WAP to perform Chi-square test in R

The Chi-square test in R is used to determine if there is a significant association between two categorical variables.

*Let’s assume you have a dataset showing the relationship between two categorical variables: Gender and Preference (whether they prefer online learning or classroom learning).*

**Example Data:**

| **Gender** | **Preference** |
| --- | --- |
| Male | Online |
| Female | Classroom |
| Male | Classroom |
| Female | Online |
| Male | Online |
| Female | Classroom |

**1. Loading Excel Data into R and Performing a Chi-Square Test**

**Step 1: Install Required Packages**

If you haven't installed the readxl package yet, you can install it using the following command:

install.packages("readxl")

**Step 2: Load the Excel File into R**

Assume your Excel file contains two columns Gender and Preference (with possible values like "Male", "Female" for Gender, and "Online", "Classroom" for Preference).

Here’s how you can load the data from the Excel file:

# Load the necessary library

library(readxl)

# Read the Excel file (make sure the path is correct)

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

# View the data to ensure it's loaded correctly

print(data)

**Step 3: Create a Contingency Table**

After loading the data, you need to create a contingency table of counts between the two categorical variables (Gender and Preference).

# Create a contingency table

table\_data <- table(data$Gender, data$Preference)

# View the contingency table

print(table\_data)

**Step 4: Perform the Chi-Square Test**

You can now perform the Chi-Square test using the contingency table.

# Perform the Chi-Square test

chi\_square\_result <- chisq.test(table\_data)

# View the test result

print(chi\_square\_result)

**Step 5: Interpretation**

The result of the chisq.test() will include the Chi-square statistic, degrees of freedom, and the p-value. If the p-value is less than 0.05, it indicates that there is a significant association between Gender and Preference.