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:

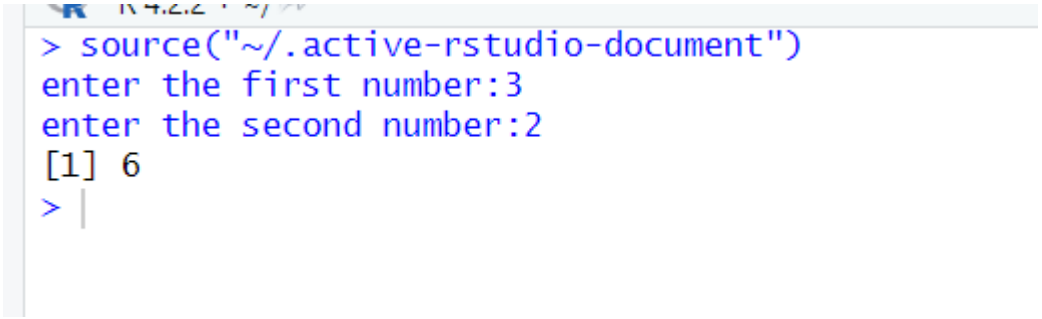
num1=as.integer(readline(prompt = "enter the first number:"))

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

num3=num1*num2

print(num3)

OUTPUT:



RESULT:

Thus the basic program multiplication are executed successfully.

EXPERIMENT-4

DIVISION:

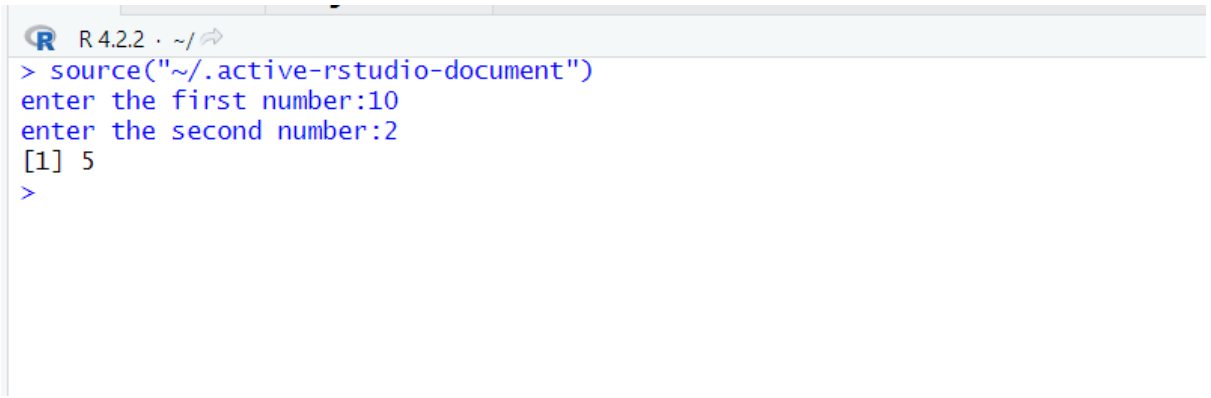
AIM:

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:



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:

```
R 4.2.2 · ~/
> 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)
mid range(df $age)
write.csv(df,"datafr.csv")
```

OUTPUT:

```
> range(df $age)
[1] 23 35
```

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:

```
diabetest1<-read_excel("C:/Users/M.Geetha/Downloads/NARA.xlsx")
A<-c(diabetest1$Age)
Mean<-mean(A)
Std<-sd(A)
Zscore<-(A-Mean)/Std
Zscore
```

OUTPUT:

```
> sd(A)
[1] 11.76023
>
```

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:

MEAN

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

A<-c(diabetest1$Age)

Mean<-mean(A)

OUTPUT:

```
> mean(A)
[1] 33.24089
>
```

MINIMUM

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

A<-c(diabetest1$Age)

Minimum<-Min(diabetest1$Age)

OUTPUT:

```
> Minimum
[1] 21
>
```

MAXIMUM

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

A<-c(diabetest1$Age)

Maximum<-Max(diabetest1$Age)

OUTPUT:

```
> Maximum
[1] 81
```

MINMAX

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

A<-c(diabetest1$Age)

Maximum<-Max(diabetest1$Age)

Minimum<-Min(diabetest1$Age)

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

MinMax

OUTPUT:

```
>
> MinMax
  [1] 0.48333333 0.16666667 0.18333333 0.00000000 0.20000000
  [6] 0.15000000 0.08333333 0.13333333 0.53333333 0.55000000
 [11] 0.15000000 0.21666667 0.60000000 0.63333333 0.50000000
 [16] 0.18333333 0.16666667 0.16666667 0.20000000 0.18333333
 [21] 0.10000000 0.48333333 0.33333333 0.13333333 0.50000000
 [26] 0.33333333 0.36666667 0.01666667 0.60000000 0.28333333
 [31] 0.65000000 0.11666667 0.01666667 0.11666667 0.40000000
 [36] 0.20000000 0.23333333 0.41666667 0.10000000 0.58333333
 [41] 0.08333333 0.26666667 0.45000000 0.55000000 0.31666667
 [46] 0.06666667 0.13333333 0.01666667 0.16666667 0.05000000
```

RESULT:

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

EXPERIMENT-14

BAR PLOT AND HORIZONTAL BAR:

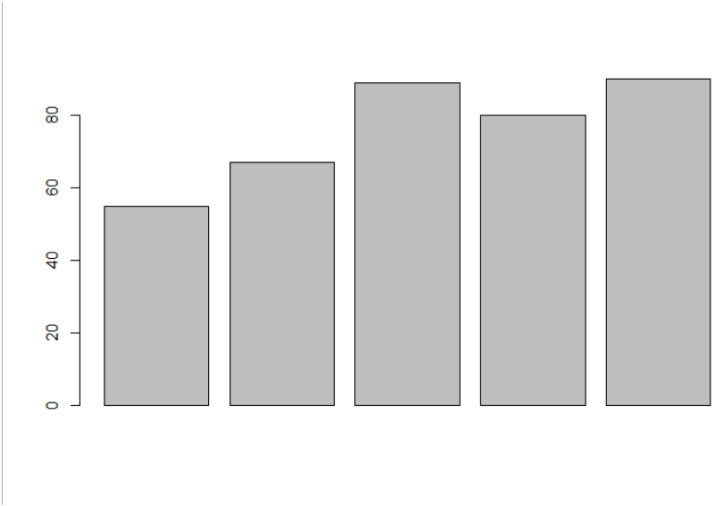
AIM:

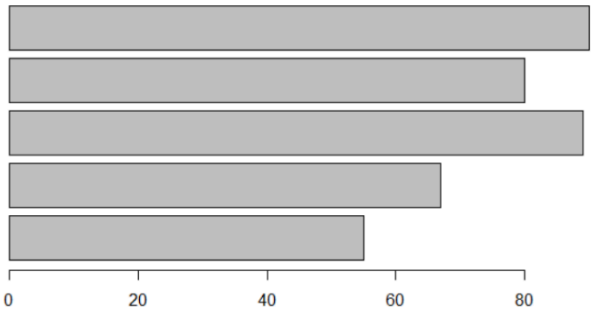
To draw the bar plot and horizontal bar using R-tool.

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:

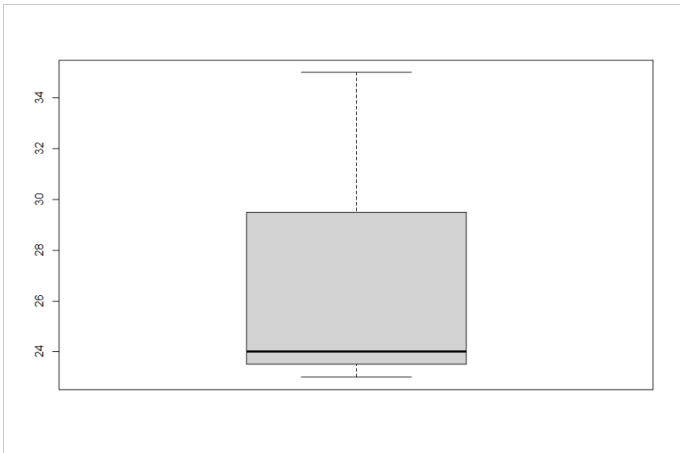
AIM:

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:

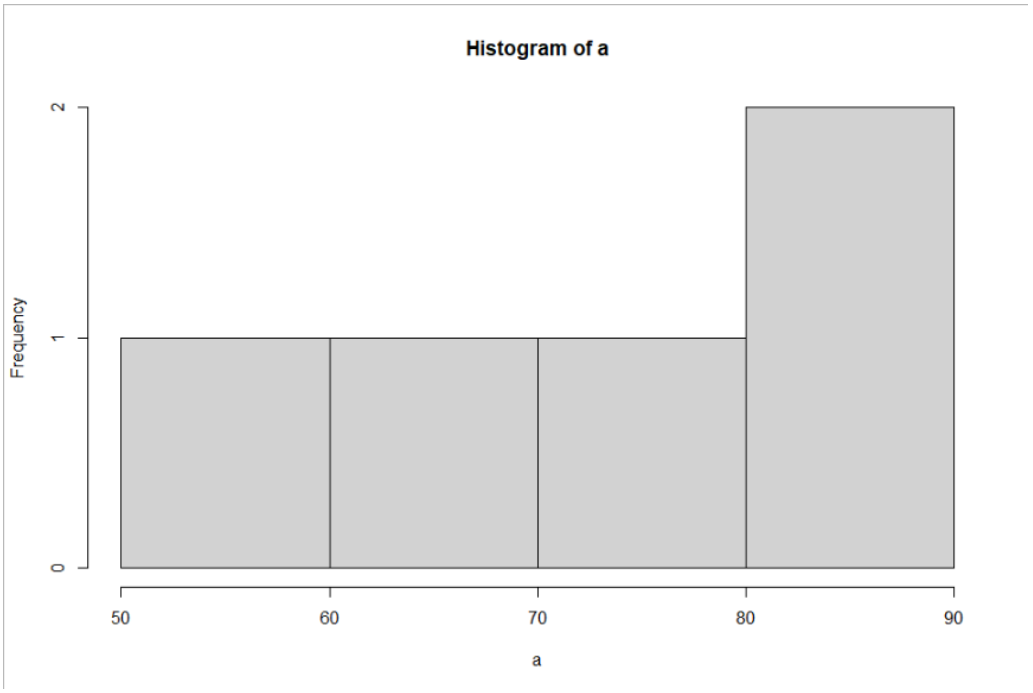
AIM:

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:

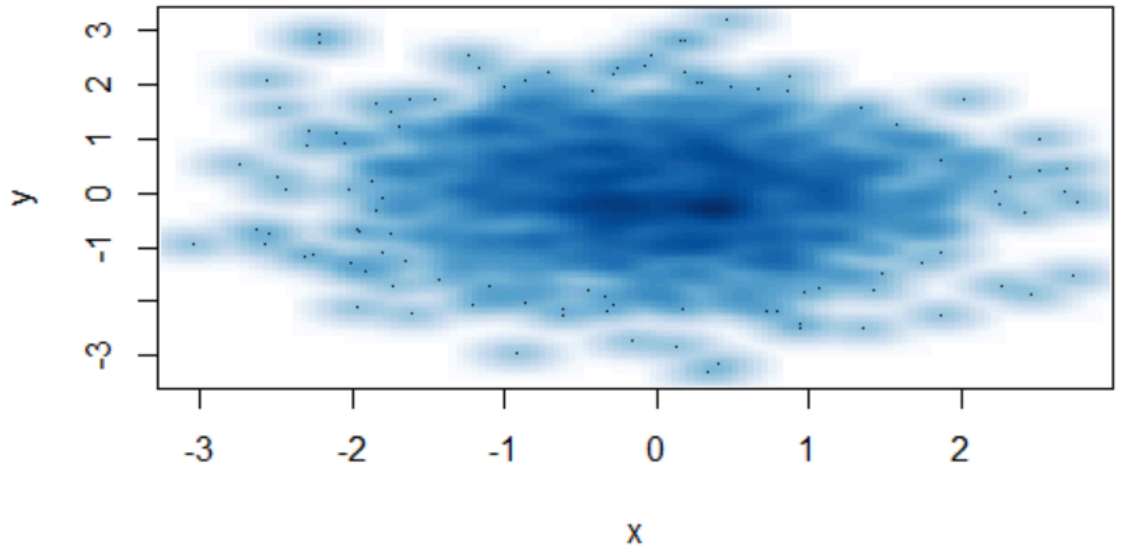
To draw the scatter plot using R-tool

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.

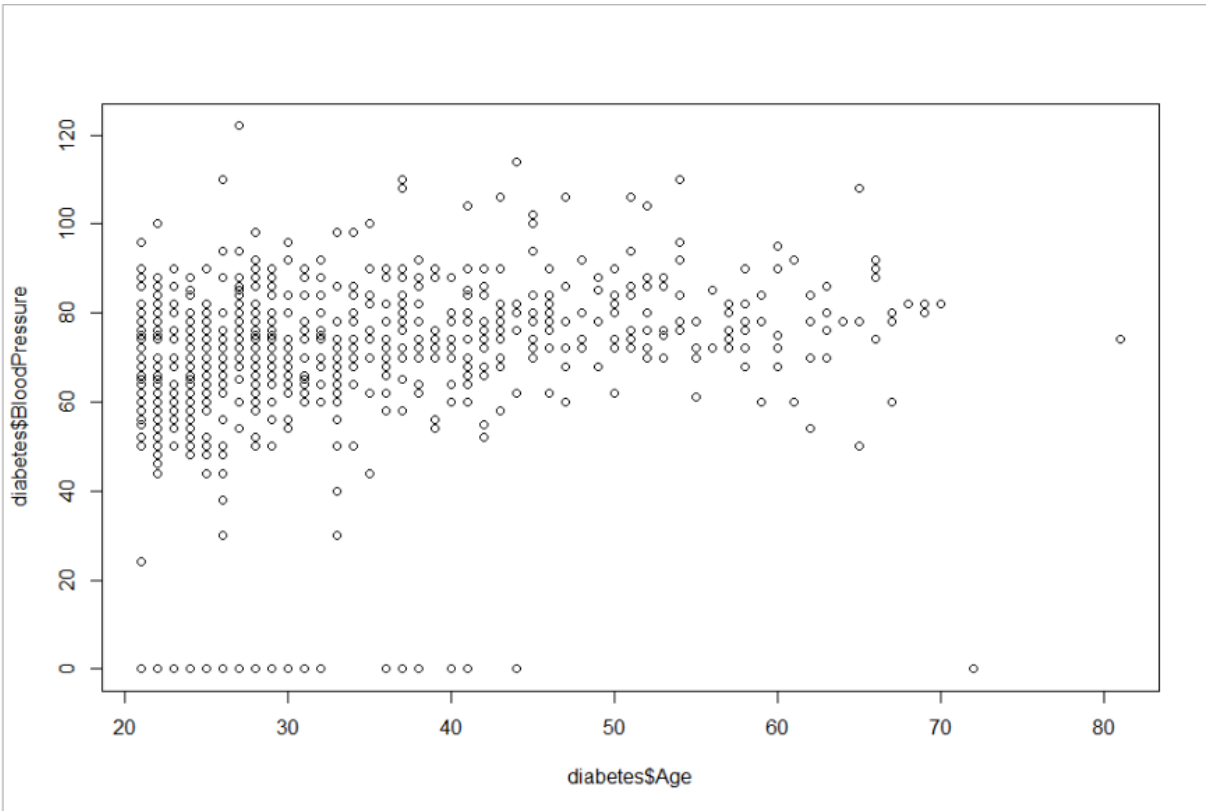
PROGRAM:

Relation <- lm(diabetes$BloodPressure~diabetes$Age)

Png<- (file="linear regression.png")

Plot(diabetes$Age, diabetes$BloodPressure, col="green", main= " Linear Regression Analysis" , abline= (lm(diabetes$BloodPressure~ diabetes$Age)), xlab = "BloodPressure", ylanb= "Age")

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
>
```