WorkSheet5

Carl Frederick Delicana, BSIT 2-A

11-22-2022

```
#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.
#   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.
date2019_2020 <- c(80,75,70,60)
numb1a <- barplot(date2019_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")

numb1b <- barplot(date2019_2020,
                  main = "Enrollment of BS Computer Science",
                  xlab = "Curriculum Year", names.arg = course)
numb1b
#Output:
#     [,1]
#[1,]  0.7
#[2,]  1.9
#[3,]  3.1
#[4,]  4.3

#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)
```

```
numb2b <- 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)

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

#3. Open the mtcars dataset.
data("mtcars")
numb3 <- mtcars$mpg

#a. Create a simple histogram specifically for mpg (miles per gallon) variable.
#Use $ to select the mpg only. Write the codes and its result.
numb3a <-hist(numb3, xlab="Miles Per Gallon",
              main="Histogram of mpg")

#b. Colored histogram with different number of bins.
numb3b <-hist(numb3, breaks=12, col="red", xlab="Miles Per Gallon",
              main="Histogram of mpg")
#Note: breaks= controls the number of bins

#c. Add a Normal Curve
numb3c <-hist(numb3, breaks=12, col="red", xlab="Miles Per Gallon",
              main="Histogram with Normal Curve")
xfit<-seq(min(numb3),max(numb3),length=40)
yfit<-dnorm(xfit,mean=mean(numb3),sd=sd(numb3))
yfit <- yfit*diff(numb3c$mids[1:2])*length(numb3)
lines(xfit, yfit, col="blue", 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")
set <- subset(iris, Species == "setosa")
ver <- subset(iris, Species == "versicolor")
vir <- 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
#Output:
#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
#Output:
```

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

vir <- subset(iris, Species == "virginica")
virginica <- colMeans(vir[sapply(vir,is.numeric)])
virginica
#Output:
#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:
trans3 <- rbind(setosa,
                versicolor,
                virginica)
trans3
#Output:
#           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.
barplot(trans3, beside = TRUE,
        main = "Iris Mean",
        xlab = "Characteristics",
        ylab = "Mean Scores",
        col = c("red","green","blue"))
#Figure 1: Iris Data using Barplot
```