Quiz 3 (R-Studio)

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1. Load Data from excel file into Rstudio.

data=read.csv("pulse\_rates.csv")

1. Provide summary of data.

summary(data)

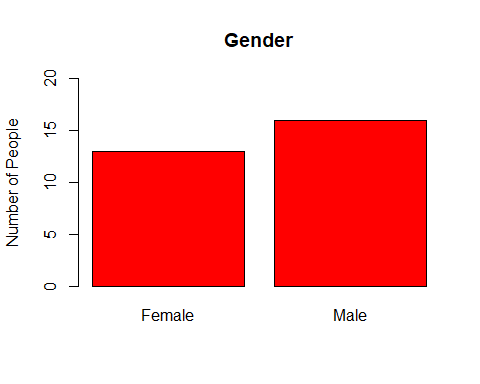
## PulseRate Gender   
## Min. : 52.00 Length:29   
## 1st Qu.: 61.00 Class :character   
## Median : 75.00 Mode :character   
## Mean : 72.83   
## 3rd Qu.: 81.00   
## Max. :103.00

1. Create bar plot for Gender variable.

gender <- table(data$Gender)   
gender

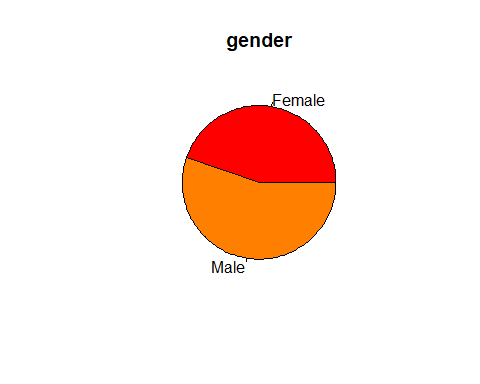
##   
## Female Male   
## 13 16

barplot(gender,  
 col = "red",   
 border = "black",   
 ylim=c(0,20),  
 main = "Gender",  
 ylab = "Number of People")



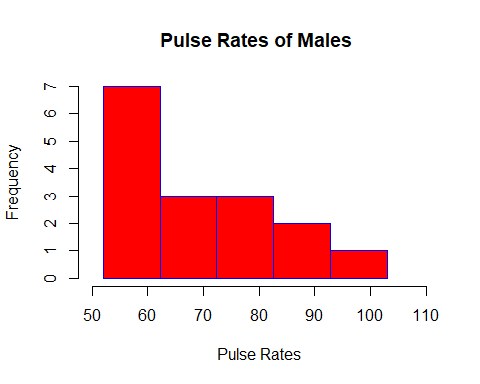
1. (2 point) Create pie chart for Gender variable.

pie(gender, main = "gender", col = rainbow(12))



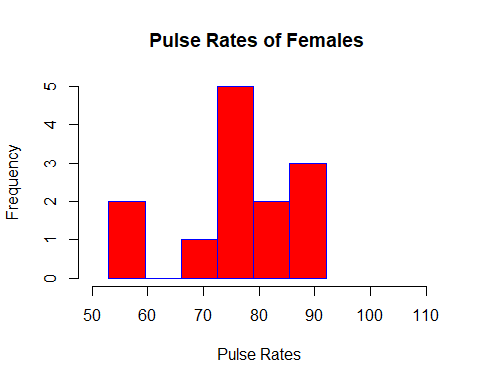
1. Construct histogram with five bars for pulse rates of Males.

hist(data$PulseRate [data$Gender=="Male"],  
   
breaks =seq(min(data$PulseRate[data$Gender=="Male"]), max(data$PulseRate[data$Gender=="Male"]), length.out=6),  
  
main="Pulse Rates of Males ",  
ylab="Frequency",  
xlab="Pulse Rates",  
xlim=c(50,110),  
col="red",   
border="blue")



1. (2 point) Construct histogram with six bars for pulse rates of Females.

hist(data$PulseRate [data$Gender=="Female"],  
   
breaks =seq(min(data$PulseRate[data$Gender=="Female"]), max(data$PulseRate[data$Gender=="Female"]), length.out=7),  
  
main="Pulse Rates of Females ",  
ylab="Frequency",  
xlab="Pulse Rates",  
xlim=c(50,110),  
col="red",   
border="blue")



1. Find quartiles for pulse rates of Males.

quantile(data$PulseRate [data$Gender=="Male"])

## 0% 25% 50% 75% 100%   
## 52 60 65 77 103

1. Find the 37th percentile for pulse rates of Males.

quantile(data$PulseRate [data$Gender=="Male"], 0.37)

## 37%   
## 61.55

**37th percentile is 61.55**

1. (1 point) Find quartiles for pulse rates of Females.

quantile(data$PulseRate [data$Gender=="Female"])

## 0% 25% 50% 75% 100%   
## 53 74 78 83 92

10.(1 point) Find the 64th percentile for pulse rates of Females.

quantile(data$PulseRate [data$Gender=="Female"], 0.64)

## 64%   
## 80.36

**64th percentile is 80.36**

1. Find IQR for pulse rates of Males

IQR(data$PulseRate [data$Gender=="Male"])

## [1] 17

1. Find outliers for pulse rates of Males.

outliere\_lower=quantile(data$PulseRate [data$Gender=="Male"], 0.25)-1.5\*IQR(data$PulseRate [data$Gender=="Male"])  
data$PulseRate [data$Gender=="Male" & data$PulseRate<outliere\_lower]

## integer(0)

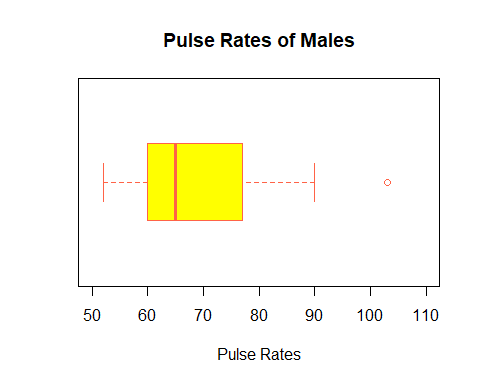
outliere\_lower=quantile(data$PulseRate [data$Gender=="Male"], 0.75)+1.5\*IQR(data$PulseRate [data$Gender=="Male"])  
data$PulseRate [data$Gender=="Male" & data$PulseRate>outliere\_lower]

## [1] 103

**Outlier(s) is (are)** none

1. Construct BOX PLOT for pulse rates of Males.

boxplot(data$PulseRate [data$Gender=="Male"],  
 main=" Pulse Rates of Males ",  
 xlab="Pulse Rates",  
 ylim=c(50,110),  
   
 col="yellow",  
 border= "tomato1" ,  
 horizontal = T)



1. (1 point) Find IQR for pulse rates of Females

IQR(data$PulseRate [data$Gender=="Female"])

## [1] 9

1. (2 point) Find outliers for pulse rates of Females.

outliere\_lower=quantile(data$PulseRate [data$Gender=="Female"], 0.25)-1.5\*IQR(data$PulseRate [data$Gender=="Female"])  
data$PulseRate [data$Gender=="Female" & data$PulseRate<outliere\_lower]

## [1] 53 54

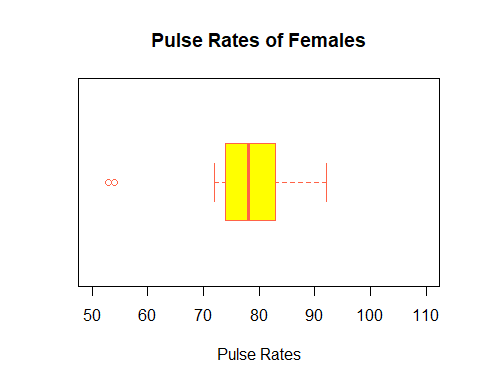
outliere\_lower=quantile(data$PulseRate [data$Gender=="Female"], 0.75)+1.5\*IQR(data$PulseRate [data$Gender=="Female"])  
data$PulseRate [data$Gender=="Female" & data$PulseRate>outliere\_lower]

## integer(0)

**Outlier(s) is (are)** 53 & 54

1. (2 point) Construct BOX PLOT for pulse rates of Females.

boxplot(data$PulseRate [data$Gender=="Female"],  
 main=" Pulse Rates of Females ",  
 xlab="Pulse Rates",  
 ylim=c(50,110),  
   
 col="yellow",  
 border= "tomato1" ,  
 horizontal = T)



1. (2 point) Compare these two box plots and describe the differences between these two box plots.

Pulse rate of Men is lower than Women

1. (2 point) Find the mean for pules rates of Males and Females. Compare these means. Write a complite sentense.

**The mean for pulse rates of Males is**   
The mean pulse of men is 70.0625 Beats per minute.  
**The mean for pulse rates of Females is**

The mean pulse of women is 76.2307692 Beats per minute.  
**Compare these means:**   
Mean Pulse for Men is less.

1. (2 point) Find the median for for pules rates of Males and Females. Compare these meadian values. Write a complite sentense.

**The median for pulse rates of Males is**  The median pulse of men is 65 Beats per minute. **The median for pulse rates of Females is**

The median pulse of women is 78 Beats per minute. **Compare these medians:**  median Pulse for Men is less.

1. Find the mode for pules rates of Males.

mode=table(data$PulseRate [data$Gender=="Male"])  
  
names(mode)[mode==max(mode)]

## [1] "60" "77"

**The mode(s) for pulse rates of Males is (are)**

Data for males is bimodal, 60 & 77

1. (1 point) Find the mode for pules rates of Females.

mode=table(data$PulseRate [data$Gender=="Female"])  
  
names(mode)[mode==max(mode)]

## [1] "75"

**The mode(s) for pulse rates of Females is (are)**

75

1. (2 point) Find a standard deviation for for pules rates of Males and Females. Compare these standard deviations. Write a complite sentense. (Hint: sd(name of data$name of variable))

sd(data$PulseRate [data$Gender=="Male"])

## [1] 14.24298

sd(data$PulseRate [data$Gender=="Female"])

## [1] 11.69867

**The standard deviation for pulse rates of Males is**  Standard Deviation is 14.24 bpm for males

**The standard deviation for pulse rate of Female is**  Standard Deviation is 11.69 bpm for females

**Compare these standard deviations:**  Females have lower standard deviation, tighter data spread