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:

```
R 4.2.2 · ~/
> 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:
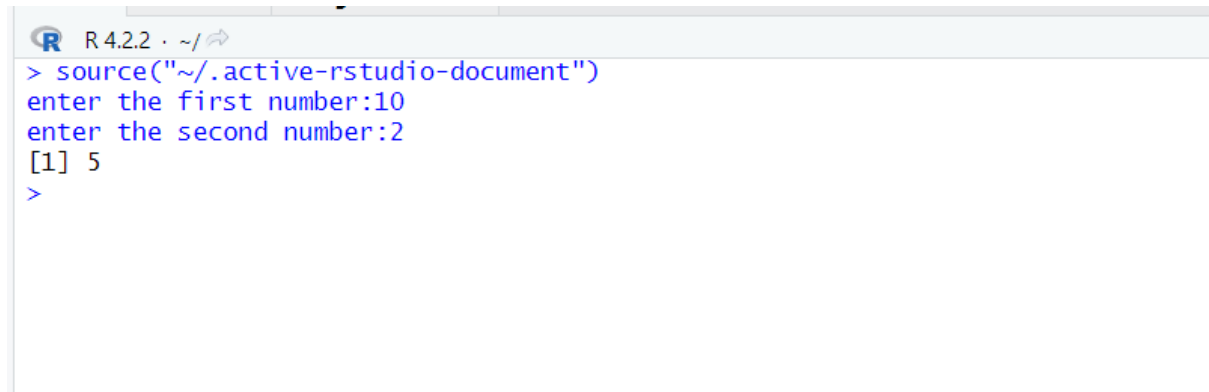
AIM:

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:

```
R  R 4.2.2 · ~/
> 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 using R-Programming.

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 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

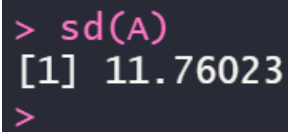## EXPERIMENT-12

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:

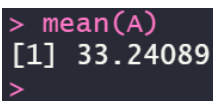Thus the Z-scoore normalization using R tool was executed successfully.

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.
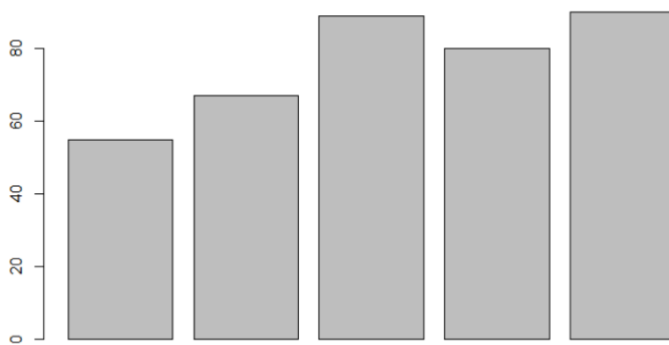
PROGRAM:

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

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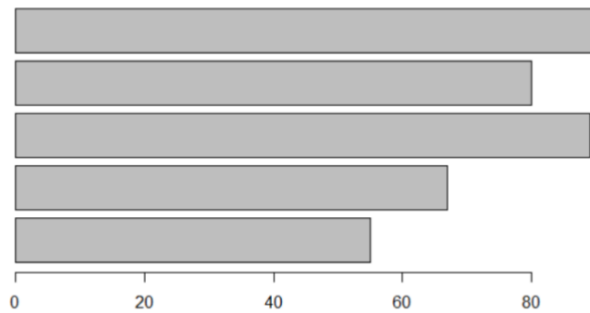
a<-c(55,67,89,80,90)

barplot(a)

barplot(a,horiz=TRUE)

OUTPUT:

RESULT:

Thus the bar and horizontal bar plot was executed successfully.
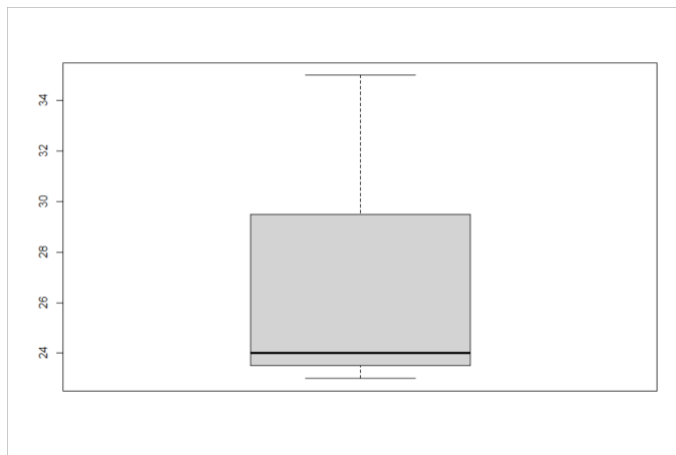
EXPERIMENT-15

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.
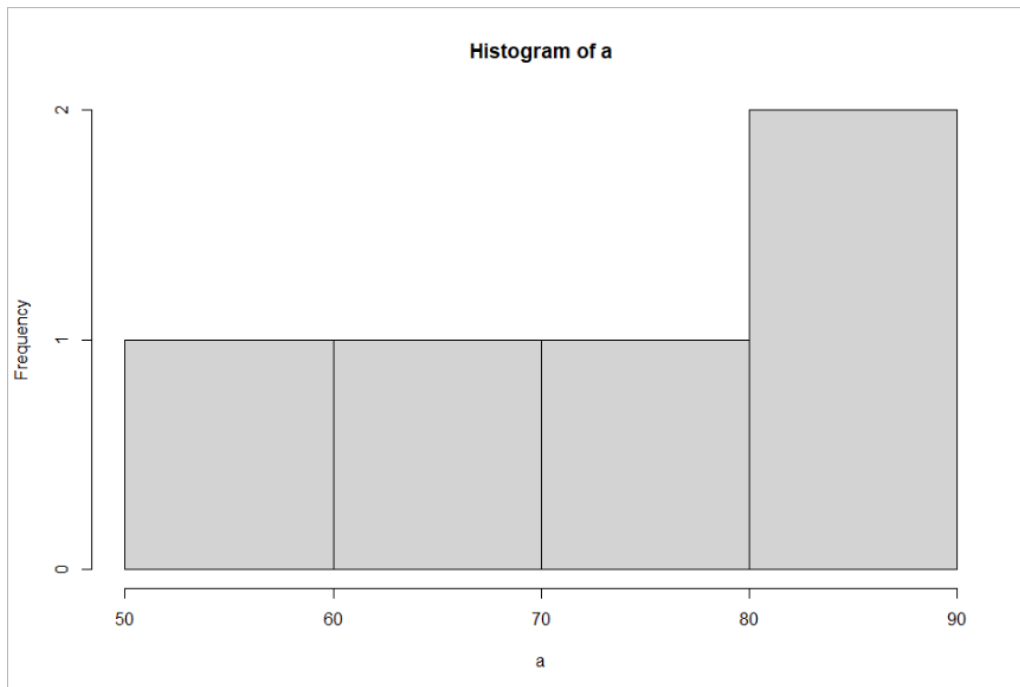
EXPERIMENT-16

HISTOGRAM:

AIM:

To draw the histogram plot using R-tooll.

PROGRAM:

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

hist(a)

OUTPUT:

Histogram of a

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.
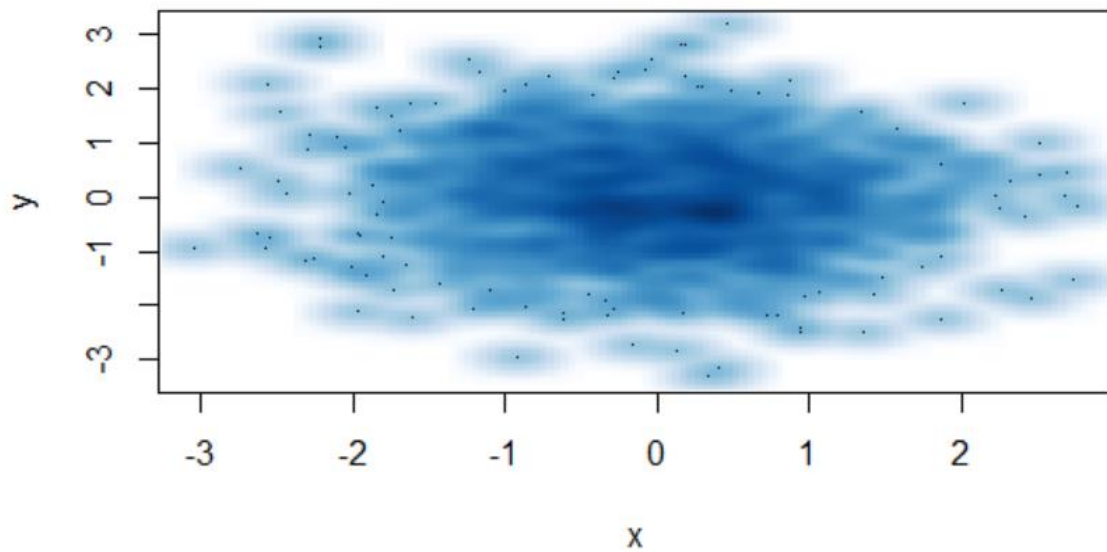
EXPERIMENT-18

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:

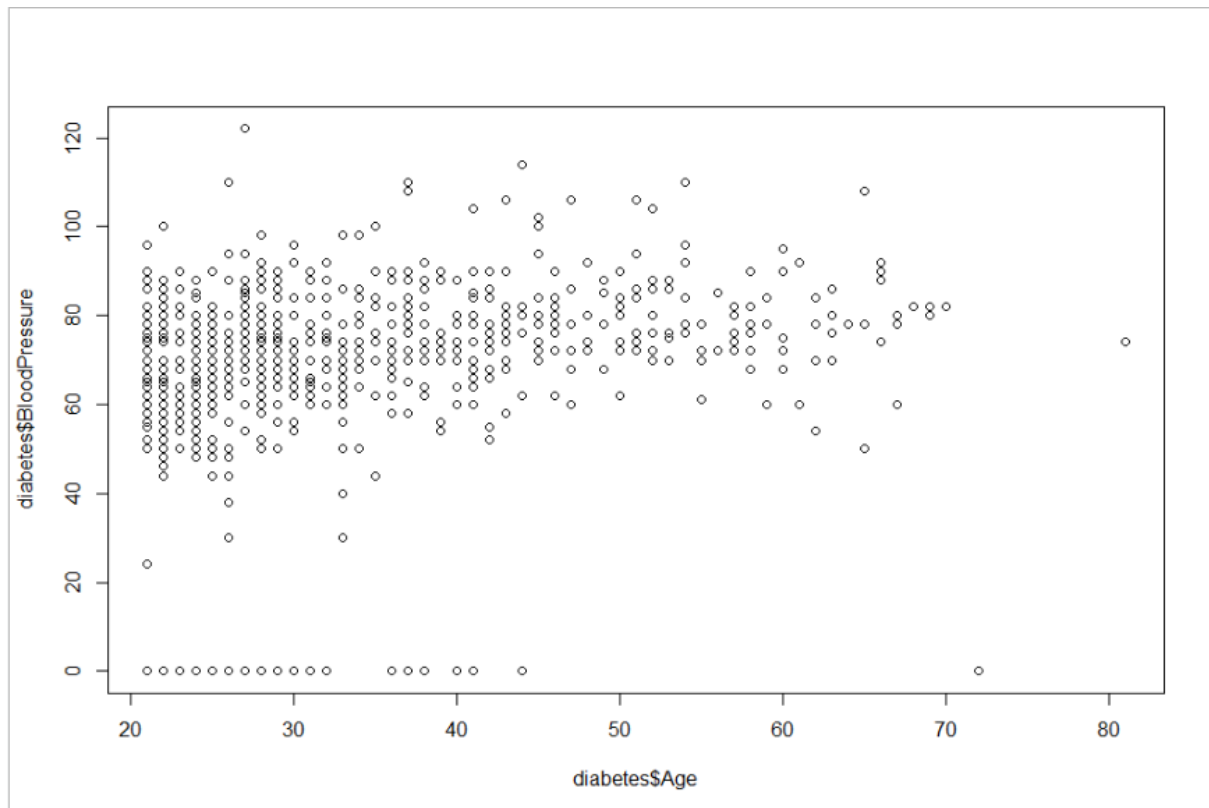To write thr program for the linear regression using R-tool.

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
>
```