R PROGRAMMING

EXPERIMENT-1

ADDITION:

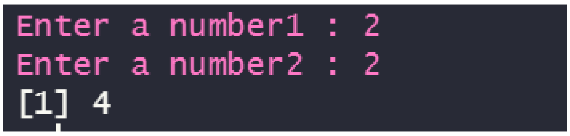
AIM:

To prove the program for addition using R-tool.

PROGRAM:

```
num1=as.integer(readline(prompt = "enter the first number:"))

num2=as.integer(readline(prompt = "enter the second number:"))

num3=num1+num2

print(num3)
```

OUTPUT:



```
Enter a number1 : 2
Enter a number2 : 2
[1] 4
```

RESULT:

Thus the basic program addition are executed successfully.

EXPERIMENT-2

SUBTRACTION:

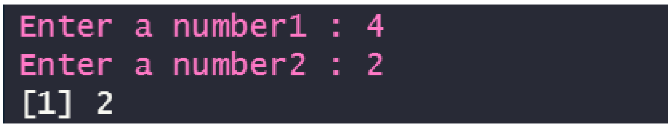
AIM:

To prove the program for subtraction using R-tool.

PROGRAM:

```
num1=as.integer(readline(prompt = "enter the first number:"))

num2=as.integer(readline(prompt = "enter the second number:"))

num3=num1-num2

print(num3)
```

OUTPUT:



```
Enter a number1 : 4
Enter a number2 : 2
[1] 2
```

RESULT:

Thus the basic program subtraction are executed successfully.

EXPERIMENT-3

MULTIPLICATION:

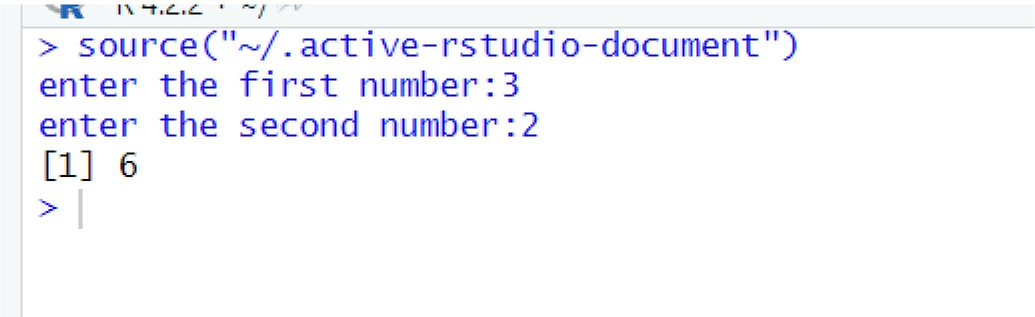
AIM:

To prove the program for multiplication using R-tool.

PROGRAM:

```
num1=as.integer(readline(prompt = "enter the first number:"))

num2=as.integer(readline(prompt = "enter the second number:"))

num3=num1*num2

print(num3)
```

OUTPUT:



```
> source("~/.active-rstudio-document")
enter the first number:3
enter the second number:2
[1] 6
> 
```

RESULT:

Thus the basic program multiplication are executed successfully.

EXPERIMENT-4

DIVISION:

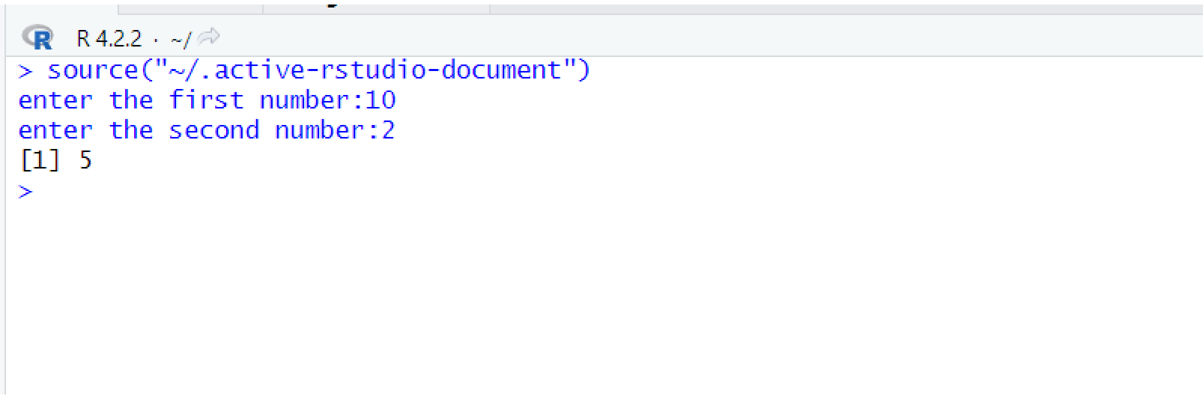
AIM:

To prove the program for division using R-tool.

PROGRAM:

```
num1=as.integer(readline(prompt = "enter the first number:"))

num2=as.integer(readline(prompt = "enter the second number:"))

num3=num1/num2

print(num3)
```

OUTPUT:



```
> source("~/.active-rstudio-document")
enter the first number:10
enter the second number:2
[1] 5
>
```

RESULT:

Thus the basic program division was executed successfully.

EXPERIMENT-5

ODD OR EVEN:

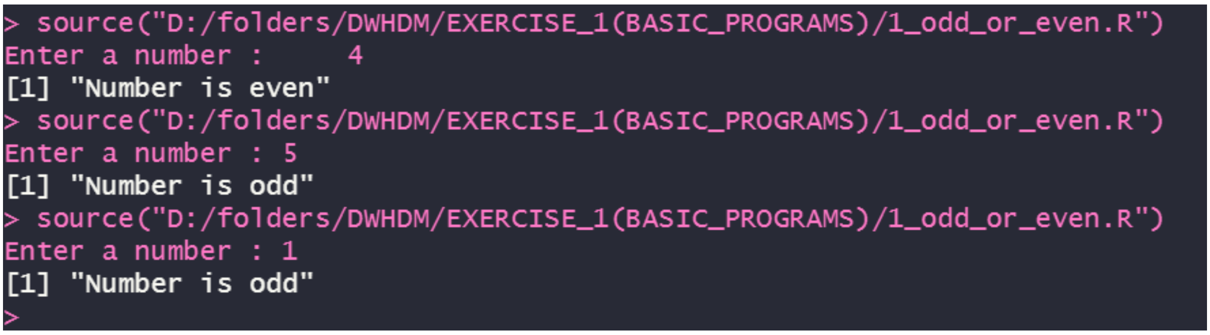
AIM:

To write the program for odd or even using R-tool.

PROGRAM:

```
num=as.integer(readline(prompt="enter a number:"))

if((num%%2)==0)

{

  print("number is a even")

}else{

  print("number is odd")

}
```

OUTPUT:



```
> source("D:/folders/DWHDM/EXERCISE_1(BASIC_PROGRAMS)/1_odd_or_even.R")
Enter a number :     4
[1] "Number is even"
> source("D:/folders/DWHDM/EXERCISE_1(BASIC_PROGRAMS)/1_odd_or_even.R")
Enter a number : 5
[1] "Number is odd"
> source("D:/folders/DWHDM/EXERCISE_1(BASIC_PROGRAMS)/1_odd_or_even.R")
Enter a number : 1
[1] "Number is odd"
>
```

RESULT:

Thus the basic program odd or even was executed successfully.

EXPERIMENT-6

MEAN,MEDIAN,MODE:

AIM:

To write the program for mean,median,mode.

PROGRAM:

MEAN

```
names<-c("siri","mahi","chiru")

age<-c(23,24,25)

marks<-c(88,78,25)

df<-data.frame(names,age,marks)

mean(df $age)

write.csv(df,"datafr.csv")
```

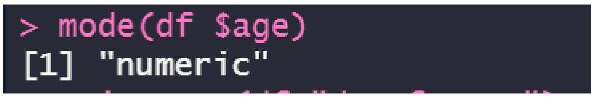
MEDIAN

```
names<-c("siri","mahi","chiru")

age<-c(23,24,25)

marks<-c(88,78,25)

df<-data.frame(names,age,marks)

median(df $age)

write.csv(df,"datafr.csv")
```

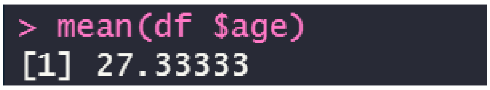
MODE

```
names<-c("siri","mahi","chiru")

age<-c(23,24,25)

marks<-c(88,78,25)

df<-data.frame(names,age,marks)

mode(df $age)

write.csv(df,"datafr.csv")
```

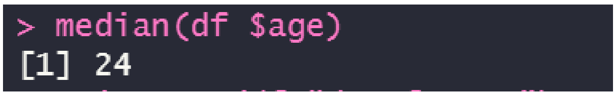
OUTPUT:



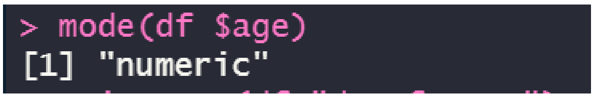
```
> mode(df $age)
[1] "numeric"
```



```
> mean(df $age)
[1] 27.33333
```



```
> median(df $age)
[1] 24
```



```
> mode(df $age)
[1] "numeric"
```

RESULT:

Thus the central tendency and measure of dispersion is executed successfully.

EXPERIMENT-7

SUMMARY:

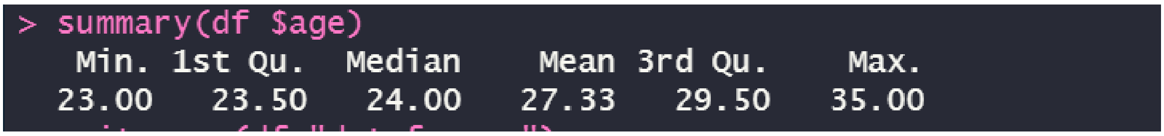
AIM:

To write the program for summary using R-tool.

PROGRAM:

```
names<-c("siri","mahi","chiru")

age<-c(23,24,25)

marks<-c(88,78,25)

df<-data.frame(names,age,marks)

summary(df $age)

write.csv(df,"datafr.csv")
```

OUTPUT:



```
> summary(df $age)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max. 
  23.00   23.50   24.00   27.33   29.50   35.00 
```

RESULT:

Thus the central tendancy and measure of dispersion is executed successfully.

EXPERIMENT-8

GREATER AMONG THREE NUMBERS:

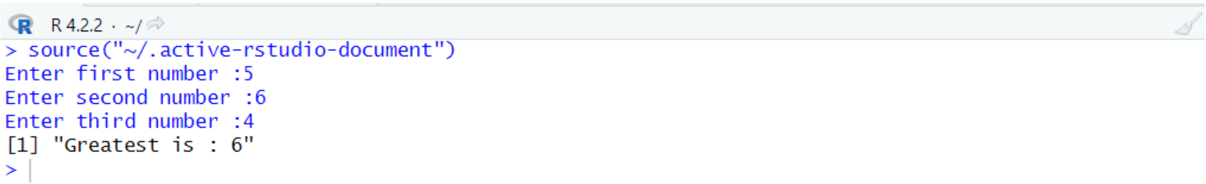
AIM:

To write the program for the greatest among three numbers.

PROGRAM:

```
x <- as.integer(readline(prompt = "Enter first number :"))

y <- as.integer(readline(prompt = "Enter second number :"))

z <- as.integer(readline(prompt = "Enter third number :"))


if (x > y && x > z) {

  print(paste("Greatest is :", x))

} else if (y > z) {

  print(paste("Greatest is :", y))

} else{

  print(paste("Greatest is :", z))

}
```

OUTPUT:



```
> source("~/.active-rstudio-document")
Enter first number :5
Enter second number :6
Enter third number :4
[1] "Greatest is : 6"
> 
```

RESULT:

Thus the greatest among the three numbers was executed successfully.

EXPERIMENT-9

IQR:

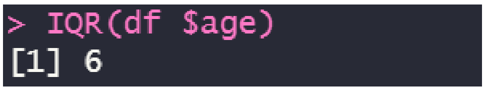
AIM:

To write the program for central tendency and data dispersion measures using R tool.

PROGRAM:

```
names<-c("siri","mahi","chiru")

age<-c(23,24,25)

marks<-c(88,78,25)

df<-data.frame(names,age,marks)

IQR(df $age)

write.csv(df,"datafr.csv")
```

OUTPUT:



```
> IQR(df $age)
[1] 6
```

RESULT:

Thus the program for central tendency and data dispersion measures was executed successfully.

EXPERIMENT-10

QUANTILE:

AIM:

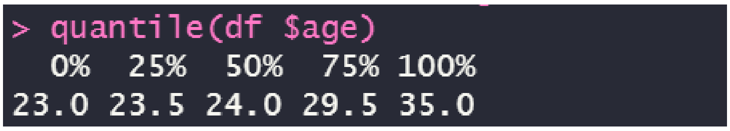
To write the program for central tendency and data dispersion measures.

PROGRAM:

```
names<-c("siri","mahi","chiru")

age<-c(23,24,25)
```

```
marks<-c(88,78,25)

df<-data.frame(names,age,marks)

quantile(df $age)

write.csv(df,"datafr.csv")
```

OUTPUT:



```
> quantile(df $age)
  0%  25%  50%  75% 100% 
23.0 23.5 24.0 29.5 35.0 
```

RESULT:

Thus the program for central tendency and data dispersion measures was executed successfully

EXPERIMENT-11

MID RANGE:

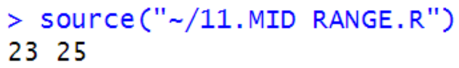
AIM:

To write the program for central tendency and data dispersion measures.

PROGRAM:

```
names <- c("siri", "mahi", "chiru")

age <- c(23, 24, 25)

marks <- c(88, 78, 25)

df <- data.frame(names, age, marks)

min_age <- min(df$age)

max_age <- max(df$age)

cat(min_age, max_age, "\n")

write.csv(df, "datafr.csv", row.names = FALSE)

cat("Data frame has been written to 'datafr.csv'\n")
```

OUTPUT:



```
> source("~/11.MID RANGE.R")
23 25
```

RESULT:

Thus the program for central tendency and data dispersion measures was executed successfully

EXPERIMENT-12

Z-SCOORE NORMALIZATION:

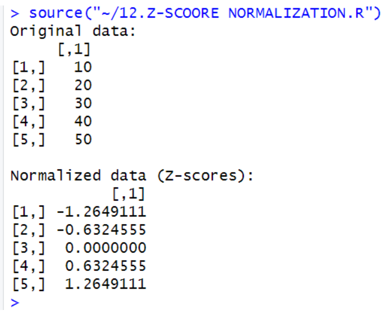
AIM:

To write the program for Z-scoore normalization using R-tool.

PROGRAM:

```
##Z score normalization
data <- matrix(c(10, 20, 30, 40, 50), nrow = 5, ncol = 1)
z_score_normalization <- function(x) {
  (x - mean(x)) / sd(x)
}
normalized_data <- apply(data, 2, z_score_normalization)
cat("Original data:\n")
print(data)
cat("\nNormalized data (Z-scores):\n")
print(normalized_data)
```

OUTPUT:



```
> source("~/12.Z-SCOORE NORMALIZATION.R")
Original data:
     [,1]
[1,]   10
[2,]   20
[3,]   30
[4,]   40
[5,]   50

Normalized data (Z-scores):
           [,1]
[1,] -1.2649111
[2,] -0.6324555
[3,]  0.0000000
[4,]  0.6324555
[5,]  1.2649111
>
```

RESULT:

Thus the Z-scoore normalization using R tool was executed successfully.

EXPERIMENT-13

MIN,MAX,MEAN,MINMAX:

AIM:

To write the program for the minimum,maximum,mean and minmax using r-TOOL

PROGRAM:

```
data <- c(10, 20, 30, 40, 50)

Mean<-mean(data)

Minimum<-min(data)

Maximum<-max(data)
```

MinMax<-(data-Minimum)/(Maximum-Minimum)

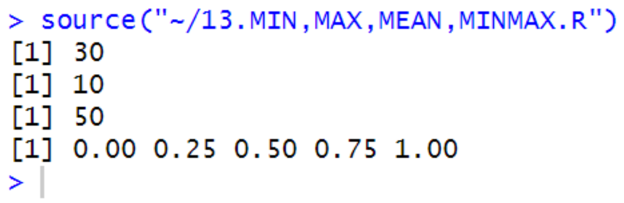
print(Mean)

print(Minimum)

print(Maximum)

print(MinMax)

OUTPUT:



```
> source("~/13.MIN,MAX,MEAN,MINMAX.R")
[1] 30
[1] 10
[1] 50
[1] 0.00 0.25 0.50 0.75 1.00
> 
```

RESULT:

Thus the program for min,max,minmax,mean was executed successfully.

EXPERIMENT-14

BAR PLOT AND HORIZONTAL BAR:

AIM:

To draw the bar plot and horizontal bar using R-tool.

PROGRAM:

a<-c(55,67,89,80,90)

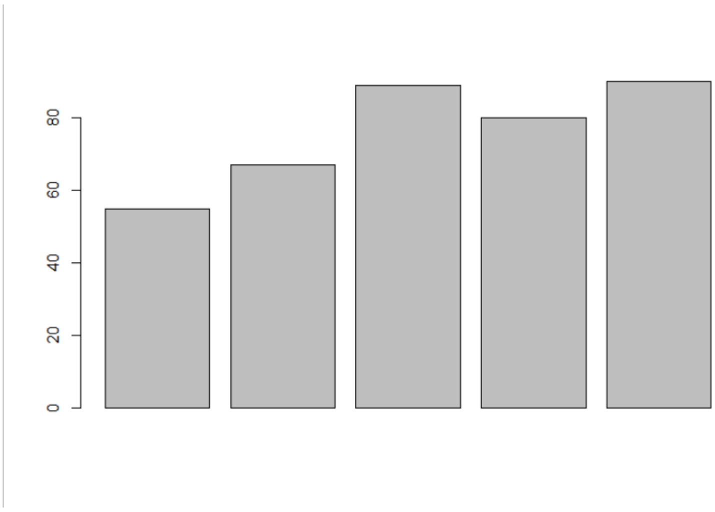
barplot(a)

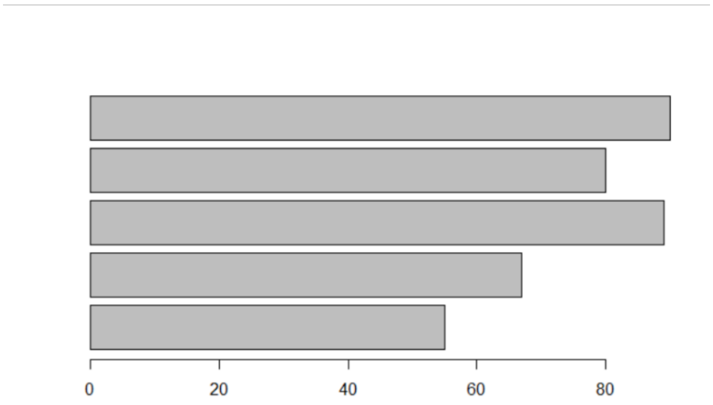
a<-c(55,67,89,80,90)

barplot(a)

barplot(a,horiz=TRUE)

OUTPUT:





RESULT:

Thus the bar and horizontal bar plot was executed successfully.

EXPERIMENT-15

BOX PLOT:

AIM:

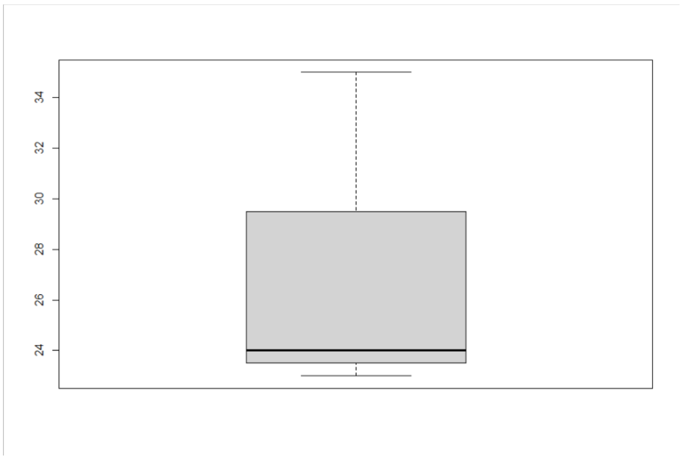
To draw the box plot using R-tool.

PROGRAM:

```
names<-c("siri","chru","loki")
```

```
age<-c(23,24,25)

marks<-c(88,78,25)

df<-data.frame(names,age,marks)

hist(df$age)

boxplot(df$age)
```

OUTPUT:



RESULT:

Thus the box plot was executed successfully.

EXPERIMENT-16

HISTOGRAM:

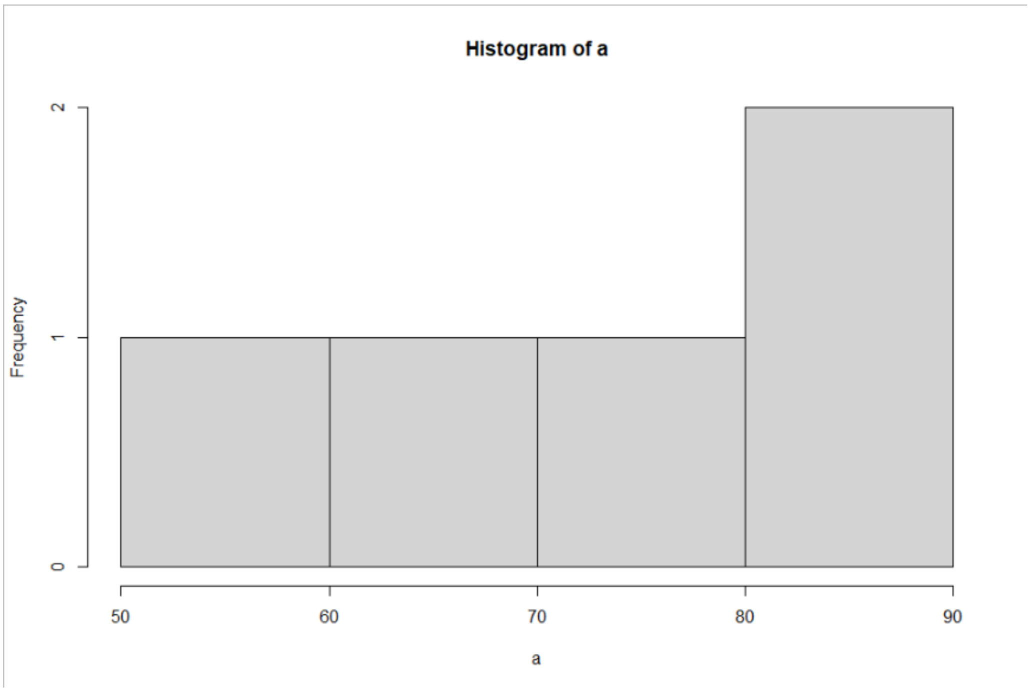
AIM:

To draw the histogram plot using R-tooll.

PROGRAM:

```
a<-c(55,67,89,80,90)

hist(a)
```

OUTPUT:



RESULT:

Thus the histogram plot was executed successfully.

EXPERIMENT-17

CORRELATION ANALYSIS:

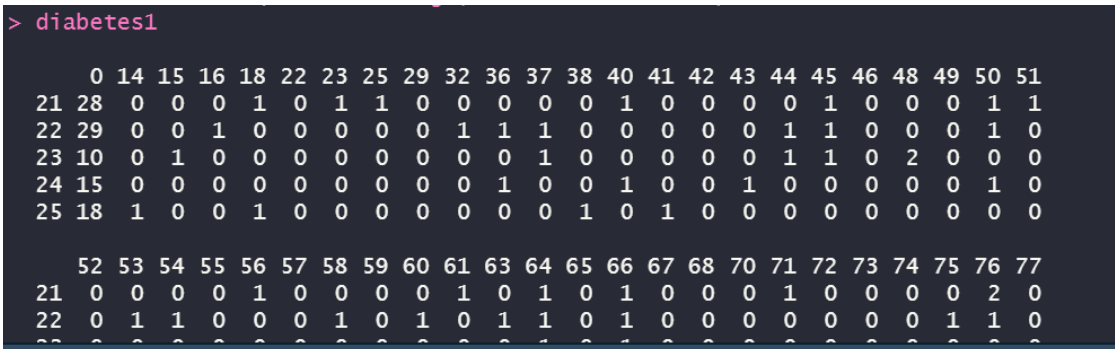
AIM:

To write the program for correlation analysis using R-tool.

PROGRAM:

```
diabetest1<-read_excel("C:/Users/M.Geetha/Downloads/NARA.xlsx")

diabetest1<-table(diabetest1 $Age,diabetest1 $Insulin)

diabetest1

chisq.test(diabetest1)
```

OUTPUT:



```
> diabetes1

      0 14 15 16 18 22 23 25 29 32 36 37 38 40 41 42 43 44 45 46 48 49 50 51
  21 28  0  0  0  1  0  1  1  0  0  0  0  0  1  0  0  0  0  1  0  0  0  1  1
  22 29  0  0  1  0  0  0  0  0  1  1  1  0  0  0  0  0  1  1  0  0  0  1  0
  23 10  0  1  0  0  0  0  0  0  0  0  1  0  0  0  0  0  1  1  0  2  0  0  0
  24 15  0  0  0  0  0  0  0  0  0  1  0  0  1  0  0  1  0  0  0  0  0  1  0
  25 18  1  0  0  1  0  0  0  0  0  0  0  1  0  1  0  0  0  0  0  0  0  0  0

     52 53 54 55 56 57 58 59 60 61 63 64 65 66 67 68 70 71 72 73 74 75 76 77
  21  0  0  0  0  1  0  0  0  0  1  0  1  0  1  0  0  0  1  0  0  0  0  2  0
  22  0  1  1  0  0  0  1  0  1  0  1  1  0  1  0  0  0  0  0  0  0  1  1  0
```

RESULT:

Thus the correlation analysis was executed successfully.

EXPERIMENT-18

SCATTER PLOT:

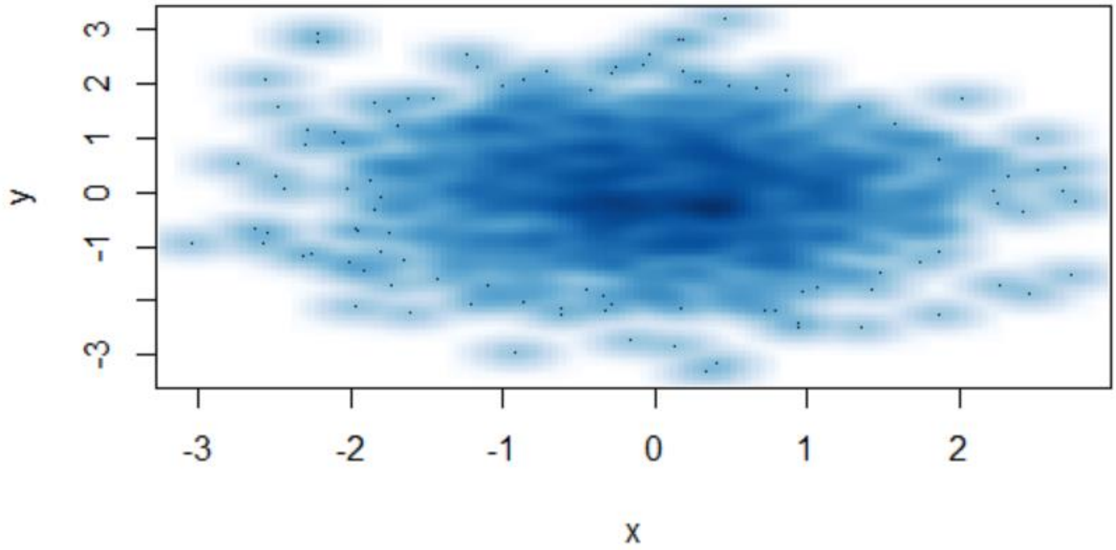
AIM:

To draw the scatter plot using R-tool

PROGRAM:

```
set.seed(9)

x <- rnorm(1000)

y <- rnorm(1000)

smoothScatter(y - x)

smoothScatter(x,y)
```

OUTPUT:



RESULT:

Thus the scatter plot was executed successfully.

EXPERIMENT-19

LINEAR REGRESSION:

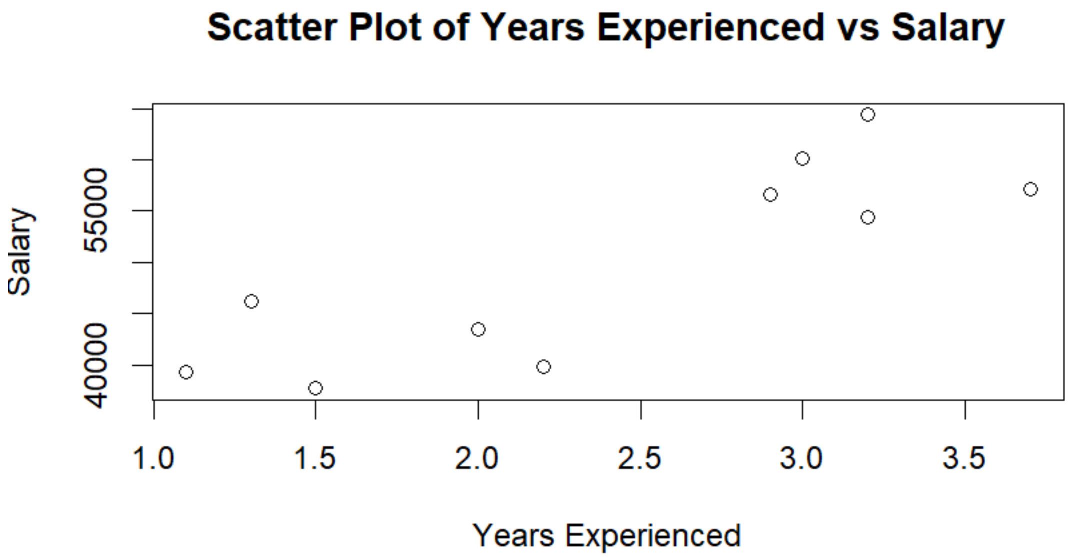
AIM:

To write thr program for the linear regression using R-tool.

PROGRAM:

```
# Create the data frame
data <- data.frame(
  Years_Exp = c(1.1, 1.3, 1.5, 2.0, 2.2, 2.9, 3.0, 3.2, 3.2, 3.7),
  Salary = c(39343.00, 46205.00, 37731.00, 43525.00,
             39891.00, 56642.00, 60150.00, 54445.00, 64445.00, 57189.00)
)
# Create the scatter plot
plot(data$Years_Exp, data$Salary,
    xlab = "Years Experienced",

    ylab = "Salary",

    main = "Scatter Plot of Years Experienced vs Salary")
```

OUTPUT:



RESULT:

Thus the linear regression program was executed successfully.

EXPERIMENT-20

MULTIPLE REGRESSION:

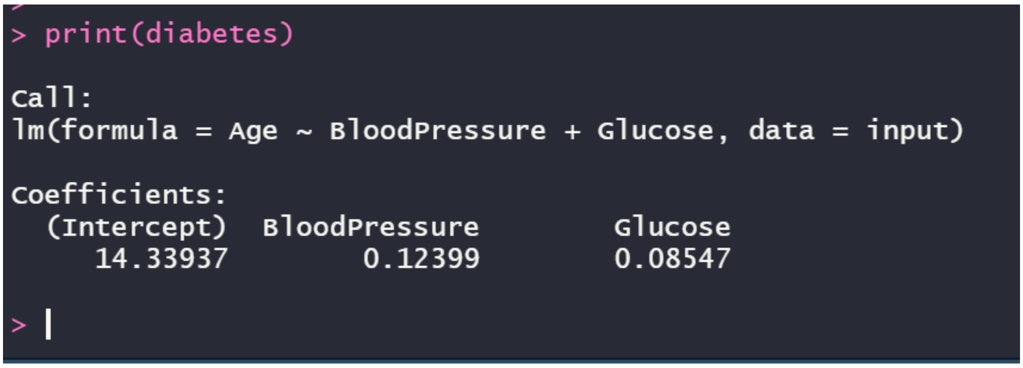
AIM:

To write the program for the multiple regression.

PROGRAM:

```
Input <- diabetes[,c(“Age”, “BloodPressure”, “Glucose”)]

Model <- lm(Age~ BloodPressure+Glucose,data=input)

Print(model)
```

OUTPUT:

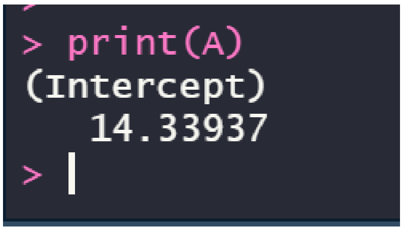


```
> print(diabetes)

Call:
lm(formula = Age ~ BloodPressure + Glucose, data = input)

Coefficients:
  (Intercept)  BloodPressure        Glucose
     14.33937        0.12399        0.08547

> |
```

A<- coef(model)[1]

Print(A)

OUTPUT:



```
> print(A)
(Intercept)
   14.33937
> |
```

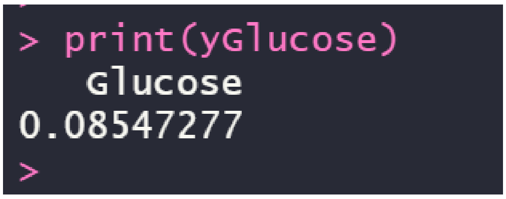
xBloodPressure<- coef(model)[2]

yGlucose<- coef(model)[3]

print(xBloodPressure)

print(yGlucose)

OUTPUT:

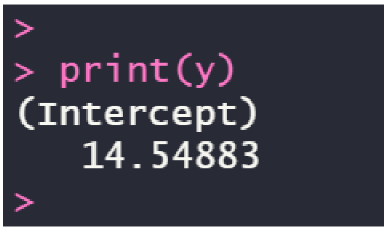


```
> print(yGlucose)
   Glucose
0.08547277
>
```

y = A+xBloodPressure + yGlucose

print(y)

OUTPUT:



```
>
> print(y)
(Intercept)
   14.54883
>
```