WORKSHEET 5

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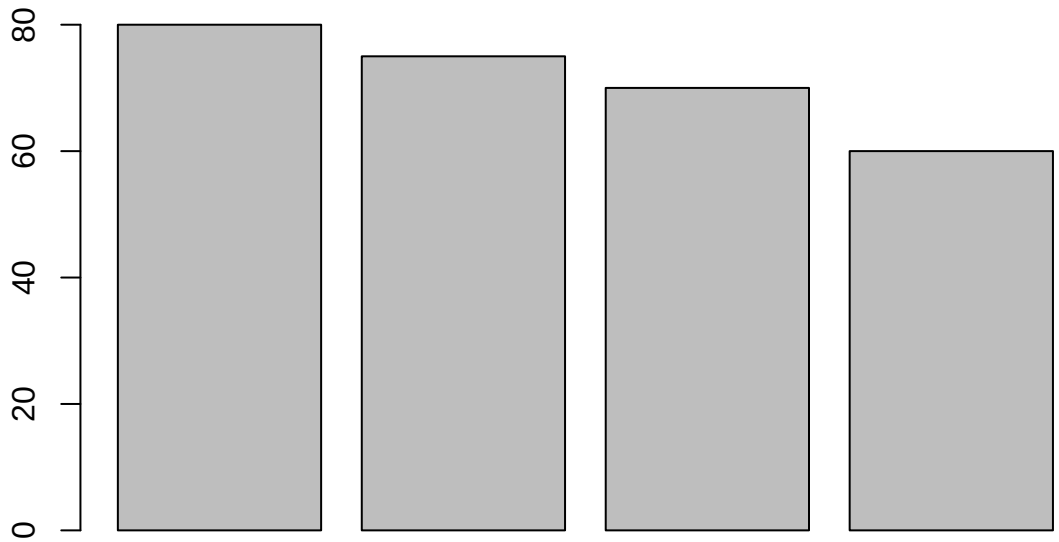
#1. The table shows the enrollment of BS in Computer Science, SY 2010-2011. #Course Year 2019 - 2020 # 1st 80 # 2nd 75 # 3rd 70 # 4th 60

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

```
x2019_2020 <- c(80,75,70,60)
numb_1a <- barplot(x2019_2020)
```

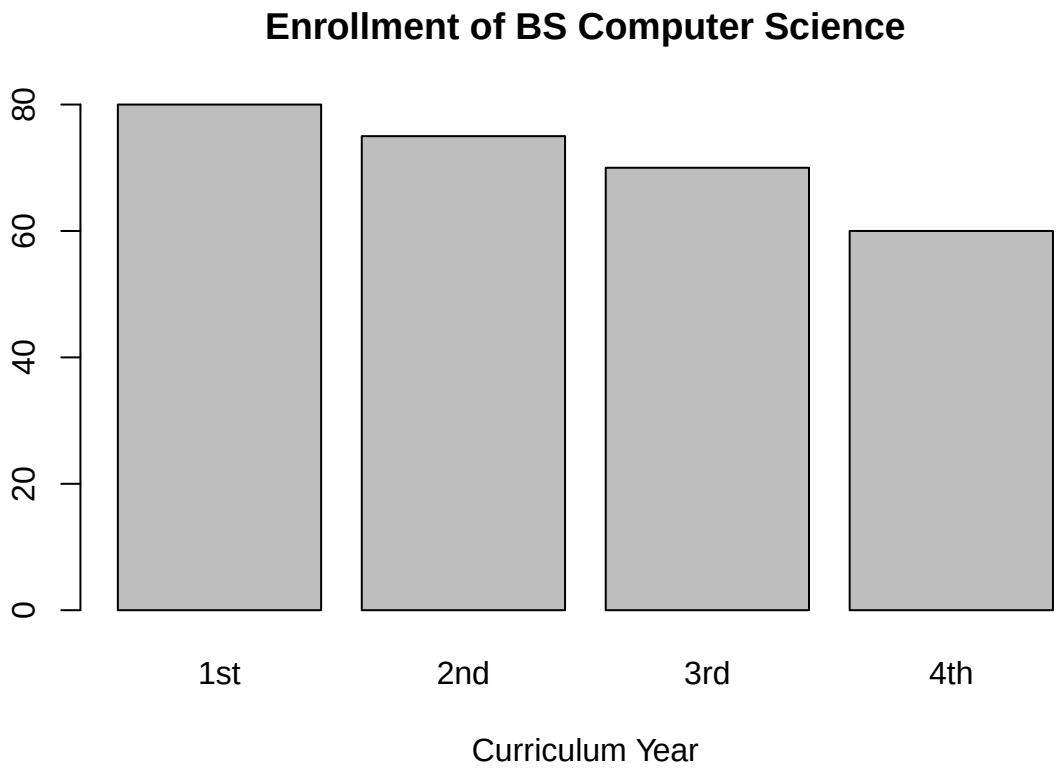


#b. Using the same table, label the barchart with #Title = " Enrollment of BS Computer Science #horizontal axis = "Curriculum Year" and #vertical axis = "number of students"

```
course <- c("1st","2nd","3rd","4th")

numb_1b <- barplot(x2019_2020,
```

```
                main = "Enrollment of BS Computer Science",
                xlab = "Curriculum Year", names.arg = course)
```



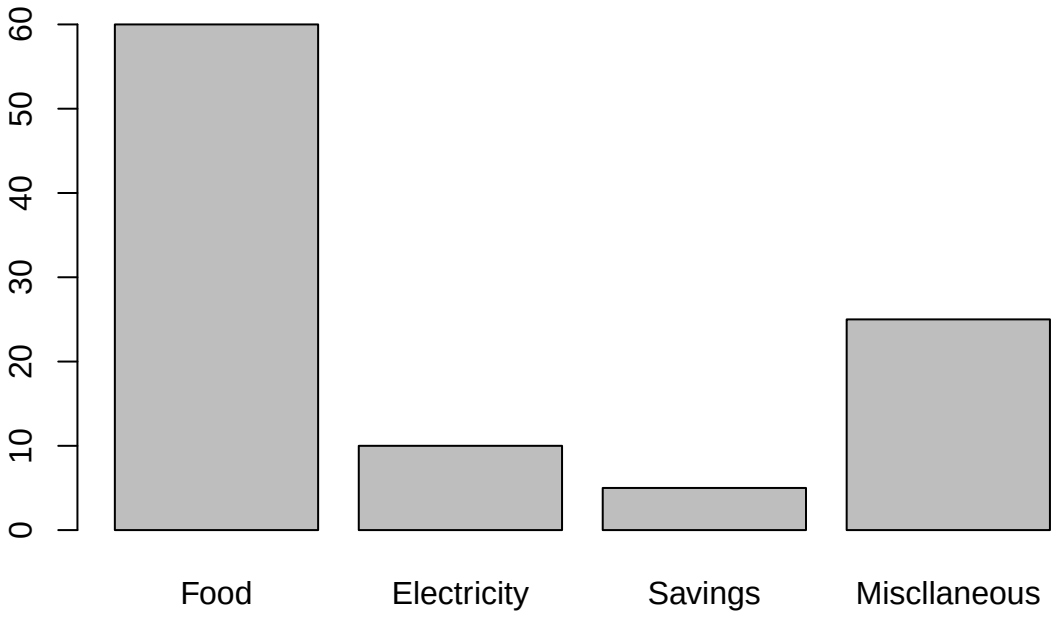
#2. The monthly income of De Jesus family was spent on the following:

#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.

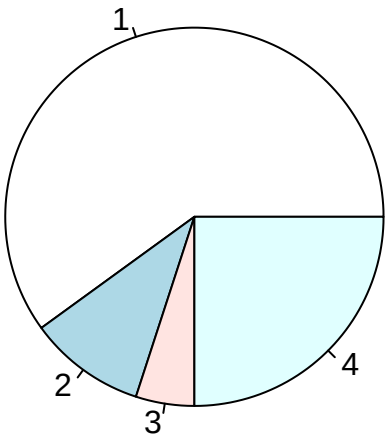
```
expenses <- c(60,10,5,25)
barplot(expenses,names.arg = c("Food", "Electricity", "Savings", "Miscllaneous"))
```



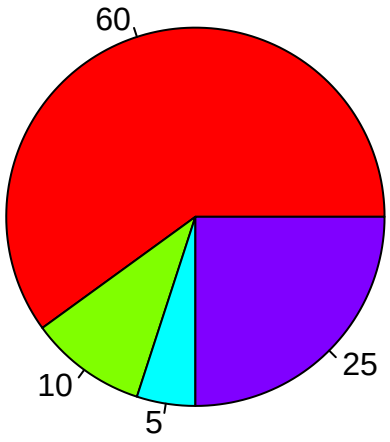
#b. Plot the data using a pie chart. Add labels, colors and legend.

#Write the codes and its result.

```
pie(expenses)
```



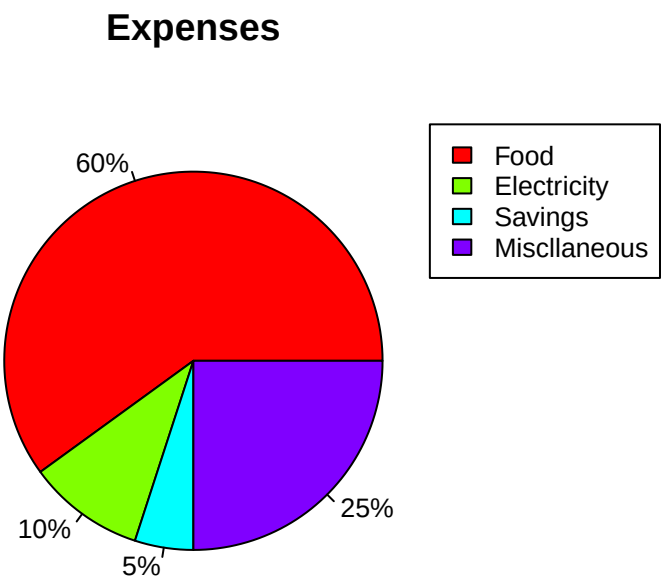

```
num <- pie(expenses,
             col =rainbow (length(expenses)),
             labels = c(60,10,5,25))
```




```
ex_labels <- round(expenses/sum(expenses) * 100, 1)

ex_labels <- paste(ex_labels,"%",sep = "")
pie(expenses, main = "Expenses",col= rainbow (length(expenses)),labels = ex_labels,cex=0.8)

legend(1, c("Food", "Electricity", "Savings", "Miscllaneous"),
       cex = 0.8,fill = rainbow((length(expenses))))
```



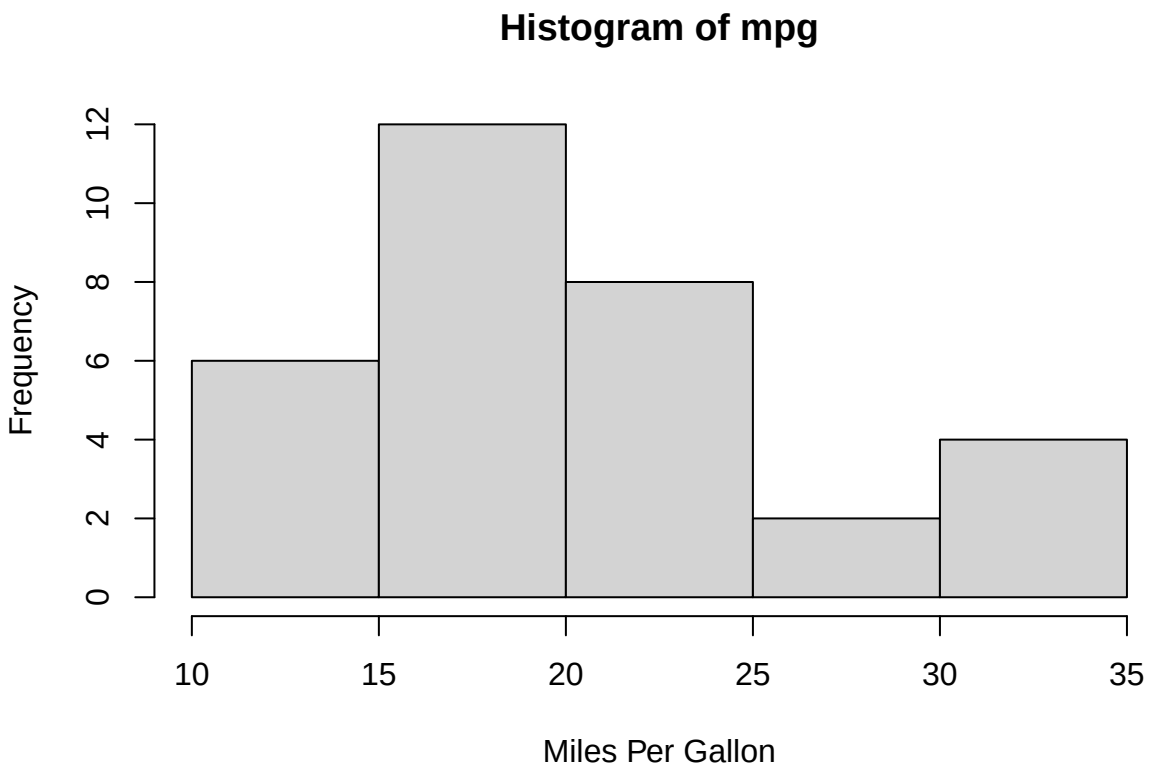
#3. Open the mtcars dataset.

```
data("mtcars")
num3 <- mtcars$mpg
num3
```

```
##  [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
```

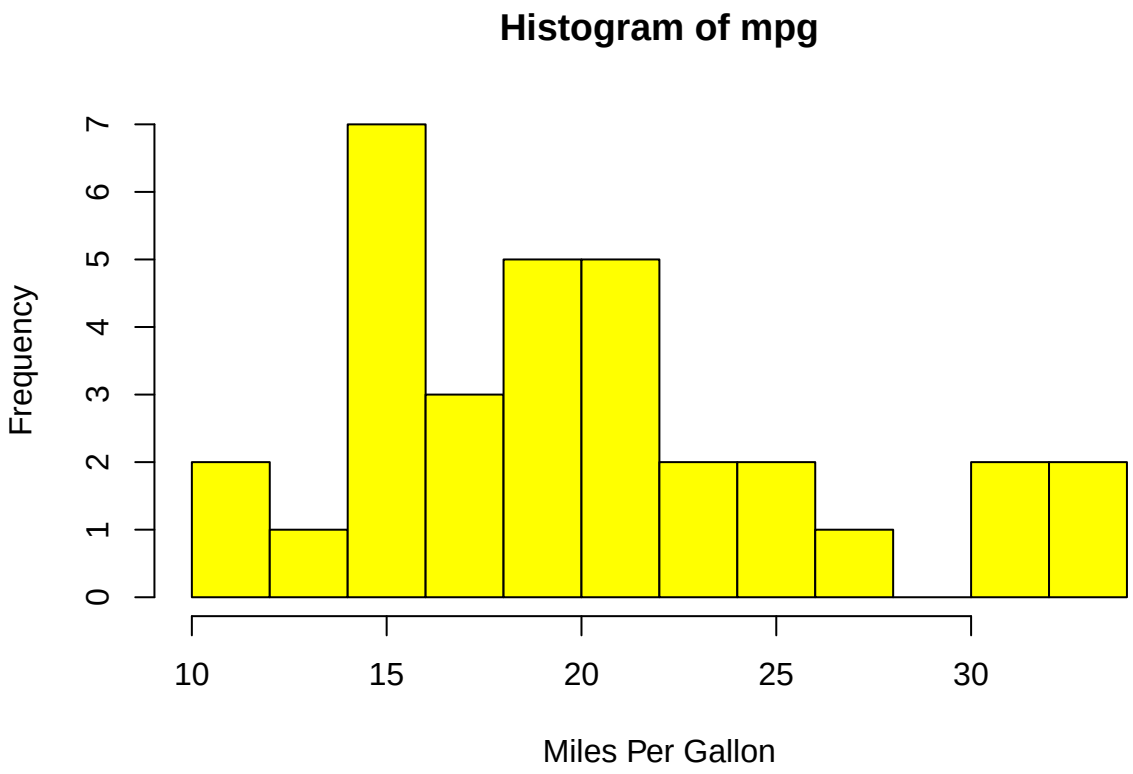
#a. Create a simple histogram specifically for mpg (miles per gallon) variable. #Use $ to select the mpg only. Write the codes and its result.

```
num3a <-hist(num3, xlab="Miles Per Gallon",
             main="Histogram of mpg")
```



#b. Colored histogram with different number of bins.

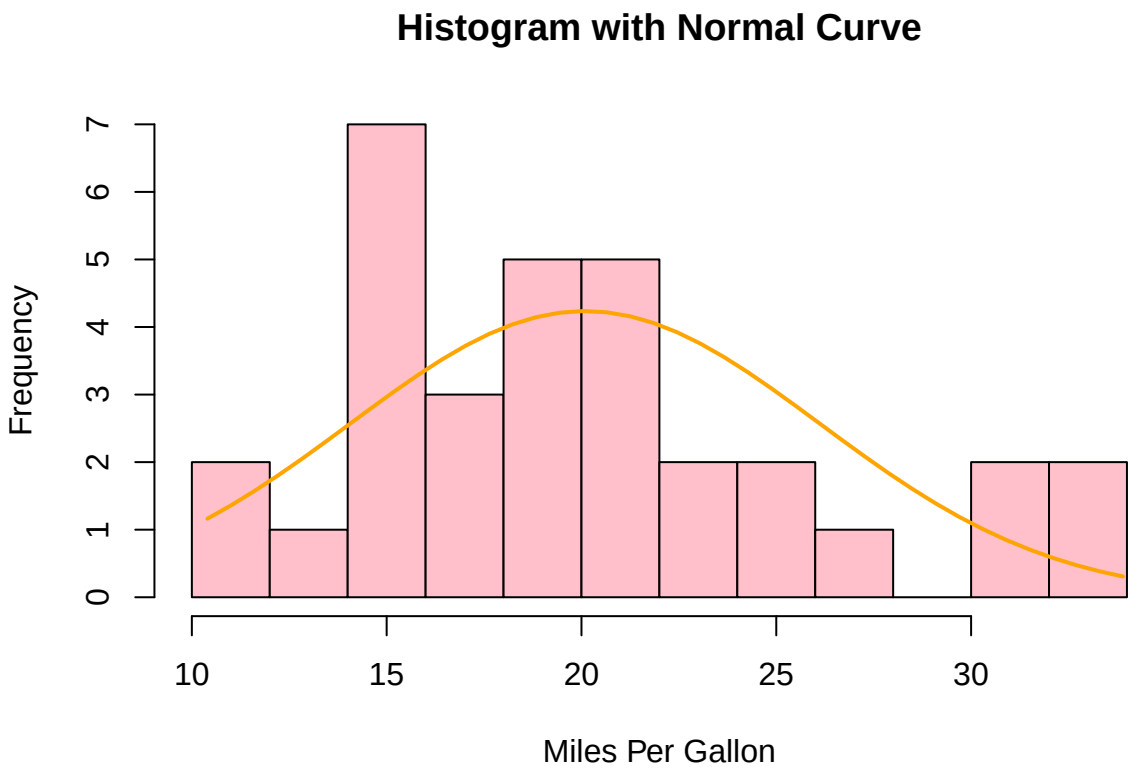
```
num3b <-hist(num3, breaks=12, col="yellow", xlab="Miles Per Gallon",
             main="Histogram of mpg")
```



#Note: breaks= controls the number of bins

#c. Add a Normal Curve

```
num3c <-hist(num3, breaks=12, col="pink", xlab="Miles Per Gallon",
             main="Histogram with Normal Curve")
xfit<-seq(min(num3),max(num3),length=40)
yfit<-dnorm(xfit,mean=mean(num3),sd=sd(num3))
yfit <- yfit*diff(num3c$mids[1:2])*length(num3)
lines(xfit, yfit, col="orange", lwd=2)
```



#Copy the result.

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

#a. Write the codes and its result.

```
data("iris")
setosa <- subset(iris, Species == "setosa")
versicolor <- subset(iris, Species == "versicolor")
virginica <- subset(iris, Species == "virginica")
```

#b. Get the mean for every characteristics of each species using colMeans(). #Write the codes and its result.

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

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

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

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

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

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

#Example: setosa <- colMeans(setosa[sapply(setosaDF,is.numeric)]) #c. Combine all species by using rbind() #The table should be look like this:

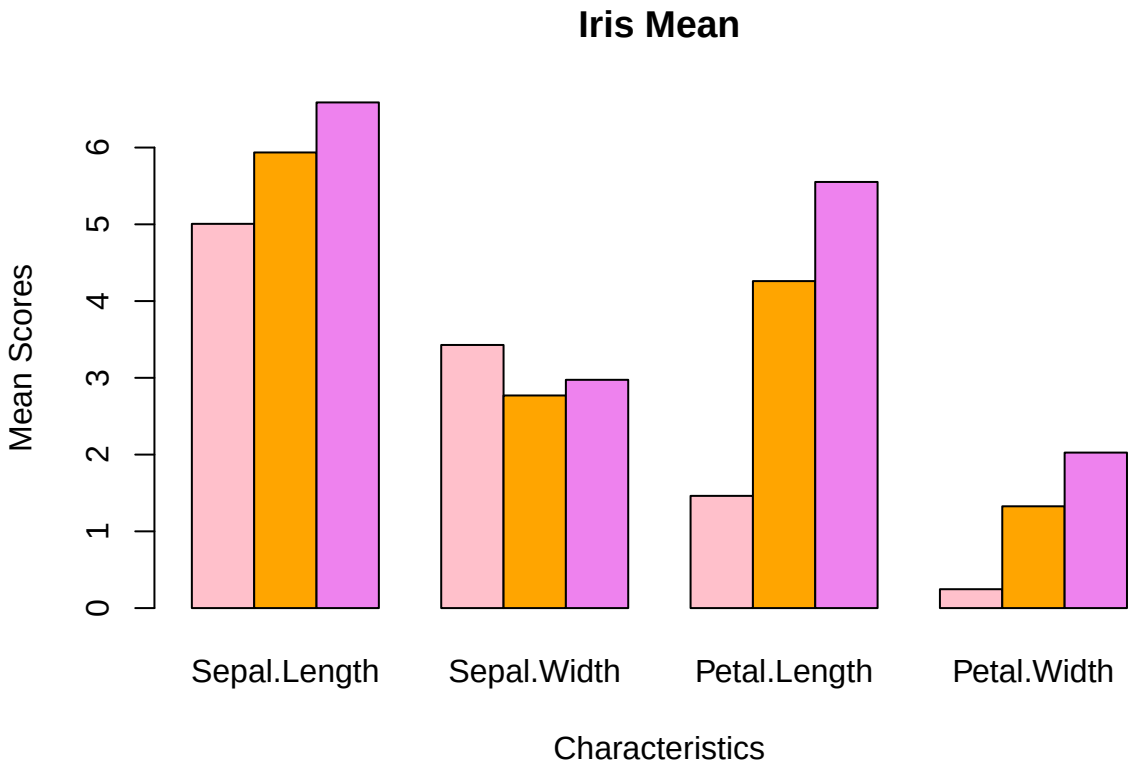
```r
tran8 <- rbind(setosa,
               versicolor,
               virginica)
tran8
```

```
##            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
```

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

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

```r
barplot(tran8, beside = TRUE,
        main = "Iris Mean",
        xlab = "Characteristics",
        ylab = "Mean Scores",
        col = c("pink","orange","violet"))
```



#Figure 1: Iris Data using Barplot