1. b) Total Variation = Residual Variation + Regression Variation
2. c) binomial
3. a) 2
4. a) Type-I error
5. a) Power of the test
6. b) Increase
7. b) Hypothesis
8. d) All of the mentioned
9. a) 0
10. Bayes’ theorem is a mathematical formula used to determine the conditional probability of events. Essentially, the Bayes’ theorem describes the [probability](https://corporatefinanceinstitute.com/resources/knowledge/other/total-probability-rule/) of an event based on prior knowledge of the conditions that might be relevant to the event. Some of the applications include but are not limited to, modelling the risk of lending money to borrowers or forecasting the probability of the success of an investment.
11. A Z-score is a numerical measurement that describes a value's relationship to the mean of a group of values. Z-score is measured in terms of [standard deviations](https://www.investopedia.com/terms/s/standarddeviation.asp) 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.
12. A t-test is an inferential [statistic](https://www.investopedia.com/terms/s/statistics.asp) 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](https://www.investopedia.com/terms/t/tdistribution.asp) values, and the degrees of freedom to determine statistical significance.
13. A percentile is a measure used in statistics indicating the value below which a given percentage of observations in a group of observations fall.
14. Analysis of variance (ANOVA) is an analysis tool used in statistics that splits an observed aggregate variability found inside a data set into two parts: systematic factors and random factors. The systematic factors have a statistical influence on the given data set, while the random factors do not. Analysts use the ANOVA test to determine the influence that independent variables have on the dependent variable in a regression study.
15. 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