

Laxmi Charitable Trust's
Sheth L.U.J College of Arts & Sir M.V. College of Science and Commerce
Department of Information Technology (B.Sc.I.T Semester IV) Data
Analysis with SAS/SPSS/R

Module II

Practical – 7

Roll No.: S048	Name: Vijaylaxmi Vishwakarma
Class: SYIT	Batch: 1
Date of Assignment: 17-01-2026	Date/Time of Submission: 17-01-2026

Aim :- Performing one-way ANOVA using aov() (R)

Code :- library(readxl)

one_way_anova <-

read_excel("C:/Users/mvluc/Downloads/one_way_anova.xlsx")

View(one_way_anova)

library(readxl)

Read Excel file

data1 <- read_excel("one_way_anova.xlsx")

One-way ANOVA

anova_one <- aov(Marks ~ Teaching_Method, data = one_way_anova)

summary(anova_one)

Output :-

```
> # One-way ANOVA
> anova_one <- aov(Marks ~ Teaching_Method, data = one_way_anova)
> summary(anova_one)
              Df Sum Sq Mean Sq F value Pr(>F)
Teaching_Method  2 1844.3    922.1   182.5 <2e-16 ***
Residuals       27  136.4      5.1
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
>
```

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Module II

Practical – 8

Roll No.: S048	Name: Vijaylaxmi Vishwakarma
Class: SYIT	Batch: 1
Date of Assignment: 17-01-2026	Date/Time of Submission: 17-01-2026

Aim :- Performing two-way ANOVA using aov() (R).

Code :-

library(readxl)

two_way_anova <- read_excel("C:/Users/mvluc/Downloads/two_way_anova.xlsx")

View(two_way_anova)

library(readxl)

Read Excel file

two_way_anova <- read_excel("two_way_anova.xlsx")

Convert to factors

two_way_anova\$Gender <- as.factor(two_way_anova\$Gender)

two_way_anova\$Study_Hours <- as.factor(two_way_anova\$Study_Hours)

Two-way ANOVA

anova_two <- aov(Score ~ Gender * Study_Hours, data = two_way_anova)

```
summary(anova_two)
```

Output :-

```
> two_way_anova$Gender <- as.factor(two_way_anova$Gender)
> two_way_anova$Study_Hours <- as.factor(two_way_anova$Study_Hours)
> anova_two <- aov(Score ~ Gender * Study_Hours, data = two_way_anova)
> summary(anova_two)
```

	Df	Sum Sq	Mean Sq	F value	Pr(>F)	
Gender	1	455.6	455.6	139.596	6.02e-14	***
Study_Hours	1	3150.6	3150.6	965.298	< 2e-16	***
Gender:Study_Hours	1	5.6	5.6	1.723	0.198	
Residuals	36	117.5	3.3			

```
---
signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

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Practical 9

Roll No.: S048	Name: Vijaylaxmi Vishwakarma
Class: SYIT	Batch: 1
Date of Assignment: 17-01-2026	Date/Time of Submission: 17-01-2026

Aim :- Conducting Chi-square tests using chisq.test() (R)

Code :-

```
library(readxl)
```

```
chi_square <- read_excel("C:/Users/mvluc/Downloads/chi_square.xlsx")
```

```
View(chi_square)
```

```
library(readxl)
```

```
# Read Excel file
```

```
data3 <- read_excel("chi_square.xlsx")
```

Create contingency table

```
table_data <- as.matrix(chi_square[,2:3])
```

```
rownames(table_data) <- chi_square$Gender
```

chisq.test(table_data)Output :-

output:-

```
> View(chi_square)  
> View(chi_square)  
> # Create contingency table  
> table_data <- as.matrix(chi_square[,2:3])  
> rownames(table_data) <- chi_square$Gender  
> chisq.test(table_data)
```

Pearson's Chi-squared test with Yates' continuity correction

```
data: table_data  
X-squared = 2.97, df = 1, p-value = 0.08482
```