

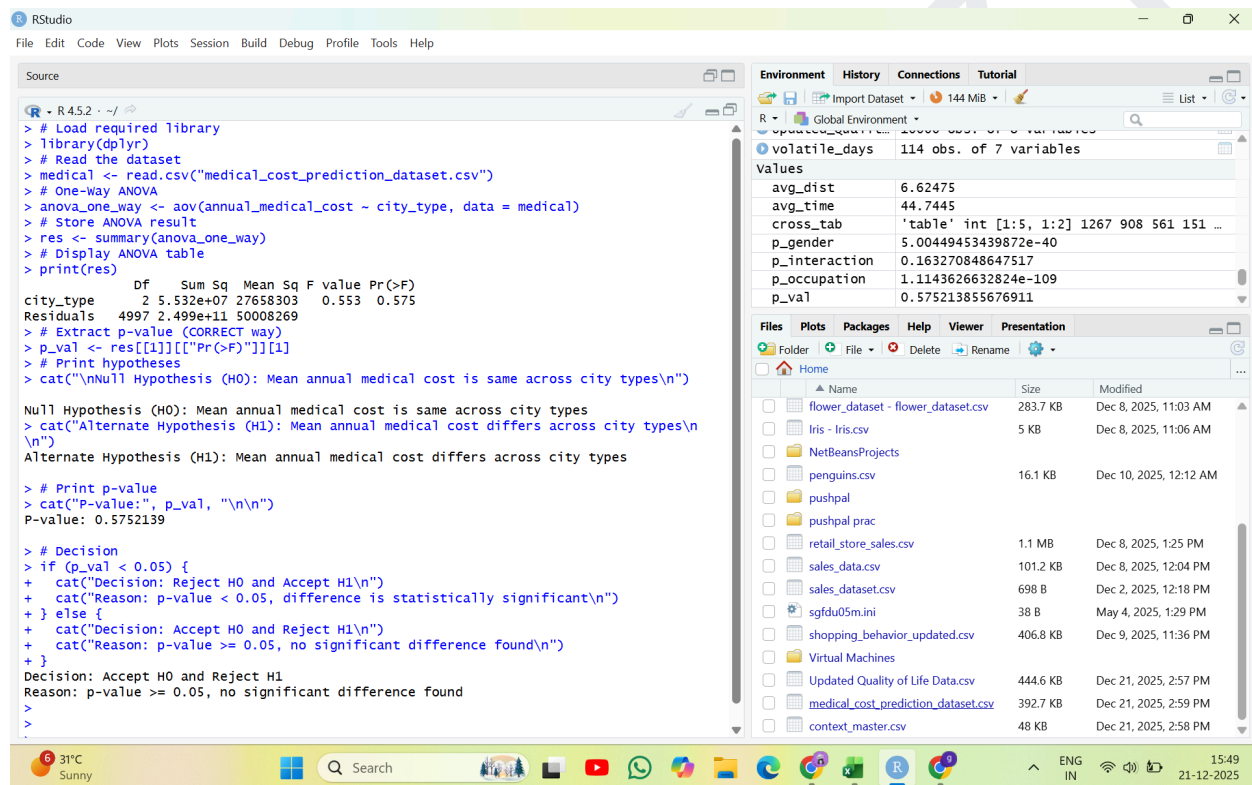
SHETH L.U.J AND SIR M.V COLLEGE

Subject: Data Analysis with SAS / SPSS /R

Practical no. 7

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

Outputs→



```
> # Load required library
> library(dplyr)
> # Read the dataset
> medical <- read.csv("medical_cost_prediction_dataset.csv")
> # One-Way ANOVA
> anova_one_way <- aov(annual_medical_cost ~ city_type, data = medical)
> # Store ANOVA result
> res <- summary(anova_one_way)
> # Display ANOVA table
> print(res)
```

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
city_type	2	5.532e+07	27658303	0.553	0.575
Residuals	4997	2.499e+11	50008269		

```
> # Extract p-value (CORRECT way)
> p_val <- res[[1]][["Pr(>F)"]][1]
> # Print hypotheses
> cat("\nNull Hypothesis (H0): Mean annual medical cost is same across city types\n")

Null Hypothesis (H0): Mean annual medical cost is same across city types
> cat("Alternate Hypothesis (H1): Mean annual medical cost differs across city types\n")

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> # Print p-value
> cat("P-value:", p_val, "\n\n")
P-value: 0.5752139

> # Decision
> if (p_val < 0.05) {
+   cat("Decision: Reject H0 and Accept H1\n")
+   cat("Reason: p-value < 0.05, difference is statistically significant\n")
+ } else {
+   cat("Decision: Accept H0 and Reject H1\n")
+   cat("Reason: p-value >= 0.05, no significant difference found\n")
+ }

Decision: Accept H0 and Reject H1
Reason: p-value >= 0.05, no significant difference found
>
```