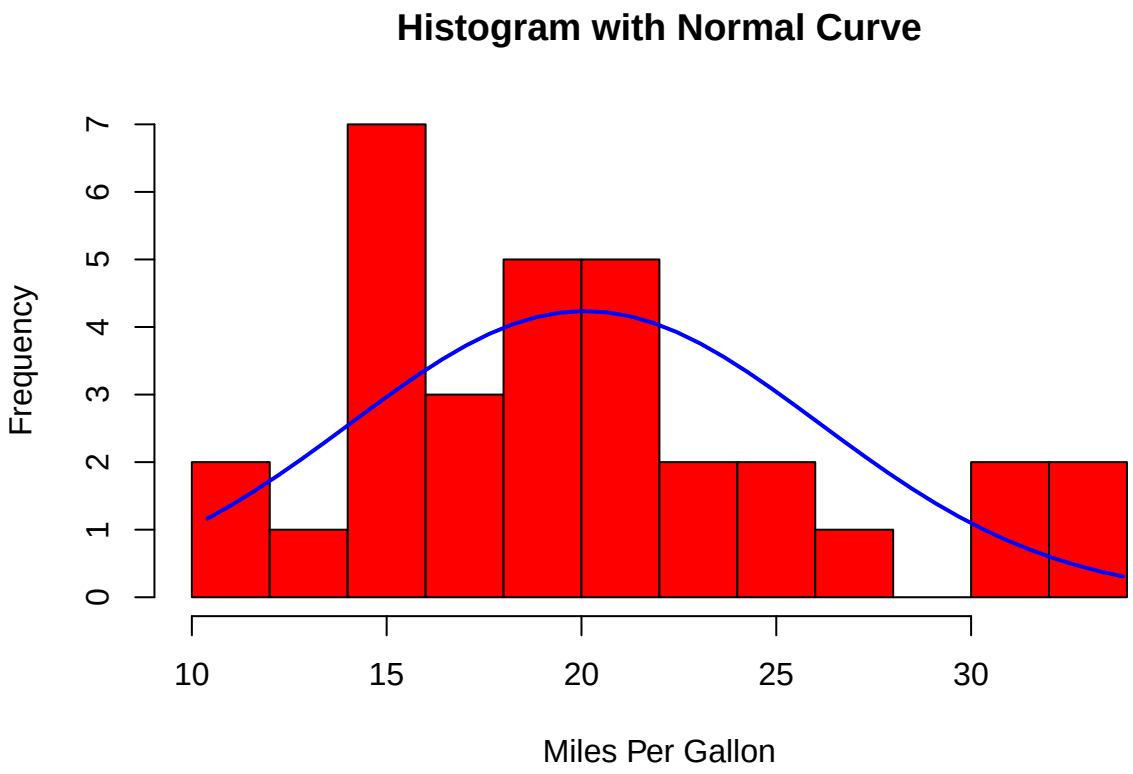
```r
#a. Create a simple histogram specifically for mpg (miles per gallon) variable.
#   Use $ to select the mpg only. Write the codes and its result.
#   Note: breaks= controls the number of bins.

dataset1 <-hist(dset, xlab="Miles Per Gallon",
                main="Histogram of mpg")
```




```r
#b. Colored histogram with different number of bins.
dataset2 <-hist(dset, breaks=12, col="red", xlab="Miles Per Gallon",
                main="Histogram of MPG")
```




```
#c. Add a Normal Curve. Copy the result.

dataset3 <-hist(dset, breaks=12, col="red", xlab="Miles Per Gallon",
         main="Histogram with Normal Curve")
         xfit<-seq(min(dset),max(dset),length=40)
         yfit<-dnorm(xfit,mean=mean(dset),sd=sd(dset))
         yfit <- yfit*diff(dataset3$mids[1:2])*length(dset)
         lines(xfit, yfit, col="blue", lwd=2)
```




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

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

data("iris")
seto <- subset(iris, Species == "setosa")
versi <- subset(iris, Species == "versicolor")
virgi <- subset(iris, Species == "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)])

  seto <- subset(iris, Species == "setosa")
  setosa <- colMeans(seto[sapply(seto,is.numeric)])
  setosa
```

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

```
  versi <- subset(iris, Species == "versicolor")
  versicolor <- colMeans(versi[sapply(versi,is.numeric)])
  versicolor
```

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

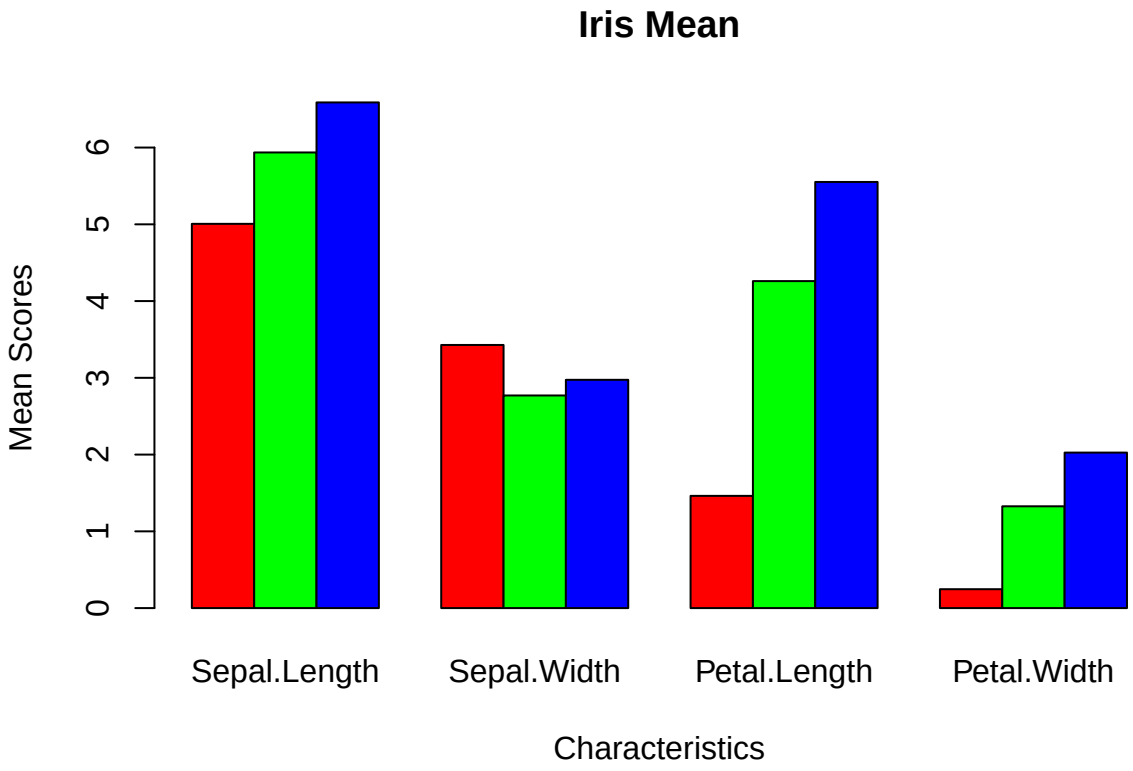
```r
  virgi <- subset(iris, Species == "virginica")
  virginica <- colMeans(virgi[sapply(virgi,is.numeric)])
  virginica
```

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

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

#   Sepal.Length Sepal.Width Petal.Length Petal.Width
#   setosa
#   versicolor
#   virginica

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

```
##            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
```

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

barplot(table, beside = TRUE,
        main = "Iris Mean",
        xlab = "Characteristics",
        ylab = "Mean Scores",
        col = c("red","green","blue"))
```




```
#Figure 1: Iris Data using Barplot
```