

ASSIGNMENT

STATISTICS

WORKSHEET -3

1. Which of the following is the correct formula for total variation?

- a) Total Variation = Residual Variation – Regression Variation
- b) Total Variation = Residual Variation + Regression Variation
- c) Total Variation = Residual Variation * Regression Variation
- d) All of the mentioned

Answer: - b) Total Variation = Residual Variation + Regression Variation

2. Collection of exchangeable binary outcomes for the same covariate data are called outcomes.

- a) random
- b) direct
- c) binomial
- d) none of the mentioned ‘

Answer: - c) binomial

3. How many outcomes are possible with Bernoulli trial?

- a) 2 b) 3 c) 4 d) None of the mentioned

Answer: - a) 2

4. If H_0 is true and we reject it is called

- a) Type-I error
- b) Type-II error
- c) Standard error
- d) Sampling error

Answer: - a) Type-I error

5. Level of significance is also called:

- a) Power of the test
- b) Size of the test
- c) Level of confidence
- d) Confidence coefficient

Answer: - c) Level of confidence

6. The chance of rejecting a true hypothesis decreases when sample size is:

- a) Decrease
- b) Increase
- c) Both of them
- d) None

Answer: - d) None

7. Which of the following testing is concerned with making decisions using data?

- a) Probability
- b) Hypothesis
- c) Causal
- d) None of the mentioned

Answer: - b) Hypothesis

8. What is the purpose of multiple testing in statistical inference?

- a) Minimize errors
- b) Minimize false positives
- c) Minimize false negatives
- d) All of the mentioned

Answer: - d) All of the mentioned

9. Normalized data are centred at and have units equal to standard deviations of the original data

- a) 0 b) 5 c) 1 d) 10

Answer: - a) 0

10. What Is Bayes' Theorem?

Answer: - Bayes' theorem describes the probability of occurrence of an event related to any condition. It is also considered for the case of conditional probability. Bayes theorem is also known as the formula for the probability of "causes".

11. What is z-score?

Answer: - A z score is simply defined as the number of standard deviations from the mean. The z-score can be calculated by subtracting mean by test value and dividing it by standard value.

12. What is t-test?

Answer: - The t-test is a test that is mainly used to compare the mean of two groups of samples. It is meant for evaluating whether the means of the two sets of data are statistically significantly different from each other.

There are many types of t-test . Some of these are:

- The one-sample t-test, which is used to compare the mean of a population with a theoretical value.
- The unpaired two-sample t-test, which is used to compare the mean of two independent given samples.
- The paired t-test, which is used to compare the means between two groups of samples that are related.

13. What is percentile?

Answer: - In statistics, a percentile is a term that describes how a score compares to other scores from the same set. While there is no universal definition of percentile, it is commonly expressed as the percentage of values in a set of data scores that fall below a given value.

14. What is ANOVA?

Answer: - Analysis of variance (ANOVA) is a collection of statistical models and their associated estimation procedures (such as the "variation" among and between groups) used to analyse the differences among means. is based on the law of total variance, where the observed variance in a particular variable is partitioned into components attributable to different sources of variation. In its simplest form, ANOVA provides a statistical test of whether two or more population means are equal, and therefore generalizes the *t*-test beyond two means. In other words, the ANOVA is used to test the difference between two or more means.

15. How can ANOVA help?

Answer: - ANOVA is helpful for testing three or more variables. It is similar to multiple two-sample t-tests. However, it results in fewer type I errors and is appropriate for a range of issues. ANOVA groups differences by comparing the means of each group and includes spreading out the variance into diverse sources. It is employed with subjects, test groups, between groups and within groups.