

# MVLU COLLEGE

## AIM:

### 7 Performing one-way ANOVA using aov() (R).

RStudio interface showing R code in the Source pane and results in the Console pane.

```
R > data1 <- read.csv("C:/Users/Admin/Desktop/student_data.csv")
> 
> colnames(data1)
[1] "ID"          "Age"          "Study.Hours"   "Attendance...." "Score...."
> 
> colnames(data1) <- c("ID", "Age", "Study_Hours", "Attendance", "Score")
> 
> data1$Age <- as.factor(data1$Age)
> 
> anova_one <- aov(Score ~ Age, data = data1)
> 
> summary(anova_one)
    Df Sum Sq Mean Sq F value Pr(>F)
Age     2    146   72.77   0.31  0.738
Residuals 17  3996  235.07
> 
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> colnames(data1)
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>
```

### 8 Performing two-way ANOVA using aov() (R).

RStudio interface showing R code in the Source pane and results in the Console pane.

```
R > data2 <- read.csv("C:/Users/Admin/Desktop/titanic.csv")
> 
> head(data2)
  PassengerId Survived Pclass      Name     Sex Age SibSp Parch Ticket
1            1         0     3  Braund, Mr. Owen Harris male  22    1    0 A/5 21171
2            2         1     1 Cumings, Mrs. John Bradley (Florence Briggs Thayer) female 38    1    0 PC 17599
3            3         1     1 Heikkinen, Miss. Laina female 26    0    0 STON/O2. 3101282
4            4         1     1 Futrelle, Mrs. Jacques Heath (Lily May Peel) female 35    1    0 113803
5            5         0     3 Allen, Mr. William Henry male  35    0    0 373450
6            6         0     3 Moran, Mr. James male   NA   0    0 330877
   Fare Cabin Embarked
1    7.2500   S
2  71.2833   C85
3   7.9250   S
4  53.1000  C123
5   8.0500   S
6   8.4583   Q
> 
> data2$Sex <- as.factor(data2$Sex)
> data2$Survived <- as.factor(data2$Survived)
> 
> table_data <- table(data2$Sex, data2$Survived)
> 
> chisq.test(table_data)
Pearson's Chi-squared test with Yates' continuity correction
data: table_data
X-squared = 260.72, df = 1, p-value < 2.2e-16
> |
```

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## 9 Conducting Chi-square tests using chisq.test() (R)

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

```
RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function Addins
practical.no.7.R practical.no.8.R practical.no.9.R
Source on Save Run Source R Script
1 data3 <- read.csv("C:/Users/Admin/Desktop/Suicides_in_India_random_500_(1).csv")
2 (Top Level)
> data3 <- read.csv("C:/Users/Admin/Desktop/Suicides_in_India_random_500_(1).csv")
>
> head(data3)
  State Year Gender Age_group Total
1 A & N Islands 2003 Female 0-14 0
2 Kerala 2001 Male 60+ 120
3 Gujarat 2010 Male 60+ 7
4 Delhi (Ut) 2011 Female 45-59 0
5 Sikkim 2010 Female 45-59 2
6 West Bengal 2002 Male 15-29 9
>
> data3$Gender <- as.factor(data3$Gender)
> data3$Age_group <- as.factor(data3$Age_group)
>
> table_data <- table(data3$Gender, data3$Age_group)
>
> table_data
   0-100+ 0-14 15-29 30-44 45-59 60+
Female 13 53 48 35 48 55
Male 9 46 63 39 45 45
>
> chisq.test(table_data)
Pearson's Chi-squared test
data: table_data
X-squared = 4.5126, df = 5, p-value = 0.4782
>
```

The R console output shows the results of the Chi-square test:

```
Pearson's Chi-squared test
data: table_data
X-squared = 4.5126, df = 5, p-value = 0.4782
```