

SHETH L.U.J & SIR M.V COLLEGE OF SCIENCE

SUBJECT : R-PROGRAMMING

AIM : Performing one-way ANOVA using aov() (R).

OUTPUT

The first screenshot shows the R console with the following code and output:

```
R - R4.5.2 - ~/
> fruits <- read.csv("fruits_dataset.csv")
> fruits$season <- as.factor(fruits$season)
> # Step 3: Perform One-Way ANOVA
> anova_result <- aov(calories ~ season, data = fruits)
> # Step 4: Display ANOVA summary
> summary(anova_result)
```

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
season	4	94598	23650	13.34	1.23e-06 ***
Residuals	34	60272	1773		

```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
> # Step 5: Decision based on p-value
> p_value <- summary(anova_result)[1][1][["Pr(>F)"]][1]
> if (p_value < 0.05) {
+   cat("Result: Reject H0\n")
+   cat("Conclusion: Mean calories differ significantly across seasons.\n")
+ } else {
+   cat("Result: Fail to Reject H0\n")
+   cat("Conclusion: No significant difference in mean calories across seasons.\n")
+ }
Result: Reject H0
Conclusion: Mean calories differ significantly across seasons.
> View(anova_result)
> |
```

The second screenshot shows the Environment pane with the following data:

Name	Type	Value
anova_result	list [13] (S3: aov, lm)	List of length 13
coefficients	double [5]	200 -134 -160 -148 -154
residuals	double [39]	-111.00 -8.00 -13.67 -8.67 10.61 1.00 ...
effects	double [39]	-455.40 -24.82 51.38 179.03 243.50 9.09 ...
rank	integer [1]	5
fitted.values	double [39]	200.0 40.0 65.7 65.7 52.4 46.0 ...
assign	integer [5]	0 1 1 1 1
qr	list [5] (S3: qr)	List of length 5
df.residual	integer [1]	34
contrasts	list [1]	List of length 1
xlevels	list [1]	List of length 1
call	language	aov(formula = calories ~ season, data = fruits)
terms	formula	calories ~ season
model	list [39 x 2] (S3: data.frame)	A data.frame with 39 rows and 2 columns

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