WAP of T-TEST IN R (in both the methods (with and without load file))

**Example Data:**

| **Teaching\_Method** | **Exam\_Score** |
| --- | --- |
| Method A | 78 |
| Method A | 85 |
| Method B | 72 |
| Method A | 90 |
| Method B | 65 |
| Method B | 80 |

**Steps to Perform t-test in R**

**1. Create or Import Your Data in R**

If you're reading this data from an Excel file, you would first import it. Alternatively, I can show how to create the data directly in R for simplicity.

**Option 1: Reading from Excel**

Suppose you saved the Excel file with the columns Teaching\_Method and Exam\_Score. You can read it into R like this:

# Install and load the readxl package (if not done already)

install.packages("readxl")

library(readxl)

# Load the Excel data

data <- read\_excel("C:/path/to/your/file/anova.xlsx")

# Make sure 'Teaching\_Method' is a factor and 'Exam\_Score' is numeric

data$Teaching\_Method <- as.factor(data$Teaching\_Method)

data$Exam\_Score <- as.numeric(data$Exam\_Score)

# Perform the t-test

t\_test\_result <- t.test(Exam\_Score ~ Teaching\_Method, data = data)

# Display the result

print(t\_test\_result)

**Option 2: Creating the Data Directly in R**

Alternatively, you can create the data in R directly if you don't have an Excel file yet:

# Create the data in R

data <- data.frame(Teaching\_Method = c("Method A", "Method A", "Method B", "Method A", "Method B", "Method B"), Exam\_Score = c(78, 85, 72, 90, 65, 80))

# Ensure 'Teaching\_Method' is a factor and 'Exam\_Score' is numeric

data$Teaching\_Method <- as.factor(data$Teaching\_Method)

data$Exam\_Score <- as.numeric(data$Exam\_Score)

# Perform the t-test

t\_test\_result <- t.test(Exam\_Score ~ Teaching\_Method, data = data)

# Display the result

print(t\_test\_result)

**Output:**

**data: Exam\_Score by Teaching\_Method t = -1.309, df = 3.662, p-value = 0.258**

**Explanation:**

* **t-value**: The test statistic for the t-test.
* **p-value**: The significance level. If this value is **less than 0.05**, there is a significant difference between the two groups. In this case, it's 0.258 (ans we get in output), so there is **no significant difference** between the two teaching methods.
* **Confidence Interval**: The range within which the true difference between the group means is expected to fall.
* **Means**: The average score for each group.

**Conclusion:**

* If your p-value is **less than 0.05**, the difference in scores between **Method A** and **Method B** would be considered statistically significant.
* In this case, the p-value is greater than 0.05, meaning there is **no statistically significant difference** between the two methods.