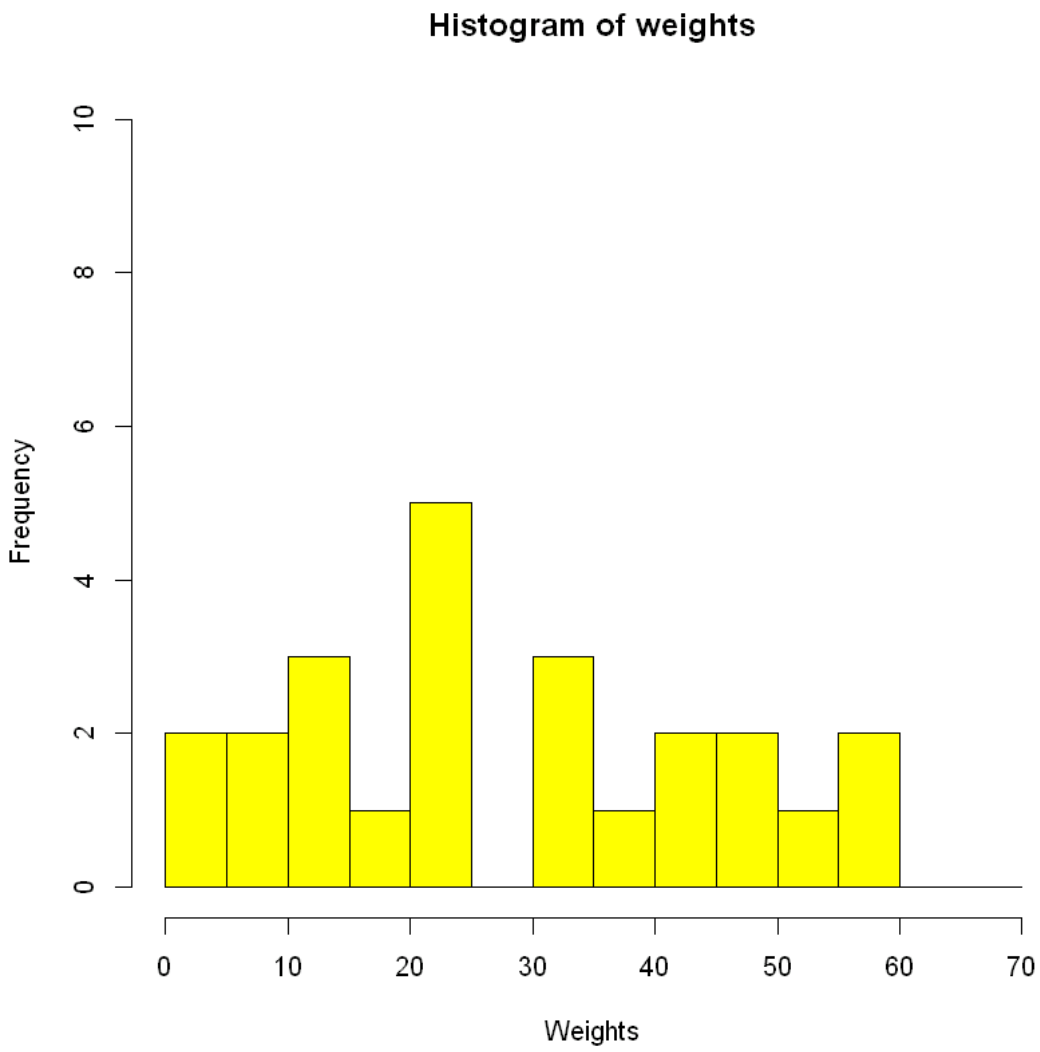
22002022

February 7, 2025

SCS2211 - LABORATORY II Practical Sheet - 11 22002022

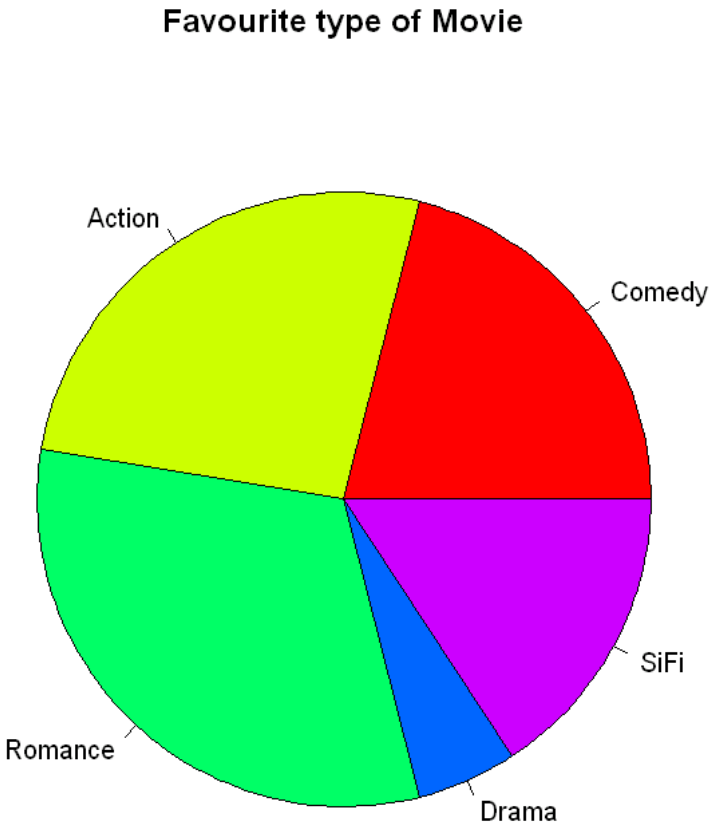
Activity 01 Consider the following set of weights of certain parcels in (Kg) 14,22,33,45,56,23,12,56,45,34,23,11,17,3,5,23,34,38,54,6,7,24,48,46 Create a histogram using above set of weights Name X axis as weight Use column color - yellow For the x axis range use 0-70 For the y axis range use 0-10 Width of the bar 5

[8]:
```
weights <-␣
  ↪c(14,22,33,45,56,23,12,56,45,34,23,11,17,3,5,23,34,38,54,6,7,24,48,46)
hist(weights, breaks = seq(0, 70, by = 5), xlab = "Weights", col = "Yellow",␣
  ↪border = "Black",xlim = c(0, 70), ylim = c(0, 10))
```



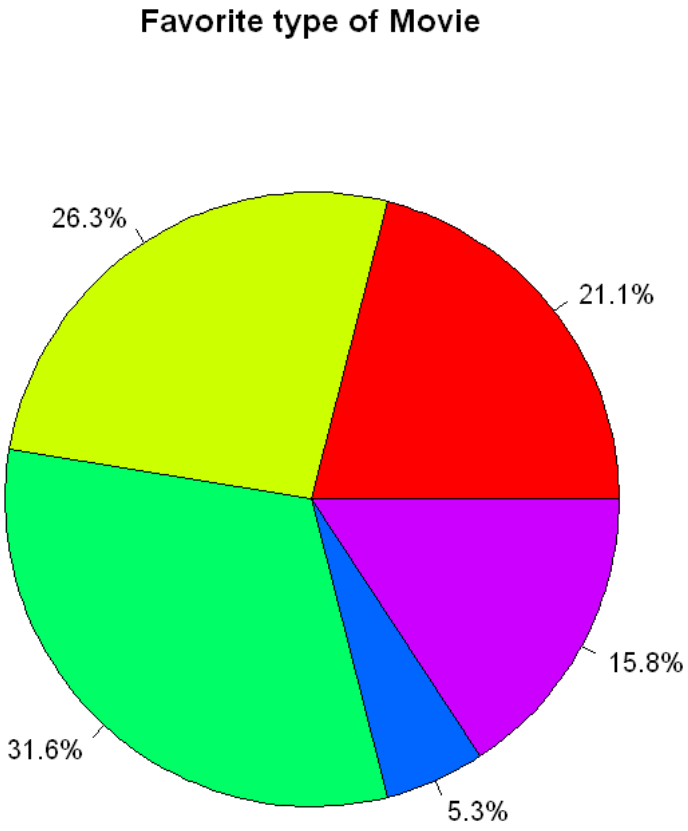
Activity 02 1. Represent the above table in a pie chart a. Using the Rainbow color palette b. Title of the pie chart - "Favorite type of Movie"

[12]:
```
types <- c("Comedy", "Action", "Romance", "Drama", "SiFi")
values <- c(40, 50, 60, 10, 30)
pie(values, labels = types,
    main = "Favourite type of Movie",
    col = rainbow(length(types)))
```



2. Represent the above piechart, where it shows the percentage except the Types labels

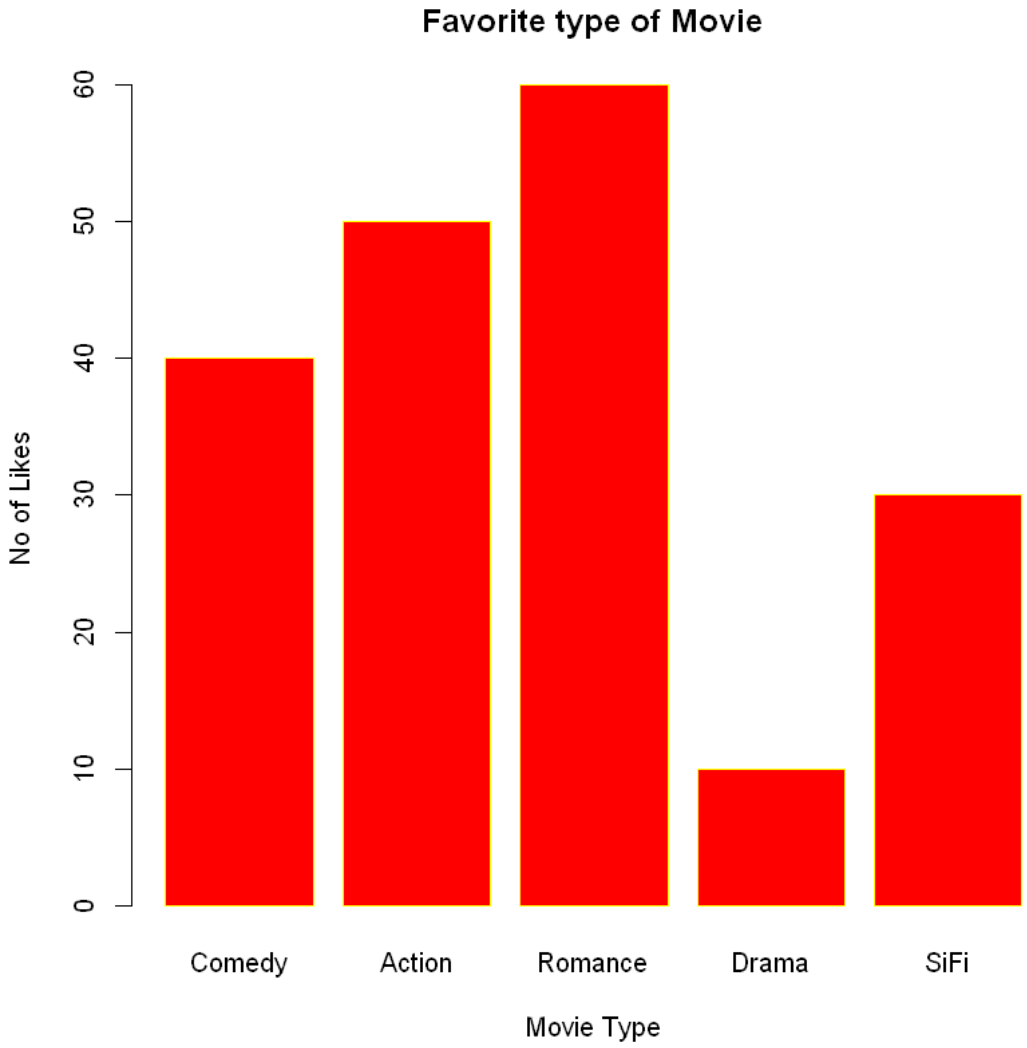
[13]:
```
percent_labels <- paste0(round(values / sum(values) * 100, 1), "%")
pie(values, labels = percent_labels,
    main = "Favorite type of Movie",
    col = rainbow(length(values)))
```



3. Create a bar chart for the above table.

a. Name the y axis as “No of Likes”, x axis as “Movie Type”
b. Title - “Favourite type of Movie”
c. Bar color - red, outline - Yellow

[14]:
```
barplot(values, names.arg = types,
        col = "red", border = "yellow",
        main = "Favorite type of Movie",
        xlab = "Movie Type", ylab = "No of Likes")
```



Activity 03 1. Take a random data set from R as mydata 2. Create a stem and leaf plot

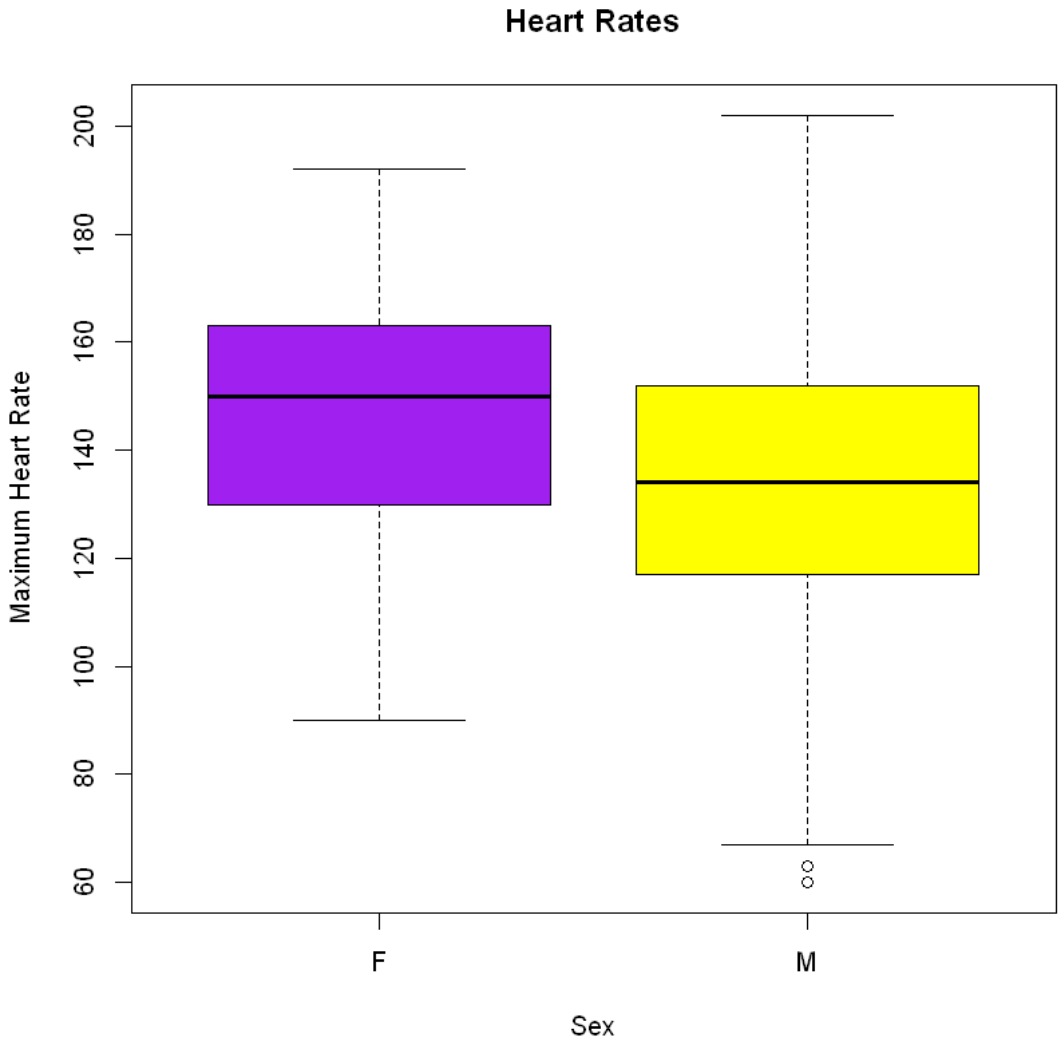
[16]:
```
mydata <- sample(1:100, 20, replace = TRUE)
print(mydata)
stem(mydata)
```

```
 [1] 36 78 81 43 76 15 32  7  9 41 74 23 27 60 53  7 53 27 96 38

  The decimal point is 1 digit(s) to the right of the |

  0 | 7795
  2 | 377268
  4 | 1333
  6 | 0468
```

8 | 16

Activity 04 Dataset 1 :https://www.kaggle.com/fedesoriano/heart-failure-prediction Dataset 2 :https://www.kaggle.com/datasnaek/chess 1. Download the Above given Data sets 2. Consider the Dataset 1 a. Create Box Plots graph for the relation between the MaxHR and Sex.(Taking sex for X axis and MaxHR for Y axis) b. Name the X axis as “Sex”, Y axis as “Maximum Heart Rate” and name the graph as Heart Rates c. Use the colors purple and yellow

[19]:
```
heart_data <- read.csv("heart.csv")
boxplot(MaxHR ~ Sex, data = heart_data,
        main = "Heart Rates",
        xlab = "Sex",
        ylab = "Maximum Heart Rate",
        col = c("purple", "yellow"))
```



d. Consider each boxplot, Are there any outliers in the plot, If present then in which boxplot -> Yes, Outliers are present in the Male(M) boxplot.

e. Consider each boxplot, Is there any skewness, If then How the plot is skewed -> Female(F) - Negative Skewness -> Male(M) - Negative Skewness

[42]:
```
female_skewness <- skewness(heart_data$MaxHR[heart_data$Sex == "F"])
male_skewness <- skewness(heart_data$MaxHR[heart_data$Sex == "M"])
print(paste("Skewness for Females:", female_skewness))
print(paste("Skewness for Males:", male_skewness))
```

```
[1] "Skewness for Females: -0.418540288943728"
[1] "Skewness for Males: -0.0425244207634869"
```

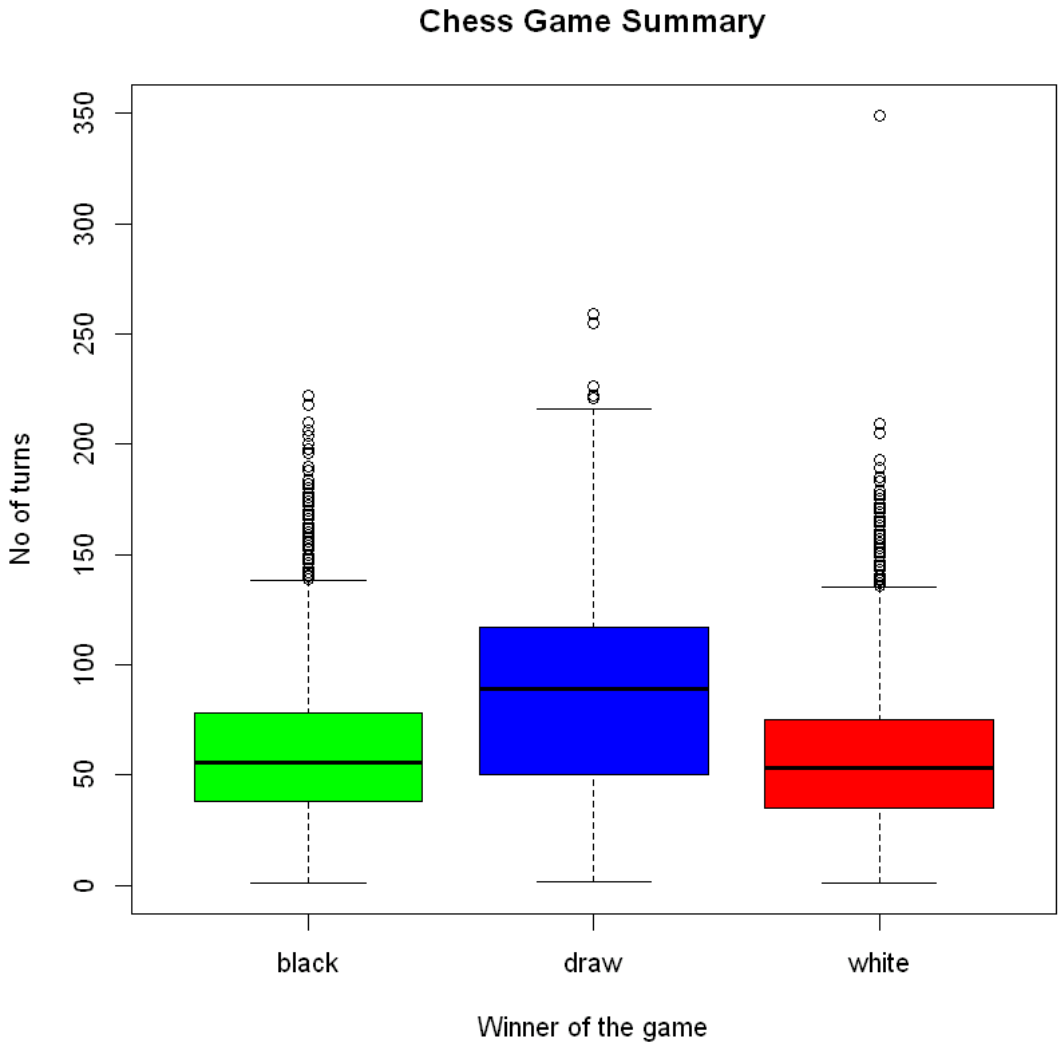
3. Consider the Dataset 2

a. Create Boxplots graph for the relation between the Winner and turns.(Taking Winner For X axis and turns for Y axis)

b. Name the X axis as “Winner of the game”, Y axis as “No of turns” and name the graph as “Chess game summary”

c. Use the colors green, blue and red

[22]:
```
game_data <- read.csv("games.csv")
boxplot(turns ~ winner, data = game_data,
        main = "Chess Game Summary",
        xlab = "Winner of the game",
        ylab = "No of turns",
        col = c("green", "blue", "red"))
```



d. Consider each boxplot, Are there any outliers in the plot, If present then in which boxplot -> Yes, Outliers are present in all three(black, draw, white) boxplots.

e. Consider each boxplot, Is there any skewness, If then How the plot is skewed -> All three boxplots are positively skewed

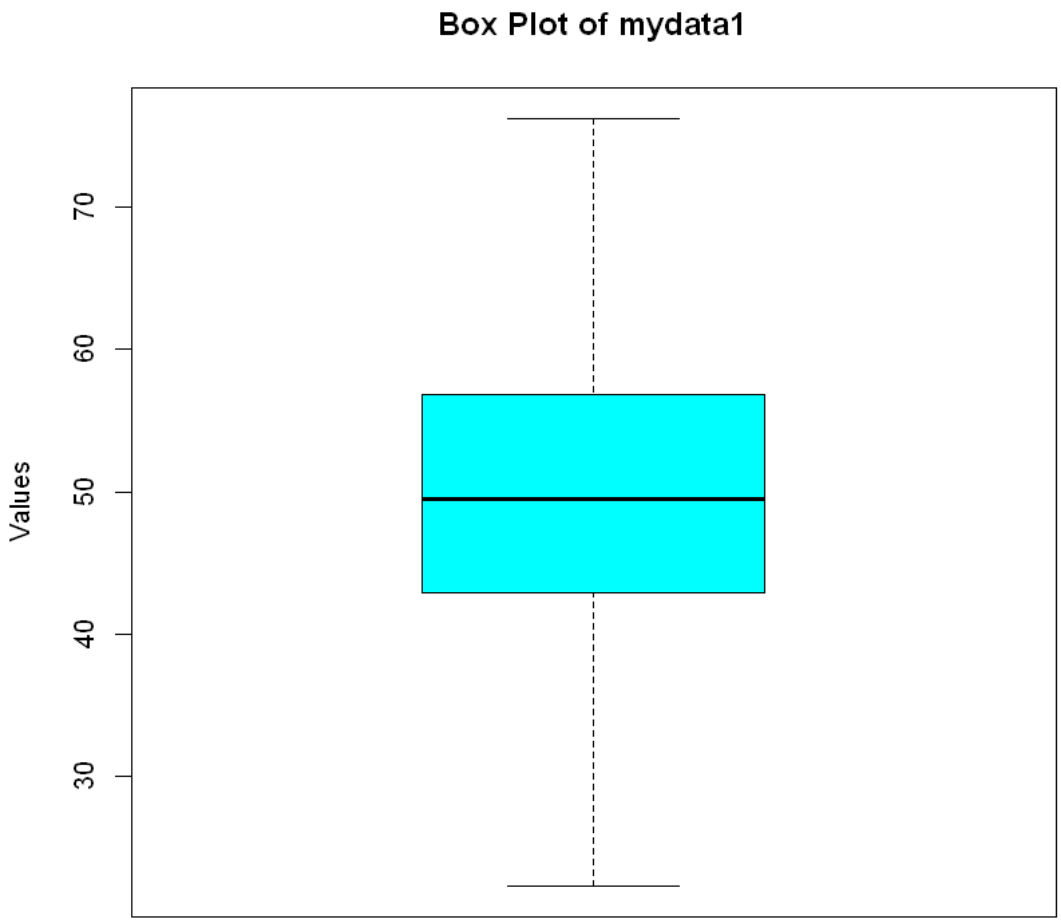
[45]:
```
black_skewness <- skewness(game_data$turns[game_data$winner == "black"])
draw_skewness <- skewness(game_data$turns[game_data$winner == "draw"])
white_skewness <- skewness(game_data$turns[game_data$winner == "white"])

print(paste("Skewness for black:", black_skewness))
print(paste("Skewness for draw:", draw_skewness))
print(paste("Skewness for white:", white_skewness))
```

```
[1] "Skewness for black: 0.831658607483907"
[1] "Skewness for draw: 0.217002537718334"
[1] "Skewness for white: 0.928733047931955"
```

f. Take a random data set from R as mydata1

g. Create a boxplot graph for the above dataset in 14.

[31]:
```r
set.seed(123)
mydata1 <- rnorm(120, mean = 50, sd = 12)
boxplot(mydata1, main = "Box Plot of mydata1", ylab = "Values", col = "cyan")
```



h. Find the five number summary (Minimum, Maximum, First Quartile, Third Quartile, and median), Range, Skewness

[38]:
```
library(moments)
summary(mydata1)
range_val <- range(mydata1)
print(paste("Range:", range_val))
skewness_value <- skewness(mydata1)
print(paste("Skewness:", skewness_value))
```

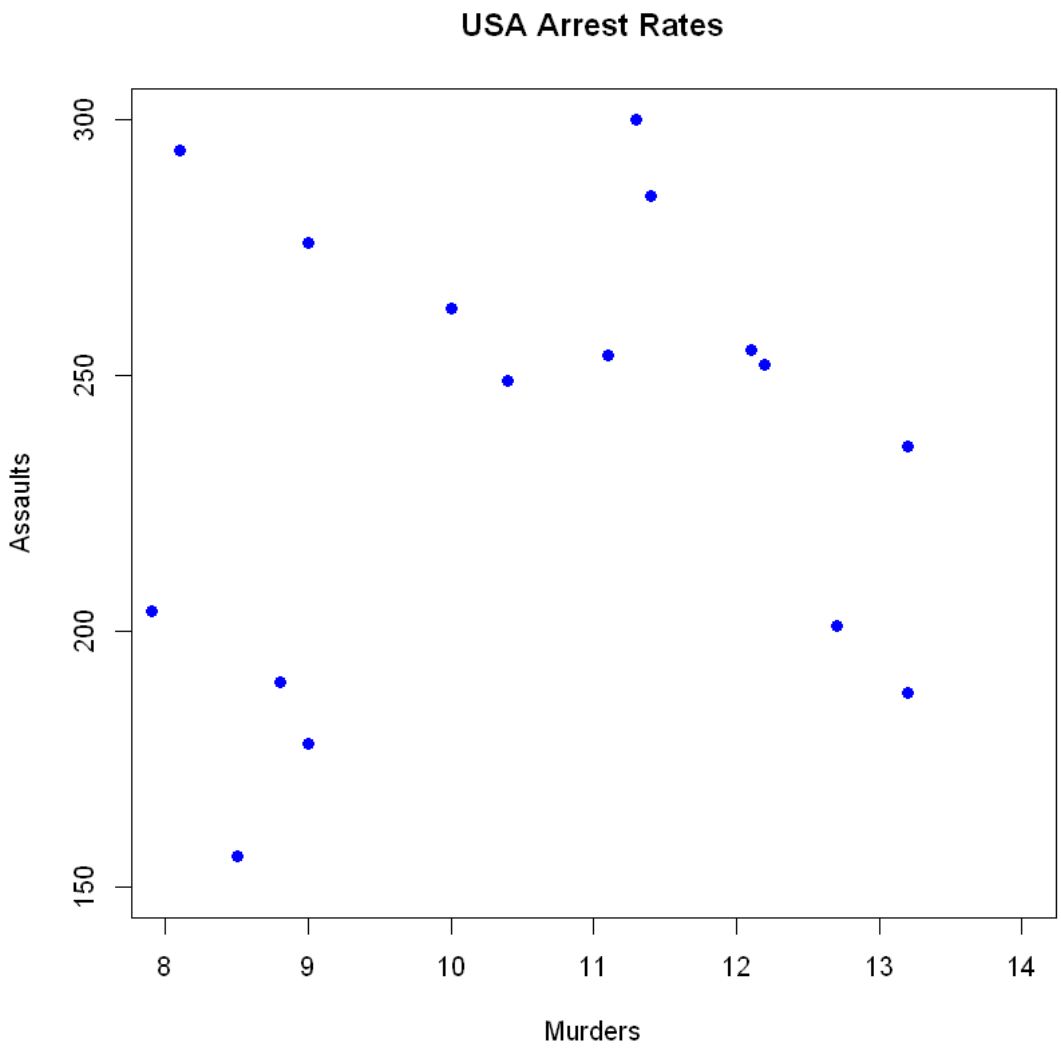
```
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  22.29   43.02   49.47   50.19   56.74   76.25
```

```
[1] "Range: 22.2899734923103" "Range: 76.2479959161989"
[1] "Skewness: 0.12881655141469"
```

i. Are there any outliers in the plot? -> No, there are no any outliers

Activity 05 Use the Dataset "USArrests" in R and Draw a Scatterplot. a. X axis - Murder b. Y axis - Assault c. X axis name - Murders d. Y axis name - Assaults e. Draw X axis from 8.0-14.0 and y axis from 150-300f. Title - USA arrest rates

[40]:
```
data("USArrests")
plot(USArrests$Murder, USArrests$Assault,
     main = "USA Arrest Rates",
     xlab = "Murders",
     ylab = "Assaults",
     xlim = c(8.0, 14.0),
     ylim = c(150, 300),
     col = "blue",
     pch = 19)
```


USA Arrest Rates
Assaults
300
250
200
150
8
9
10
11
12
13
14
Murders