



SAIDS

Assignment on Module 3

1) Solve using One-way ANOVA method

Observation	A	B	C	D
1	8	12	18	13
2	10	11	12	9
3	12	9	16	12
4	8	14	6	16
5	7	4	8	15

2)

Let's assume that Starbucks uses "secret shoppers" who appear to be customers to enter a store and document their experience in terms of customer service, cleanliness, and quality. The secret shoppers receive standardized training by Starbucks to ensure consistency and objectivity in their store reviews.

For its locations in the Australian cities of Sydney, Brisbane, and Melbourne, Starbucks has trained 6 secret shoppers. Each of the 6 secret shoppers will be assigned to visit the same store in each of the 3 cities. The visit sequence will be assigned randomly (hence *randomized* block design).

We would like to know if a difference in secret shopper ratings exists among the cities. Are they all about the same? Is one significantly higher than the other two? Are all three different from each other?

	col 1	col 2	col 3
Block-1	75	75	90
Block-2	70	70	70
Block-3	50	55	75
Block-4	65	60	85
Block-5	80	65	80
Block-6	65	65	65

- 3) You have just taken ownership of a pizza shop. The previous owner told you that you would save money if you bought the mozzarella cheese in a 4.5 pound slab. Each time you purchase a slab of cheese, you weigh it to ensure that you are receiving 72 ounces of cheese. The results of 7 random measurements are 70, 69, 73, 68, 71, 69 and 71 ounces. Are these differences due to chance or is the distributor giving you less cheese than you deserve?
- a. State the hypotheses.
 - b. Calculate the test statistic.
 - c. Would the null hypothesis be rejected at the 10% level? The 5% level? The 1% level?
- 4) A random sample of 400 tins of vegetable oil and labeled "5 kg. net weight" has a mean net weight of 4.98 kg. with standard deviation of 0.22 kg. Do we reject the hypothesis of net weight of 5 kg. per tin on the basis of this sample at 1% level of significance ?
- 5) A sample of 600 persons selected at random from a large city shows that there are 53% smokers. Is there any reason to doubt the hypothesis that smokers and non-smokers are equal in number in the city ?
- 6) While throwing 5 die 40 times, a person got success 25 times - getting a 4 was called success. Can we consider the difference between expected value and observed value as being significantly different?
- 7) A ketchup manufacturer is in the process of deciding whether to produce an extra spicy brand. The company's marketing research department used a national telephone survey of 6000 households and found the extra spicy ketchup would be purchased by 335 of them. A much more extensive study made two years ago showed that 5% of the households would purchase the brand then. At a 2% significance level, should the company conclude that there is an increased interest in the extra-spicy flavour?
- 8) What is the difference between one way & two way ANOVA test?
- 9) Write a short note on hypothesis testing.
- 10) Explain briefly why use ANOVA?