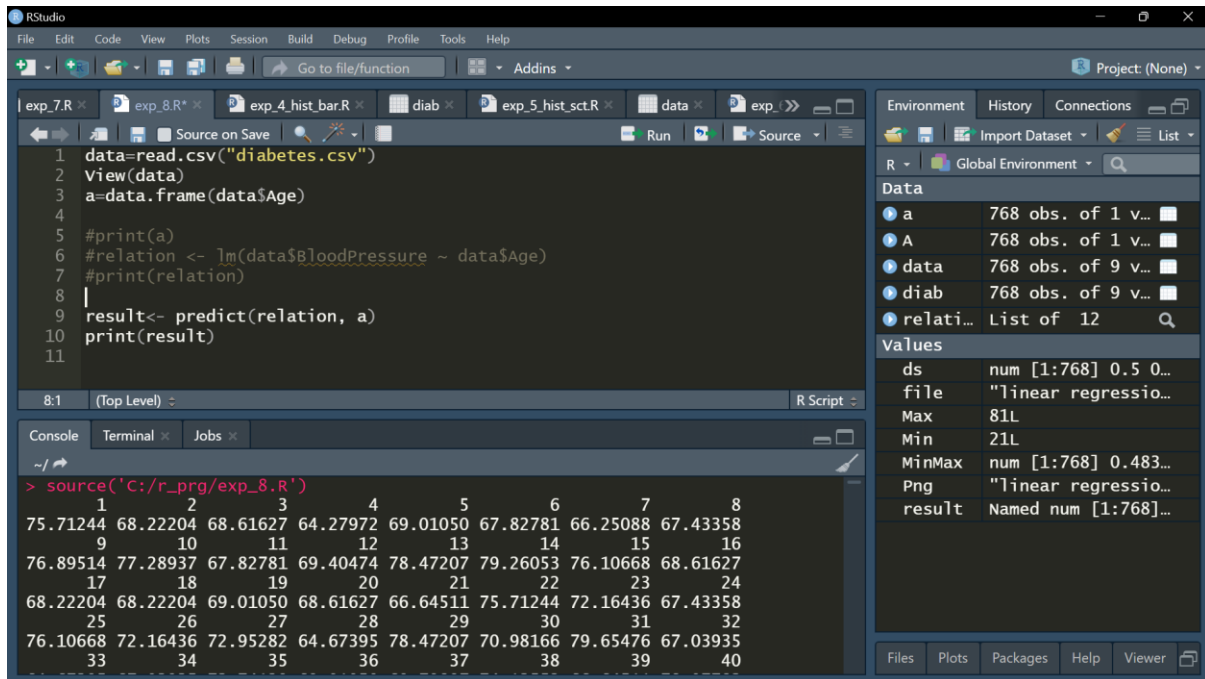


## EX. No: 08

# REGRESSION ANALYSIS USING R TOOL

- ❖ LINEAR REGRESSION:
- ❖ MULTIPLE REGRESSION :



```
1 data=read.csv("diabetes.csv")
2 View(data)
3 a=data.frame(data$Age)
4
5 #print(a)
6 #relation <- lm(data$BloodPressure ~ data$Age)
7 #print(relation)
8
9 result<- predict(relation, a)
10 print(result)
11
```

Console

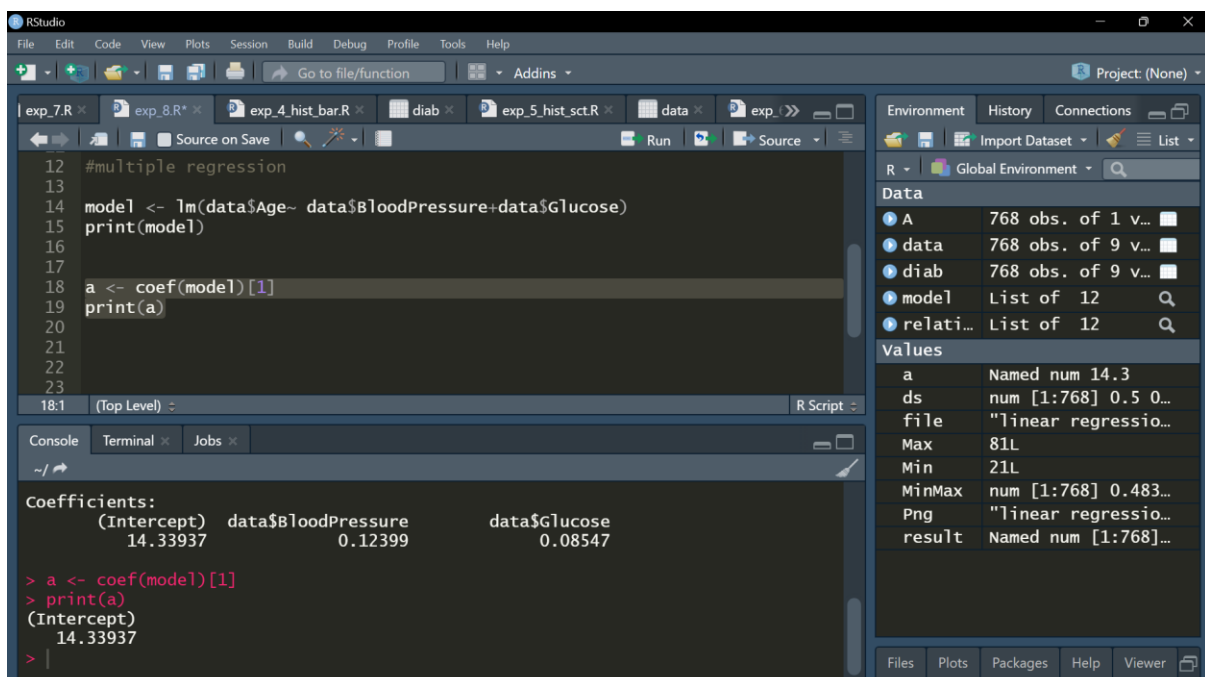
```
> source('C:/r_prg/exp_8.R')
1 2 3 4 5 6 7 8
75.71244 68.22204 68.61627 64.27972 69.01050 67.82781 66.25088 67.43358
9 10 11 12 13 14 15 16
76.89514 77.28937 67.82781 69.40474 78.47207 79.26053 76.10668 68.61627
17 18 19 20 21 22 23 24
68.22204 68.22204 69.01050 68.61627 66.64511 75.71244 72.16436 67.43358
25 26 27 28 29 30 31 32
76.10668 72.16436 72.95282 64.67395 78.47207 70.98166 79.65476 67.03935
33 34 35 36 37 38 39 40
```

Environment

Object	Class	Attributes
a	data.frame	768 obs. of 1 v...
A	data.frame	768 obs. of 1 v...
data	data.frame	768 obs. of 9 v...
diab	data.frame	768 obs. of 9 v...
relati...	lm	List of 12

Values

Object	Class	Attributes
ds	num	[1:768] 0.5 0...
file	file	"linear regressio...
Max	81L	
Min	21L	
MinMax	num	[1:768] 0.483...
Png	file	"linear regressio...
result	Named num	[1:768]...



```
12 #multiple regression
13
14 model <- lm(data$Age ~ data$BloodPressure + data$Glucose)
15 print(model)
16
17 a <- coef(model)[1]
18 print(a)
19
20
21
22
23
```

Console

```
Coefficients:
(Intercept) data$BloodPressure data$Glucose
14.33937 0.12399 0.08547

> a <- coef(model)[1]
> print(a)
(Intercept)
14.33937
>
```

Environment

Object	Class	Attributes
A	data.frame	768 obs. of 1 v...
data	data.frame	768 obs. of 9 v...
diab	data.frame	768 obs. of 9 v...
model	lm	List of 12
relati...	lm	List of 12

Values

Object	Class	Attributes
a	Named num	14.3
ds	num	[1:768] 0.5 0...
file	file	"linear regressio...
Max	81L	
Min	21L	
MinMax	num	[1:768] 0.483...
Png	file	"linear regressio...
result	Named num	[1:768]...

RStudio interface showing a linear regression model fit.

```
12 #multiple regression
13
14 model <- lm(data$Age~ data$BloodPressure+data$Glucose)
15 print(model)
16
17
18 a <- coef(model)[1]
19 print(a)
20
21
22
23
```

Console output:

```
Coefficients:
  (Intercept) data$BloodPressure    data$Glucose
      14.33937         0.12399         0.08547

> a <- coef(model)[1]
> print(a)
(Intercept)
  14.33937
> |
```

Environment panel:

Object	Class	Attributes
A	768 obs. of 1 v...	
data	768 obs. of 9 v...	
diab	768 obs. of 9 v...	
model	List of 12	
relati...	List of 12	

Values panel:

Object	Value
a	Named num 14.3
ds	num [1:768] 0.5 0...
file	"linear regressio...
Max	81L
Min	21L
MinMax	num [1:768] 0.483...
Png	"linear regressio...
result	Named num [1:768]...

RStudio interface showing the extraction of coefficients from the linear regression model.

```
14 model <- lm(data$Age~ data$BloodPressure+data$Glucose)
15 print(model)
16
17
18 a <- coef(model)[1]
19 print(a)
20
21 xbp <- coef(model)[2]
22 ygl <- coef(model)[3]
23
24 print(xbp)
25 print(ygl)
26
```

Console output:

```
> xbp <- coef(model)[2]
> ygl <- coef(model)[3]
>
> print(xbp)
data$BloodPressure
      0.1239891
> print(ygl)
data$Glucose
      0.08547277
> |
```

Environment panel:

Object	Class	Attributes
A	768 obs. of 1 v...	
data	768 obs. of 9 v...	
diab	768 obs. of 9 v...	
model	List of 12	
relati...	List of 12	

Values panel:

Object	Value
a	Named num 14.3
ds	num [1:768] 0.5 0...
file	"linear regressio...
Max	81L
Min	21L
MinMax	num [1:768] 0.483...
Png	"linear regressio...
result	Named num [1:768]...
xbp	Named num 0.124
ygl	Named num 0.0855

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

exp\_7.R exp\_8.R\* exp\_4\_hist\_bar.R diab exp\_5\_hist\_sct.R data exp\_1.R

```
24 print(xbp)
25 print(ygls)
26
27
28
29 y <- a+xbp+ygls
30 print(y)
31
32
33
34
35
```

29:1 (Top Level) R Script

Console Terminal Jobs

```
~/
> y <- a+xbp+ygls
> print(y)
(Intercept)
14.54883
> |
```

Environment History Connections

R Global Environment

Data

A	768 obs. of 1 v...
data	768 obs. of 9 v...
diab	768 obs. of 9 v...
model	List of 12
relati...	List of 12

Values

a	Named num 14.3
ds	num [1:768] 0.5 0...
file	"linear regressio...
Max	81L
Min	21L
MinMax	num [1:768] 0.483...
Png	"linear regressio...
result	Named num [1:768]...
xbp	Named num 0.124
y	Named num 14.5
ygls	Named num 0.0855

Files Plots Packages Help Viewer