

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
```