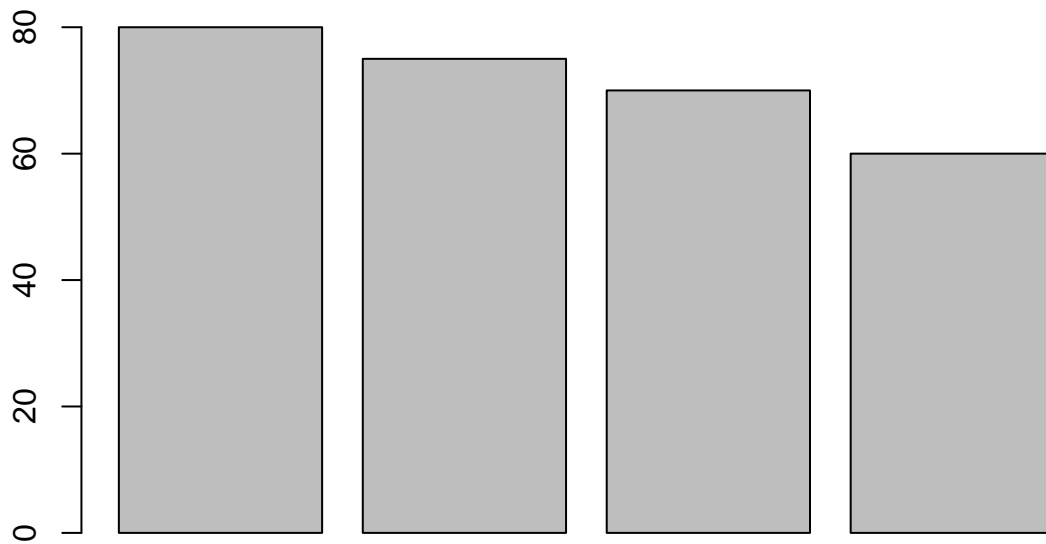# Worksheet 5

Ben Robert T. Salve.

2022-11-23

#Ben Robert T. Salve. BSIT2-A

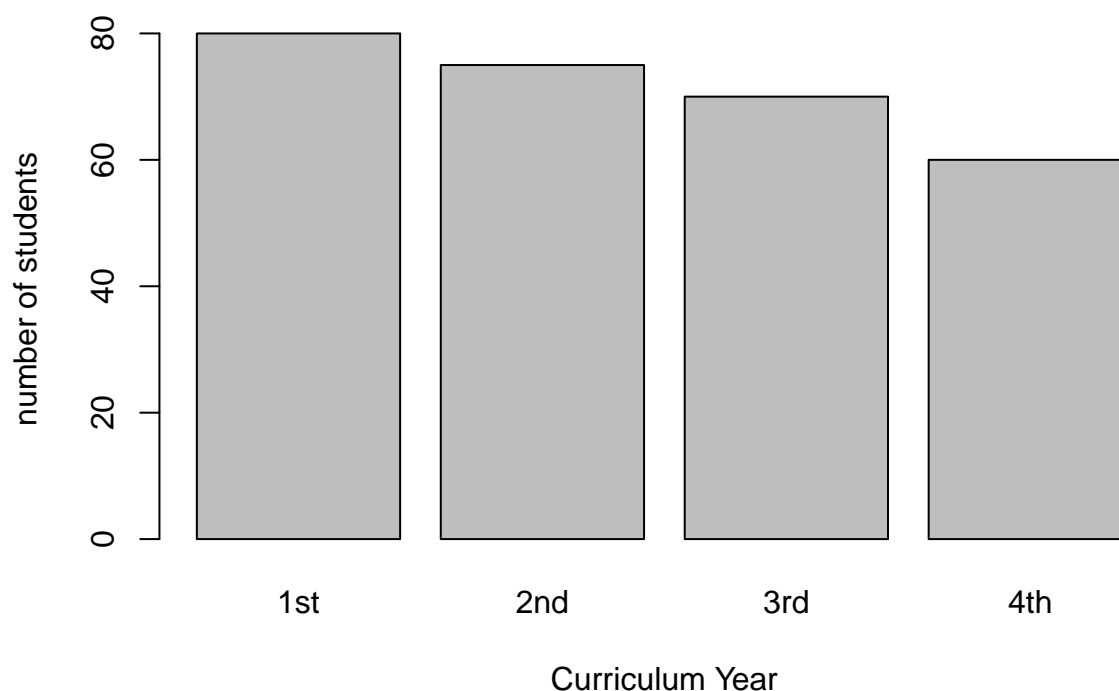#1) ##a.

```r
year_2019_2020 <- c(80, 75, 70, 60)
barplot(year_2019_2020)
```


##b.

```r
barplot(year_2019_2020,
        main= "Enrollment of BS Computer Science",
        xlab= "Curriculum Year",
        ylab= "number of students", names.arg= c("1st", "2nd", "3rd", "4th"))
```

Enrollment of BS Computer Science

#2)

##a.

```
Monthlyincome_Dejesus <- data.frame(Food= ("60%"), Electricity= ("10%"),
                    Savings= ("5%"), Other_miscellaneous_expenses= ("25%"))
Monthlyincome_Dejesus
```

```
##   Food Electricity Savings Other_miscellaneous_expenses
## 1  60%         10%      5%                          25%
```

##b.

```
Monthlyincome_Dejesus <- c(60, 10, 5, 25)
Monthlyincome_Dejesus
```

```
## [1] 60 10  5 25
```

```
pie(Monthlyincome_Dejesus,
    main= "cost",
    col= rainbow(length(Monthlyincome_Dejesus)),
    labels= c("Food", "Electricity", "Savings", "Other miscellaneous expenses"))
legend("topright", c("Food", "Electricity", "Savings", "Other miscellaneous expenses"),
       cex= 0.5, fill= rainbow(length(Monthlyincome_Dejesus)))
```

cost
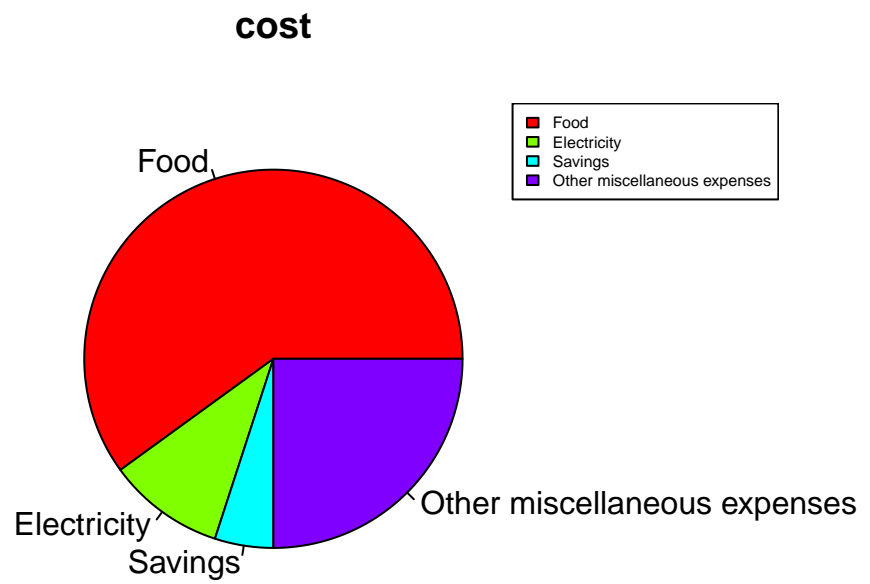
#3)

```
data(mtcars)
```

##a.

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

Histogram of simple_histo
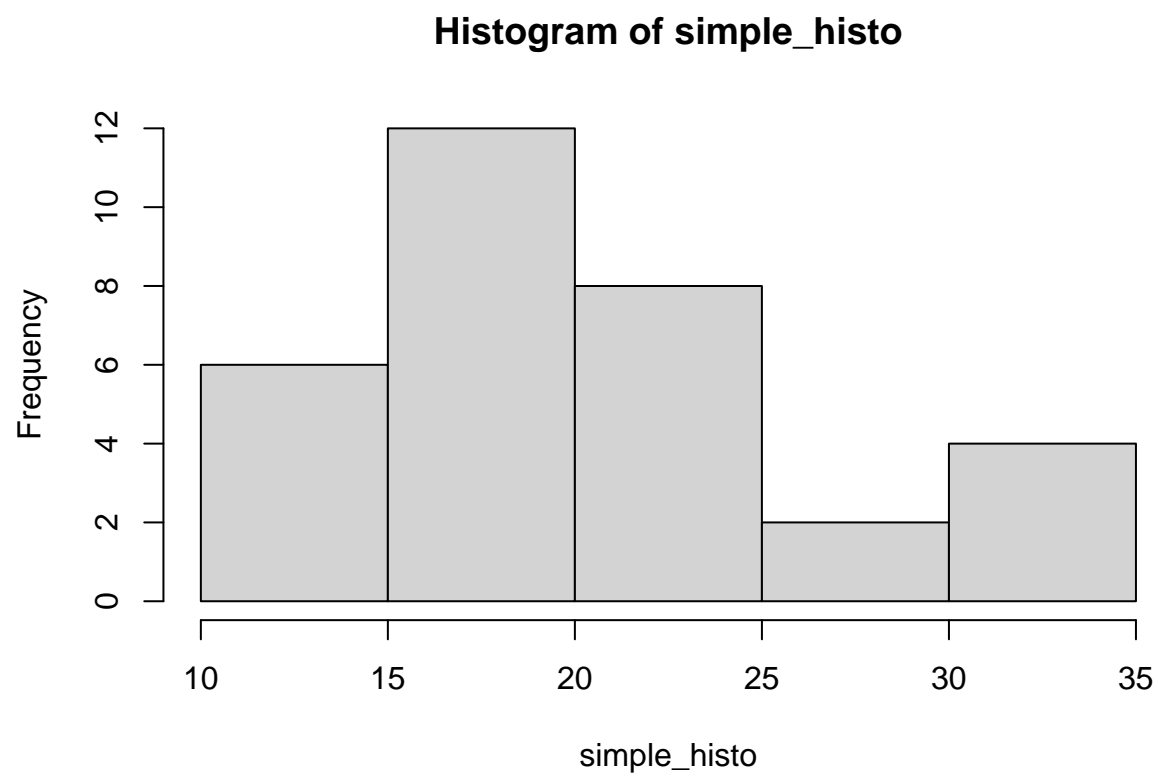
##b.

```
hist(simple_histo, breaks=12, col="red")
```

Histogram of simple_histo

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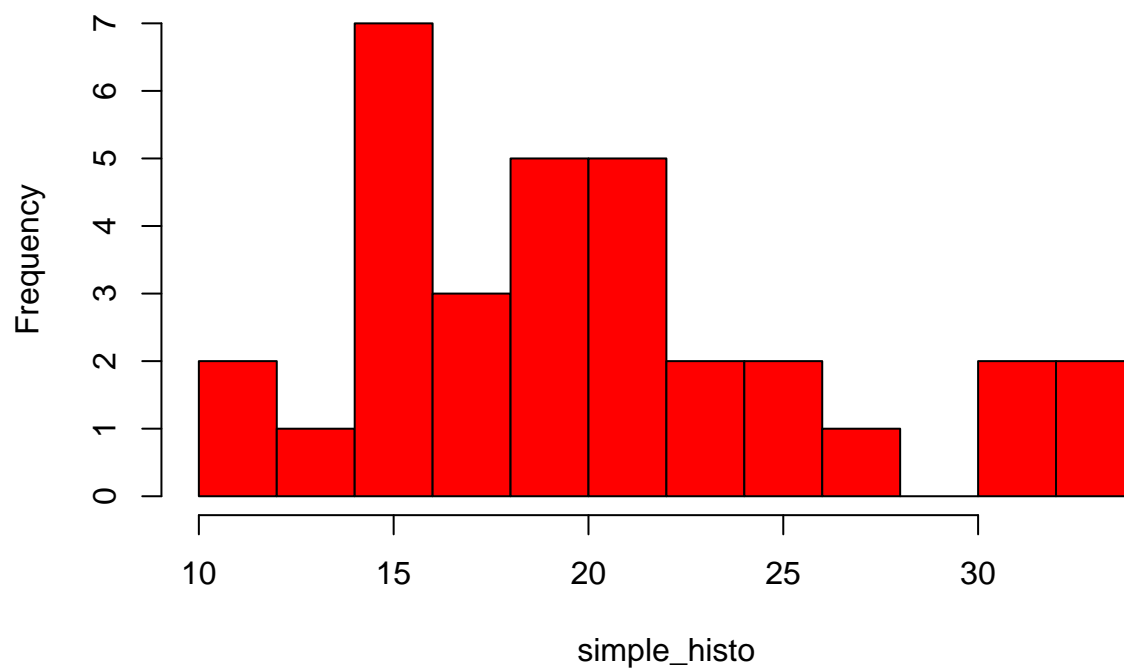
```r
histo <-hist(simple_histo, breaks=10, col="red", xlab="Miles Per Gallon",
       main="Histogram with Normal Curve")
xfit<-seq(min(simple_histo),max(simple_histo),length=40)
yfit<-dnorm(xfit,mean=mean(simple_histo),sd=sd(simple_histo))
yfit <- yfit*diff(histo$mids[1:2])*length(simple_histo)
lines(xfit,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

Histogram with Normal Curve
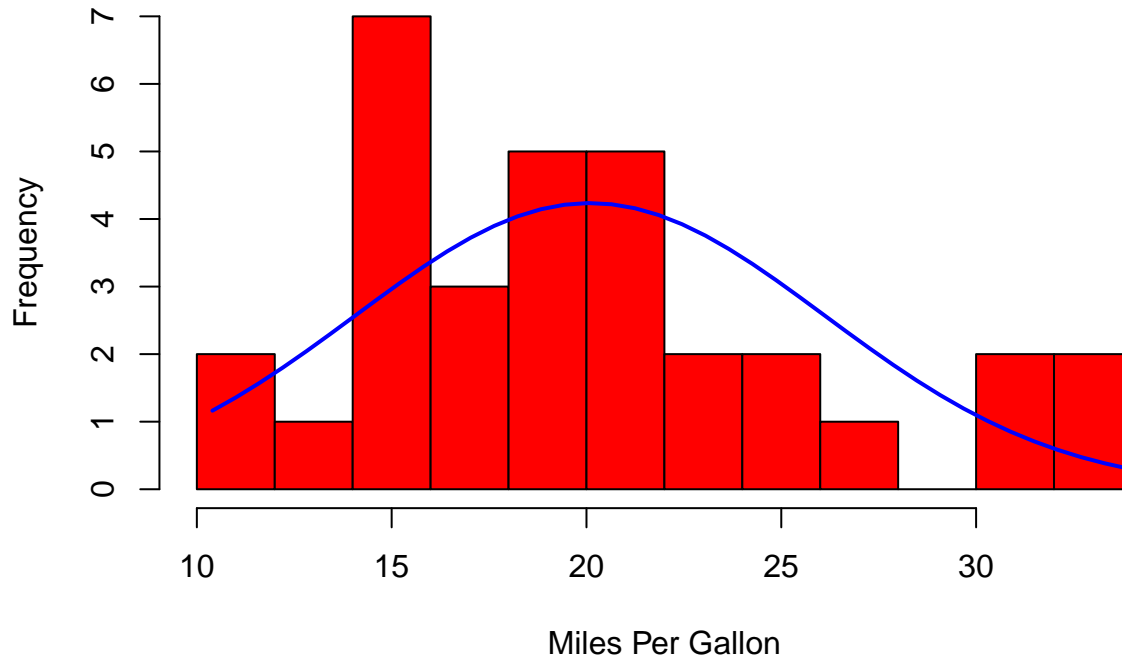
#4)

data(iris) View(iris)

##a.

```
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.

```
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.

```
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.

```
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 "))
```