Assignment

Analysis of Variance (ANOVA)

- One-Way Classification
- Two-Way Classification

1)Reguirement:

Analyse the sale if there any interaction between car brand and fuel type

Two way classification

BRAND	PETROL	DIESEL	EV
skoda	4	5	2
suzuki	10	3	1
kia	9	4	6
toyota	9	4	3

Hypotheses:

- **Null hypothesis(H0)** = there is no significant different between car brand and fuel type.
- **Alternate hypothesis(H1)** = there is significant different between car brand and fuel type.
- If pvalue is <0.05 reject the null hypothesis(H0)

2) Requirement:

Analyze the sales of food in a hotel to determine which food is liked the most and whether there is any interaction between food type and the categories of people (Foodie, Normal, and Diet people).

Two way classification

Food	Fodiee	Normal people	Diet people
grill	6	2	8
thandoori	4	1	8
shawarma	5	1	0

Hypotheses:

- **Null hypothesis(H0)** = there is no significant different between food and category of people
- **Alternate hypothesis(H1)** = there is significant different between food and category of people
- If pvalue is <0.05 reject the null hypothesis(H0)

3) Requirement:

Analyze the season-based sales in a clothing shop and determine if there is any interaction between clothing type and the number of sales based on seasons like summer, winter, autumn, and rain**.**

Two way classification

CLOTHES	SUMMER	WINTER	AUNTUM	RAIN
shirt	9	6	8	8
t-shirt	10	7	7	4
jerkin	1	6	7	10
swetshirt	10	6	5	6

Hypotheses:

- **Null hypothesis (H0)**=there is no significant different between clothes and seasons
- **Alternate hypothesis(H1)**=there is significant different between clothes and seasons
- If pvalue is <0.05 reject the null hypothesis(H0)

4)Requirement:

Analyze the scores of students (Stud_1, Stud_2, Stud_3) across three study levels (HSC, UG, PG) to determine if there is a significant difference in the mean scores across the study levels.

One way classification

STUDENTS	HSC	UG	PG
Stud_1	89	77	69
Stud_2	55	60	68
Stud_3	63	60	55

Hypotheses:

- **Null Hypothesis (H0)** = There is no significant difference in the scores of students across the study levels (HSC, UG, PG).
- **Alternative Hypothesis(H1)** = There is a significant difference in the scores of students across the study levels (HSC, UG, PG)
- If pvalue is <0.05 reject the null hypothesis(H0)

5) Requirement:

Analyze the mobile brand preferences across different salary groups (G1, G2, G3) and determine if there is any significant interaction between mobile brand and salary group categories.

Two way classification

MOBILE_BRAND	G1 1-3 LPA	G2 3-10 LPA	G3 10-20LPA
apple	15	40	85
samsung	20	65	75
vivo	90	40	10
oneplus	20	60	70

Hypotheses:

- **Null Hypothesis (H_o) =** There is no significant interaction between mobile brand and salary group.
- **Alternative Hypothesis (H_1) =** There is a significant interaction between mobile brand and salary group.
- If pvalue is <0.05 reject the null hypothesis(H0)