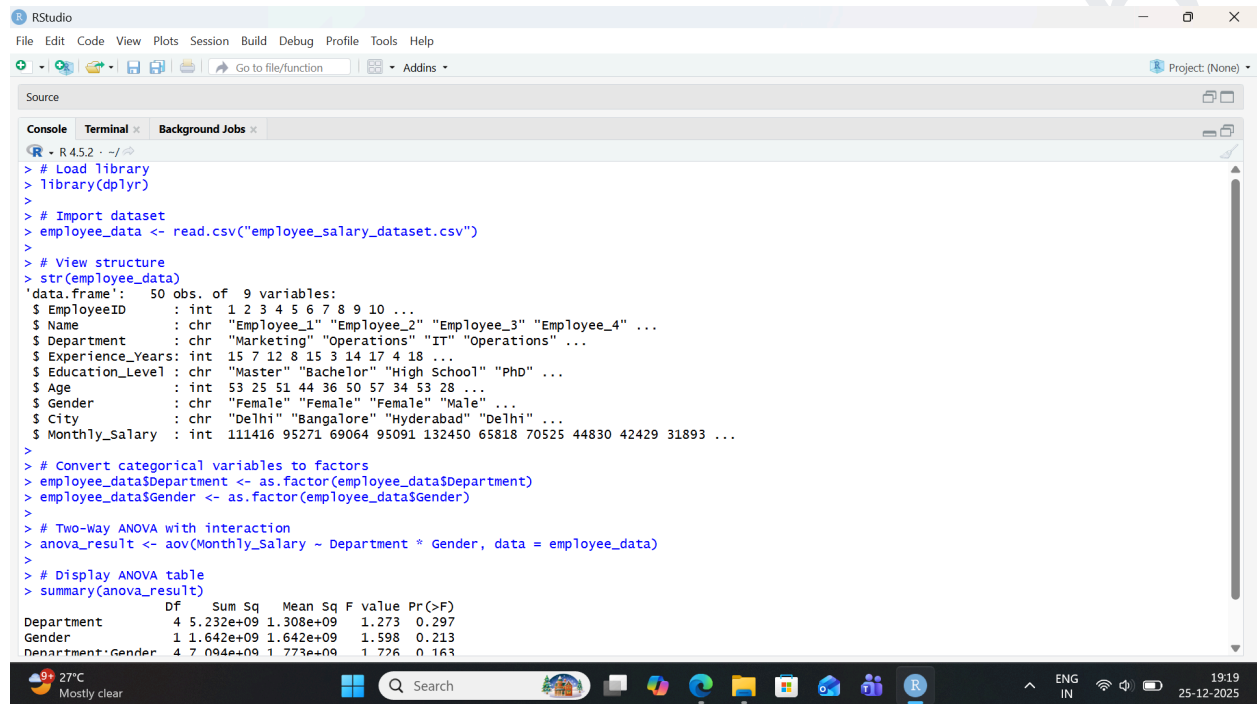


Practical No 8 Module II

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

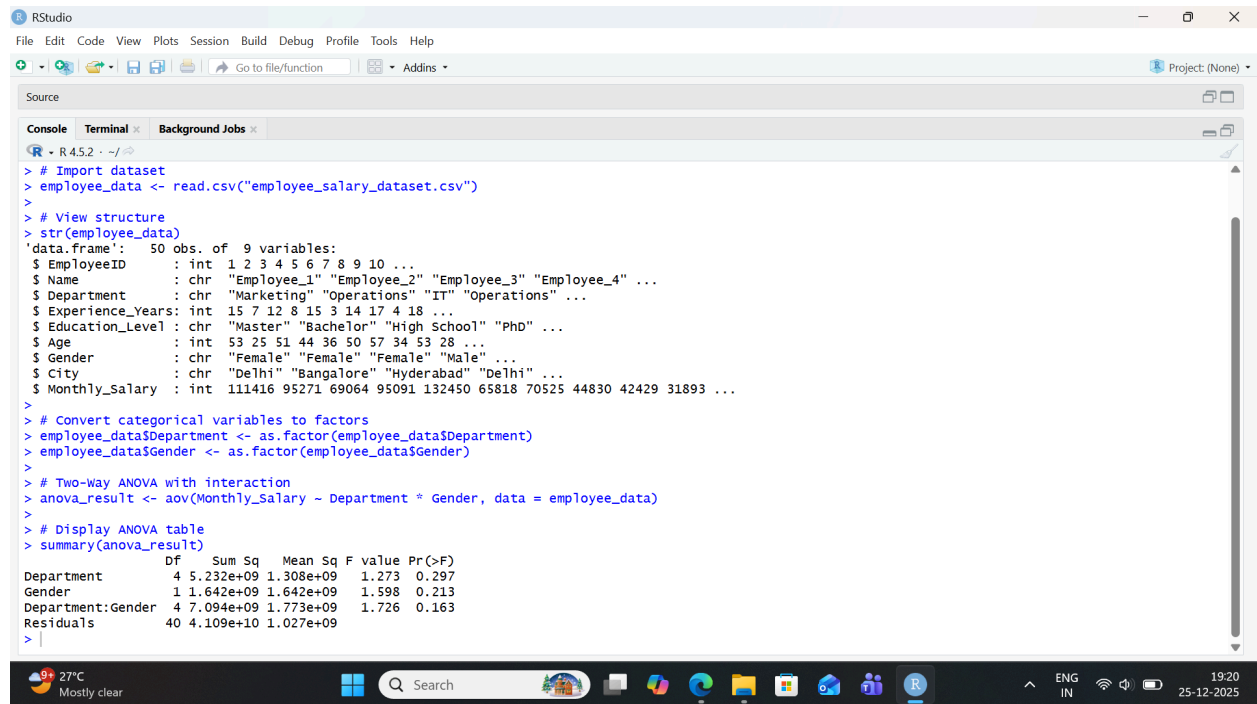
Output :



```
RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function Addins Project: (None)
Source
Console Terminal Background Jobs
R 4.5.2 - ~/
> # Load library
> library(dplyr)
>
> # Import dataset
> employee_data <- read.csv("employee_salary_dataset.csv")
>
> # View structure
> str(employee_data)
'data.frame': 50 obs. of 9 variables:
 $ EmployeeID : int 1 2 3 4 5 6 7 8 9 10 ...
 $ Name       : chr "Employee_1" "Employee_2" "Employee_3" "Employee_4" ...
 $ Department : chr "Marketing" "Operations" "IT" "Operations" ...
 $ Experience_Years: int 15 7 12 8 15 3 14 17 4 18 ...
 $ Education_Level: chr "Master" "Bachelor" "High School" "PhD" ...
 $ Age        : int 53 25 51 44 36 50 57 34 53 28 ...
 $ Gender     : chr "Female" "Female" "Female" "Male" ...
 $ City       : chr "Delhi" "Bangalore" "Hyderabad" "Delhi" ...
 $ Monthly_Salary : int 111416 95271 69064 95091 132450 65818 70525 44830 42429 31893 ...
>
> # Convert categorical variables to factors
> employee_data$Department <- as.factor(employee_data$Department)
> employee_data$Gender <- as.factor(employee_data$Gender)
>
> # Two-Way ANOVA with interaction
> anova_result <- aov(Monthly_Salary ~ Department * Gender, data = employee_data)
>
> # Display ANOVA table
> summary(anova_result)
              Df Sum Sq Mean Sq F value Pr(>F)
Department    4 5.232e+09 1.308e+09   1.273  0.297
Gender         1 1.642e+09 1.642e+09   1.598  0.213
Department:Gender 4 7.094e+09 1.773e+09   1.726  0.163
```

SHETH L.U.J. AND SIR M.V. COLLEGE OF ARTS SCIENCE AND COMMERCE

SUBJECT : R Programming



```
RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function Addins Project: (None)
Source
Console Terminal Background Jobs
R - R 4.5.2 - ~/
> # Import dataset
> employee_data <- read.csv("employee_salary_dataset.csv")
>
> # View structure
> str(employee_data)
'data.frame': 50 obs. of 9 variables:
 $ EmployeeID : int 1 2 3 4 5 6 7 8 9 10 ...
 $ Name : chr "Employee_1" "Employee_2" "Employee_3" "Employee_4" ...
 $ Department : chr "Marketing" "Operations" "IT" "Operations" ...
 $ Experience_Years: int 15 7 12 8 15 3 14 17 4 18 ...
 $ Education_Level : chr "Master" "Bachelor" "High School" "PhD" ...
 $ Age : int 53 25 51 44 36 50 57 34 53 28 ...
 $ Gender : chr "Female" "Female" "Female" "Male" ...
 $ City : chr "Delhi" "Bangalore" "Hyderabad" "Delhi" ...
 $ Monthly_Salary : int 111416 95271 69064 95091 132450 65818 70525 44830 42429 31893 ...
>
> # Convert categorical variables to factors
> employee_data$Department <- as.factor(employee_data$Department)
> employee_data$Gender <- as.factor(employee_data$Gender)
>
> # Two-Way ANOVA with interaction
> anova_result <- aov(Monthly_Salary ~ Department * Gender, data = employee_data)
>
> # Display ANOVA table
> summary(anova_result)
          Df Sum Sq Mean Sq F value Pr(>F)
Department  4 5.232e+09 1.308e+09  1.273  0.297
Gender       1 1.642e+09 1.642e+09  1.598  0.213
Department:Gender  4 7.094e+09 1.773e+09  1.726  0.163
Residuals   40 4.109e+10 1.027e+09
>
```

NAME : SHUBHAM SANJAY KARAPE
ROLL NO : S085