

SHETH L.U.J AND SIR M.V COLLEGE

Subject: Data Analysis with SAS / SPSS /R

Practical no. 8

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

Outputs→

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Source Editor:** Contains R code for performing a two-way ANOVA on the "Updated Quality of Life Data.csv" dataset. The code includes loading libraries, reading the dataset, performing the ANOVA, and printing the results.
- Environment View:** Shows the Global Environment with objects like `Updated_quality` (10000 obs. of 8 variables) and `volatile_days` (114 obs. of 7 variables). It also displays summary statistics for `avg_dist`, `avg_time`, `cross_tab`, `p_gender`, `p_interaction`, and `p_occupation`.
- Files View:** Shows the file structure under "Home".
- Plots View:** Not visible in the screenshot.
- Packages View:** Not visible in the screenshot.
- Help View:** Not visible in the screenshot.
- Viewer View:** Not visible in the screenshot.
- Presentation View:** Not visible in the screenshot.
- Bottom Bar:** Shows system icons (weather, search, file manager, browser, etc.) and system status (ENG IN, 15:52, 21-12-2025).

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The screenshot shows the RStudio interface with a script in the Source pane and various data frames and files in the Environment pane.

Source:

```
R - R 4.5.2 · ~/ 
> # Print hypotheses
> cat("\nH01: Gender has no effect on age at death\n")
H01: Gender has no effect on age at death
> cat("H02: Occupation type has no effect on age at death\n")
H02: Occupation type has no effect on age at death
> cat("H03: No interaction effect between gender and occupation type\n\n")
H03: No interaction effect between gender and occupation type

> # Print p-values
> cat("P-values:\n")
P-values:
> cat("Gender:", p_gender, "\n")
Gender: 5.004495e-40
> cat("Occupation:", p_occupation, "\n")
Occupation: 1.114363e-109
> cat("Interaction:", p_interaction, "\n\n")
Interaction: 0.1632708

> # Decisions
> if (p_gender < 0.05) {
+   cat("Decision (Gender): Reject H01\n")
+ } else {
+   cat("Decision (Gender): Accept H01\n")
+ }
Decision (Gender): Reject H01
> if (p_occupation < 0.05) {
+   cat("Decision (Occupation): Reject H02\n")
+ } else {
+   cat("Decision (Occupation): Accept H02\n")
+ }
Decision (Occupation): Reject H02
> if (p_interaction < 0.05) {
+   cat("Decision (Interaction): Reject H03\n")
+ } else {
+   cat("Decision (Interaction): Accept H03\n")
+ }
Decision (Interaction): Accept H03
>
```

Environment:

Name	Type	Size	Modified
Updated_Qualit...	Global Environment	10000 obs. of 8 variables	87 MiB
volatile_days	Global Environment	114 obs. of 7 variables	
avg_dist	Values	6.62475	
avg_time	Values	44.7445	
cross_tab	Values	'table' int [1:5, 1:2] 1267 908 561 151 ...	
p_gender	Values	5.004495453439872e-40	
p_interaction	Values	0.163270848647517	
p_occupation	Values	1.1143626632824e-109	

Files:

Name	Size	Modified
flower_dataset - flower_dataset.csv	283.7 KB	Dec 8, 2025, 11:03 AM
Iris - Iris.csv	5 KB	Dec 8, 2025, 11:06 AM
NetBeansProjects		
penguins.csv	16.1 KB	Dec 10, 2025, 12:12 AM
pushpal		
pushpal prac		
retail_store_sales.csv	1.1 MB	Dec 8, 2025, 1:25 PM
sales_data.csv	101.2 KB	Dec 8, 2025, 12:04 PM
sales_dataset.csv	698 B	Dec 2, 2025, 12:18 PM
sgfdl05m.ini	38 B	May 4, 2025, 1:29 PM
shopping_behavior_updated.csv	406.8 KB	Dec 9, 2025, 11:36 PM
Virtual Machines		
Updated Quality of Life Data.csv	444.6 KB	Dec 21, 2025, 2:57 PM
medical_cost_prediction_dataset.csv	392.7 KB	Dec 21, 2025, 2:59 PM
context_master.csv	48 KB	Dec 21, 2025, 2:58 PM