Descriptive Statistics

(b) Histogram, Scatter Plot, Box Plot, Density Plot of R data sets and interpretation. (Mandatory)

➢ Histogram:-

#create a vector.

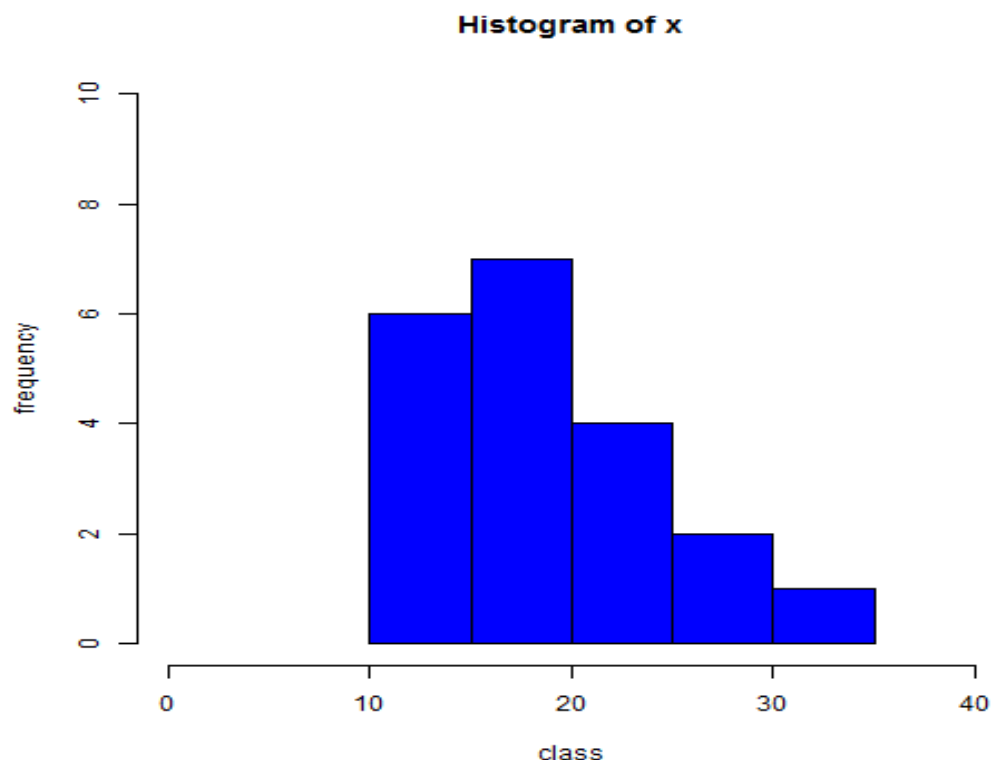**x=c(12, 14, 19, 18, 15, 15, 18, 17, 20, 27, 22, 23, 22, 21, 33, 28, 14, 18, 16, 13)**
png(file = "histogram.png")   #create an image of histogram
hist(x, xlab="class", ylab="frequency", col="blue", border="black",
xlim=c(0,40), ylim=c(0,10))   #use the function of histogram
dev.off()   #save the file
Output:-

Histogram of x

➢ Scatter Plot:-

#create a table by using vector

x=c(12, 17, 9, 6, 10, 14, 8)   #create a vector
y=c(5, 3, 10, 15, 8, 9, 8)   #create a vector
table=data.frame(x, y)
table   #diplay the data in table format

```
    x   y
1  12   5
2  17   3
3   9  10
4   6  15
5  10   8
6  14   9
7   8   8
```

png(file = "scatterplot.png")   #create an image of scatterplot
plot(x, y, xlab="Advertising", ylab="Sales", xlim=c(4,20), ylim=c(2,16),
main="Advertising V/s Sales")   #use the function of scatterplot
dev.off()   #save the file
Output:-

> ## Box Plot:-
#create a table by using vector
x=c(12, 17, 9, 6, 10, 14, 8)   #create a vector
y=c(5, 3, 10, 15, 8, 9, 8)   #create a vector
table=data.frame(x, y)
table   #diplay the data in table format

```
    x   y
1  12   5
2  17   3
3   9  10
4   6  15
5  10   8
6  14   9
7   8   8
```
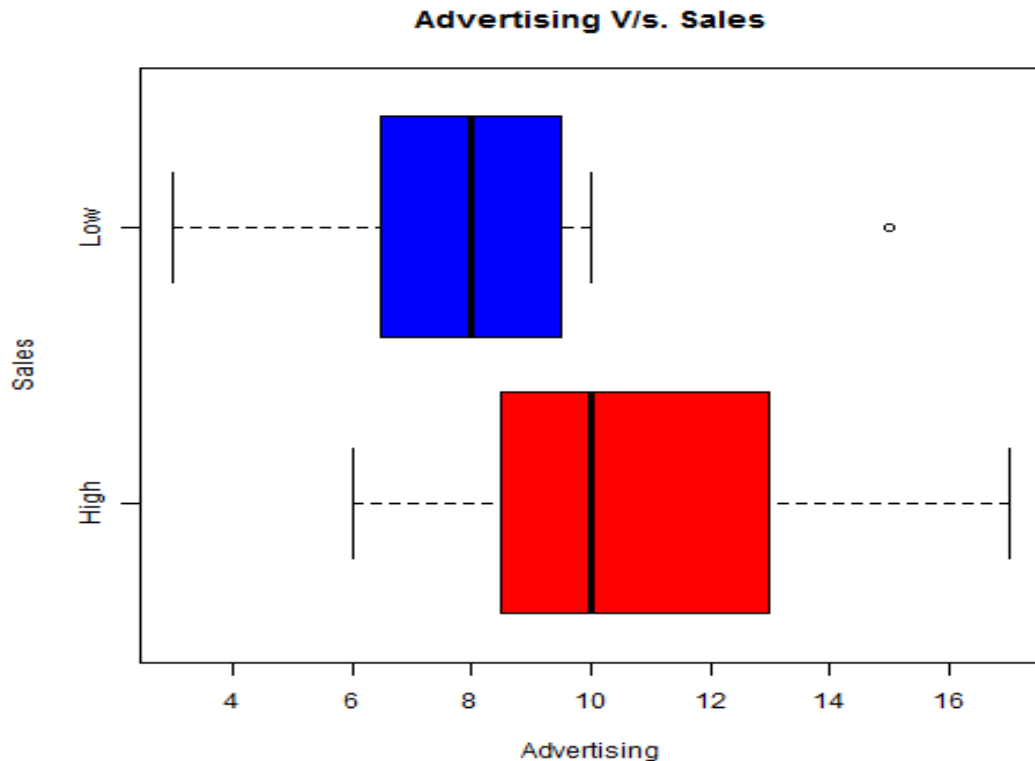
png(file = "boxplot.png")   #create an image of boxplot
boxplot(x, y, xlab="Advertising", ylab="Sales", main="Advertising V/s. Sales",
horizontal = TRUE, col=c("red","blue"), names=c("High","Low"))   #use the
function of boxplot
dev.off()   #save the file
Output:-

Advertising V/s. Sales

> ## Density Plot:-
> \#create a table by using vector
> **x=c(7, 12, 28, 3, 41)**   #create a vector
> **table=data.frame(x)**
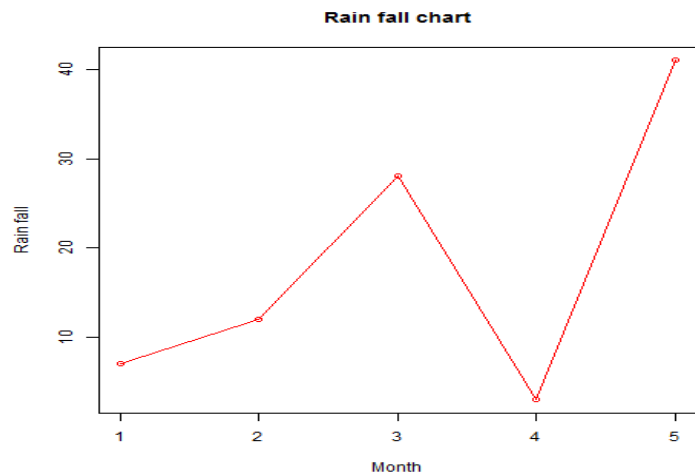> **table**   #diplay the data in table format
>
> ```
>     x
> 1   7
> 2  12
> 3  28
> 4   3
> 5  41
> ```
>
> **png(file = "density.png")**   #create an image of density plot
> **plot(x, type="o", col="red", xlab="Month", ylab="Rain fall", main="Rain fall chart")**   #use the function of plot
> **dev.off()**   #save the file
> Output:-

➢ **Bar Chart:-**

#create a table by using vector

x=c("Jan","Feb","Mar","Apr","May")   #create a vector

y=c(7, 12, 28, 3, 41)   #create a vector

table=data.frame(x, y)

table   #diplay the data in table format

```
    x   y
1 Jan   7
2 Feb  12
3 Mar  28
4 Apr   3
5 May  41
```

png(file = "barchart.png")   #create an image of barchart

barplot(y, names.arg=x, xlab="Month", ylab="Revenue", col="blue",
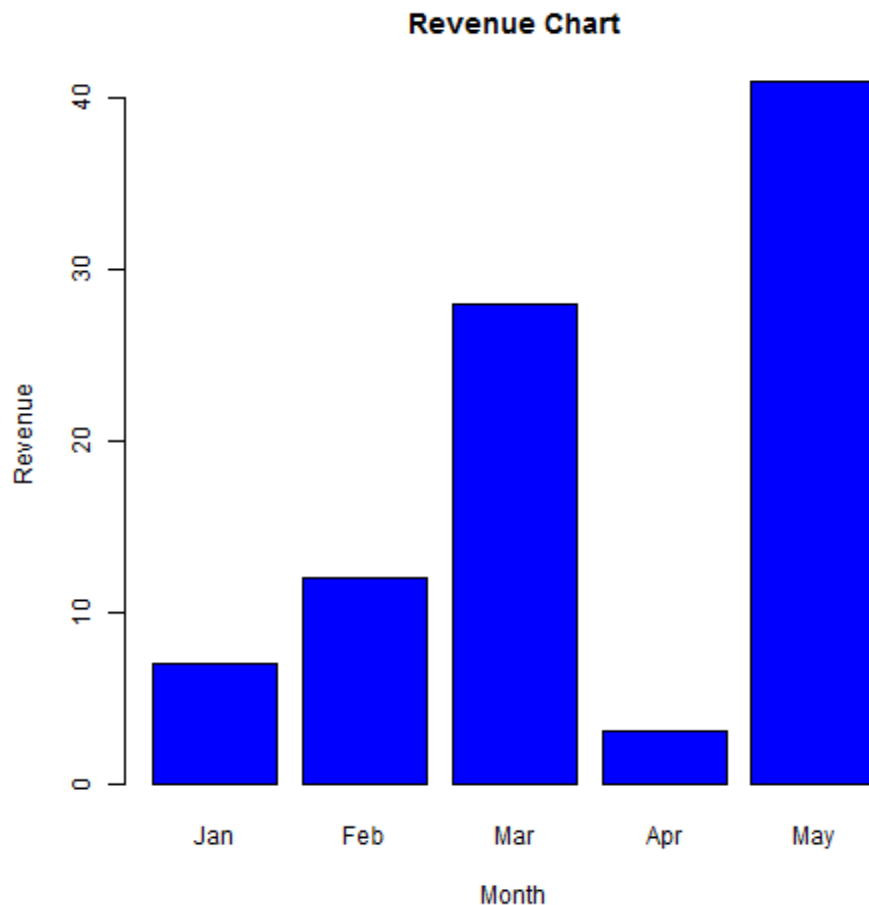
main="Revenue Chart", border="black")   #use the function of barplot

dev.off()   #save the file

Output:-

➢ **Pie Chart:-**

#create a table by using vector

labels=c("A","B","C","D")   #create a vector

x=c(55, 121, 83, 46)   #create a vector

table=data.frame(labels, x)

**table**   #diplay the data in table format

```
      labels   x
1        A    55
2        B   121
3        C    83
4        D    46
```

piepercent=round(100*x/sum(x), 1)   #to display value with percentage
png(file = "piechart.png")   #create an image of piechart
pie(x, labels=piepercent, main="Pie Chart", col=rainbow(length(x)) ,
clockwise=TRUE)   #use the function of piechart
legend("topright", c("A","B","C","D"), cex=0.8, fill=rainbow(length(x)))
#use the function of legend
dev.off()   #save the file
Output:-

Pie Chart
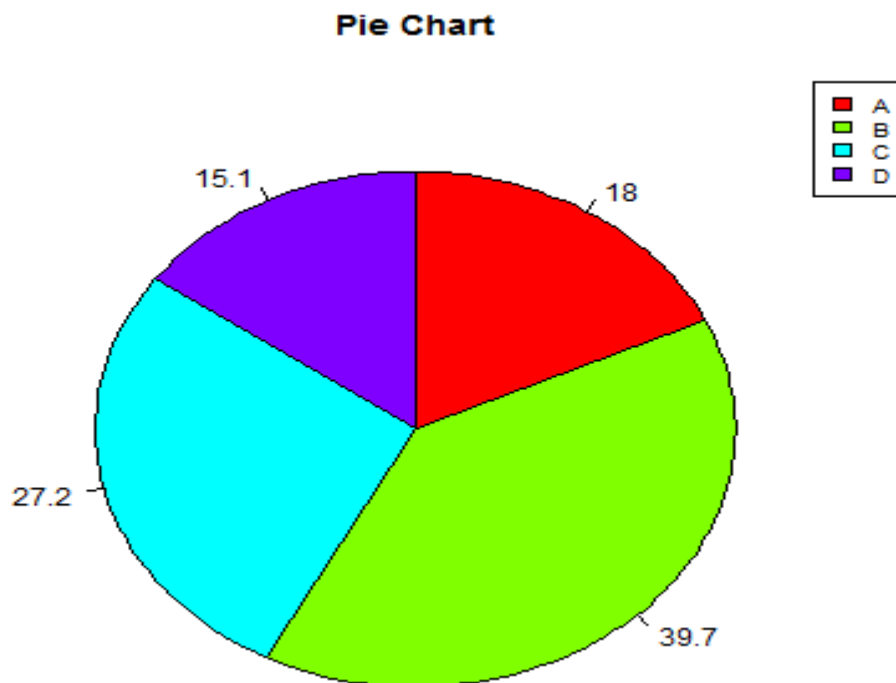
(c) Generate Frequency Distribution of data as a data frame. (Mandatory)

#create a vector (*Qualitative data*)
vowel=c("A","I","U","A","E","O","I","E","U","O","I","A","U","E","O","I","A","U","E","O")
length(vowel)   #count the no. of entered vowels
vowelfreq=table(vowel)   #apply the table function
vowelfreq
Output:-

```
    vowel
    A E I O U
    4 4 4 4 4
```

#create a vector (*Quantitative data*)
x=c(12, 14, 19, 18, 15, 15, 18, 17, 20, 27, 22, 23, 22, 21, 33, 28, 14, 18, 16, 13)
length(x)   #count the no. of entered values
xfreq=table(x)   #apply the table function
xfreq
Output:-

```
    x
    12 13 14 15 16 17 18 19 20 21 22 23 27 28 33
     1  1  2  2  1  1  3  1  1  1  2  1  1  1  1
```