

Mvlu College

AIM:13 Performing linear regression analysis using lm() (R).

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

practical no.13.R practical no.14.R practical no.15.R

```
1 # Linear Regression Model
2 lm_model <- lm(Score ~ Study.Hours, data = student_data)
```

R Script Environment History Conn... Project: (None)

R 4.5.2 · ~ ◊

```
> # Linear Regression Model
> lm_model <- lm(Score ~ study.Hours, data = student_data)
>
> # Model summary
> summary(lm_model)

Call:
lm(formula = Score ~ Study.Hours, data = student_data)

Residuals:
    Min      1Q  Median      3Q     Max 
-6.4568 -1.6718  0.1828  1.0212  6.6363 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) 40.154     1.876   21.41 2.96e-14 ***
Study.Hours  12.605     0.641   19.66 1.29e-13 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3.199 on 18 degrees of freedom
Multiple R-squared:  0.9555, Adjusted R-squared:  0.9531 
F-statistic: 386.7 on 1 and 18 DF, p-value: 1.289e-13

> # Plot
> ggplot(student_data, aes(x = study.Hours, y = Score)) +
+   geom_point(color = "blue", size = 3) +
+   geom_smooth(method = "lm", color = "red", se = FALSE) +
+   labs(
+     title = "Linear Regression Analysis using lm()",
```

Linear Regression Ana

Score (%)

Study Hours

Windows Taskbar: Type here to search, 31°C Sunny, 13:54, 01-02-2026

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

practical n... Sou... Environment History Connections Tutorial Project: (None)

```
1 # Linear Re...
2 lm_model <-
1420 (Top Level) ± R
```

Linear Regression Analysis using lm()

Score (%)

Study Hours

Windows Taskbar: Type here to search, 31°C Sunny, 13:54, 01-02-2026

Mvlu College

14 Performing logistic regression using `glm()` (R).

RStudio

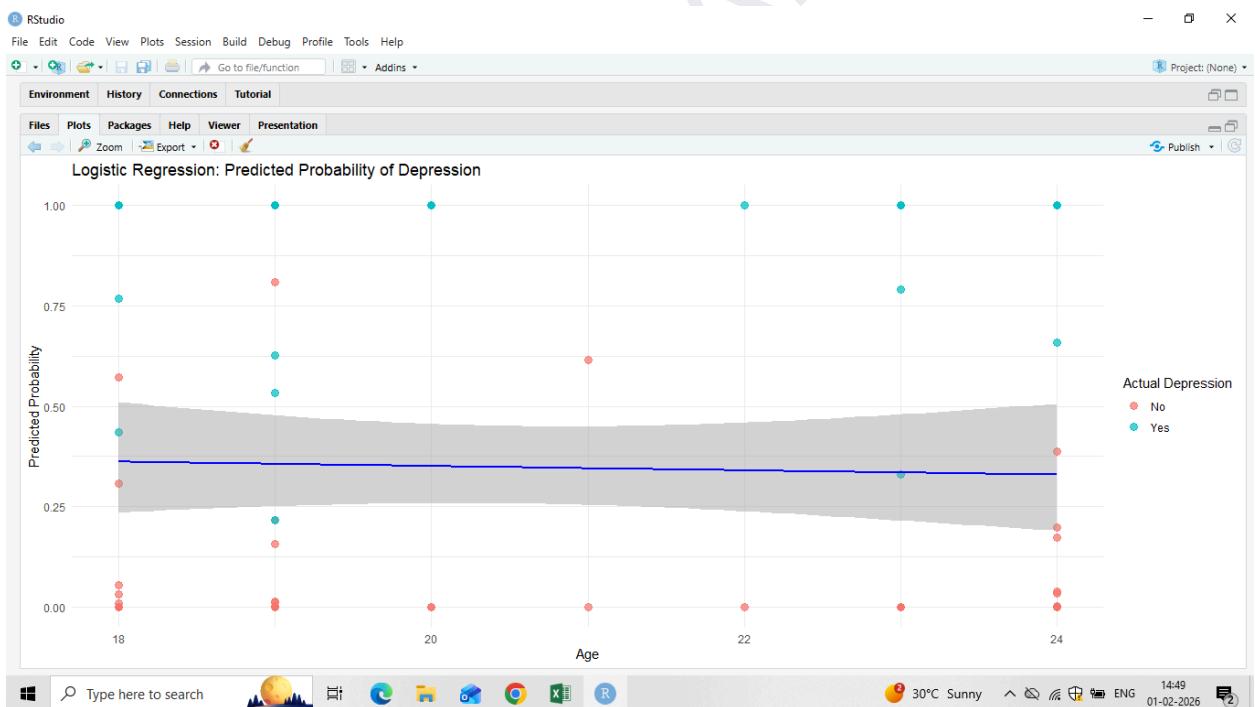
```
R - R4.5.2 - ~/ ◊
> # --- Step 2: Check structure ---
> str(data)
'data.frame': 101 obs. of 11 variables:
 $ Timestamp : Factor w/ 83 levels "", "08-07-2020 12:02", ...
 $ Choose.your.gender: Factor w/ 3 levels "", "Female", "Male": 2 3 3 ...
 $ Age       : int 18 21 19 22 23 19 23 18 19 18 ...
 $ What.is.your.course.: Factor w/ 46 levels "", "Accounting", ...
 $ Your.current.year.of.study: Factor w/ 8 levels "", "Year 1", ...
 $ What.is.your.CGPA.: Factor w/ 7 levels "", "0 - 1.99", ...
 $ Marital.status: Factor w/ 3 levels "", "No", "Yes": 2 2 2 ...
 $ Do.you.have.Depression.: Factor w/ 3 levels "", "No", ...
 $ Do.you.have.Anxiety.: Factor w/ 3 levels "", "No", ...
 $ Do.you.have.Panic.attack.: Factor w/ 3 levels "", "No", ...
 $ Did.you.seek.any.specialist.for.a.treatment.: Factor w/ 3 levels "", "No", ...
> head(data)
```

Timestamp	Choose.your.gender	Age	What.is.your.course.	Your.current.year.of.study	What.is.your.CGPA.	Marital.status	Do.you.have.Depression.	Do.you.have.Anxiety.	Do.you.have.Panic.attack.	Did.you.seek.any.specialist.for.a.treatment.
1 08-07-2020 12:02	Female	18	Engineering	year 1	3.00 - 3.49	No				
2 08-07-2020 12:04	Male	21	Islamic education	year 2	3.00 - 3.49	No				
3 08-07-2020 12:05	Male	19	BIT	Year 1	3.00 - 3.49	No				
4 08-07-2020 12:06	Female	22	Laws	year 3	3.00 - 3.49	Yes				
5 08-07-2020 12:13	Male	23	Mathematics	year 4	3.00 - 3.49	No				
6 08-07-2020 12:31	Male	19	Engineering	Year 2	3.50 - 4.00	No				

Actual Depression

Legend: No (Red circle), Yes (Green circle)

28 Age



Mvlu College

15 Exporting results into external files (Excel, CSV, PDF) using write.csv() and writexl(R).

The screenshot shows the RStudio interface with the following R code:

```
R - R 4.5.2 - ~/ >
> student_data <- data.frame(
+   ID = 1:5,
+   Name = c("Alice", "Bob", "Charlie", "David", "Eva"),
+   Age = c(20, 22, 21, 23, 20),
+   Grade = c("A", "B", "A", "C", "B")
+ )
> print(student_data)
ID      Name Age Grade
1 Alice     20    A
2 Bob      22    B
3 Charlie   21    A
4 David     23    C
5 Eva       20    B
>
> write.csv(student_data, file = "student_data.csv", row.names = FALSE)
> cat("Data exported to student_data.csv\n")
Data exported to student_data.csv
>
>
> if (!require(writexl)) install.packages("writexl")
> library(writexl)
>
> write_xlsx(student_data, path = "student_data.xlsx")
> cat("Data exported to student_data.xlsx\n")
Data exported to student_data.xlsx
>
>
> if (!require(gridExtra)) install.packages("gridExtra")
> if (!require(ggplot2)) install.packages("ggplot2")
> library(gridExtra)
> library(ggplot2)
```

The RStudio interface includes tabs for practical.no.13.R, practical.no.14.R, and practical.no.15.R. The environment pane shows variables student_data, student_data, and student_data.

