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

b) Total Variation = Residual Variation + Regression Variation

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

c) binomial

3. How many outcomes are possible with Bernoulli trial?

a) 2 4

. If Ho is true and we reject it is called

a) Type-I error

5. Level of significance is also called:

b) Size of the test

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

b) Increase

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

b) Hypothesis

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

d) All of the mentioned

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

a) 0

10. What Is Bayes' Theorem?

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".

$$P(A \mid B) = \frac{P(B \mid A)P(A)}{P(B)}$$

11. What is z-score?

Z-score is a statistical measurement that describes a value's relationship to the mean of a group of values. Z-score is measured in terms of standard deviations from the mean. If a Z-score is 0, it indicates that the data point's score is identical to the mean score. A Z-score of 1.0 would indicate a value that is one standard deviation from the mean. Z-scores may be positive or negative, with a positive value indicating the score is above the mean and a negative score indicating it is below the mean.

In investing and trading, Z-scores are measures of an instrument's variability and can be used by traders to help determine volatility. The Z-score is sometimes confused with the Altman Z-score, which is calculated using factors taken from a company's financial reports. The Altman Z-score is used to calculate the likelihood that a business will go bankrupt in the next two years, while the Z-score can be used to determine how far a stock's return differs from it's average return—and much more.

KEY TAKEAWAYS

- A Z-Score is a statistical measurement of a score's relationship to the mean in a group of scores.
- A Z-score can reveal to a trader if a value is typical for a specified data set or if it is atypical.
- In general, a Z-score of -3.0 to 3.0 suggests that a stock is trading within three standard deviations of its mean.
- Traders have developed many methods that use z-score to identify correlations between trades, trading positions, and evaluate trading strategies.

Z-Score Formula

The statistical formula for a value's z-score is calculated using the following formula:

$z = (x - \mu) / \sigma$

Where:

- z = Z-score
- x = the value being evaluated
- μ = the mean
- σ = the standard deviation

12. What is t-test?

A t-test is an inferential statistic used to determine if there is a significant difference between the means of two groups and how they are related. T-tests are used when the data sets follow a normal distribution and have unknown variances, like the data set recorded from flipping a coin 100 times.

The t-test is a test used for hypothesis testing in statistics and uses the t-statistic, the t-distribution values, and the degrees of freedom to determine statistical significance.

13. What is percentile?

A percentile (or a centile) is a measure used in statistics indicating the value below which a given percentage of observations in a group of observations fall. For example, the 20th percentile is the value (or score) below which 20% of the observations may be found. The term percentile and the related term percentile rank are often used in the reporting of scores from norm referenced tests. In general, percentiles and quartiles are specific types of quantiles. It is used with the median value to report data that are markedly non-normally distributed

14. What is ANOVA?

An **ANOVA** test is a way to find out if survey or experiment results are <u>significant</u>. In other words, they help you to figure out if you need to <u>reject the null hypothesis</u> or accept the <u>alternate hypothesis</u>.

15. How can ANOVA help?

ANOVA helps in selecting the best features to train a model. ANOVA minimizes the number of input variables to reduce the complexity of the model. ANOVA helps to determine if an independent variable is influencing a target variable