**1. How do you assess the statistical significance of an insight?**

Hypothesis Testing

Confidence Intervals

**2. What is the Central Limit Theorem? Explain it. Why is it important?**

The Central Limit Theorem (CLT) is a fundamental concept in statistics that plays a crucial role in probability theory and data analysis. It states that, under certain conditions, the sampling distribution of the sample mean (or other sample statistics) of a sufficiently large random sample drawn from any population will be approximately normally distributed, regardless of the shape of the original population distribution. In other words, as you take more and more samples and compute their means, the distribution of those means will tend to follow a normal (Gaussian) distribution.

**3. What is the statistical power?**

Statistical power, often referred to as just "power," is a fundamental concept in hypothesis testing and statistical analysis. It represents the probability that a statistical test will correctly reject a null hypothesis when the null hypothesis is, in fact, false. In other words, statistical power measures the ability of a statistical test to detect a true effect or difference in a population when it exists. High statistical power is desirable because it minimizes the risk of Type II errors, which occur when a test fails to reject a null hypothesis that is false.

**4. How do you control for biases?**

Randomization

Blinding and Double-Blinding

Proper Sampling

Minimizing Nonresponse Bias

**5. What are confounding variables?**

Confounding variables, also known as confounders, are factors in a research study that can distort the true relationship between the independent variable (the variable of interest) and the dependent variable (the outcome). Confounding variables are external factors that are associated with both the independent and dependent variables, making it difficult to determine whether the observed effect is solely due to the independent variable or if the confounding variables are influencing the outcome.

**6. What is A/B testing?**

A/B testing, also known as split testing, is a method used in marketing, product development, and website optimization to compare two versions of something (e.g., a webpage, an email, an advertisement, or a product feature) to determine which one performs better with a target audience. It is a controlled experiment where two or more variants, often labeled as "A" and "B," are tested against each other to assess their impact on a specific outcome, such as click-through rates, conversion rates, or user engagement.

**7. What are confidence intervals?**

Confidence intervals are a statistical concept used to estimate the range within which a population parameter, such as the population mean or population proportion, is likely to fall. They provide a way to express the uncertainty or variability in sample data when making inferences about the entire population. Confidence intervals are commonly used in hypothesis testing, estimation, and reporting the results of statistical analyses.