Scenario 1: Effect of Study Programs on Exam Scores

Objective: Determine if different study programs lead to significantly different exam scores.

Dataset:

student_id	exam_score	study_program
1	85	Program A
2	78	Program A
3	92	Program B
4	88	Program B
5	79	Program C
6	82	Program C
7	91	Program A
8	87	Program B
9	80	Program C
10	86	Program A
11	90	Program B
12	77	Program C

Steps for Analysis:

- Use one-way ANOVA to test if mean exam scores differ by study program.

Scenario 2: Impact of Different Diets on Weight Loss

Objective: Evaluate if different diet plans result in different amounts of weight loss.

Dataset:

participant_id	weight_loss	diet_plan
1	5.0	Diet A
2	6.5	Diet A
3	7.2	Diet B
4	5.8	Diet B
5	4.3	Diet C
6	5.1	Diet C
7	6.8	Diet A
8	7.0	Diet B
9	4.7	Diet C
10	6.0	Diet A
11	7.5	Diet B
12	5.2	Diet C

Steps for Analysis:

- Use one-way ANOVA to test if mean weight loss differs by diet plan.

Scenario 3: Effect of Teaching Methods on Student Performance

Objective: Investigate if different teaching methods affect student performance.

Dataset:

student_id	performance_score	teaching_method
1	70	Method A
2	75	Method A
3	82	Method B
4	78	Method B
5	69	Method C
6	72	Method C
7	77	Method A
8	80	Method B
9	71	Method C
10	74	Method A
11	81	Method B
12	68	Method C

Steps for Analysis:

- Use one-way ANOVA to test if mean performance scores differ by teaching method.

Scenario 4: Influence of Marketing Strategies on Sales

Objective: Determine if different marketing strategies lead to different sales figures.

Dataset:

region_id	sales	marketing_strategy
1	200	Strategy A
2	210	Strategy A
3	180	Strategy B
4	190	Strategy B
5	170	Strategy C
6	175	Strategy C
7	205	Strategy A
8	185	Strategy B
9	172	Strategy C

region_id	sales	marketing_strategy
10	208	Strategy A
11	192	Strategy B
12	174	Strategy C

Steps for Analysis:

- Use one-way ANOVA to test if mean sales figures differ by marketing strategy.

Scenario 5: Impact of Exercise Programs on Fitness Level

Objective: Examine if different exercise programs result in different fitness levels.

Dataset:

participant_id	fitness_level	exercise_program
1	75	Program A
2	78	Program A
3	85	Program B
4	80	Program B
5	70	Program C
6	72	Program C
7	79	Program A
8	82	Program B
9	71	Program C
10	77	Program A
11	84	Program B
12	73	Program C