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1. What do you understand by hypothesis testing?

Hypothesis testing is an act in statistics whereby an analyst tests an assumption regarding a population parameter. The methodology employed by the analyst depends on the nature of the data used and the reason for the analysis.

Hypothesis testing is used to assess the plausibility of a hypothesis by using sample data. Such data may come from a larger population, or from a data-generating process.

1. Differentiate between the classical and the p-value approach for hypothesis testing.

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| p-value approach | Classical approach |
| The P-Value Approach, short for Probability Value, approaches hypothesis testing from a different manner. Instead of comparing z-scores or t-scores as in the classical approach, you're comparing probabilities, or areas. | The Classical Approach to hypothesis testing is to compare a test statistic and a critical value. It is best used for distributions which give areas and require you to look up the critical value (like the Student's t distribution) rather than distributions which have you look up a test statistic to find an area (like the normal distribution). |
| If the test statistic is in the critical region, then the p-value will be less than the level of significance. It does not matter whether it is a left tail, right tail, or two tail test. This rule always holds. | The Classical Approach has three different decision rules, depending on whether it is a left tail, right tail, or two tail test. |
| The level of significance (alpha) is the area in the critical region. That is, the area in the tails to the right or left of the critical values. | One problem with the Classical Approach is that if a different level of significance is desired, a different critical value must be read from the table. |

1. What is the importance of hypothesis testing in Research?

hypothesis testing is one of the most important concepts in statistics because it is how you decide if something really happened, or if certain treatments have positive effects, or if groups differ from each other or if one variable predicts another. In short, you want to proof if your data is statistically significant and unlikely to have occurred by chance alone. In essence then, a hypothesis test is a test of significance