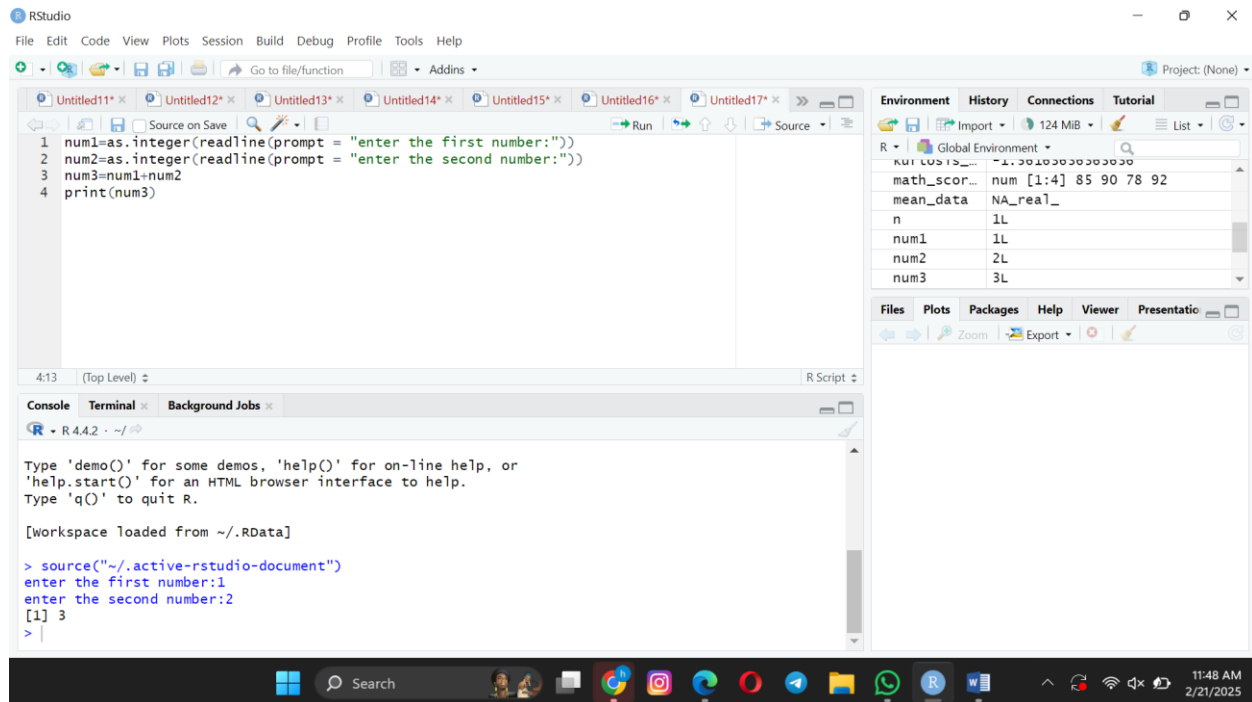


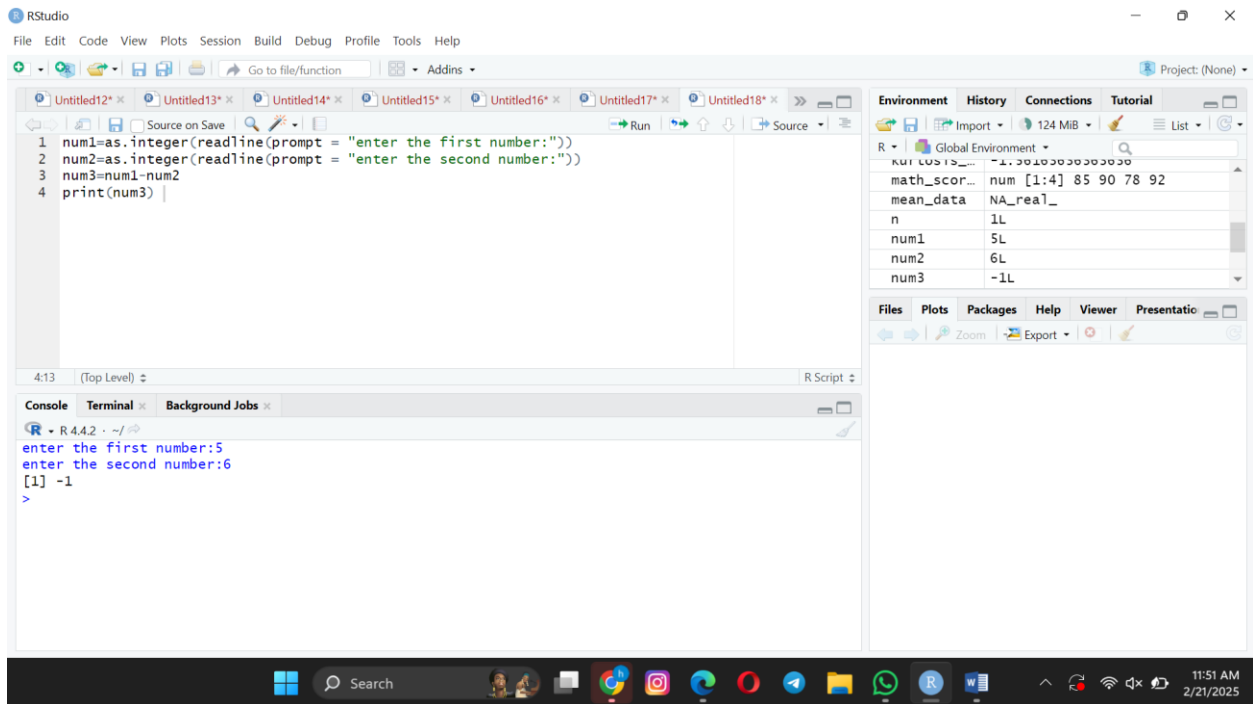
ADDITION

1 AIM: To prove the program for addition using R-tool



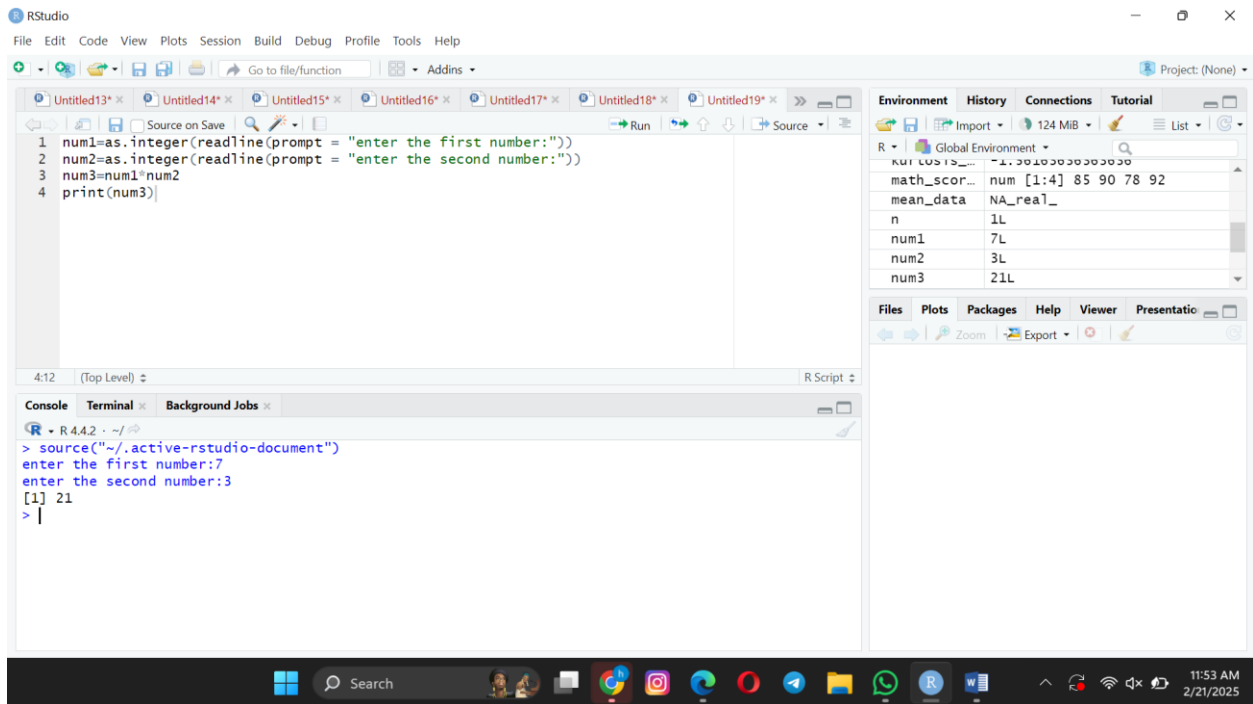
SUBTRACTION:

2 AIM: To prove the program for subtraction using R-tool.



MULTIPLICATION:

3 AIM: To prove the program for multiplication using R-tool.



DIVISION:

4 AIM: To prove the program for division using R-tool.

The screenshot displays the RStudio environment with the following components:

- Source Editor:** Contains an R script with four lines of code:

```
1 num1=as.integer(readline(prompt = "enter the first number:"))
2 num2=as.integer(readline(prompt = "enter the second number:"))
3 num3=num1/num2
4 print(num3)
```
- Environment Pane:** Shows the current environment with variables:

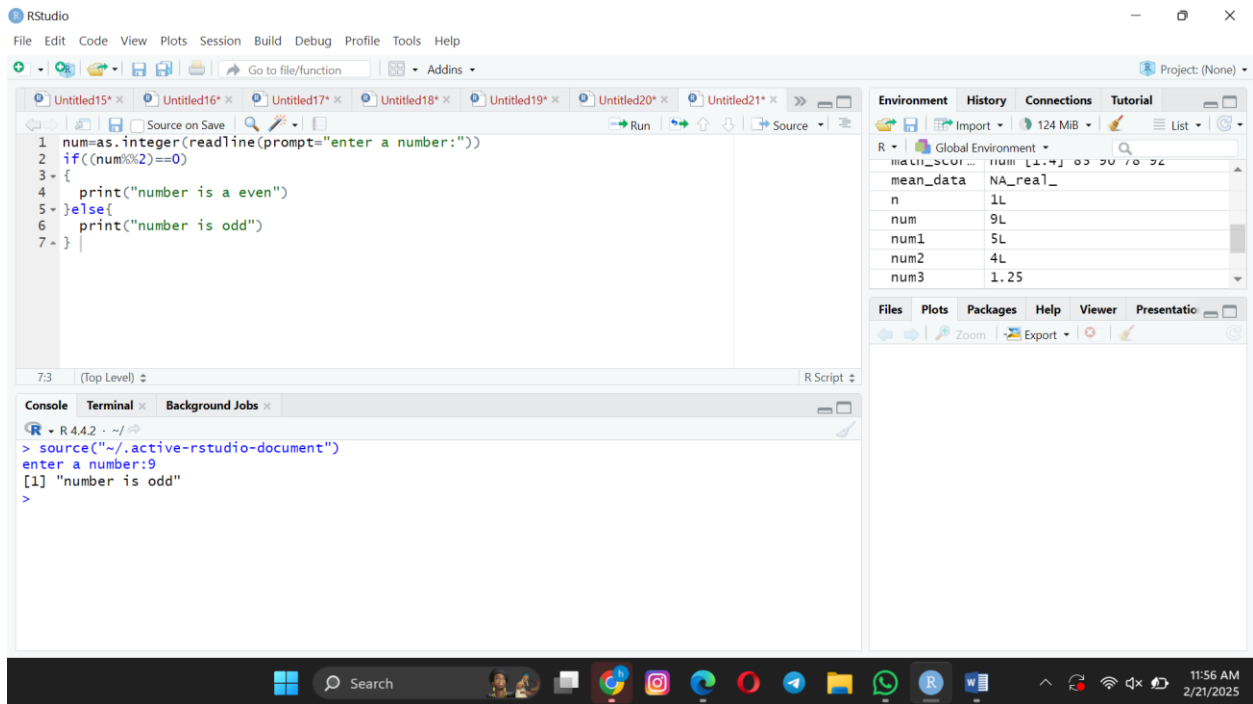
Variable	Value
num1	5L
num2	4L
num3	1.25
- Console:** Shows the execution output:

```
> source("~/active-rstudio-document")
enter the first number:5
enter the second number:4
[1] 1.25
>
```
- Terminal:** Empty.
- Background Jobs:** Empty.

The Windows taskbar at the bottom shows the time as 11:54 AM on 2/21/2025.

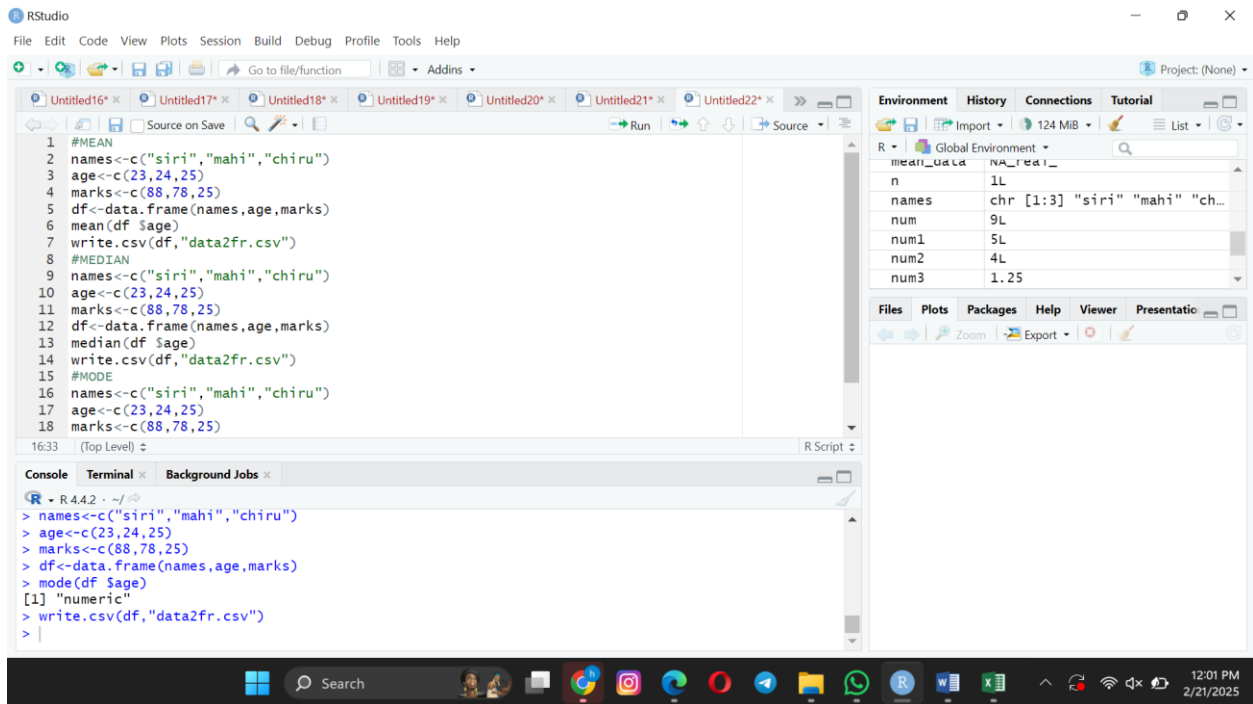
ODD OR EVEN:

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



MEAN,MEDIAN,MODE:

6 AIM: To write the program for mean,median,mode.



The screenshot shows the RStudio interface with a script editor, environment pane, and console. The script editor contains R code for calculating mean, median, and mode. The console shows the output of the code.

```
1 #MEAN
2 names<-c("siri","mahi","chiru")
3 age<-c(23,24,25)
4 marks<-c(88,78,25)
5 df<-data.frame(names,age,marks)
6 mean(df $age)
7 write.csv(df,"data2fr.csv")
8 #MEDIAN
9 names<-c("siri","mahi","chiru")
10 age<-c(23,24,25)
11 marks<-c(88,78,25)
12 df<-data.frame(names,age,marks)
13 median(df $age)
14 write.csv(df,"data2fr.csv")
15 #MODE
16 names<-c("siri","mahi","chiru")
17 age<-c(23,24,25)
18 marks<-c(88,78,25)
```

Console Output:

```
> names<-c("siri","mahi","chiru")
> age<-c(23,24,25)
> marks<-c(88,78,25)
> df<-data.frame(names,age,marks)
> mode(df $age)
[1] "numeric"
> write.csv(df,"data2fr.csv")
>
```

Environment Pane:

Object	Class	Attributes
medn_uatd	NA_real_	
n	1L	
names	chr [1:3]	"siri" "mahi" "ch...
num	9L	
num1	5L	
num2	4L	
num3	1.25	

SUMMARY:

7 AIM: To write the program for summary using R-tool.

The screenshot displays the RStudio environment with the following components:

- Source Editor:** Contains the following R code:

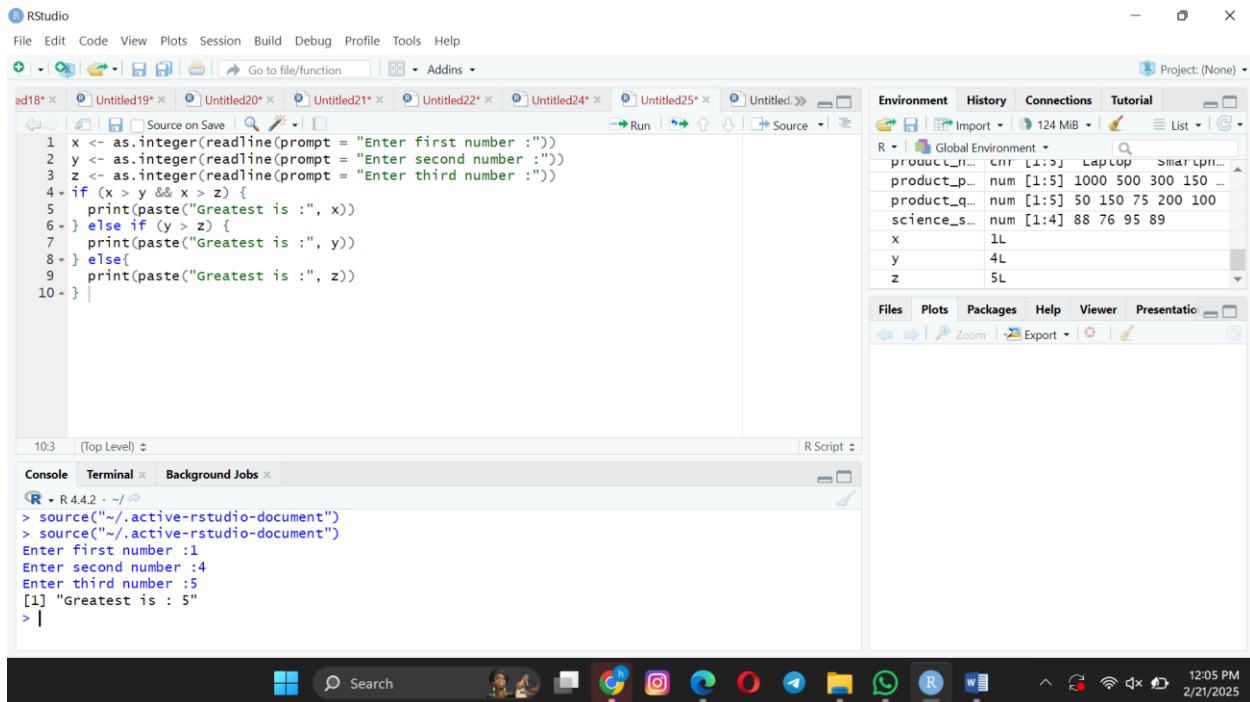
```
1 names<-c("siri","mahi","chiru")
2 age<-c(23,24,25)
3 marks<-c(88,78,25)
4 df<-data.frame(names,age,marks)
5 summary(df $age)
6 write.csv(df,"datafr.csv")
```
- Environment Pane:** Shows the Global Environment with the following objects:

Object	Class	Value
medn_uatd	NA	red i...
n	1L	
names	chr [1:3]	"siri" "mahi" "ch...
num	9L	
num1	5L	
num2	4L	
num3	1. 25	
- Console:** Shows the execution of the code:

```
> source("~/active-rstudio-document")
> |
```
- Taskbar:** Displays the Windows taskbar with various application icons and the system clock showing 12:04 PM on 2/21/2025.

GREATER AMONG THREE NUMBERS:

8 AIM: To write the program for the greatest among three numbers.



The screenshot displays the RStudio interface. The main editor window contains an R script with the following code:

```
1 x <- as.integer(readline(prompt = "Enter first number :"))
2 y <- as.integer(readline(prompt = "Enter second number :"))
3 z <- as.integer(readline(prompt = "Enter third number :"))
4 if (x > y && x > z) {
5   print(paste("Greatest is :", x))
6 } else if (y > z) {
7   print(paste("Greatest is :", y))
8 } else {
9   print(paste("Greatest is :", z))
10 }
```

The console window at the bottom shows the execution of the script:

```
R - R 4.4.2 - ~/R
> source("~/active-rstudio-document")
> source("~/active-rstudio-document")
Enter first number :1
Enter second number :4
Enter third number :5
[1] "Greatest is : 5"
> |
```

The Environment pane on the right shows the Global Environment with variables x, y, and z, all of type integer (L).

IQR:

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

The screenshot displays the RStudio interface with a script editor, environment pane, and console. The script defines variables for names, age, and marks, creates a data frame, calculates the IQR, and writes the data to a CSV file. The environment pane shows the resulting data frame and summary statistics. A Microsoft Excel window is overlaid, showing the data frame content.

RStudio Script:

```
1 names<-c("siri","mahi","chiru")
2 age<-c(23,24,25)
3 marks<-c(88,78,25)
4 df<-data.frame(names,age,marks)
5 IQR(df$age)
6 write.csv(df,"datafr.csv")
```

Environment Pane:

Object	Class	Attributes
engr1sn_s...	num	[1:4] 90 85 80 87
kurtosis...	-1.56163636363636	
marks	num	[1:3] 88 78 25
math_scor...	num	[1:4] 85 90 78 92
mean_data	NA_real_	
n	1L	
names	chr	[1:3] "siri" "mahi" "ch...

Microsoft Excel (datafr - datafr.csv):

	A	B	C	D	E	F	G
1		names	age	marks			
2	1	siri	23	88			
3	2	mahi	24	78			
4	3	chiru	25	25			
5							
6							

Console:

```
> source("~/active-rstudio-document")
>
```

QUANTILE:

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

The screenshot shows the RStudio interface with the following components:

- Source Editor:** Contains R code for creating a data frame and calculating quantiles.

```
1 names<-c("siri","mahi","chiru")
2 age<-c(23,24,25)
3 marks<-c(88,78,25)
4 df<-data.frame(names,age,marks)
5 quantile(df$age)
6 write.csv(df,"datafr.csv")
7 print(quantile(df$age))
```
- Environment:** Displays the global environment with variables: `eng11sn_s...` (num [1:4]), `kurtosis_...` (-1.56163636363636), `marks` (num [1:3]), `math_scor...` (num [1:4]), `mean_data` (NA_real_), `n` (1L), and `names` (chr [1:3]).
- Console:** Shows the output of the R script.

```
> source("~/active-rstudio-document")
> source("~/active-rstudio-document")
0% 25% 50% 75% 100%
23.0 23.5 24.0 24.5 25.0
>
```
- Terminal:** Empty.
- Background Jobs:** Empty.

The Windows taskbar at the bottom shows the time as 2:44 PM on 2/21/2025.

MID RANGE:

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

The screenshot displays the RStudio environment with the following components:

- Source Editor:** Contains the following R code:

```
1 names<-c("siri","mahi","chiru") |
2 age<-c(23,24,25)
3 marks<-c(88,78,25)
4 df<-data.frame(names,age,marks)
5 mid_range<-(min(df$age)+max(df$age))/2
6 write.csv(df,"datafr.csv")
7 print(mid_range )
```
- Environment Pane:** Shows the current workspace with the following objects:

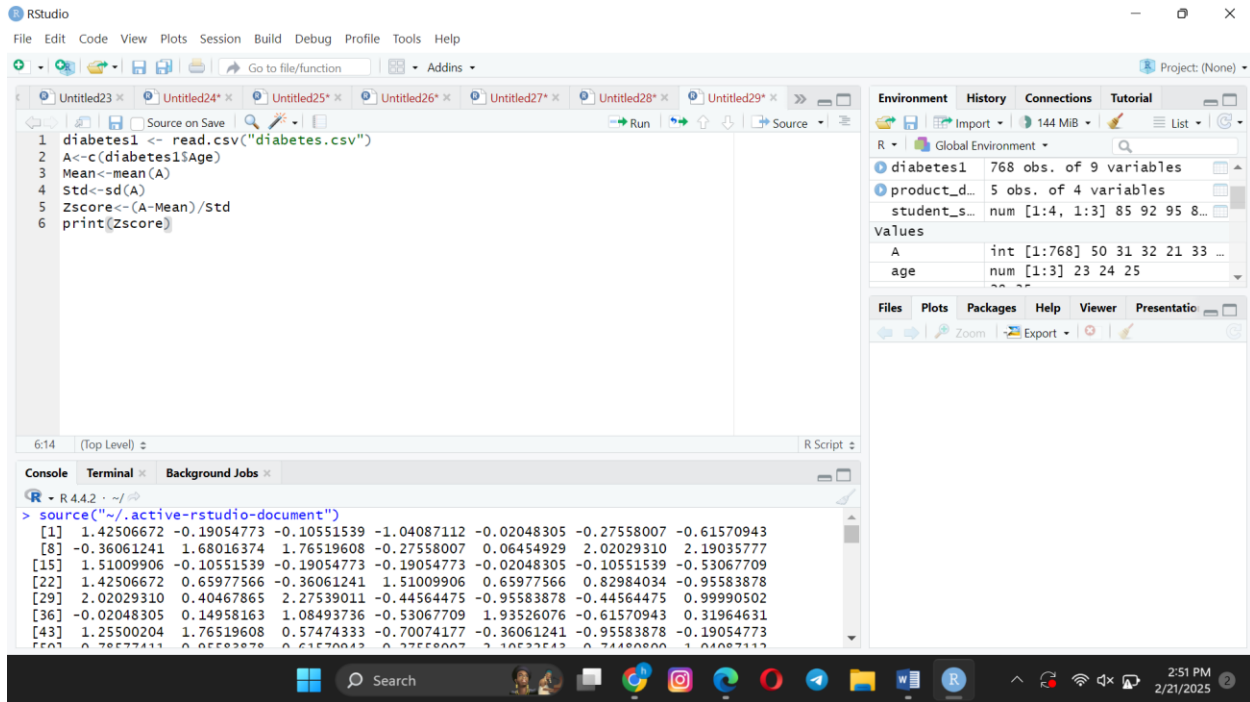
Object	Class	Value
kurtosis_...	num	-1.56163636363636
marks	num [1:3]	88 78 25
math_scor...	num [1:4]	85 90 78 92
mean_data	NA_real_	
mid_range	24	
n	1L	
names	chr [1:3]	"siri" "mahi" "ch...
- Console:** Shows the output of the code execution:

```
> source("~/active-rstudio-document")
[1] 24
> |
```
- Terminal:** Empty.
- Background Jobs:** Empty.

The Windows taskbar at the bottom shows the system clock as 2:49 PM on 2/21/2025.

Z-SCORE NORMALIZATION:

12 AIM: To write the program for Z-score normalization using R-tool.



The screenshot displays the RStudio interface with the following components:

- Source Editor:** Contains the following R code:

```
1 diabetes1 <- read.csv("diabetes.csv")
2 A<-c(diabetes1$Age)
3 Mean<-mean(A)
4 Std<-sd(A)
5 Zscore<-(A-Mean)/Std
6 print(Zscore)
```
- Environment Pane:** Shows the global environment with objects:
 - `diabetes1`: 768 obs. of 9 variables
 - `product_d...`: 5 obs. of 4 variables
 - `student_s...`: num [1:4, 1:3] 85 92 95 8...
- Console:** Shows the execution of the code and the resulting Z-score values for the 'Age' variable:

```
> source("~/active-rstudio-document")
[1] 1.42506672 -0.19054773 -0.10551539 -1.04087112 -0.02048305 -0.27558007 -0.61570943
[8] -0.36061241 1.68016374 1.76519608 -0.27558007 0.06454929 2.02029310 2.19035777
[15] 1.51009906 -0.10551539 -0.19054773 -0.19054773 -0.02048305 -0.10551539 -0.53067709
[22] 1.42506672 0.65977566 -0.36061241 1.51009906 0.65977566 0.82984034 -0.95583878
[29] 2.02029310 0.40467865 2.27539011 -0.44564475 -0.95583878 -0.44564475 0.99990502
[36] -0.02048305 0.14958163 1.08493736 -0.53067709 1.93526076 -0.61570943 0.31964631
[43] 1.25500204 1.76519608 0.57474333 -0.70074177 -0.36061241 -0.95583878 -0.19054773
[50] 0.78577111 0.65583878 0.61570943 0.27558007 0.10551539 0.74480800 1.04087112
```
- Taskbar:** Shows the Windows taskbar with the time 2:51 PM on 2/21/2025.

MIN,MAX,MEAN,MINMAX:

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

The screenshot shows the RStudio environment with the following components:

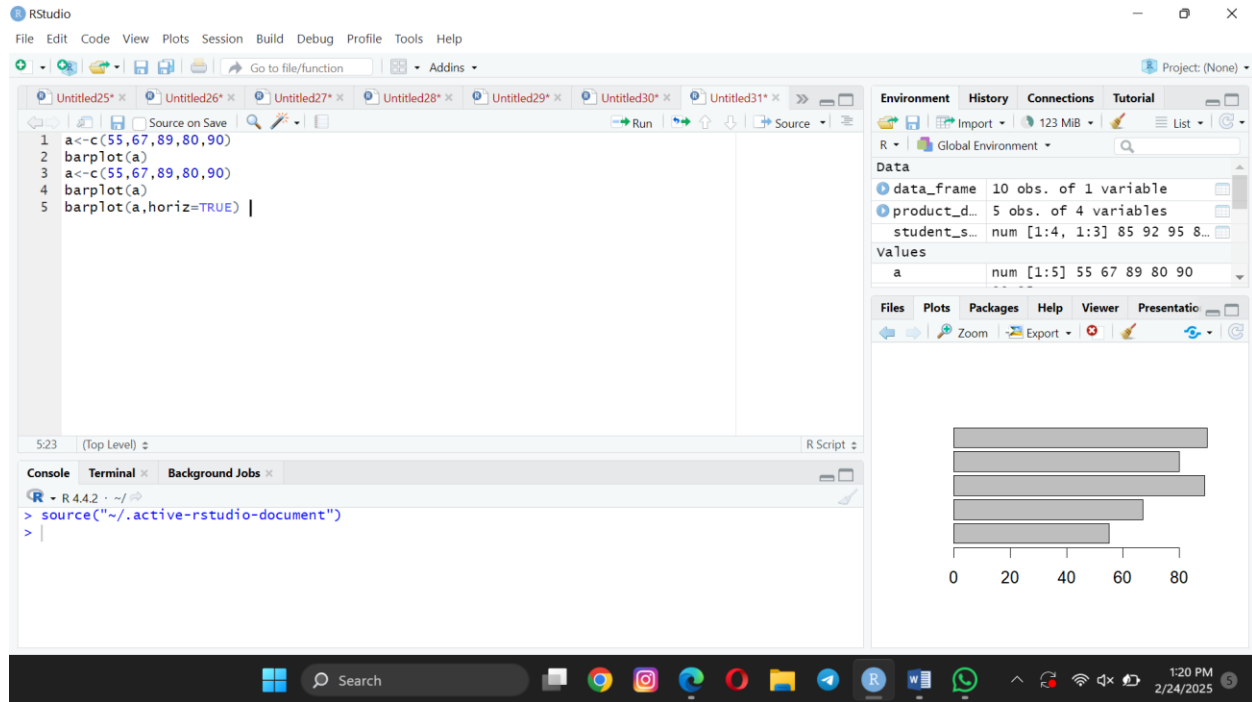
- Source Editor:** Contains R code to read a CSV file named "diabetes.csv" and calculate the minimum, maximum, and minmax of the 'A' variable.
- Environment:** Shows the loaded data objects: 'diabetest1' (768 obs. of 9 variables), 'product_d...' (5 obs. of 4 variables), and 'student_s...' (num [1:4, 1:3] 85 92 95 8...). It also displays the values of 'A' (int [1:768] 50 31 32 21 33 ...) and 'age' (num [1:3] 23 24 25).
- Console:** Shows the output of the R script, including the source command and the resulting values of 'A' and 'age'.

```
1 diabetest1 <- read.csv("diabetes.csv")
2 A <- diabetest1$Age
3 Minimum<-min(A)
4 Maximum<-max(A)
5 print(Maximum)
6 print(Minimum)
7 MinMax<-(A-Minimum)/(Maximum - Minimum)
8 print(MinMax)
```

```
> source("~/active-rstudio-document")
[1] 81
[1] 21
[1] 0.4833333 0.1666667 0.1833333 0.0000000 0.2000000 0.1500000 0.0833333 0.1333333
[9] 0.5333333 0.5500000 0.1500000 0.2166667 0.6000000 0.6333333 0.5000000 0.1833333
[17] 0.1666667 0.1666667 0.2000000 0.1833333 0.1000000 0.4833333 0.3333333 0.1333333
[25] 0.5000000 0.3333333 0.3666667 0.0166667 0.6000000 0.2833333 0.6500000 0.1166667
[33] 0.0166667 0.1166667 0.4000000 0.2000000 0.2333333 0.4166667 0.1000000 0.5833333
[41] 0.0833333 0.3666667 0.4500000 0.5500000 0.3166667 0.0666667 0.1333333 0.0166667
```

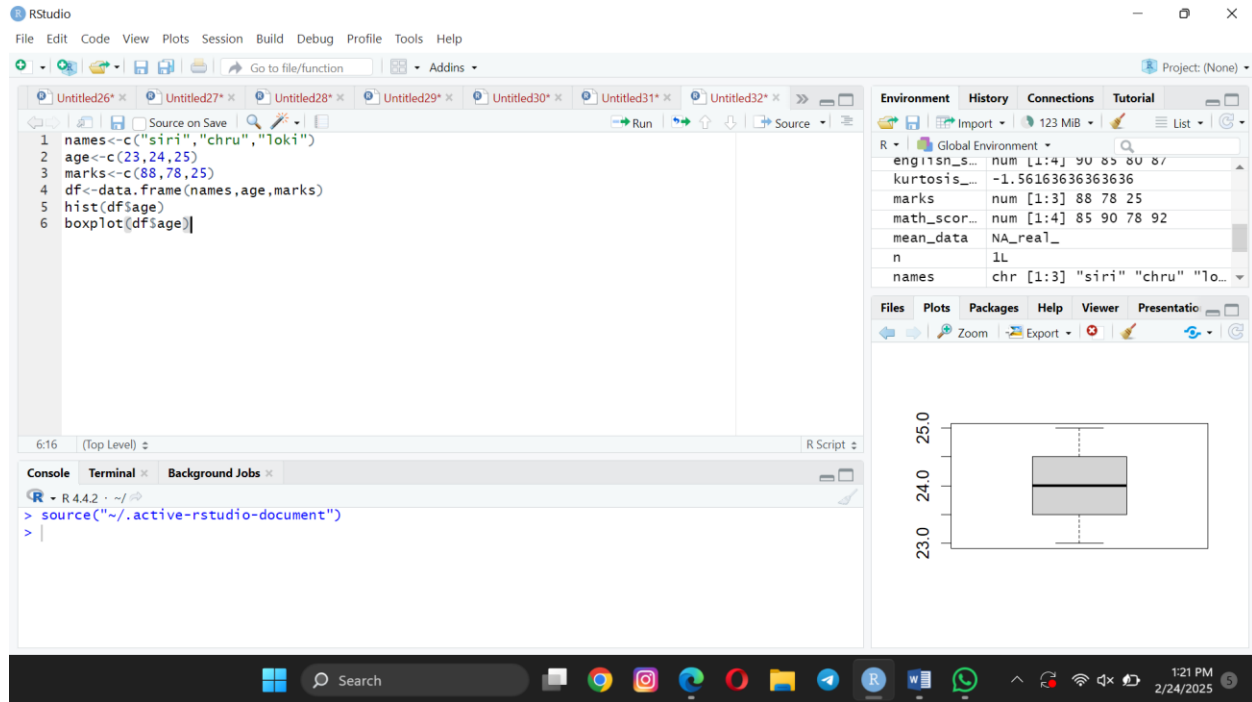
BAR PLOT AND HORIZONTAL BAR:

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



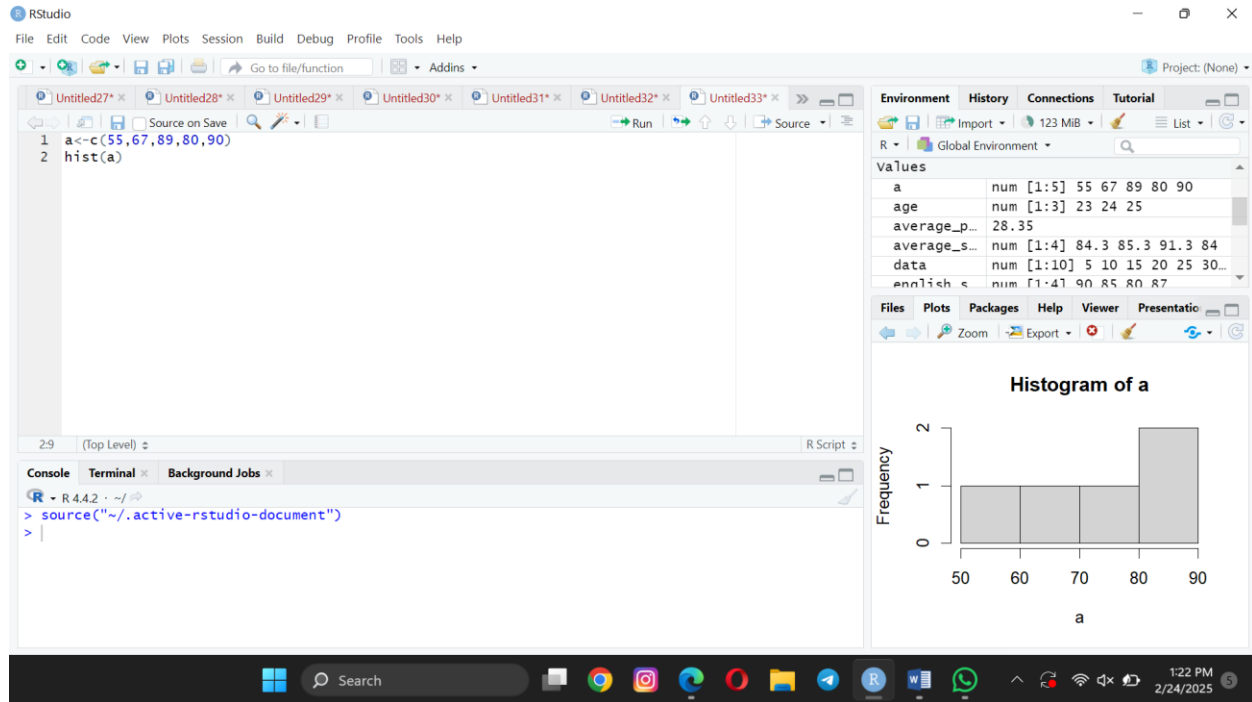
BOX PLOT:

15 AIM: To draw the box plot using R-tool.



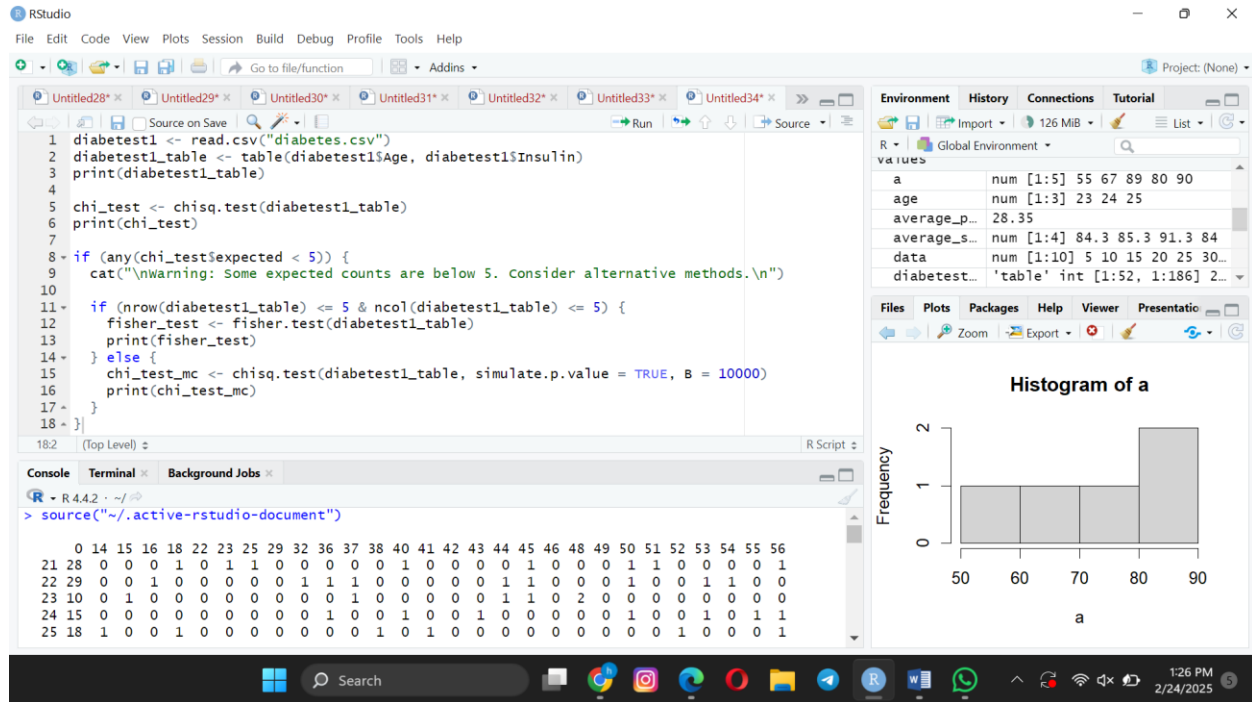
HISTOGRAM:

16 AIM: To draw the histogram plot using R-tool.



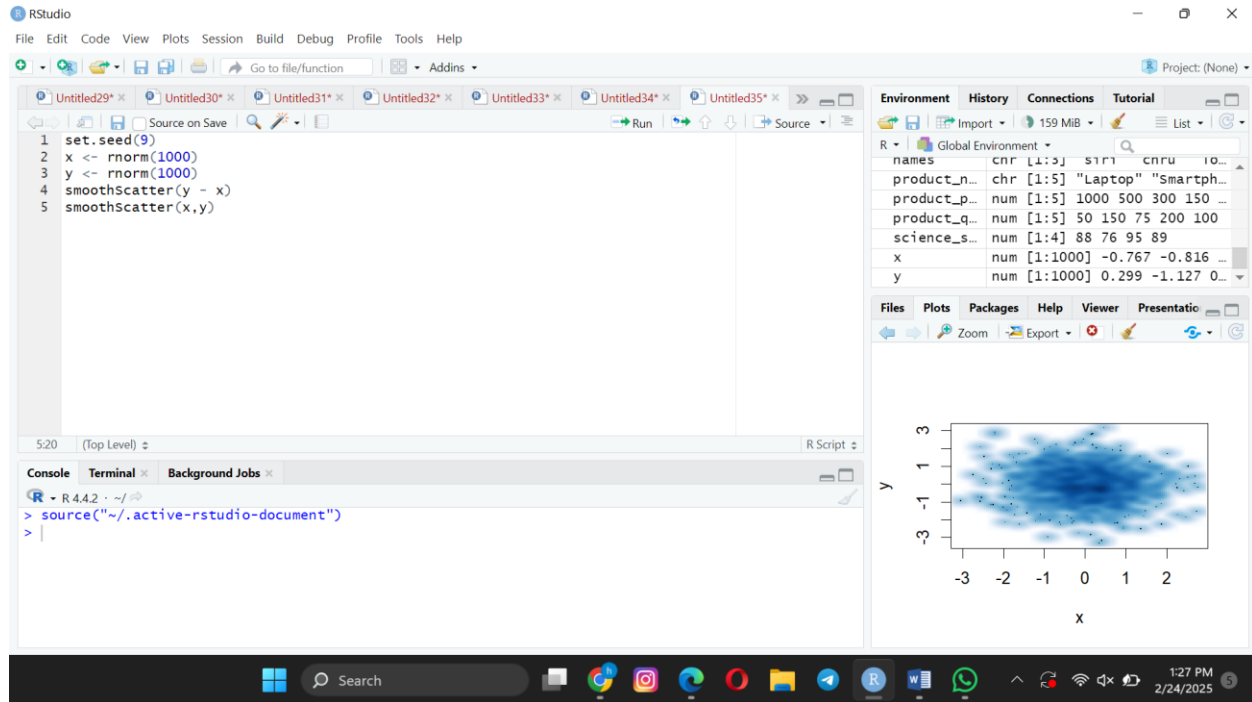
CORRELATION ANALYSIS:

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



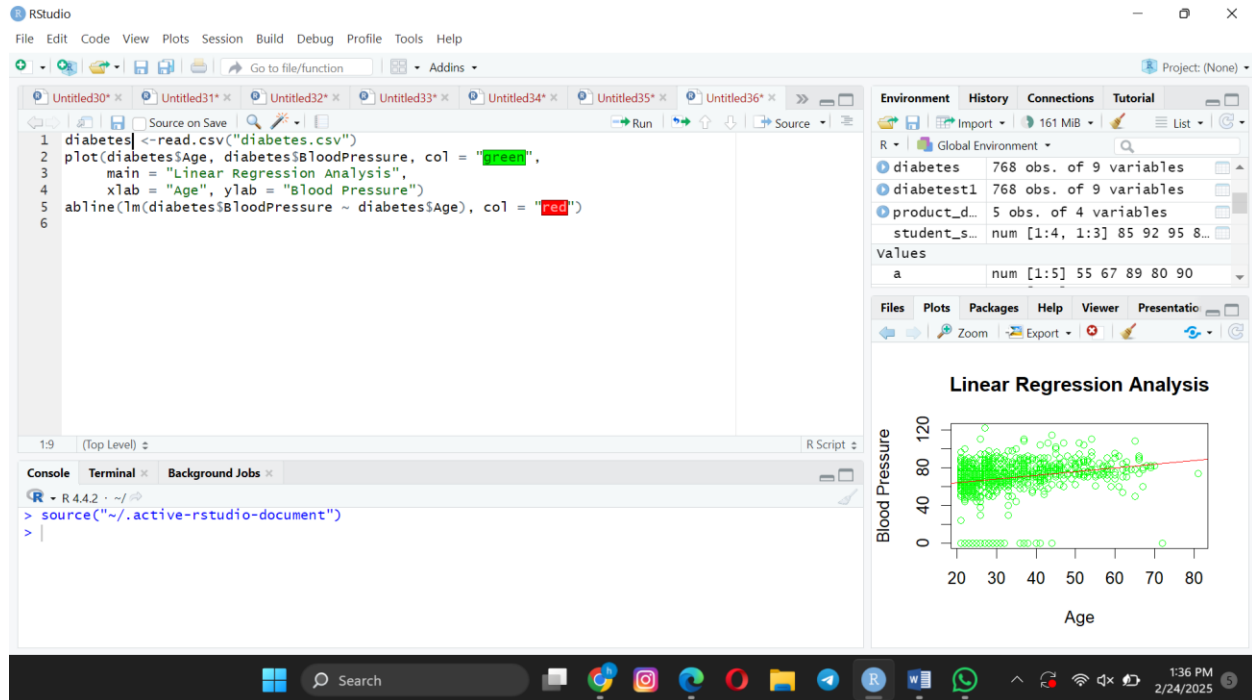
SCATTER PLOT:

18 AIM: To draw the scatter plot using R-tool



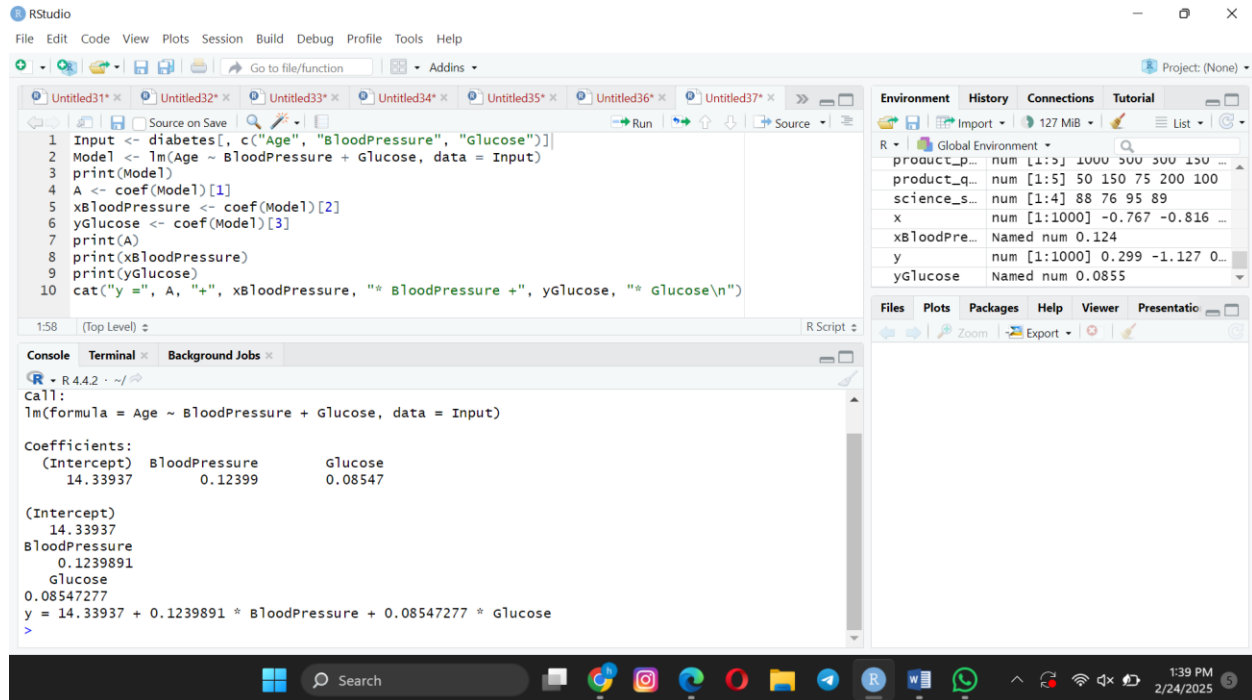
LINEAR REGRESSION:

19 AIM: To write the program for the linear regression using R-tool



MULTIPLE REGRESSION:

20 AIM: To write the program for the multiple regression.



```
1 Input <- diabetes[, c("Age", "BloodPressure", "Glucose")]
2 Model <- lm(Age ~ BloodPressure + Glucose, data = Input)
3 print(Model)
4 A <- coef(Model)[1]
5 xBloodPressure <- coef(Model)[2]
6 yGlucose <- coef(Model)[3]
7 print(A)
8 print(xBloodPressure)
9 print(yGlucose)
10 cat("y =", A, "+", xBloodPressure, "* BloodPressure +", yGlucose, "* Glucose\n")
```

Console Output:

```
R 4.4.2 ~ /
Call:
lm(formula = Age ~ BloodPressure + Glucose, data = Input)

Coefficients:
(Intercept)  BloodPressure    Glucose
  14.33937      0.12399      0.08547

(Intercept)
 14.33937
BloodPressure
 0.1239891
Glucose
 0.08547277
y = 14.33937 + 0.1239891 * BloodPressure + 0.08547277 * Glucose
>
```

Environment:

Variable	Type	Value
product_p...	num	[1:5] 1000 500 500 150 ...
product_q...	num	[1:5] 50 150 75 200 100
science_s...	num	[1:4] 88 76 95 89
x	num	[1:1000] -0.767 -0.816 ...
xBloodPre...	Named num	0.124
y	num	[1:1000] 0.299 -1.127 0...
yGlucose	Named num	0.0855