

Assignment ANOVA Test (F- Test)

Two-Way ANOVA (with and without interaction)

Question 1: Investigate whether the mean sales of a product differ based on two factors: region (North, South, East, West) and season (Winter, Summer). Perform a two-way ANOVA and analyze if there is an interaction effect between region and season.

Question 2: Analyze whether the performance of students is affected by the teaching method (Traditional, Online, Hybrid) and the study time (Less than 5 hours, 5-10 hours, more than 10 hours). Perform a two-way ANOVA to check for interaction effects.

Question 3: Study the effect of diet type (Vegetarian, Vegan, Omnivore) and exercise level (Sedentary, Active, Highly Active) on body mass index (BMI). Use two-way ANOVA to test for interaction.

Question 4: Analyze whether customer satisfaction scores differ between different stores (Store A, Store B, Store C) and different time of the day (Morning, Afternoon, Evening). Perform a two-way ANOVA to test for interaction.

Question 5: Investigate whether employees' productivity is influenced by their work environment (Remote, Hybrid, Office) and age group (Under 30, 30-40, 40+). Use two-way ANOVA to test the main effects and interaction.

Question 6: Perform a two-way ANOVA to test if average monthly sales are influenced by both the type of product (Electronics, Furniture, Apparel) and the marketing campaign (Email, Social Media, TV).

Question 7: Test the impact of treatment type (A, B, C) and the time of measurement (Morning, Evening) on patient recovery rates. Analyze using a two-way ANOVA to check if there is an interaction effect.

Question 8: Investigate whether employees' job satisfaction scores are influenced by gender (Male, Female, Non-binary) and work department (Sales, Marketing, Engineering). Use two-way ANOVA to check for interactions.

Question 9: Examine if the success rate of a new product launch differs across regions (North, South, East, West) and marketing strategies (Digital, Traditional, Combined). Perform a two-way ANOVA to check for main effects and interactions.

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Question 10: Study the effect of three different teaching strategies (Lectures, Discussions, Practical Work) and two different levels of prior knowledge (Low, High) on students' final exam scores. Use two-way ANOVA to analyze interaction effects.

Repeated Measures ANOVA

Question 11: Perform a repeated measures ANOVA to analyze whether patients' blood pressure levels change across three different time points (Before treatment, After 1 week, After 1 month) under a single treatment plan.

Question 12: Investigate if there is a significant difference in students' test scores before, during, and after an intervention program (Test 1, Test 2, Test 3) using a repeated measures ANOVA.

Question 13: Analyze the change in weight over time for participants in a weight loss program by measuring their weight at four time points (Month 1, Month 3, Month 6, Month 9). Perform a repeated measures ANOVA.

Question 14: Test if there is a significant difference in the performance of workers under three different work environments (Morning, Afternoon, Evening) using repeated measures ANOVA.

Question 15: Investigate whether a group of patients shows significant differences in their response to a drug across three different doses (Low, Medium, High) measured at three time points. Use repeated measures ANOVA for the analysis.

Question 16: Analyze the effect of training on employees' performance measured at multiple time points: before the training, after 1 week, after 1 month, and after 3 months. Perform repeated measures ANOVA.

Question 17: Assess the effect of different workout routines (Yoga, Weightlifting, Cardio) on heart rate across four different sessions (Pre-workout, During workout, Immediately after workout, 1 hour after workout) using repeated measures ANOVA.

Question 18: Test if the average temperature in three different seasons (Spring, Summer, Fall) varies significantly across the three years using repeated measures ANOVA.

Question 19: Perform a repeated measures ANOVA to investigate if customers' satisfaction with service differs across multiple visits to the same restaurant (First visit, Second visit, Third visit, etc.).

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Question 20: Investigate if the sleep quality (measured via a sleep index) changes for participants who use three different types of sleep aids (Pill, Meditation, No Aid) measured at different time points (Day 1, Day 2, Day 3). Perform repeated measures ANOVA.